FLORIDA DEPARTMENT OF HEALTH

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.22

GCREC Mound Data Summary Report No. 4

Progress Report

December 2011

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In association with

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Florida Onsite Sewage Nitrogen Reduction Strategies Study

TASK C.22
PROGRESS REPORT

GCREC Mound
Data Summary Report No. 4

Prepared for:

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1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The 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 fourth GCREC mound monitoring and sampling event which was conducted September 26, 2011 through September 28, 2011. The sample event report was submitted as Sample Event Report No. 4, October 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

onsite sewage treatment and disposal system (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 September 21, 2011 – September 28, 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/day)	Wind Speed Avg 10m (mph)	ET (in/day)
September 21, 2011	80.44	80.54	81.48	74.34	83	0	6.24	0.15
September 22, 2011	78.38	78.38	81.47	74.50	88	0.14	5.80	0.12
September 23, 2011	78.49	78.70	81.08	74.25	88	0.54	4.00	0.14
September 24, 2011	79.57	79.74	80.70	74.06	84	0	3.51	0.14
September 25, 2011	75.72	75.96	79.82	73.06	91	0.42	3.52	0.09
September 26, 2011	76.19	76.00	79.30	73.57	92	0.06	6.33	0.11
September 27, 2011	78.42	78.43	79.75	73.63	86	0	4.91	0.14
September 28, 2011	79.12	79.35	79.74	73.22	83	0	4.50	0.14

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 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.

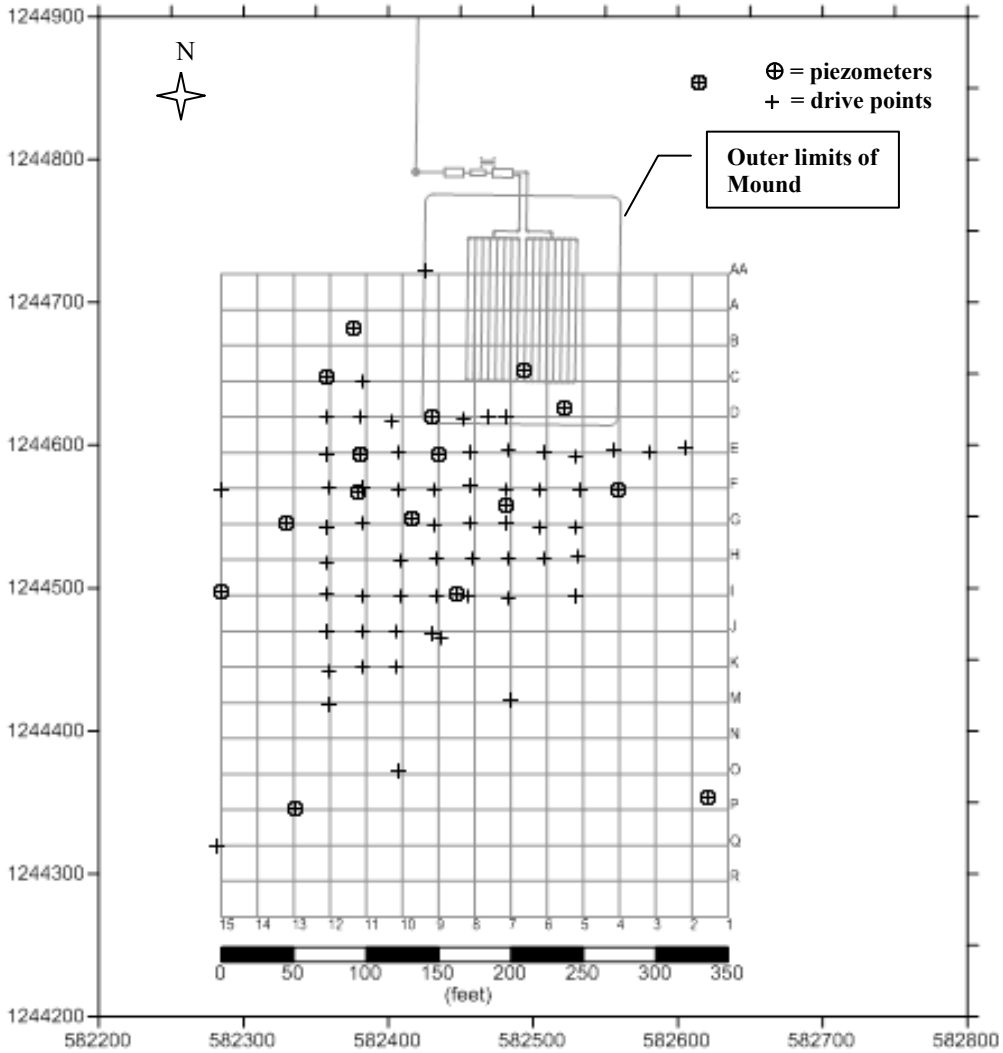

Figure 1
Schematic of GCREC Monitoring Network (UTM coordinates are used)
⊕ denotes piezometers and + denotes drive points

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

Figure 3
Installed ¾" Diameter PVC Standpipe Piezometer

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 (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 2010 drilling event. Whenever this proved impossible, estimations were made.

3.5 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of flow. 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 September 26, 2011 through September 28, 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 (the sample was clear and pH and conductivity readings had stabilized) had occurred. The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms supplied by the laboratory.

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 total alkalinity, chloride, total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH_3-N), and nitrate/nitrite nitrogen (NO_X-N). Additionally, at some of the locations with elevated conductivity in previous preliminary sampling, chemical oxygen demand, total phosphorus (TP), anions, cations, total organic carbon (TOC) and dissolved organic carbon (DOC) 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
Total Alkalinity as $CaCO_3$	SM 2320B	2 mg/L
Chemical Oxygen Demand (COD)	EPA 410.4	10 mg/L
Total Kjeldahl Nitrogen (TKN-N)	EPA 351.2	0.05 mg/L
Ammonia Nitrogen (NH_3-N)	EPA 350.1	0.005 mg/L
Nitrate/Nitrite Nitrogen (NO_X-N)	EPA 300.0	0.02 mg/L
Total Phosphorus	SM 4500P-E	0.01 mg/L
Dissolved Organic Carbon (DOC)	SM 5310B	0.5 mg/L
Total Organic Carbon (TOC)	SM 5310B	0.5 mg/L
Anions		
Fluoride	EPA 300.0	0.01 mg/L
Chloride	EPA 300.0	0.05 mg/L
Nitrate-N	EPA 300.0	0.01 mg/L
Nitrite-N	EPA 300.0	0.01 mg/L
Orthophosphate-P	EPA 300.0	0.01 mg/L
Sulfate	EPA 300.0	0.20 mg/L
Cations		
Boron	EPA 200.7	0.05 mg/L
Calcium	EPA 200.7	0.01 mg/L
Iron	EPA 200.7	0.02 mg/L
Magnesium	EPA 200.7	0.01 mg/L
Manganese	EPA 200.7	0.001 mg/L
Potassium	EPA 200.7	0.01 mg/L
Sodium	EPA 200.7	0.01 mg/L

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 between 4 to 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 2010 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 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.

Table 3
June 2010 Small Direct Push Rig (6620 GeoprobeTM)
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

Table 3 (cont.)
June 2010 Small Direct Push Rig (6620 GeoprobeTM)
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

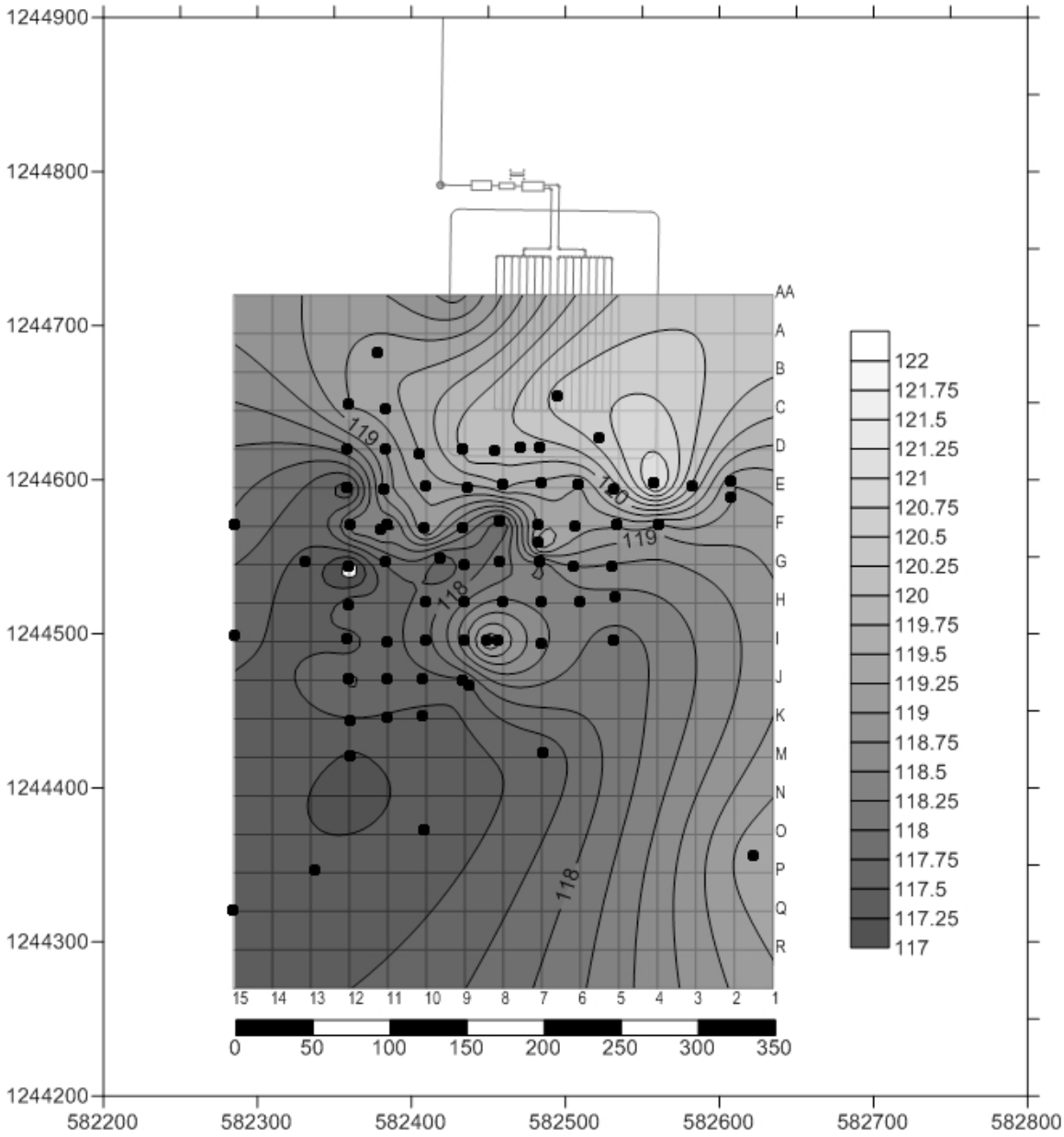

Figure 4

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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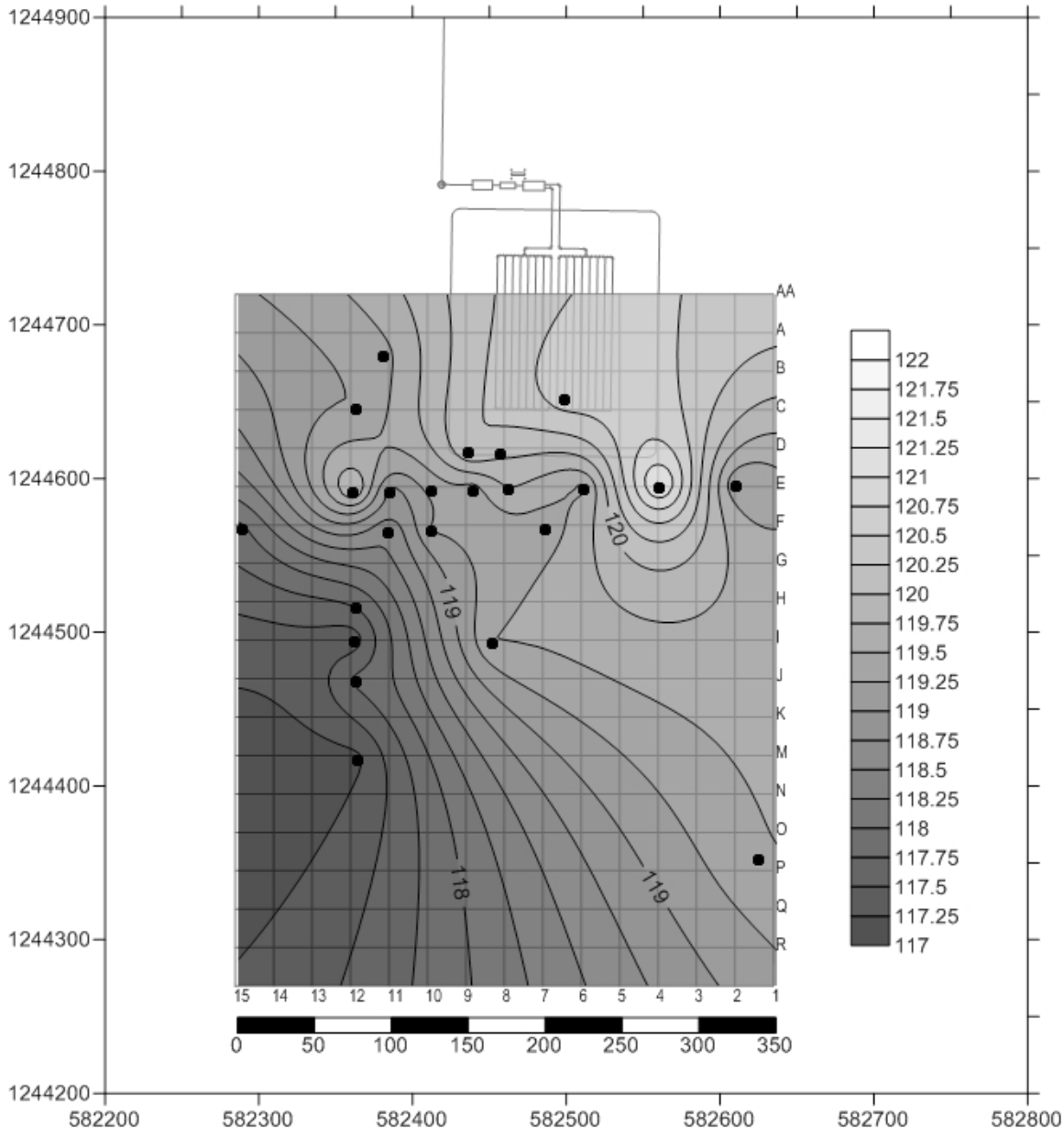

Figure 5

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.

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.

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 10 illustrate the surficial groundwater contours as measured within the standpipe piezometers on five dates (April 13, 2011, May 13, 2011, June 17, 2011, June 28, 2011, and October 10, 2011). The groundwater level measured within PZ18-R12 was omitted from the plots (Figures 6 through 10) 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 6 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 0.0047 to 0.011. Clearly variations in gradient are apparent in Figure 6 through 10; 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 6
Standpipe Piezometer Groundwater Level Measured

Identification	Location	Water Table Elevation (ft)					
		April 13, 2011	May 13, 2011	June 17, 2011	June 28, 2011	Sept 26, 2011	Oct 10, 2011
PZ01-BKG-9	PZ-1	124.32	122.67	121.56	121.73		124.71
PZ02-PQ1.75-9	PZ-2	119.22	118.59	118.26	118.80		120.23
PZ03-H11-6	PZ-3	120.18	119.49	119.20	119.74	120.75	121.17
PZ04-BKG-9	PZ-4	123.10	121.72	120.85	121.11	122.99	123.84
PZ05-BKG-9	PZ-5	122.41	120.80				123.09
PZ06-BKG-12	PZ-6				121.92		
PZ07-D5-7	PZ-7	121.40	120.25	119.72	120.26	121.63	122.47
PZ08-FG7-6	PZ-8	120.71	119.75	119.33	119.93		121.85
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		122.61
PZ11-E9-10	PZ-11	120.76	119.79	119.36	119.96	121.21	121.85
PZ12-G10	abandoned						
PZ13-F4-8	PZ-13	121.23	120.09	119.68	120.15		122.29
PZ14-G13-7	PZ-14	119.66	118.94	118.71	119.26	121.36	120.39
PZ15-A11-6	PZ-15	120.89	119.87	119.36	119.88	120.89	121.91
PZ16-C12-28	PZ-16	120.43	119.49	119.07	119.63	119.39	121.31
PZ17-I15-26	PZ-17	119.22	118.57	118.42	118.93	119.38	
PZ18-R12-26	PZ-18	119.13*	119.28*	119.01*	119.28*	120.70	119.85
PZ19-G10-26	PZ-19	120.20	119.37	119.02	119.60	120.76	121.25
PZ20-G10-15	PZ-20	120.21	119.38	119.03	119.62	120.72	121.29
PZ21-E11-26	PZ-21	120.28	119.39	119.01	119.58		121.23
PZ22-E11-15	PZ-22	120.26	119.37	119.00	119.57		121.22
PZ23-D9-27	PZ-23	120.77	119.76	119.31	119.85	122.71	121.82

Table 6
Standpipe Piezometer Groundwater Level Measured

Identification	Location	Water Table Elevation (ft)					
		April 13, 2011	May 13, 2011	June 17, 2011	June 28, 2011	Sept 26, 2011	Oct 10, 2011
PZ24-BKG-26	PZ-24	122.80	121.43	120.52	120.80	122.04	123.47
PZ25-A6.5	PZ-25	121.88	120.68	120.12	120.58		122.90
PZ26-EF2	PZ-26	121.93	120.77	120.25	120.78		
PZ27	PZ-27			119.45	120.01		121.96
PZ28	PZ-28			119.34			121.68
PZ29	PZ-29			120.51			125.14
PZ30	PZ-30			120.52	120.91		123.41

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

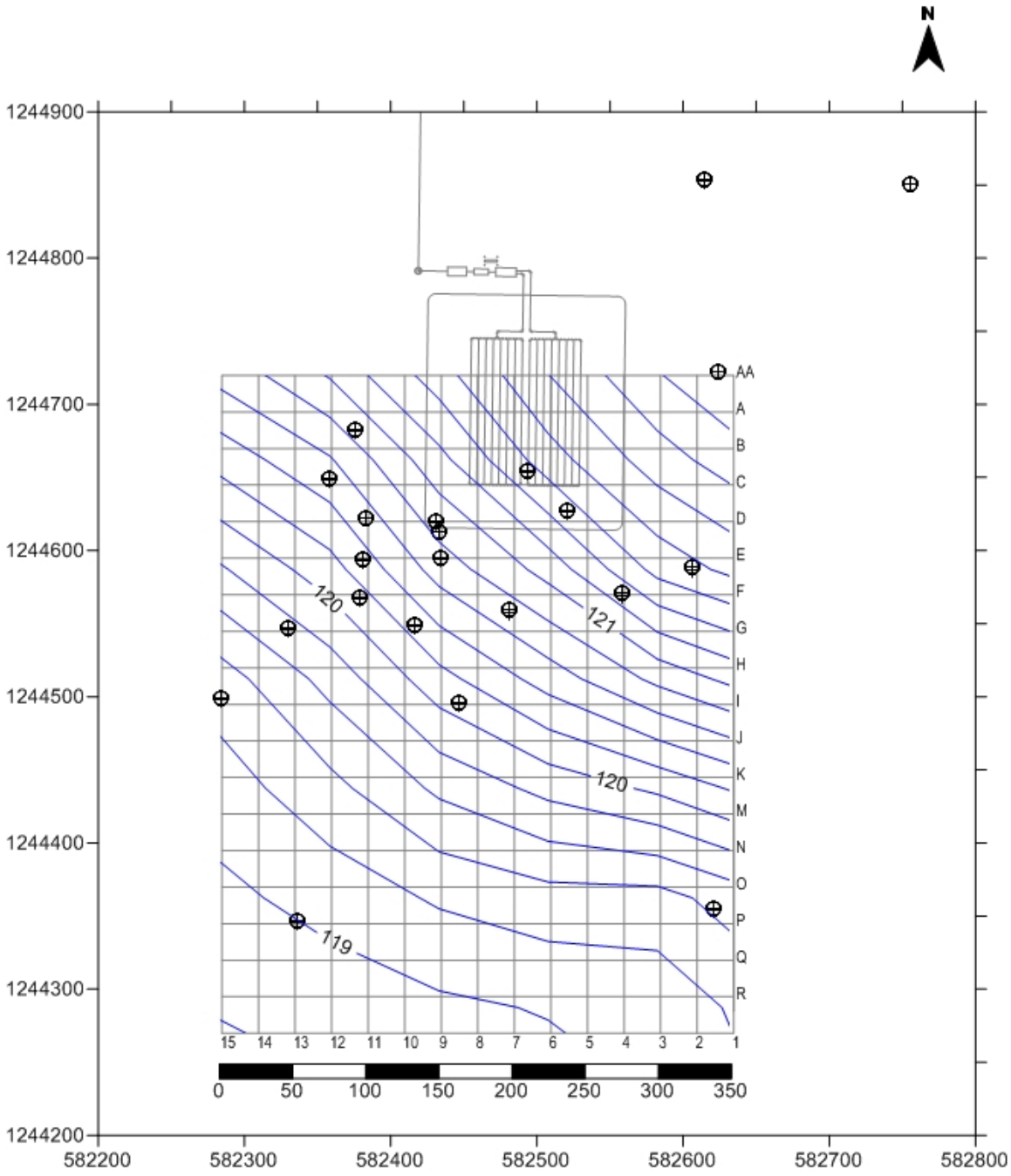

Figure 6
Surficial Groundwater Contours on April 13, 2011

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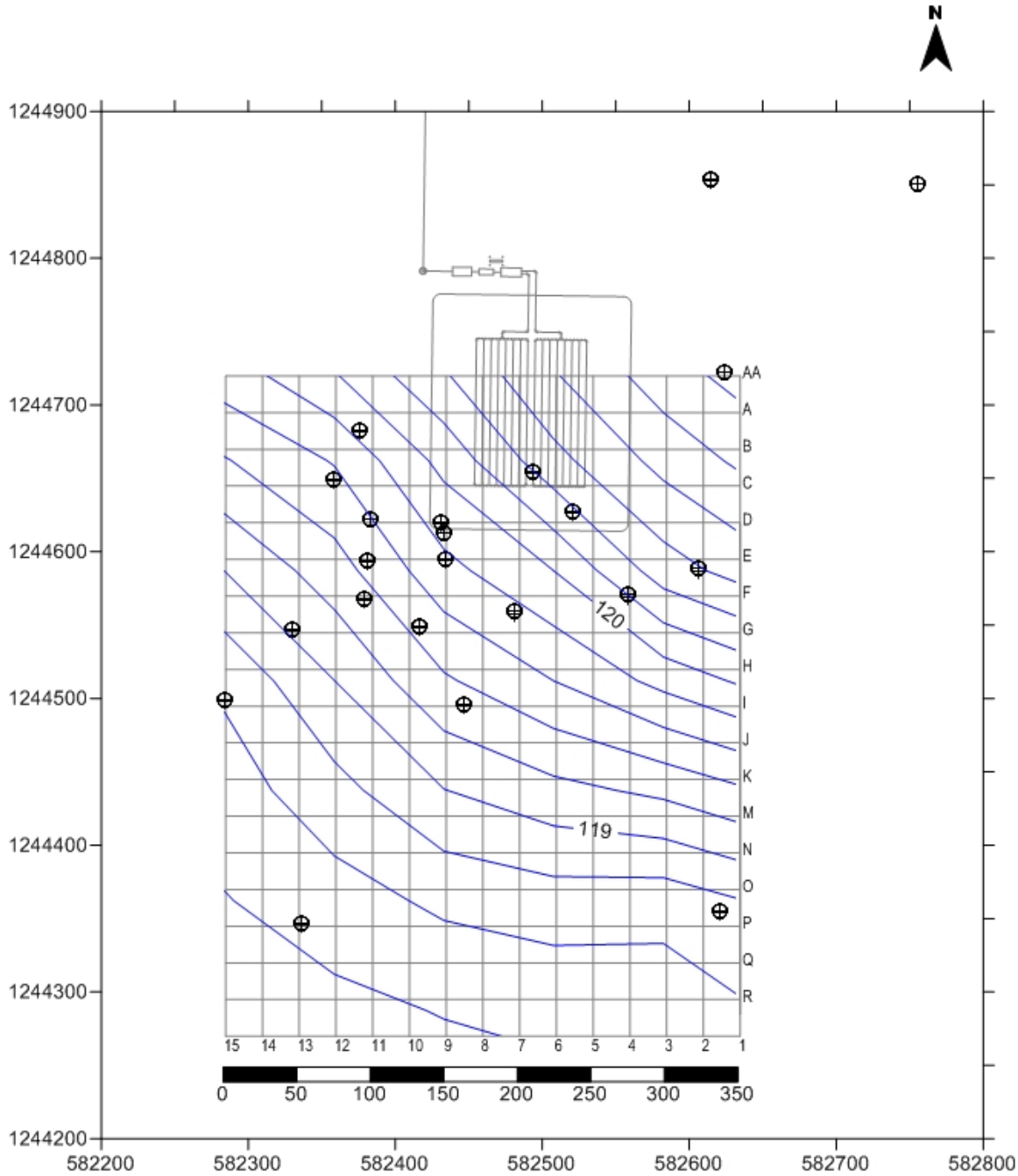

Figure 7

Surficial Groundwater Contours on May 13, 2011

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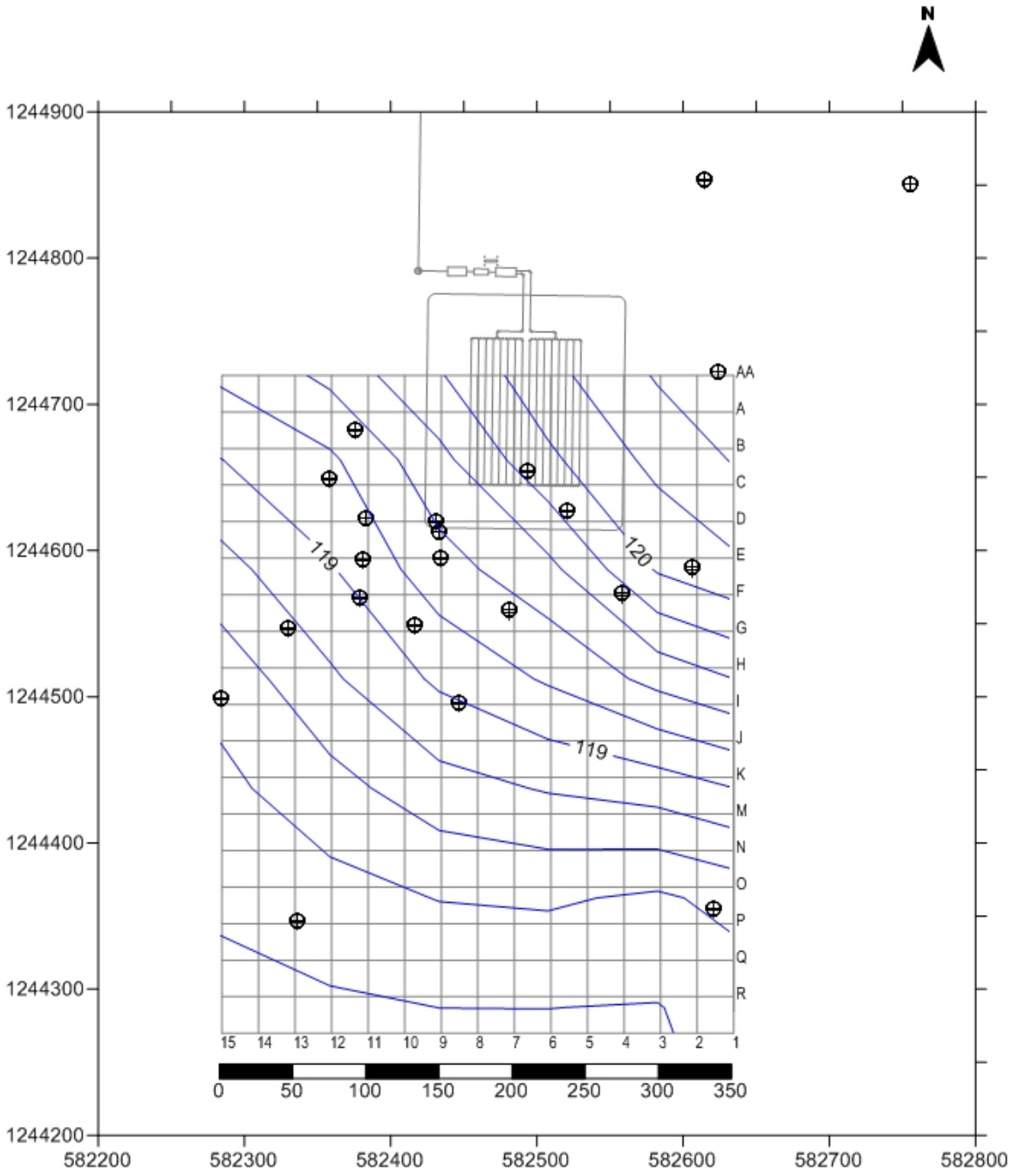

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Figure 8
Surficial Groundwater Contours on June 17, 2011

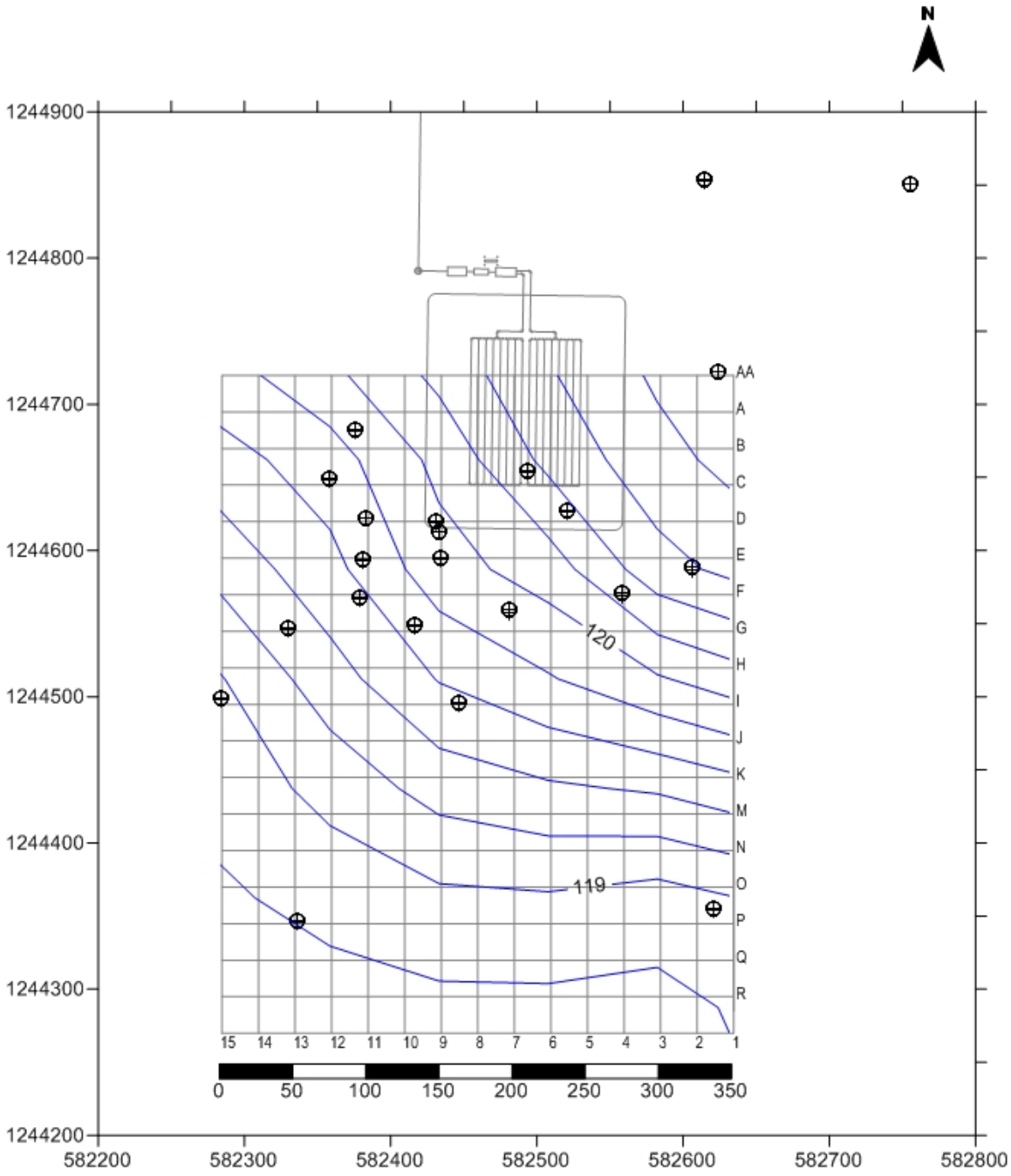

Figure 9
Surficial Groundwater Contours on June 28, 2011

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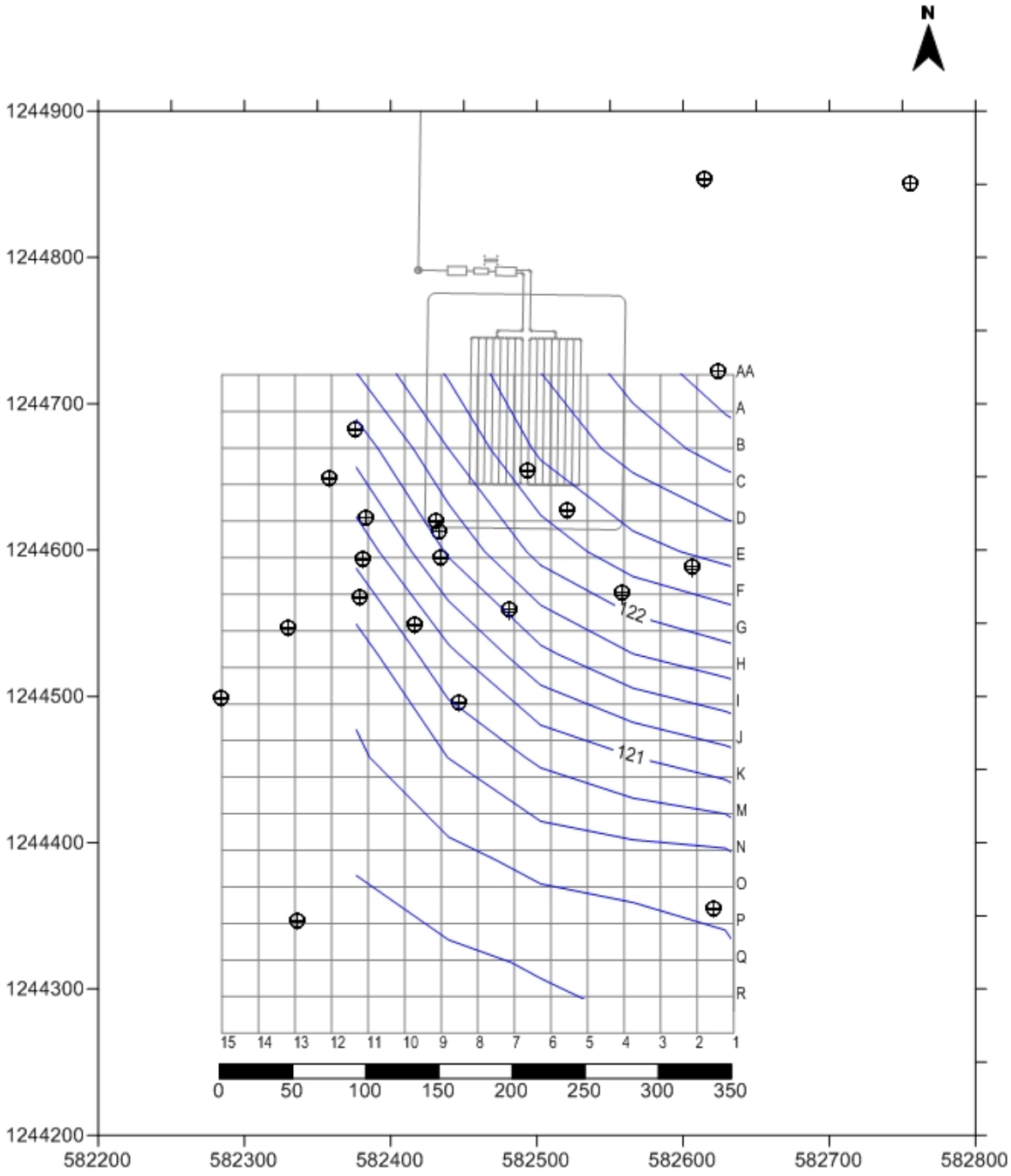

Figure 10
Surficial Groundwater Contours on October 10, 2011

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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 September 2011 sampling event. The complete field parameter data set is included in Appendix F.

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 relationships between specific conductance and the concentration of chloride and NOX have an observed strong correlation. Figure 11 illustrates the correlation between specific conductance and the concentration of chloride based on the September data. Figure 12 illustrates the correlation between the concentrations of specific conductance and NOX.

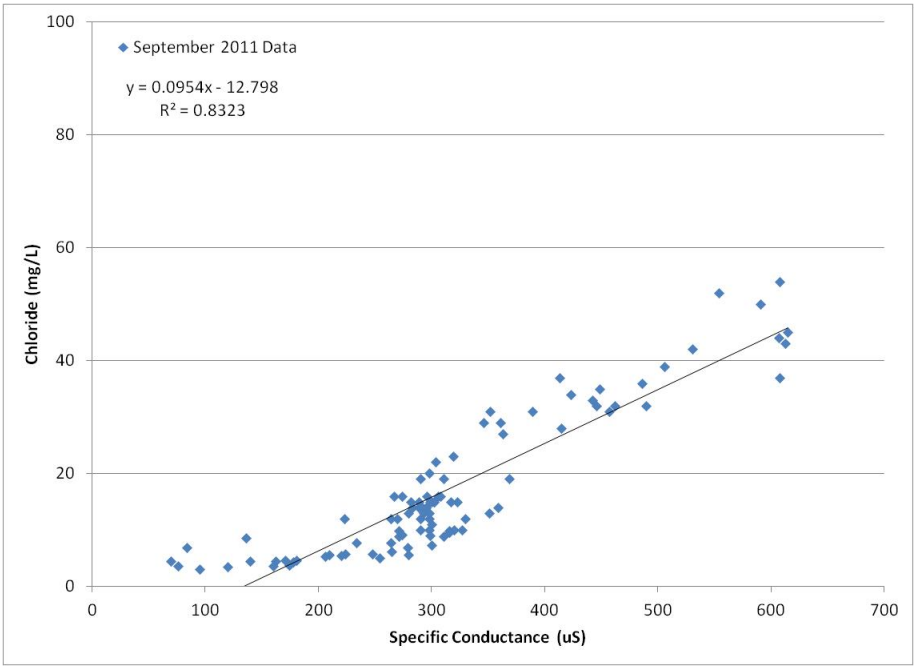

Figure 11
Correlation Between the Specific Conductance (uS) and Concentrations of Chloride (mg/L)

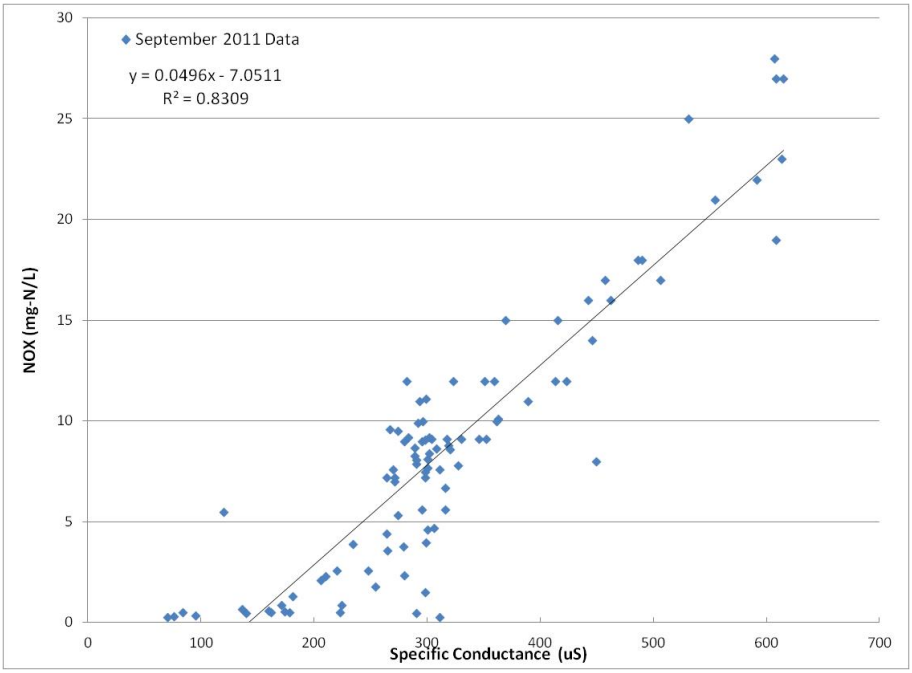

Figure 12
Correlation Between the Specific Conductance (uS) and Concentrations of NOX (mg-N/L)

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. The September sampling event again provides further insight into the existing nitrogen plume. The complete water quality analytical results for Sample Event No. 4 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.

4.3.4 Nitrate/Nitrite Concentrations with Depth

Although 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 2010 drilling event), the points are located at different elevations ranging from 92.85 feet to 120.82 feet. **Surfer** is an excellent tool for contour mapping; however, it

cannot project a 3-dimensional view of concentrations with depth. Therefore the concentrations of parameters were “lumped” from the different sampling locations into “slices” of similar depth, allowing the different “slices” to be compared.

Samples were collected at 61 locations during the December 2010 sampling event. Based on the distribution of points with depth, four “slices” were chosen for the December 2010 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 13. For the March, June and September 2011 sampling events, samples were collected at a sufficient number of locations to split the data into five “slices” separated into five-foot intervals as shown in Figures 14 through 16.

Similar to the chloride results in the previous sampling event, the NOX results (Figure 16) from the September 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 105-115 feet above sea level close to the mound from approximately AA9 and north along the 9-transect (Figure 16).

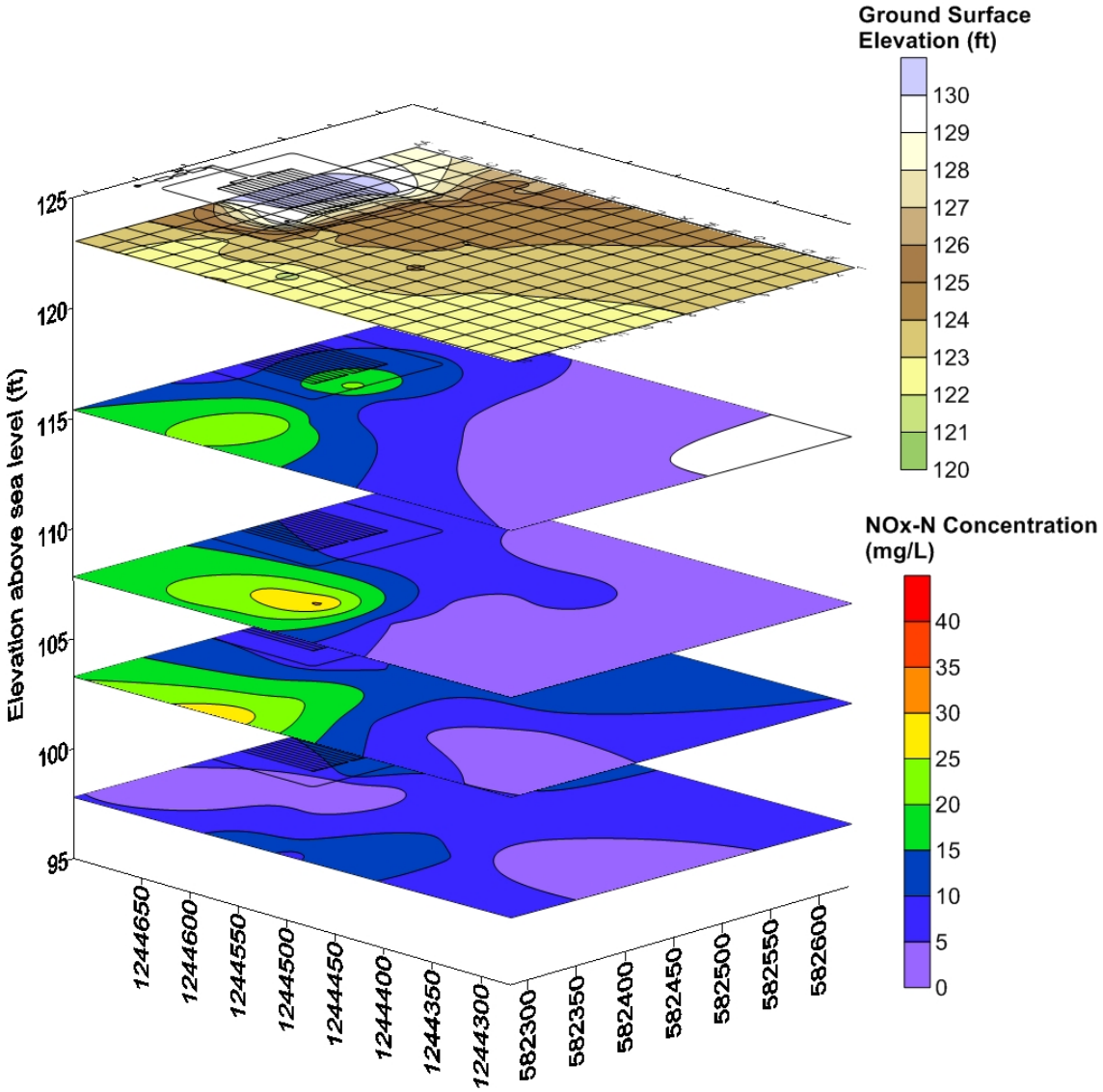

Figure 13

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.

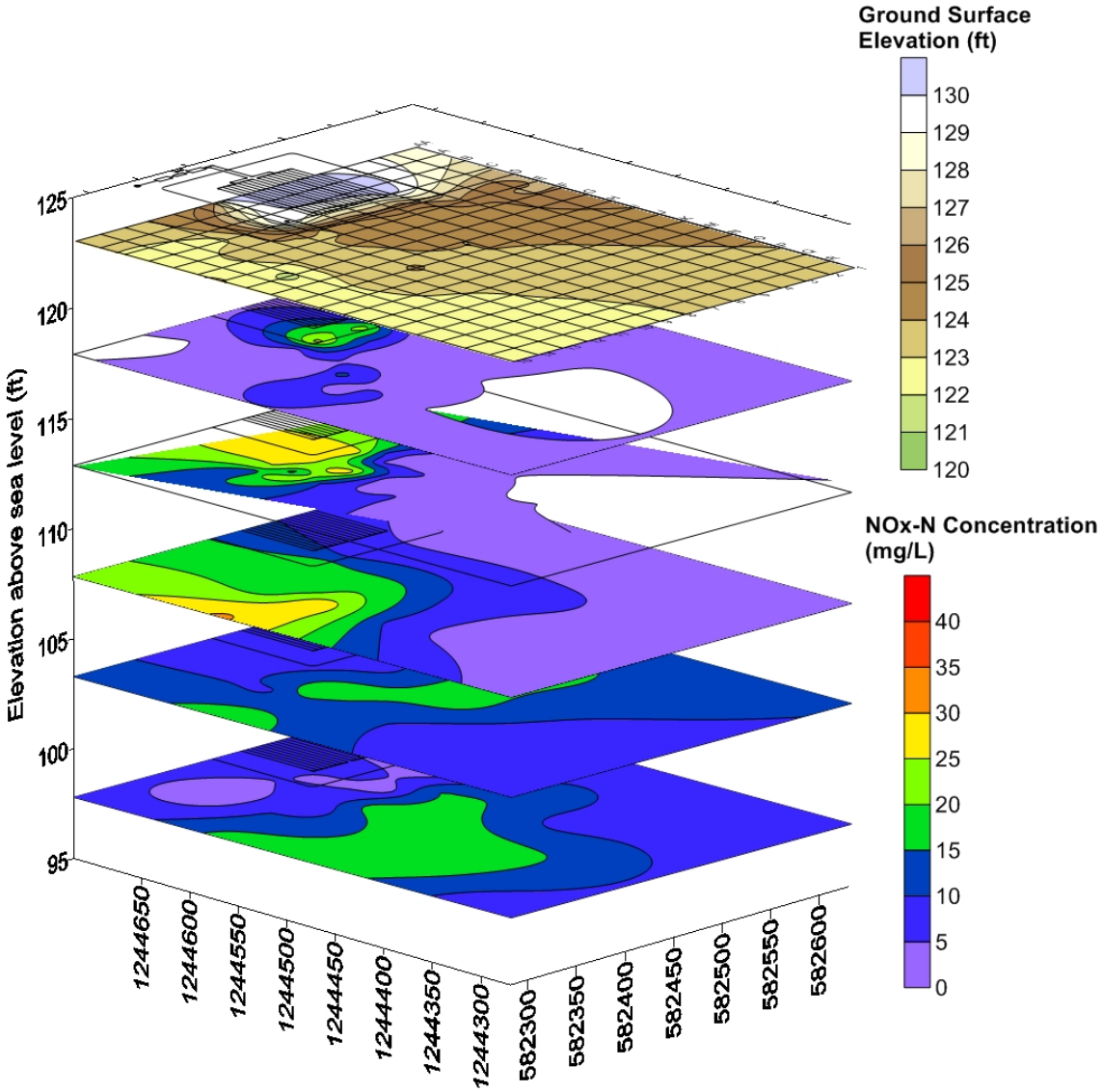

Figure 14

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.

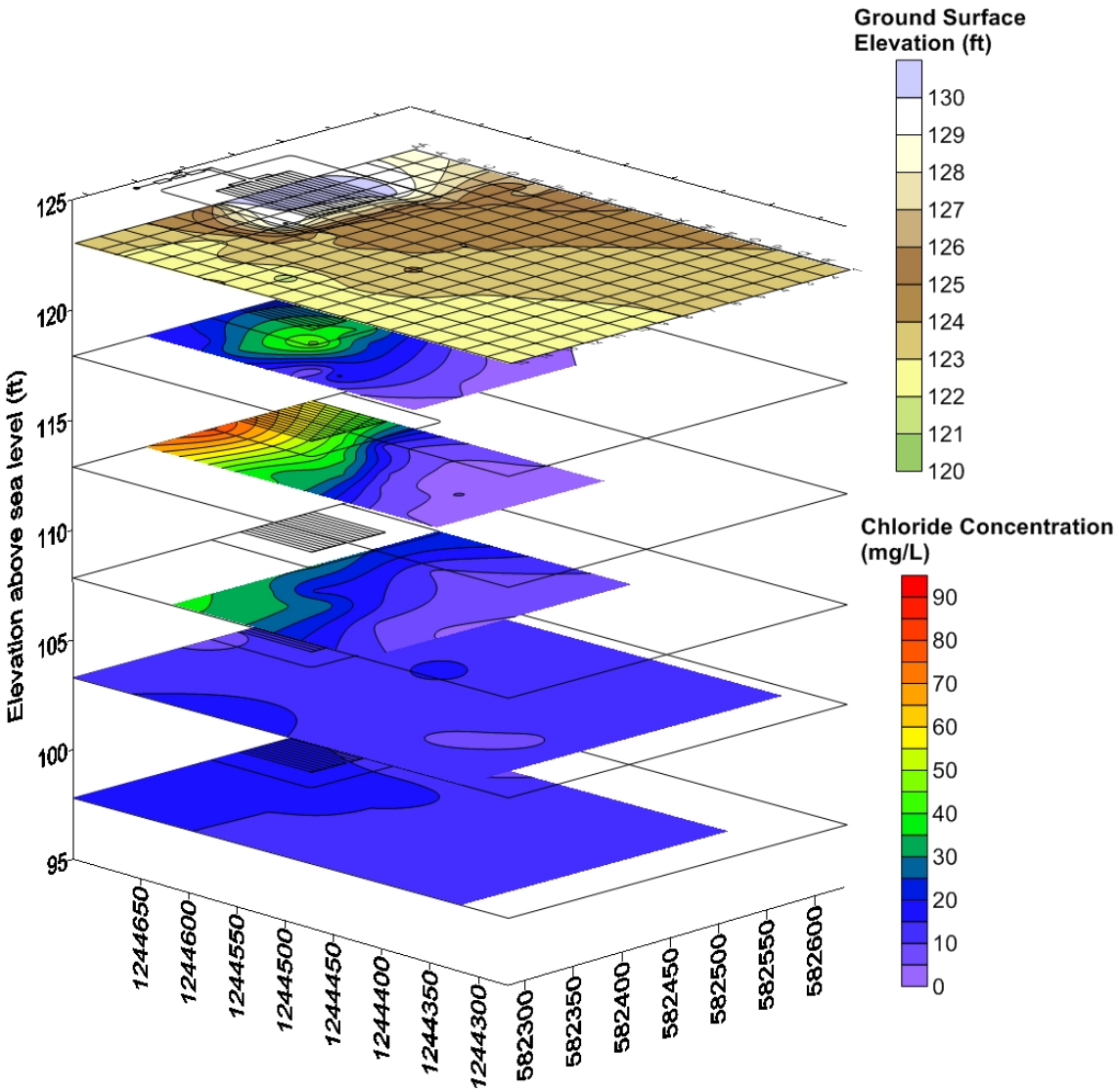

Figure 15

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

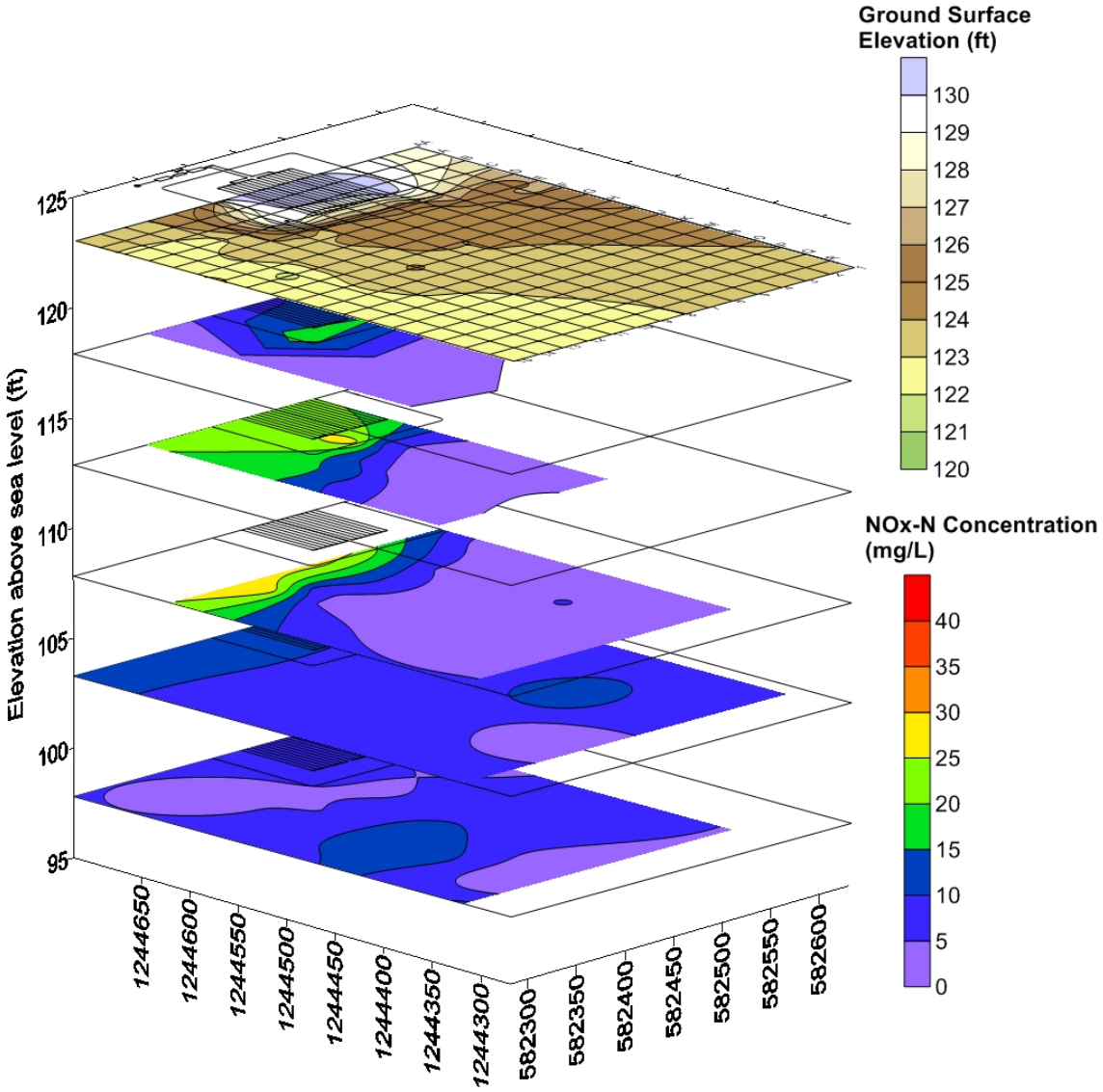

Figure 16

A layered schematic (using Surfer) illustrating NOX concentrations in the subsurface at five different elevation intervals (based on the September 2011 sampling event). UTM coordinates are provided to correlate the schematic to Figure 1.

5.0 GCREC Data Summary Report No. 4: Summary and Recommendations

5.1 Summary

The results of the data collected to date have 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. 4 indicate that:

- Although the groundwater levels fluctuate, the direction of flow remains relatively constant at 220 degrees to true north.
- The groundwater gradient has been found to range from 0.0047 to 0.011.
- 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=0.8) as well as NOX (R^2=0.8).
- The chloride plume appears to follow the extent and movement of the NOX plume and follows 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.
- Little seasonal variation in the groundwater flow direction, gradient, and parameter concentrations were observed.

5.2 Recommendations

Sample Event 4 was the last funded sample event for the GCREC mound monitoring network. The insight gained from monitoring the GCREC mound plume will provide information needed for the development of the groundwater model in Task D.

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			
12/21/09 – 7/16/10	1,650	591	2,241
After A/C Condensate Diversion			
7/19/10 – 10/10/11	1,147	1,463	2,610

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 – 10/05/11	1,186	749	0	3,548
Pump 2 to Mound		1,462	925	0	5,326
Sum of Both Pumps		2,554	1,207	584	5,888

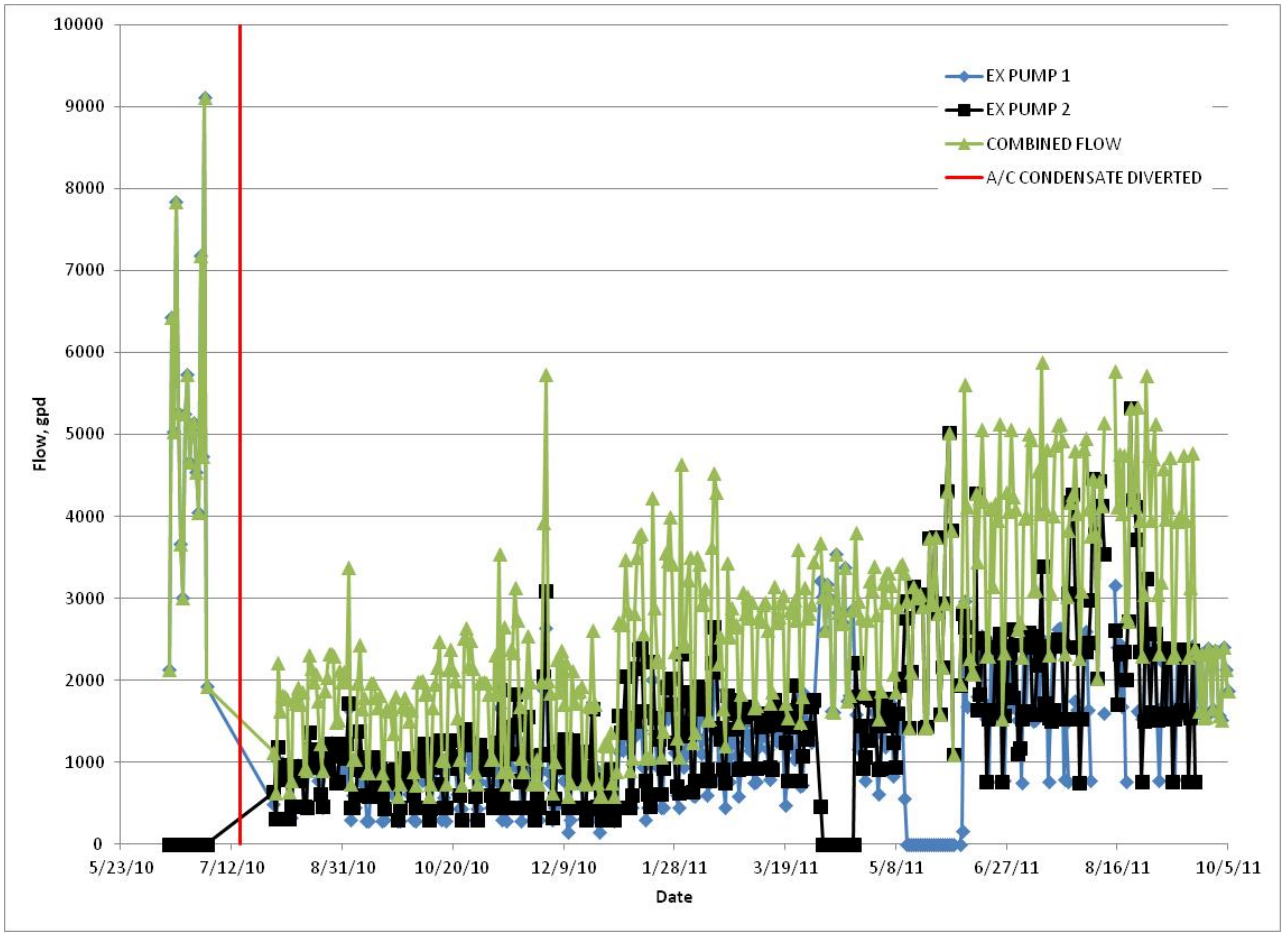

Figure A.1
PLC Recorded Daily Wastewater Flows
(6/14/10 – 10/05/11)

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Appendix B: GCREC Weather Station Data

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/day)
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
Jul-11	79.99	67.69	95.81	81.75	76.95	86.11	73.58	83	9.1	1.1	4.94	34.03	2976	0.17
Aug-11	80.86	70.93	96.66	83.11	79.95	86.43	75.37	84	8.78	0.7	5.49	44.5	2964	0.16
Sep-11	78.55	65.46	94.33	80.78	78.64	83.43	72.56	83	2.5	0.29	5.24	33.17	2877	0.14

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

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

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

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

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

Appendix D: Soil Analytical Results

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

Appendix E: Groundwater Elevations

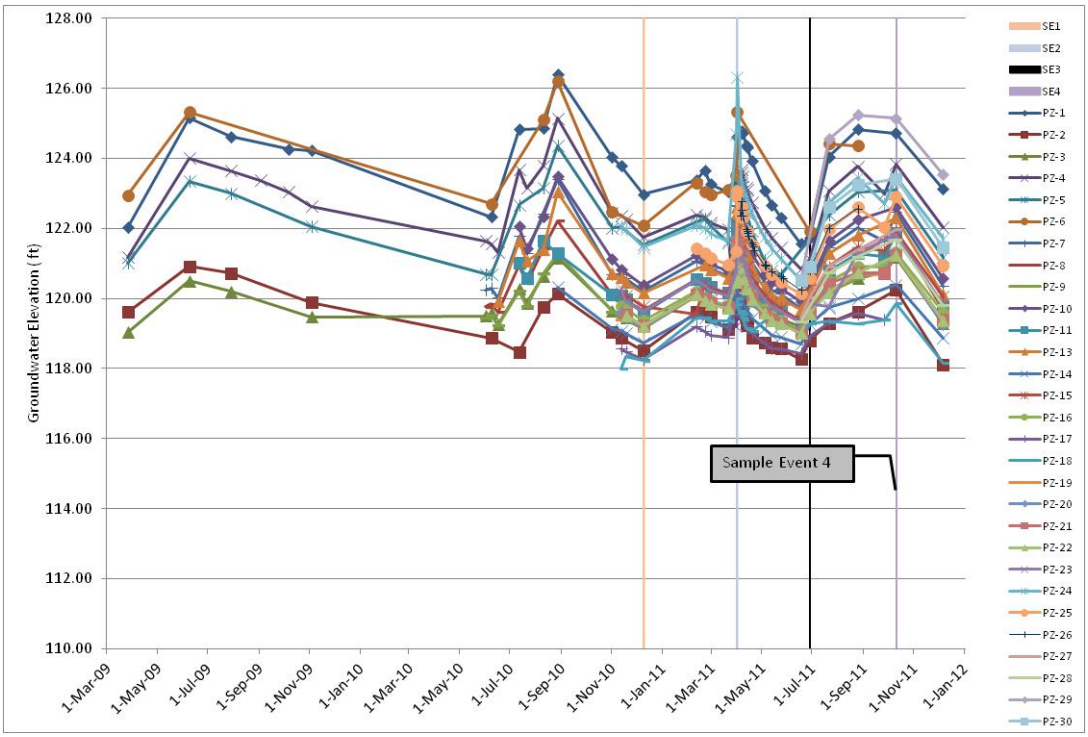

Figure E.1
Groundwater Elevations

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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	121.28	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
8/25/2011	124.82	119.62	120.57	123.77	123.03	124.35	122.01	121.24	120.57	122.25	121.29	121.80	119.99	121.47	120.91	119.57	119.28	120.65	120.68	120.73	120.74	121.30	123.45	122.60	122.56	121.39	121.19	125.24	123.24
9/26/2011			120.75	122.99			121.63				121.21			121.36	120.89	119.39	119.38	120.70	120.76	120.72			122.71	122.04					
10/10/2011	124.71	120.23	121.17	123.84	123.09		122.47	121.85		122.61	121.85	122.29	120.39	121.91	121.31		119.85	121.25	121.29	121.23	121.22	121.82	123.47	122.90		121.96	121.68	125.14	123.41
12/6/2011	123.12	118.11	119.27	122.03	121.18		120.34	119.68		120.57	119.77	120.10	118.86	120.04	119.61		118.16	119.24	119.25	119.38	119.37	119.82	121.71	120.92			119.80	123.53	121.45

Appendix F: Water Quality Analytical Results

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Table F.1
Water Quality Analytical Results
(September 26 – September 28, 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	9/28/11 12:00	G	29.4	7	250	0.9	721	20	10			32.24	32	4.00	28	0.24	28.24	3.2	50				68	0.24	0.01										
STE-EX Pump Tank-D	9/28/11 12:05	G	29.4	7	250	0.9	721	17	10			31.24	31	3.00	28	0.24	28.24	3	50				42	0.24	0.01										
Drivepoints																																			
DP-AA9-14	9/28/11 9:55	G	25.4	4.6	10	2	554				10	23.4	2.4	2.39	0.01	21	21.01	0.17		2.6	2.1	0.091	52	21	0.01	0.01	52	0.13	37	0.076	9.5	0.015	11	43
DP-AA9-14-D	9/28/11 10:00	G	25.4	4.6	10	2	554				10	22.1	2.1	2.09	0.01	20	20.01	0.17		2.6	2.6	0.072	50	20	0.01	0.01	51	0.13	36	0.56	9.3	0.019	11	44
DP-AA9-22	9/28/11 10:10	G	25.1	5	10	0.3	369				10	16.7	1.7	1.69	0.01	15	15.01	0.36					19	15	0.01									
DP-AA9-27	9/28/11 10:15	G	24.9	4.9	10	0.3	267				10	12.28	2.7	2.69	0.01	9.58	9.59	0.26					16	9.4	0.18									
DP-D07-5	9/27/11 8:25	G	26	5.7	31	1.7	346				32	10.8	1.7	1.66	0.044	9.1	9.14	0.078		12	12	0.072	29	9.1	0.01	0.043	32	0.091	28	0.4	5	0.007	5.1	27
DP-D07-9	9/27/11 8:40	G	25.6	3.7	2	0.8	613				46	26.3	3.3	3.29	0.01	23	23.01	0.046		2.9	1.8	0.21	43	23	0.01	0.01	68	0.12	37	0.061	8.4	0.011	12	39
DP-D08-9	9/27/11 8:00	G	25.3	5	42	2.8	449				28	9.5	1.5	1.39	0.11	8	8.11	0.16					35	8	0.01									
DP-D09-15	9/27/11 7:55	G	24.9	4.8	10	1.8	615				11	29.4	2.4	2.39	0.01	27	27.01	0.5					45	27	0.01									
DP-D09-8	9/27/11 7:50	G	25.8	4.6	2	0.5	591				10	24.8	2.8	2.66	0.14	22	22.14	0.028		2.9	2.3	0.35	50	22	0.01	0.092	64	0.12	37	0.033	9.5	0.0095	9.1	38
DP-D11-11	9/27/11 7:45	G	26	5.2	31	2.3	442				10	17.6	1.6	1.59	0.01	16	16.01	0.12					33	16	0.01									
DP-D12-11	9/27/11 7:40	G	25.7	4.6	10	1.2	486				11	20.5	2.5	2.21	0.29	18	18.29	0.11					36	18	0.01									
DP-D7.5-14	9/27/11 8:00	G	24.6	4.9	10	0.2	608				10	29.1	2.1	2.07	0.032	27	27.03	0.099		2.4	1.3	0.092	54	27	0.01	0.042	42	0.1	39	0.044	11	0.120	11	38
DP-D7.5-14-D	9/27/11 8:05	G	24.6	4.9	10	0.2	608				10	28.9	1.9	1.87	0.032	27	27.03	0.077		2	1.2	0.082	52	27	0.01	0.01	41	0.12	39	0.049	11	0.120	11	38
DP-D7.5-20	9/27/11 8:25	G	24.2	5.1	10	0.5	531					26.3	1.3	1.28	0.019	25	25.02						42	25	0.01									
DP-D7.5-26	9/27/11 8:35	G	24.2	5.2	10	0.5	289					9.62	0.92	0.04	0.88	8.7	9.58						14	8.7	0.01									
DP-E04-8	9/27/11 8:55	G	26.9	4	2	0.6	76				22	0.91	0.58	0.33	0.25	0.33	0.58	1					3.6	0.33	0.01									
DP-E07-10	9/27/11 9:09	G	26.5	4	5	1	264				11	8.4	1.2	1.08	0.12	7.2	7.32	0.12					12	7.2	0.01									
DP-E08-8	9/27/11 9:25	G	26.8	4.2	3	0.7	304				13	10.8	1.7	1.61	0.088	9.1	9.19	0.086					22	9.1	0.01									
DP-E10-6	9/27/11 9:35	G	27.1	3.9	2	0.8	352					10.6	1.5	1.46	0.045	9.1	9.15						31	9.1	0.01									
DP-E11-12	9/27/11 9:35	G	26.4	5.1	8	0.3	506				10	18.7	1.7	1.66	0.045	17	17.05	0.031					39	17	0.01									
DP-E12-10	9/27/11 8:50	G	25.9	5.3	10	0.4	462				10	17.3	1.3	1.29	0.013	16	16.01	0.034		2.4	1.4	0.063	32	16	0.01	0.01	49	0.1	33	0.27	7.8	0.150	11	31
DP-E12-15	9/27/11 9:00	G	25.7	5.1	7	1	607				10	29.2	1.2	1.18	0.02	28	28.02	0.044		2.2	1.4	0.078	44	28	0.01	0.01	54	0.12	40	0.046	10	0.025	13	44
DP-E12-22	9/27/11 9:10	G	25.2	5.2	5	0.2	311				10	8.9	1.3	1.29	0.014	7.6	7.61	0.13		2.3	1.4	0.1	8.9	7.6	0.01	0.01	68	0.054	25	0.02	8.1	0.190	13	6.8
DP-E12-28	9/27/11 9:20	G	25.1	5.1	4	0.4	295					6.5	0.9	0.86	0.039	5.6	5.64						14	5.6	0.01									
DP-E12-28-D	9/27/11 9:25	G	25.1	5.1	5	0.4	295					6.54	0.84	0.80	0.04	5.7	5.74						14	5.7	0.01									
DP-F04-17	9/27/11 11:12	G	27.8	5.8	52	0.8	280				11	2.69	0.35	0.32	0.026	2.34	2.37	0.075					5.6	2.1	0.24									
DP-F04-22	9/27/11 11:05	G	25.9	5.2	10	0.6	270					7.65	0.05	0.03	0.02	7.6	7.62						12	7.6	0.01									
DP-F04-32	9/27/11 11:00	G	26	5.9	42	0.5	290				10	0.66	0.18	0.12	0.06	0.48	0.54	0.21					19	0.48	0.01									
DP-F05-5	9/27/11 10:45	G	28.8	4.8	10	0.6	178				10	0.96	0.44	0.31	0.13	0.52	0.65	0.18					4.3	0.42	0.1									
DP-F08-20	9/27/11 10:20	G	25.9	5	10	0.6	298				10	8.4	1.2	1.17	0.033	7.2	7.23	0.33					12	7.2	0.01									
DP-F08-28	9/27/11 10:25	G	25.4	5.1	10	0.5	298					1.84	0.34	0.31	0.026	1.5	1.53						20	1.5	0.01									
DP-F10-11	9/27/11 10:00	G	27	4.2	10	0.5	446				10	16.7	2.7	2.32	0.38	14	14.38	0.076		2	1.5	0.18	32	14	0.01	0.044	55	0.09	30	0.054	7.9	0.150	9.1	29
DP-F11-11	9/27/11 9:50	G	27.2	5	10	1.5	389				10	12.4	1.4	1.29	0.11	11	11.11	0.1					31	11	0.01									
DP-F11-15	9/27/11 10:00	G	26.2	5.1	10	0.5	490				10	19.5	1.5	1.45	0.052	18	18.05	0.28					32	18	0.01									
DP-F11-15-D	9/27/11 10:05	G	26.2	5.1	10	0.5	490				10	20.5	1.5	1.45	0.053	19	19.05	0.31					35	19	0.01									
DP-F11-18	9/27/11 10:10	G	25.8	5.3	10	0.3	271				11	7.18	0.18	0.14	0.036	7	7.04	0.087					8.9	7	0.01									

Table F.1 (con't)
Water Quality Analytical Results
(September 26 – September 28, 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-F11-21	9/27/11 10:15	G	25.6	5.2	10	0.4	298				34	8.42	0.92	0.87	0.047	7.5	7.55	0.81					10	7.5	0.01										
DP-F11-24	9/27/11 10:20	G	25.4	5.1	10	0.6	296				10	11.1	1.1	1.07	0.032	10	10.03	0.35					16	10	0.01										
DP-F11-27	9/27/11 10:25	G	25.3	5.2	10	0.4	306				10	5.1	0.4	0.36	0.044	4.7	4.74	0.55					16	4.7	0.01										
DP-F12-10	9/27/11 9:45	G	26.7	3.8	2	0.6	423				10	12.28	0.28	0.21	0.074	12	12.07	0.097					34	12	0.01										
DP-F15-14	9/28/11 10:35	G	26.1	5	9	0.4	457				10	18.5	1.5	1.43	0.068	17	17.07	0.072		1.9	2	0.1	31	17	0.01	0.01	61	0.11	33	0.048	9.2	0.170	14	34
DP-F15-20	9/28/11 10:45	G	25.3	5	5	0.4	290				10	8.24	0.34	0.18	0.16	7.9	8.06	0.5					10	7.9	0.01										
DP-F15-26	9/28/11 10:50	G	25.2	4.9	4	0.3	280				10	10.3	1.3	1.27	0.031	9	9.03	0.12					13	9	0.01										
DP-F15-26-D	9/28/11 10:55	G	25.2	4.9	3	0.3	280				10	10.5	1.5	1.47	0.034	9	9.03	0.11					13	9	0.01										
DP-G07-13	9/27/11 11:35	G	29.8	5.2	7	0.8	224					2.18	1.3	1.29	0.01	0.88	0.89						5.7	0.88	0.01										
DP-G07-15	9/27/11 11:50	G	28.7	4.7	6	0.7	254				10	2.68	0.88	0.87	0.01	1.8	1.81	1.4					5	1.8	0.01										
DP-G07-17	9/27/11 12:00	G	26	4.8	5	0.4	300					6.3	1.7	1.69	0.01	4.6	4.61						7.3	4.6	0.01										
DP-G07-21	9/27/11 12:05	G	25.3	4.6	4	0.4	274				10	11.4	1.9	1.89	0.01	9.5	9.51	0.57		1.1	0.68	0.12	16	9.5	0.01	0.01	43	0.05	19	0.084	8.5	0.200	9.7	7.5
DP-G07-24	9/27/11 12:15	G	25.6	4.7	5	0.6	300					9.94	1.8	1.79	0.01	8.14	8.15						11	8	0.14										
DP-G07-27	9/27/11 12:25	G	25.7	4.7	5	1.2	300					9.3	1.6	1.59	0.01	7.7	7.71						15	7.7	0.01										
DP-G08-5	9/27/11 11:55	G	28.1	5.7	11	1	174				10	1.48	0.93	0.85	0.082	0.55	0.63	0.14		3.9	3.4	0.5	3.8	0.55	0.01	0.045	46	0.05	13	3.6	3.7	0.260	4.3	3.3
DP-G09-11	9/27/11 11:45	G	28.3	5.6	11	1.4	299				10	4.22	0.22	0.21	0.01	4	4.01	0.33					9	4	0.01										
DP-G11-8	9/27/11 11:35	G	27.2	4.6	4	0.7	319				10	11.1	2.3	2.29	0.01	8.8	8.81	0.062					23	8.8	0.01										
DP-G12-9	9/27/11 10:45	G	24.8	5	2	3.4	363				10	12.4	2.3	2.29	0.01	10.1	10.11	0.19					27	9.9	0.20										
DP-G12-15	9/27/11 10:50	G	26.2	5.1	6	0.4	415				10	16.2	1.2	0.81	0.39	15	15.39	1.1		2.2	1.4	0.058	28	15	0.01	0.042	54	0.087	27	0.5	6.9	0.180	9.4	24
DP-G12-18	9/27/11 11:05	G	25.8	5.3	10	0.6	264				26	5.6	1.2	1.19	0.01	4.4	4.41	1.1		3.3	2.1	0.06	7.7	4.4	0.01	0.056	67	0.1	21	0.59	5.7	0.110	8.9	12
DP-G12-21	9/27/11 11:15	G	25.5	5.3	10	0.5	271				10	8.7	1.5	1.49	0.01	7.2	7.21	0.37					9.8	7.2	0.01										
DP-G12-24	9/27/11 11:20	G	25.4	5.2	10	0.4	302				10	10.5	1.3	1.29	0.01	9.2	9.21	0.71					15	9.2	0.01										
DP-G12-27	9/27/11 11:25	G	25.3	5.1	10	0.3	289				10	9.8	1.5	1.49	0.01	8.3	8.31	0.14					15	8.3	0.01										
DP-H06-7	9/28/11 7:35	G	25.5	5.8	31	4.2	140				10	1.58	1.1	0.66	0.44	0.48	0.92	0.78					4.5	0.48	0.01										
DP-H09-12	9/28/11 7:45	G	25.9	5.1	6	0.7	248				50	3.44	0.84	0.83	0.01	2.6	2.61	0.084					5.7	2.6	0.01										
DP-I06-14	9/28/11 7:50	G	25.4	5.1	7	0.5	220				10	3.31	0.71	0.70	0.01	2.6	2.61	0.61		3.2	2.5	0.064	5.4	2.6	0.01	0.15	61	0.05	21	0.14	4.8	0.170	9.4	3.1
DP-I06-20	9/28/11 8:05	G	24.8	5.1	4	0.4	330				10	11.1	2	1.99	0.01	9.1	9.11	0.17		1.7	1.8	0.096	12	9.1	0.01	0.052	73	0.05	28	0.048	6.7	0.060	16	6.9
DP-I06-26	9/28/11 8:10	G	24.6	5	3	0.3	295					11.1	2.1	2.09	0.01	9	9.01						14	9	0.01										
DP-I12-6	9/28/11 7:40	G	26.2	5.1	6	0.6	95				10	1.33	0.99	0.98	0.01	0.34	0.35	0.3					3.1	0.34	0.01										
DP-J09-12	9/28/11 7:55	G	26.2	5	3	0.9	171					1.43	0.57	0.56	0.01	0.86	0.87						4.6	0.86	0.01										
DP-J09-14	9/28/11 8:00	G	26.1	4.8	4	0.4	210				10	2.98	0.68	0.67	0.01	2.3	2.31	0.4					5.6	2.3	0.01										
DP-J09-20	9/28/11 8:05	G	25.5	5	5	0.3	320				10	9.26	0.66	0.65	0.01	8.6	8.61	0.73					10	8.6	0.01										
DP-J09-26	9/28/11 8:10	G	25.4	4.8	3	0.5	292					11	1.1	1.09	0.01	9.9	9.91						14	9.9	0.01										
DP-J12-13	9/28/11 8:35	G	26.1	4.9	5	0.3	206					2.58	0.48	0.47	0.01	2.1	2.11						5.3	2.1	0.01										
DP-J12-15	9/28/11 8:40	G	26.8	4.9	4	0.5	265				10	4.57	0.97	0.96	0.01	3.6	3.61	0.77					6.2	3.6	0.01										
DP-J12-20	9/28/11 8:45	G	25.7	5.1	6	0.4	327				10	8.08	0.28	0.27	0.01	7.8	7.81	0.88					10	7.8	0.01										
DP-J12-27	9/28/11 8:50	G	24.9	4.9	4	0.4	282					12.29	0.29	0.28	0.01	12	12.01						15	12	0.01										
DP-K12-5	9/28/11 9:00	G	27.5	5	10	0.6	70				10	0.6	0.31	0.30	0.01	0.29	0.30	0.47					4.4	0.29	0.01										
DP-M07-15	9/28/11 8:45	G	25.9	5.2	10	0.3	274					5.55	0.21	0.20	0.01	5.34	5.35						9.1	5.1	0.24										
DP-M07-21	9/28/11 8:55	G	25.3	5.2	10	0.3	351				10	12.17	0.17	0.16	0.01	12	12.01	1.1					13	12	0.01										

Table F.1 (con't)
Water Quality Analytical Results
(September 26 – September 28, 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-M07-27	9/28/11 9:00	G	25.1	5.1	10	0.2	290				10	8.32	0.22	0.21	0.01	8.1	8.11	0.093					12	8.1	0.01									
DP-M12-10	9/28/11 8:30	G	26.2	5.6	10	1.8	162				10	1.31	0.79	0.74	0.046	0.52	0.57	0.13					4.4	0.37	0.15									
DP-N12-14	9/28/11 9:15	G	26.5	5	4	0.3	181				10	1.45	0.15	0.14	0.01	1.3	1.31	0.35		2	1.9	0.074	4.6	1.3	0.01	0.01	53	0.05	17	0.1	3.4	0.170	6	2.7
DP-N12-18	9/28/11 9:25	G	26.7	5.1	6	0.4	234				10	4.47	0.57	0.56	0.01	3.9	3.91	1.1					7.7	3.9	0.01									
DP-N12-21	9/28/11 9:35	G	26	5.3	6	0.3	316				10	6.83	0.13	0.12	0.01	6.7	6.71	0.093		2.8	2.2	0.062	9.8	6.7	0.01	0.01	85	0.05	31	0.02	9	0.088	17	4.7
DP-N12-24	9/28/11 9:45	G	25.9	5.2	6	0.2	359				67	12.05	0.05	0.04	0.01	12	12.01	0.13		2.3	2.2	0.089	14	12	0.01	0.051	83	0.05	31	0.098	11	0.042	23	6.7
DP-N12-27	9/28/11 9:55	G	25.8	5.1	3	0.3	323				10	14.6	2.6	2.59	0.01	12	12.01	0.31		1.6	1.3	0.061	15	12	0.01	0.01	59	0.05	27	0.02	8.3	0.085	19	7.6
DP-O10-18	9/28/11 9:15	G	27.3	4.2	2	0.7	160				10	0.91	0.33	0.32	0.01	0.58	0.59	0.078					3.6	0.47	0.11									
DP-O10-18-D	9/28/11 9:20	G	27.3	4.2	2	0.7	160				10	0.86	0.48	0.47	0.01	0.38	0.39	0.074					3.7	0.38	0.01									
DP-O10-24	9/28/11 9:30	G	26.8	4.9	10	0.6	279				10	4.27	0.47	0.41	0.06	3.8	3.86	0.14		2.4	2.6	0.067	6.8	3.8	0.01	0.054	77	0.05	32	0.048	7.2	0.160	14	3.5
DP-Q15-15	9/28/11 10:55	G	27.8	4.6	3	0.7	316					6.08	0.48	0.47	0.01	5.6	5.61						9.5	5.6	0.01									
DP-Q15-21	9/28/11 11:00	G	26.6	5	5	0.5	317					9.58	0.48	0.47	0.01	9.1	9.11						15	9.1	0.01									
DP-Q15-26	9/28/11 11:10	G	26.8	5.1	10	0.3	293					11.46	0.46	0.45	0.01	11	11.01						13	11	0.01									
DP-Q15-26-D	9/28/11 11:15	G	26.8	5.1	6	0.3	293					11.9	1.9	1.89	0.01	10	10.01						13	10	0.01									
Standpipe Piezometers																																			
PZ03-H11-6	9/26/11 8:43	G	26.5	4.4	2	1.4	136				15	1.41	0.74	0.72	0.024	0.67	0.69	0.01					8.5	0.67	0.01									
PZ04-BKG-9	9/26/11 10:35	G	28.2	5	5	1.7	120				11	6.45	0.95	0.93	0.017	5.5	5.52	0.01		3.4	3.8	0.24	3.4	5.5	0.01	0.042	10	0.05	12	0.11	2.8	0.048	0.64	1.7
PZ07-D05-7	9/26/11 9:22	G	25.5	4.6	5	0.9	361				22	11.3	1.3	1.26	0.042	10	10.04	0.01					29	10	0.01									
PZ11-E09-10	9/26/11 9:15	G	26	5.7	36	5.6	413				140	13.4	1.4	1.35	0.046	12	12.05	0.021					37	12	0.01									
PZ15-A11-6	9/26/11 9:35	G	27.1	4.8	9	1.7	84				38	1.26	0.74	0.70	0.04	0.52	0.56	0.01					6.8	0.52	0.01									
PZ16-C12-28	9/26/11 10:03	G	24.6	5.3	10	0.3	311				10	0.48	0.21	0.19	0.022	0.27	0.29	0.48					19	0.27	0.01									
PZ17-I15-26	9/28/11 10:48	G	24.9	4.8	3	0.2	283					10.7	1.5	1.12	0.38	9.2	9.58						14	9.2	0.01									
PZ18-R12-26	9/28/11 11:44	G	26.3	5	8	0.2	223				10	0.73	0.22	0.20	0.02	0.51	0.53	0.59					12	0.51	0.01									
PZ19-G10-26	9/26/11 8:08	G	24.6	5	4	0.4	302				10	10.7	2.3	2.28	0.016	8.4	8.42	0.053		0.77	1.1	0.19	15	8.4	0.01	0.093	52	0.05	22	0.034	8.2	0.210	11	6.2
PZ20-G10-15	9/26/11 8:36	G	25.6	4.9	8	0.2	308				26	10.06	1.4	1.36	0.041	8.66	8.70	1.1		6.8	2.3	0.21	16	8.5	0.16	0.052	54	0.05	26	0.054	6.2	0.220	7.8	11
PZ21-E11-26	9/26/11 8:14	G	24.7	5.1	8	0.9	298					10.47	1.4	1.28	0.12	9.07	9.19						13	8.9	0.17									
PZ24-BKG-26	9/26/11 10:48	G	25.5	4.8	4	0.4	299				10	12.32	1.2	1.18	0.018	11.12	11.14	0.028		0.64	1.4	0.12	15	11	0.12	0.12	42	0.05	20	0.035	11	0.160	8	7.8
PZ24-BKG-26-D	9/26/11 10:54	G	25.5	4.8	4	0.4	299				10	13.3	1.3	1.29	0.015	12	12.02	0.022		0.63	1.3	0.11	16	12	0.01	0.09	45	0.05	20	0.022	11	0.160	8.3	8
PZ25-A06-10	9/26/11 9:51	G	27.4	6	66	2.2	608				26	21	2	1.98	0.02	19	19.02	0.49					37	19	0.01									
Blanks																																			
Equipment Blank	9/28/11 9:40	G	25.1	5.6	6	4.6	1				10	0.22	0.21	0.19	0.021	0.01	0.03	0.01					0.05	0.01	0.01									
Field Blank - DI	9/28/11 9:45	G	25.1	5.6	2	4.6	1				10	0.06	0.05	0.04	0.01	0.01	0.02	0.01					0.05	0.01	0.01									
Field Blank - Tap	9/28/11 12:15	G	29	7.6	120	5.2	430				10	0.31	0.05	0.04	0.01	0.26	0.27	0.01					19	0.26	0.01									

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.

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 (Ct/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	7	7	8	5	6	3	6	4	5	7	7	7	8	8	7	5	6	0	0	2	3	3	3	2	2	2	2	2	2	2	2	2	2
	MEAN	27.23		232.88	0.31	792.00	410.33	31.00	138.68	270.80	37.41	37.31	7.39	26.91	0.09	30.03	3.94				5.65	62.33	0.12	0.01	6.55	21.50	0.11	57.00	3.91	18.50	0.06	19.00	46.00	5.02
	STD. DEV.	3.82		81.58	0.34	278.51	166.94	24.84	107.59	236.65	12.67	12.65	7.44	10.46	0.10	6.56	2.15																	
	MIN	19.90	6.51	150.00	0.10	494.00	260.00	14.00	82.70	120.00	24.23	24.20	-1.00	5.80	0.01	21.53	1.30	50.00			4.60	47.00	0.03	0.01	3.20	21.00	0.07	56.00	0.81	18.00	0.04	15.00	43.00	0.03
	MAX	31.00	7.33	410.00	0.90	1273.00	590.00	80.00	300.00	680.00	56.01	56.00	21.00	39.00	0.26	39.26	6.40	1,000,000.00			6.70	72.00	0.24	0.01	9.90	22.00	0.15	58.00	7.00	19.00	0.08	23.00	49.00	10.00
Drivepoints																																		
DP-AA9-14	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.60		8.63	1.30	571.73				10.00	26.28	1.98	1.96	0.01	24.30	24.31	0.17		2.60	2.10	0.09	67.00	21.00	0.01	0.01	52.00	0.13	37.00	0.08	9.50	0.02	11.00	43.00	
	STD. DEV.	1.71		3.27	0.50	210.56					21.03	0.91	0.91	0.01	20.25	20.26	0.00					21.21											
	MIN	21.50	4.60	4.90	0.89	281.90				10.00	6.83	0.93	0.92	0.01	5.90	5.91	0.17		2.60	2.10	0.09	52.00	21.00	0.01	0.01	52.00	0.13	37.00	0.08	9.50	0.02	11.00	43.00	
	MAX	25.40	5.10	11.00	2.00	752.00				10.00	48.60	2.60	2.58	0.02	46.00	46.02	0.17		2.60	2.10	0.09	82.00	21.00	0.01	0.01	52.00	0.13	37.00	0.08	9.50	0.02	11.00	43.00	
DP-AA9-22	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.23		6.30	0.61	313.18				10.00	12.21	1.24	1.22	0.02	10.97	10.99	0.36					13.85	15.00	0.01										
	STD. DEV.	0.82		4.03	0.37	41.04					3.99	0.44	0.44	0.02	3.65	3.63						7.28												
	MIN	23.30	4.90	2.00	0.30	279.00				10.00	9.10	0.82	0.81	0.01	7.90	7.94	0.36					8.70	15.00	0.01										
	MAX	25.10	5.30	10.00	1.06	369.00				10.00	16.70	1.70	1.69	0.04	15.00	15.01	0.36					19.00	15.00	0.01										
DP-AA9-27	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.05		5.00	0.67	285.80				10.00	10.43	1.60	1.57	0.03	8.83	8.85	0.26					18.00	9.40	0.18										
	STD. DEV.	1.00		4.36	0.25	12.88					2.27	0.95	0.97	0.02	1.68	1.68						2.83												
	MIN	22.70	4.80	2.00	0.30	267.00				10.00	7.90	1.00	0.97	0.01	6.90	6.93	0.26					16.00	9.40	0.18										
	MAX	24.90	5.20	10.00	0.84	295.00				10.00	12.28	2.70	2.69	0.04	10.00	10.04	0.26					20.00	9.40	0.18										
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	24.80		28.00	3.25	352.00				12.00	9.25	1.70	1.61	0.09	7.55	7.64			5.50	5.20	0.02	31.00	12.00	0.01	0.01	53.00	0.11	30.00	6.60	7.20	0.31	7.00	31.00	
	STD. DEV.	4.24		9.90	0.35	46.67					6.58	0.28	0.28	0.00	6.29	6.29																		
	MIN	21.80	5.80	21.00	3.00	319.00				12.00	4.60	1.50	1.41	0.09	3.10	3.19			5.50	5.20	0.02	31.00	12.00	0.01	0.01	53.00	0.11	30.00	6.60	7.20	0.31	7.00	31.00	
	MAX	27.80	5.90	35.00	3.50	385.00				12.00	13.90	1.90	1.81	0.09	12.00	12.09			5.50	5.20	0.02	31.00	12.00	0.01	0.01	53.00	0.11	30.00	6.60	7.20	0.31	7.00	31.00	
DP-D07-5	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	25.05		22.50	3.28	336.00				32.00	11.90	1.85	1.83	0.02	10.05	10.07	0.08		12.00	12.00	0.07	29.00	9.10	0.01	0.04	32.00	0.09	28.00	0.40	5.00	0.01	5.10	27.00	
	STD. DEV.	1.34		12.02	2.23	14.14					1.56	0.21	0.24	0.03	1.34	1.32																		
	MIN	24.10	5.70	14.00	1.70	326.00				32.00	10.80	1.70	1.66	0.01	9.10	9.14	0.08		12.00	12.00	0.07	29.00	9.10	0.01	0.04	32.00	0.09	28.00	0.40	5.00	0.01	5.10	27.00	
	MAX	26.00	6.00	31.00	4.86	346.00				32.00	13.00	2.00	2.00	0.04	11.00	11.01	0.08		12.00	12.00	0.07	29.00	9.10	0.01	0.04	32.00	0.09	28.00	0.40	5.00	0.01	5.10	27.00	
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	23.30		2.00	0.77	365.00				20.00	13.60	1.60	1.59	0.01	12.00	12.01	0.02		1.70	1.40	0.12	23.00	12.00	0.01	0.01	53.00	0.10	27.00	0.05	5.40	0.01	8.00	20.00	
	STD. DEV.																																	
	MIN	23.30	4.70	2.00	0.77	365.00				20.00	13.60	1.60	1.59	0.01	12.00	12.01	0.02		1.70	1.40	0.12	23.00	12.00	0.01	0.01	53.00	0.10	27.00	0.05	5.40	0.01	8.00	20.00	
	MAX	23.30	4.70	2.00	0.77	365.00				20.00	13.60	1.60	1.59	0.01	12.00	12.01	0.02		1.70	1.40	0.12	23.00	12.00	0.01	0.01	53.00	0.10	27.00	0.05	5.40	0.01	8.00	20.00	
DP-D07-9	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	0
	MEAN	24.67		2.00	2.40	514.67				46.00	25.05	2.55	2.54	0.01	22.50	22.51	0.05		2.90	1.80	0.21	39.00	23.00	0.01	0.01	68.00	0.12	37.00	0.06	8.40	0.01	12.00	39.00	
	STD. DEV.	0.83		0.00	1.90	112.49					1.77	1.06	1.06	0.00	0.71	0.71						5.66												
	MIN	24.00	3.70	2.00	0.80	392.00				46.00	23.80	1.80	1.79	0.01	22.00	22.01	0.05		2.90	1.80	0.21	35.00	23.00	0.01	0.01	68.00	0.12	37.00	0.06	8.40	0.01	12.00	39.00	
	MAX	25.60	4.50	2.00	4.50	613.00				46.00	26.30	3.30	3.29	0.01	23.00	23.01	0.05		2.90	1.80	0.21	43.00	23.00	0.01	0.01	68.00	0.12	37.00	0.06	8.40	0.01	12.00	39.00	
DP-D7.5-14	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.50		5.33	0.59	509.25				10.00	27.99	1.99	1.94	0.05	26.00	26.05	0.10		2.65	1.25	0.09	45.50	27.00	0.01	0.04	42.00	0.10	39.00	0.04	11.00	0.12	11.00	38.00	
	STD. DEV.	1.57		4.16	0.39	74.01					4.86	1.26	1.32	0.06	3.61	3.55			0.35	0.07		12.02												
	MIN	21.20	4.50	2.00	0.20	432.00				10.00	22.68	0.68	0.56	0.01	22.00	22.12	0.10		2.40	1.20	0.09	37.00	27.00	0.01	0.04	42.00	0.10	39.00	0.04	11.00	0.12	11.00	38.00	
	MAX	24.60	7.01	10.00	1.10	608.00				10.00	32.20	3.20	3.19	0.12	29.00	29.01	0.10		2.90	1.30	0.09	54.00	27.00	0.01	0.04	42.00	0.10	39.00	0.04	11.00	0.12	11.00	38.00	
DP-D7.5-20	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	23.80		5.97	1.44	361.67				10.00	14.47	1.13	1.12	0.02	13.33	13.35	0.16		1.80	1.30	0.04	26.00	16.30	0.01	0.16	67.00	0.05	28.00	0.02	6.50	0.21	16.00	6.70	
	STD. DEV.	1.44		4.00	1.04	147.87					10.25	0.29	0.29	0.01	10.10	10.11							12.30	0.00										
	MIN	22.20	5.10	2.00	0.50	258.00				10.00	8.20	0.80	0.78	0.01	7.40	7.42	0.16		1.80	1.30	0.04	10.00	7.60	0.01	0.16	67.00	0.05	28.00	0.02	6.50	0.21	16.00	6.70	
	MAX	25.00	7.01	10.00	2.55	531.00				10.00	26.30	1.30	1.30	0.02	25.00	25.02	0.16		1.80	1.30	0.04	42.00	25.00	0.01	0.16	67.00	0.05	28.00	0.02	6.50	0.21	16.00	6.70	
DP-D7.5-26	n	3	3	3	3	3	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.50		5.33	1.33	292.00					10.44	1.07	0.76	0.31	9.37	9.67																		
	STD. DEV.	1.95		4.16	0.77	3.00					2.26	0.20	0.65	0.50	2.37	2.32																		
	MIN	21.30	5.20	2.00	0.50	289.00					8.70	0.92	0.04	0.01	7.40	7.41						14.00	8.70	0.01										
	MAX	25.00	7.01	10.00	2.01	295.00					12.99	1.30	1.30	0.88	12.00	12.04						14.00	8.70	0.01										
DP-D08-9	n	3	3	3	3	4	0	0	0	2	2	2	2	2	2	2	2	0	0	1	1	3	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	25.77		31.00	1.99	454.00				22.00	15.25	1.75	1.64	0.12	13.50	13.62	0.16			3.50	0.06	37.33	13.50	0.01	0.15	52.00	0.09	33.00	11.00	10.00	0.33	8.00	35.00	
	STD. DEV.	1.46		15.56	0.74	45.71				8.49	8.13	0.35	0.35	0.01	7.78	7.79	0.00					4.04	7.78	0.00										
	MIN	24.60	5.00	20.00	1.36	411.00				16.00	9.50	1.50	1.39	0.11	8.00	8.11	0.16			3.50	0.06	35.00	8.00	0.01	0.15	52.00	0.09	33.00	11.00	10.00	0.33	8.00	35.00	
	MAX	27.40	5.60	42.00	2.80	502.00				28.00	21.00	2.00	1.88	0.12	19.00	19.12	0.16			3.50	0.06	42.00	19.00	0.01	0.15	52.00	0.09	33.00	11.00	10.00	0.33	8.00	35.00	
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	19.80		2.00	5.05	409.50					16.84	0.84	0.82	0.02	16.00	16.02																		
	STD. DEV.	3.96		0.00	0.77	65.76					7.07	0.00	0.01	0.01	7.07	7.06																		
	MIN	17.00	4.50	2.00	4.50	363.00					11.84	0.84	0.81	0.01	11.00	11.03																		
	MAX	22.60	4.82	2.00	5.59	456.00					21.84	0.84	0.83	0.03	21.00	21.01																		
DP-D09-8	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	23.45		2.00	1.53	532.00				10.00	25.33	2.33	2.28	0.05	23.00	23.05	0.03		2.85	2.35	0.23	48.50	26.50	0.01	0.05	69.00	0.12	44.50	0.03	11.75	0.01	11.55	42.50	
	STD. DEV.	3.84		0.00	1.35	126.03				0.00	9.06	0.95	0.93	0.06	8.21	8.20			0.07	0.07	0.17	2.12	6.36	0.00	0.06	7.07	0.00	10.61	0.00	3.18	0.00	3.46	6.36	
	MIN	18.40	4.40	2.00	0.50	380.00				10.00	12.91	0.91	0.89	0.01	12.00	12.02	0.03		2.80	2.30	0.11	47.00	22.00	0.01	0.01	64.00	0.12	37.00	0.03	9.50	0.01	9.10	38.00	
	MAX	27.00	4.65	2.00	3.52	670.00				10.00	33.80	2.80	2.80	0.14	31.00	31.03	0.03		2.90	2.40	0.35	50.00	31.00	0.01	0.09	74.00	0.12	52.00	0.03	14.00	0.01	14.00	47.00	
DP-D09-15	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	2	2	1	2	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	23.38		9.75	1.77	494.75				10.50	21.08	1.83	1.81	0.03	19.25	19.28	0.50		4.25	2.90	0.04	38.00	23.00	0.01	0.01	59.00	0.12	35.00	0.05	9.30	0.11	13.00	32.00	
	STD. DEV.	3.09		5.56	1.03	81.70				0.71	6.56	0.96	1.00	0.04	5.80	5.77			1.48	0.57		9.90	5.66	0.00										
	MIN	19.10	4.80	2.00	0.90	433.00				10.00	13.43	0.43	0.34	0.01	13.00	13.09	0.50		3.20	2.50	0.04	31.00	19.00	0.01	0.01	59.00	0.12	35.00	0.05	9.30	0.11	13.00	32.00	
	MAX	26.20	5.40	15.00	3.20	615.00				11.00	29.40	2.50	2.50	0.09	27.00	27.01	0.50		5.30	3.30	0.04	45.00	27.00	0.01	0.01	59.00	0.12	35.00	0.05	9.30	0.11	13.00	32.00	
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	22.95		3.45	1.08	299.00					7.99	0.34	0.31	0.03	7.65	7.68																		
	STD. DEV.	1.77		2.05	0.39	1.41					0.45	0.09	0.13	0.03	0.35	0.32																		
	MIN	21.70	5.30	2.00	0.80	298.00					7.67	0.27	0.22	0.01	7.40	7.45																		
	MAX	24.20	5.78	4.90	1.35	300.00					8.30	0.40	0.40	0.05	7.90	7.91																		
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	22.35		7.00	1.51	289.50					1.79	0.68	0.65	0.03	1.12	1.14																		
	STD. DEV.	3.04		5.66	1.06	27.58					0.51	0.60	0.63	0.03	1.11	1.14																		
	MIN	20.20	5.97	3.00	0.76	270.00					1.43	0.25	0.20	0.01	0.33	0.34																		
	MAX	24.50	6.00	11.00	2.26	309.00					2.15	1.10	1.09	0.05	1.90	1.95																		

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_2-N^-	NO_3-N^-	PO_4-P^-	$SO_4^=$	B	Ca	Fe	Mg	Mn	K	Na	
DP-D10-8	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	23.80		23.00	1.45	337.00					4.10	1.90	1.88	0.03	2.20	2.23																		
	STD. DEV.																																	
	MIN	23.80	5.70	23.00	1.45	337.00					4.10	1.90	1.88	0.03	2.20	2.23																		
	MAX	23.80	5.70	23.00	1.45	337.00					4.10	1.90	1.88	0.03	2.20	2.23																		
DP-D11-11	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.67		20.45	1.60	461.67				10.00	22.20	1.70	1.66	0.05	20.50	20.55	0.12					36.00	16.00	0.01										
	STD. DEV.	2.57		14.92	0.63	18.61					6.51	0.14	0.09	0.05	6.36	6.41						4.24												
	MIN	21.70	5.20	9.90	1.10	442.00				10.00	17.60	1.60	1.59	0.01	16.00	16.01	0.12					33.00	16.00	0.01										
	MAX	26.30	5.30	31.00	2.30	479.00				10.00	26.80	1.80	1.72	0.08	25.00	25.08	0.12					39.00	16.00	0.01										
DP-D12-11	n	3	3	3	3	3	0	0	0	2	3	3	3	3	3	3	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	24.73		7.37	0.72	483.33				10.50	18.13	2.63	2.14	0.50	15.50	16.00	0.11		2.60	1.80	0.01	36.50	18.50	0.01	0.01	52.00	0.13	38.00	0.04	9.10	0.07	11.00	31.00	
	STD. DEV.	2.12		2.43	0.45	5.51				0.71	5.08	0.15	0.08	0.23	5.22	5.02																		
	MIN	22.30	4.60	5.20	0.30	477.00				10.00	12.30	2.50	2.06	0.29	9.50	10.24	0.11		2.60	1.80	0.01	36.00	18.00	0.01	0.01	52.00	0.13	38.00	0.04	9.10	0.07	11.00	31.00	
	MAX	26.20	4.90	10.00	1.20	487.00				11.00	21.60	2.80	2.21	0.74	19.00	19.46	0.11		2.60	1.80	0.01	37.00	19.00	0.01	0.01	52.00	0.13	38.00	0.04	9.10	0.07	11.00	31.00	
DP-E02-6	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	21.30		4.90	2.41	98.50					2.02	0.42	0.40	0.02	1.60	1.62																		
	STD. DEV.																																	
	MIN	21.30	5.50	4.90	2.41	98.50					2.02	0.42	0.40	0.02	1.60	1.62																		
	MAX	21.30	5.50	4.90	2.41	98.50					2.02	0.42	0.40	0.02	1.60	1.62																		
DP-E02-8	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	21.30		5.00	0.46	158.90					0.64	0.22	0.21	0.01	0.42	0.43																		
	STD. DEV.																																	
	MIN	21.30	5.10	5.00	0.46	158.90					0.64	0.22	0.21	0.01	0.42	0.43																		
	MAX	21.30	5.10	5.00	0.46	158.90					0.64	0.22	0.21	0.01	0.42	0.43																		
DP-E03-10	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	21.30		6.90	2.21	211.30					2.61	0.81	0.74	0.08	1.80	1.88																		
	STD. DEV.																																	
	MIN	21.30	5.30	6.90	2.21	211.30					2.61	0.81	0.74	0.08	1.80	1.88																		
	MAX	21.30	5.30	6.90	2.21	211.30					2.61	0.81	0.74	0.08	1.80	1.88																		
DP-E04-6	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	0
	MEAN	22.30		2.00	3.49	90.60				39.00	1.13	0.67	0.65	0.02	0.46	0.48	2.50			3.20	0.08	2.70	0.46	0.01	0.01	21.00	0.05	7.50	0.33	1.80	0.05	0.94	2.30	
	STD. DEV.																																	
	MIN	22.30	4.70	2.00	3.49	90.60				39.00	1.13	0.67	0.65	0.02	0.46	0.48	2.50			3.20	0.08	2.70	0.46	0.01	0.01	21.00	0.05	7.50	0.33	1.80	0.05	0.94	2.30	
	MAX	22.30	4.70	2.00	3.49	90.60				39.00	1.13	0.67	0.65	0.02	0.46	0.48	2.50			3.20	0.08	2.70	0.46	0.01	0.01	21.00	0.05	7.50	0.33	1.80	0.05	0.94	2.30	
DP-E04-8	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.97		3.45	1.21	144.03				22.00	2.36	0.79	0.65	0.14	1.57	1.70	1.00					4.60	0.33	0.01										
	STD. DEV.	2.61		2.05	0.54	59.33					2.04	0.30	0.46	0.16	1.75	1.59						1.41												
	MIN	22.00	4.00	2.00	0.60	76.00				22.00	0.91	0.58	0.33	0.02	0.33	0.58	1.00					3.60	0.33	0.01										
	MAX	26.90	4.90	4.90	1.60	185.00				22.00	3.80	1.00	0.98	0.25	2.80	2.82	1.00					5.60	0.33	0.01										
DP-E05-6	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	24.80		33.00	2.96	171.80					3.16	3.10	0.50	2.60	0.06	2.66																		
	STD. DEV.																																	
	MIN	24.80	6.00	33.00	2.96	171.80					3.16	3.10	0.50	2.60	0.06	2.66																		
	MAX	24.80	6.00	33.00	2.96	171.80					3.16	3.10	0.50	2.60	0.06	2.66																		
DP-E06-6	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	22.80		2.00	1.89	162.80					3.20	1.30	1.29	0.01	1.90	1.91																		
	STD. DEV.																																	
	MIN	22.80	4.40	2.00	1.89	162.80					3.20	1.30	1.29	0.01	1.90	1.91																		
	MAX	22.80	4.40	2.00	1.89	162.80					3.20	1.30	1.29	0.01	1.90	1.91																		
DP-E06-8	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	22.70		2.00	10.90	180.60					3.22	0.82	0.81	0.01	2.40	2.41																		
	STD. DEV.																																	
	MIN	22.70	4.50	2.00	10.90	180.60					3.22	0.82	0.81	0.01	2.40	2.41																		
	MAX	22.70	4.50	2.00	10.90	180.60					3.22	0.82	0.81	0.01	2.40	2.41																		
DP-E07-10	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.83		5.45	0.80	266.00				11.00	9.25	1.75	1.66	0.09	7.50	7.59	0.12					12.00	7.20	0.01										
	STD. DEV.	2.08		0.64	0.53	22.07					1.20	0.78	0.83	0.05	0.42	0.38						0.00												
	MIN	22.50	4.00	5.00	0.20	245.00				11.00	8.40	1.20	1.08	0.05	7.20	7.32	0.12					12.00	7.20	0.01										
	MAX	26.50	4.90	5.90	1.19	289.00				11.00	10.10	2.30	2.25	0.12	7.80	7.85	0.12					12.00	7.20	0.01										
DP-E08-6	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	22.40		3.00	1.83	326.00					12.00	2.10	2.09	0.01	9.90	9.91																		
	STD. DEV.																																	
	MIN	22.40	5.00	3.00	1.83	326.00					12.00	2.10	2.09	0.01	9.90	9.91																		
	MAX	22.40	5.00	3.00	1.83	326.00					12.00	2.10	2.09	0.01	9.90	9.91																		
DP-E08-8	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	25.07		3.00	0.84	333.33				13.00	11.70	1.65	1.60	0.05	10.05	10.10	0.09					24.00	9.10	0.01										
	STD. DEV.	2.19		0.00	0.62	25.40					1.27	0.07	0.01	0.06	1.34	1.28						2.83												
	MIN	22.60	4.20	3.00	0.30	304.00				13.00	10.80	1.60	1.60	0.01	9.10	9.19	0.09					22.00	9.10	0.01										
	MAX	26.80	5.00	3.00	1.52	348.00				13.00	12.60	1.70	1.61	0.09	11.00	11.01	0.09					26.00	9.10	0.01										

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_2-N^-	NO_3-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na	
DP-E10-6	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.05		2.50	0.70	379.50					10.15	1.35	1.33	0.03	8.80	8.83						31.00	9.10	0.01										
	STD. DEV.	2.90		0.71	0.14	38.89					0.64	0.21	0.18	0.03	0.42	0.45																		
	MIN	23.00	3.90	2.00	0.60	352.00					9.70	1.20	1.20	0.01	8.50	8.51						31.00	9.10	0.01										
	MAX	27.10	4.60	3.00	0.80	407.00					10.60	1.50	1.46	0.05	9.10	9.15						31.00	9.10	0.01										
DP-E11-12	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.77		8.45	0.53	478.67				10.00	16.65	1.65	1.62	0.03	15.00	15.03	0.03					35.50	17.00	0.01										
	STD. DEV.	1.70		0.64	0.40	33.71					2.90	0.07	0.05	0.02	2.83	2.85						4.95												
	MIN	23.00	5.00	8.00	0.30	441.00				10.00	14.60	1.60	1.58	0.02	13.00	13.02	0.03					32.00	17.00	0.01										
	MAX	26.40	5.10	8.90	0.99	506.00				10.00	18.70	1.70	1.66	0.05	17.00	17.05	0.03					39.00	17.00	0.01										
DP-E12-10	n	4	4	3	4	4	0	0	0	2	3	3	3	3	3	3	2	0	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	23.53		6.97	1.43	493.75				17.00	22.60	1.60	1.47	0.13	21.00	21.13	0.03		1.80	1.14	0.04	36.33	19.00	0.01	0.01	48.00	0.09	36.00	0.18	8.85	0.18	11.00	32.00	
	STD. DEV.	3.00		4.34	2.17	24.31				9.90	5.03	0.61	0.54	0.11	4.58	4.69	0.01		0.85	0.37	0.04	4.51	4.24	0.00	0.00	1.41	0.02	4.24	0.13	1.48	0.04	0.00	1.41	
	MIN	19.20	4.90	2.00	0.30	462.00				10.00	17.30	1.20	1.04	0.01	16.00	16.01	0.03		1.20	0.88	0.01	32.00	16.00	0.01	0.01	47.00	0.08	33.00	0.09	7.80	0.15	11.00	31.00	
	MAX	25.90	5.48	10.00	4.68	520.00				24.00	27.30	2.30	2.07	0.23	25.00	25.23	0.03		2.40	1.40	0.06	41.00	22.00	0.01	0.01	49.00	0.10	39.00	0.27	9.90	0.21	11.00	33.00	
DP-E12-15	n	4	4	3	4	4	0	0	0	2	3	3	3	3	3	3	2	0	1	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	23.63		5.97	1.12	519.75				12.00	25.19	1.53	1.44	0.09	23.67	23.76	0.03		2.20	1.16	0.05	37.00	22.50	0.01	0.10	54.00	0.11	37.50	0.04	8.55	0.04	12.50	38.50	
	STD. DEV.	1.87		3.56	0.94	71.72				2.83	5.07	0.86	0.96	0.14	5.86	5.92	0.02			0.34	0.03	6.56	7.78	0.00	0.12	0.00	0.01	3.54	0.01	2.05	0.01	0.71	7.78	
	MIN	21.90	4.88	2.00	0.40	460.00				10.00	19.50	0.88	0.63	0.01	17.00	17.01	0.01		2.20	0.92	0.03	31.00	17.00	0.01	0.01	54.00	0.10	35.00	0.03	7.10	0.03	12.00	33.00	
	MAX	25.70	5.20	8.90	2.47	607.00				14.00	29.20	2.50	2.50	0.25	28.00	28.02	0.04		2.20	1.40	0.08	44.00	28.00	0.01	0.18	54.00	0.12	40.00	0.05	10.00	0.05	13.00	44.00	
DP-E12-22	n	4	4	4	4	4	0	0	0	3	4	4	4	4	4	4	2	0	4	4	3	3	3	3	3	3	3.00	3	3	3	3	3	3	3	0
	MEAN	23.08		6.23	0.79	350.00				10.00	13.18	1.75	1.64	0.11	11.43	11.53	0.08		2.10	1.46	0.04	11.63	9.23	0.01	0.09	63.67	0.08	28.00	0.04	7.57	0.18	11.33	7.87	
	STD. DEV.	2.10		4.20	0.79	77.05				0.00	4.23	0.83	0.72	0.12	4.60	4.57			0.62	0.52	0.05	2.57	1.70	0.00	0.13	6.66	0.03	2.65	0.02	1.29	0.02	1.53	0.92	
	MIN	20.40	4.80	2.00	0.20	297.00				10.00	8.90	1.00	0.95	0.01	7.60	7.61	0.04		1.20	0.83	0.01	8.90	7.60	0.01	0.01	56.00	0.05	25.00	0.02	6.10	0.16	10.00	6.80	
	MAX	25.20	5.30	12.00	1.95	464.00				10.00	19.00	2.90	2.61	0.29	18.00	18.05	0.13		2.60	2.10	0.10	14.00	11.00	0.01	0.24	68.00	0.10	30.00	0.07	8.50	0.19	13.00	8.40	
DP-E12-28	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	1	1	3	2	2	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.50		3.33	0.85	305.50				10.00	9.47	1.70	1.66	0.04	7.77	7.81	0.07			0.50	0.02	14.67	7.70	0.01	0.07	59.00	0.05	27.00	0.02	9.50	0.11	15.00	5.30	
	STD. DEV.	1.43		1.15	0.78	11.73					2.68	0.72	0.71	0.03	2.10	2.09						0.58	2.97	0.00										
	MIN	21.90	4.80	2.00	0.40	295.00				10.00	6.50	0.90	0.86	0.01	5.60	5.64	0.07			0.50	0.02	14.00	5.60	0.01	0.07	59.00	0.05	27.00	0.02	9.50	0.11	15.00	5.30	
	MAX	25.10	5.30	4.00	2.01	320.00				10.00	11.70	2.30	2.23	0.07	9.80	9.81	0.07			0.50	0.02	15.00	9.80	0.01	0.07	59.00	0.05	27.00	0.02	9.50	0.11	15.00	5.30	
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	21.70		18.00	1.22	145.60					3.30	1.60	1.21	0.39	1.70	2.09																		
	STD. DEV.																																		
	MIN	21.70	6.20	18.00	1.22	145.60					3.30	1.60	1.21	0.39	1.70	2.09																		
	MAX	21.70	6.20	18.00	1.22	145.60					3.30	1.60	1.21	0.39	1.70	2.09																		
DP-F04-17	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.97		71.00	0.56	356.57				11.00	2.42	0.35	0.32	0.03	2.07	2.10	0.08					13.30	2.10	0.24										
	STD. DEV.	2.90		26.87	0.25	69.51					0.38	0.00	0.00	0.00	0.38	0.38						10.89												
	MIN	22.00	5.80	52.00	0.30	280.00				11.00	2.15	0.35	0.32	0.03	1.80	1.83	0.08					5.60	2.10	0.24										
	MAX	27.80	7.30	90.00	0.80	415.70				11.00	2.69	0.35	0.32	0.03	2.34	2.37	0.08					21.00	2.10	0.24										
DP-F04-22	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.35		9.95	0.66	292.05					9.28	1.38	1.36	0.02	7.90	7.92						12.00	7.60	0.01										
	STD. DEV.	2.19		0.07	0.08	31.18					2.30	1.87	1.88	0.00	0.42	0.42																		
	MIN	22.80	5.20	9.90	0.60	270.00					7.65	0.05	0.03	0.02	7.60	7.62						12.00	7.60	0.01										
	MAX	25.90	6.00	10.00	0.72	314.10					10.90	2.70	2.68	0.02	8.20	8.22						12.00	7.60	0.01										
DP-F04-32	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.57		55.50	0.61	323.53				10.00	0.81	0.22	0.16	0.05	0.60	0.65	0.21					12.30	0.48	0.01										
	STD. DEV.	1.45		19.09	0.38	29.52					0.21	0.05	0.06	0.01	0.16	0.15						9.48												
	MIN	23.10	5.90	42.00	0.30	290.00				10.00	0.66	0.18	0.12	0.04	0.48	0.54	0.21					5.60	0.48	0.01										
	MAX	26.00	6.90	69.00	1.04	345.60				10.00	0.96	0.25	0.21	0.06	0.71	0.75	0.21					19.00	0.48	0.01										
DP-F05-5	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	28.25		8.45	3.98	175.65				10.00	1.69	1.42	1.29	0.13	0.27	0.40	0.18					4.30	0.42	0.10										
	STD. DEV.	0.78		2.19	4.78	3.32					1.03	1.39	1.39	0.00	0.36	0.36																		
	MIN	27.70	4.80	6.90	0.60	173.30				10.00	0.96	0.44	0.31	0.13	0.01	0.14	0.18					4.30	0.42	0.10										
	MAX	28.80	5.80	10.00	7.36	178.00				10.00	2.41	2.40	2.27	0.13	0.52	0.65	0.18					4.30	0.42	0.10										
DP-F05-31	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	24.10		69.00	1.70	187.10				18.00	2.02	0.62	0.55	0.07	1.40	1.47	0.29			1.70	0.58	10.00	1.30	0.11	0.01	23.00	0.05	31.00	1.50	6.40	0.06	2.90	11.00	
	STD. DEV.																																		
	MIN	24.10	7.30	69.00	1.70	187.10				18.00	2.02	0.62	0.55	0.07	1.40	1.47	0.29			1.70	0.58	10.00	1.30	0.11	0.01	23.00	0.05	31.00	1.50	6.40	0.06	2.90	11.00	
	MAX	24.10	7.30	69.00	1.70	187.10				18.00	2.02	0.62	0.55	0.07	1.40	1.47	0.29			1.70	0.58	10.00	1.30	0.11	0.01	23.00	0.05	31.00	1.50	6.40	0.06	2.90	11.00	
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	21.80		4.00	0.30	190.60					1.83	0.33	0.27	0.06	1.50	1.56																		
	STD. DEV.																																		
	MIN	21.80	5.20	4.00	0.30	190.60					1.83	0.33	0.27	0.06	1.50	1.56																		
	MAX	21.80	5.20	4.00	0.30	190.60					1.83	0.33	0.27	0.06	1.50	1.56																		
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	22.45		225.00	3.69	956.50					7.05	1.05	0.91	0.14	6.00	6.14																		
	STD. DEV.	0.07		120.21	3.40	644.17					3.32	0.21	0.28	0.07	3.54	3.61																		
	MIN	22.40	7.04	140.00	1.28	501.00					4.70	0.90	0.71	0.09	3.50	3.59																		
	MAX	22.50	7.60	310.00	6.09	1412.00					9.40	1.20	1.11	0.19	8.50	8.69																		
DP-F08-20	n	4	4	3	4	4	0	0	0	2	3	3	3	3	3	3	2	0	1	2	1	3	2	2	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.23		7.63	0.80	337.15				10.00	9.99	1.39	1.36	0.03	8.60	8.63	0.33		3.00	1.60	0.03	12.33	7.90	0.01	0.01	65.00	0.05	32.00	0.07	7.30	0.22	14.00	6.40	
	STD. DEV.	1.34		4.01	0.66	29.35				0.00	1.38	0.64	0.64	0.00	1.40	1.40	0.00			1.13		1.53	0.99	0.00										
	MIN	23.10	5.00	3.00	0.40	298.00				10.00	8.40	0.87	0.83	0.03	7.20	7.23	0.33		3.00	0.80	0.03	11.00	7.20	0.01	0.01	65.00	0.05	32.00	0.07	7.30	0.22	14.00	6.40	
	MAX	25.90	6.34	10.00	1.77	368.00				10.00	10.87	2.10	2.07	0.04	10.00	10.04	0.33		3.00	2.40	0.03	14.00	8.60	0.01	0.01	65.00	0.05	32.00	0.07	7.30	0.22	14.00	6.40	

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)
	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0
DP-F08-28	MEAN	24.05		21.00	0.73	319.48					3.26	0.69	0.63	0.06	2.57	2.63				
	STD. DEV.	1.03		12.77	0.68	14.81					1.23	0.38	0.41	0.08	0.95	0.99				
	MIN	23.10	5.10	10.00	0.30	298.00					1.84	0.34	0.31	0.01	1.50	1.53				
	MAX	25.40	6.30	35.00	1.73	332.00					4.00	1.10	1.09	0.15	3.30	3.45				
	n	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1
DP-F09-05	MEAN	24.80		22.00	1.15	191.10				24.00	3.40	1.50	1.27	0.23	1.90	2.13	0.27			7.70
	STD. DEV.																			
	MIN	24.80	6.60	22.00	1.15	191.10				24.00	3.40	1.50	1.27	0.23	1.90	2.13	0.27			7.70
	MAX	24.80	6.60	22.00	1.15	191.10				24.00	3.40	1.50	1.27	0.23	1.90	2.13	0.27			7.70
	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	1	1
DP-F10-11	MEAN	24.53		6.00	0.57	471.30				10.00	24.50	2.50	1.76	0.74	22.00	22.74	0.08		2.00	1.50
	STD. DEV.	2.93		5.66	0.21	23.34					11.03	0.28	0.79	0.51	11.31	11.82				
	MIN	21.30	4.20	2.00	0.40	446.00				10.00	16.70	2.30	1.20	0.38	14.00	14.38	0.08		2.00	1.50
	MAX	27.00	4.90	10.00	0.80	492.00				10.00	32.30	2.70	2.32	1.10	30.00	31.10	0.08		2.00	1.50
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0
DP-F11-11	MEAN	23.53		6.97	1.99	403.68				10.00	16.53	1.53	0.85	0.68	15.00	15.68	0.10			
	STD. DEV.	3.67		4.34	2.23	34.61					5.29	0.15	0.57	0.73	5.29	5.27				
	MIN	19.50	4.80	2.00	0.30	366.00				10.00	12.40	1.40	0.20	0.11	11.00	11.11	0.10			
	MAX	27.20	5.35	10.00	5.26	447.00				10.00	22.50	1.70	1.29	1.50	21.00	21.44	0.10			
	n	4	4	3	4		0	0	0	1	3	3	3	3	3	3	1	0	0	0
DP-F11-15	MEAN	23.85		6.63	1.16	494.08				10.00	26.37	1.37	1.18	0.19	25.00	25.19	0.28			
	STD. DEV.	1.95		4.15	1.66	38.93					5.95	0.23	0.40	0.17	6.08	6.21				
	MIN	21.80	4.70	2.00	0.20	453.30				10.00	19.50	1.10	0.72	0.05	18.00	18.05	0.28			
	MAX	26.20	5.10	10.00	3.64	547.00				10.00	30.10	1.50	1.45	0.38	29.00	29.38	0.28			
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	1	1
DP-F11-18	MEAN	23.90		6.63	1.07	390.23				11.00	16.58	0.91	0.87	0.04	15.67	15.71	0.09		4.10	1.30
	STD. DEV.	1.58		4.15	1.03	97.46					8.24	0.96	0.94	0.02	7.77	7.77				
	MIN	22.20	5.00	2.00	0.30	271.00				11.00	7.18	0.18	0.14	0.02	7.00	7.04	0.09		4.10	1.30
	MAX	25.80	5.40	10.00	2.48	497.00				11.00	22.55	2.00	1.93	0.07	22.00	22.02	0.09		4.10	1.30
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0
DP-F11-21	MEAN	23.80		5.97	0.83	346.10				34.00	16.39	0.89	0.86	0.02	15.50	15.52	0.81			
	STD. DEV.	1.47		4.00	0.85	75.07					6.94	0.23	0.24	0.02	6.95	6.93				
	MIN	22.50	4.90	2.00	0.40	298.00				34.00	8.42	0.64	0.62	0.01	7.50	7.55	0.81			
	MAX	25.60	5.20	10.00	2.10	458.00				34.00	21.10	1.10	1.10	0.05	20.00	20.01	0.81			
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0
DP-F11-24	MEAN	23.88		5.33	0.56	345.53				10.00	16.89	0.89	0.87	0.02	16.00	16.02	0.35			
	STD. DEV.	1.25		4.16	0.43	86.51					6.22	0.36	0.37	0.01	6.56	6.55				
	MIN	22.80	4.80	2.00	0.20	296.00				10.00	11.10	0.47	0.45	0.01	10.00	10.03	0.35			
	MAX	25.40	5.10	10.00	1.15	475.00				10.00	23.47	1.10	1.09	0.03	23.00	23.02	0.35			
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0
DP-F11-27	MEAN	24.03		5.63	0.45	310.38				10.00	6.08	0.84	0.82	0.03	5.23	5.26	0.55			
	STD. DEV.	0.98		4.05	0.26	14.51					2.20	0.45	0.47	0.02	1.86	1.85				
	MIN	23.20	4.90	2.00	0.20	297.00				10.00	4.53	0.40	0.36	0.01	3.70	3.73	0.55			
	MAX	25.30	5.30	10.00	0.82	331.00				10.00	8.60	1.30	1.29	0.04	7.30	7.31	0.55			
	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0
DP-F12-10	MEAN	24.50		2.00	0.57	450.00				10.00	18.39	0.89	0.77	0.12	17.50	17.62	0.10			
	STD. DEV.	2.69		0.00	0.35	43.35					8.64	0.86	0.80	0.06	7.78	7.84				
	MIN	21.50	3.80	2.00	0.20	423.00				10.00	12.28	0.28	0.21	0.07	12.00	12.07	0.10			
	MAX	26.70	5.00	2.00	0.90	500.00				10.00	24.50	1.50	1.34	0.16	23.00	23.16	0.10			
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	1	1
DP-F15-14	MEAN	23.38		14.00	0.59	466.15				10.00	22.50	0.83	0.71	0.13	21.67	21.79	0.07		1.90	2.00
	STD. DEV.	2.19		7.00	0.36	44.47					8.03	0.63	0.69	0.06	8.08	8.08				
	MIN	21.50	4.50	9.00	0.30	408.60				10.00	17.26	0.26	0.07	0.07	17.00	17.07	0.07		1.90	2.00
	MAX	26.10	5.20	22.00	1.11	512.00				10.00	31.74	1.50	1.43	0.19	31.00	31.12	0.07		1.90	2.00
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	1	1
DP-F15-20	MEAN	23.53		9.33	0.53	420.25				10.00	19.32	0.68	0.62	0.06	18.63	18.69	0.50		1.10	1.20
	STD. DEV.	1.58		3.79	0.22	157.51					10.58	0.62	0.67	0.09	10.55	10.48				
	MIN	22.10	4.60	5.00	0.30	290.00				10.00	8.24	0.31	0.18	0.01	7.90	8.06	0.50		1.10	1.20
	MAX	25.30	5.40	12.00	0.78	649.00				10.00	29.31	1.40	1.40	0.16	29.00	29.02	0.50		1.10	1.20
	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0
DP-F15-26	MEAN	23.43		3.33	0.45	299.20				10.00	13.45	1.11	1.07	0.04	12.33	12.37	0.12			
	STD. DEV.	1.55		1.15	0.26	17.49					4.42	0.51	0.48	0.03	4.16	4.19				
	MIN	21.80	4.30	2.00	0.20	280.00				10.00	10.30	0.54	0.52	0.02	9.00	9.03	0.12			
	MAX	25.20	5.20	4.00	0.78	320.00				10.00	18.50	1.50	1.43	0.07	17.00	17.07	0.12			
	n	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1
DP-G05-6	MEAN	26.20		22.00	2.49	151.90				32.00	2.04	1.90	0.50	1.40	0.14	1.54	0.43			8.70
	STD. DEV.																			
	MIN	26.20	6.10	22.00	2.49	151.90				32.00	2.04	1.90	0.50	1.40	0.14	1.54	0.43			8.70
	MAX	26.20	6.10	22.00	2.49	151.90				32.00	2.04	1.90	0.50	1.40	0.14	1.54	0.43			8.70
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0
DP-G06-7	MEAN	28.90		34.00	2.36	184.00					0.68	0.55	0.28	0.27	0.13	0.40				
	STD. DEV.																			
	MIN	28.90	6.20	34.00	2.36	184.00					0.68	0.55	0.28	0.27	0.13	0.40				
	MAX	28.90	6.20	34.00	2.36	184.00					0.68	0.55	0.28	0.27	0.13	0.40				

Sample ID	Statistical Parameter	Anions: F^-	Cl^-	NO_2-N	NO_3-N	PO_4-P	SO_4^-	Cations: B	Ca	Fe	Mg	Mn	K	Na	TS
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F08-28	MEAN		19.00	1.50	0.01										
	STD. DEV.		1.41												
	MIN		18.00	1.50	0.01										
	MAX		20.00	1.50	0.01										
	n	1	1	1	1	1	1	1	1	1	1	1	1	1	0
DP-F09-05	MEAN	0.10	10.00	1.90	0.01	0.03	26.00	0.05	14.00	5.80	3.50	0.37	4.70	9.10	
	STD. DEV.														
	MIN	0.10	10.00	1.90	0.01	0.03	26.00	0.05	14.00	5.80	3.50	0.37	4.70	9.10	
	MAX	0.10	10.00	1.90	0.01	0.03	26.00	0.05	14.00	5.80	3.50	0.37	4.70	9.10	
	n	1	2	1	1	1	1	1	1	1	1	1	1	1	0
DP-F10-11	MEAN	0.18	31.50	14.00	0.01	0.04	55.00	0.09	30.00	0.05	7.90	0.15	9.10	29.00	
	STD. DEV.		0.71												
	MIN	0.18	31.00	14.00	0.01	0.04	55.00	0.09	30.00	0.05	7.90	0.15	9.10	29.00	
	MAX	0.18	32.00	14.00	0.01	0.04	55.00	0.09	30.00	0.05	7.90	0.15	9.10	29.00	
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F11-11	MEAN		31.50	11.00	0.01										
	STD. DEV.		0.71												
	MIN		31.00	11.00	0.01										
	MAX		32.00	11.00	0.01										
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F11-15	MEAN		33.00	18.00	0.01										
	STD. DEV.		1.41												
	MIN		32.00	18.00	0.01										
	MAX		34.00	18.00	0.01										
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F11-18	MEAN		13.95	7.00	0.01										
	STD. DEV.		7.14												
	MIN		8.90	7.00	0.01										
	MAX		19.00	7.00	0.01										
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F11-21	MEAN		11.50	7.50	0.01										
	STD. DEV.		2.12												
	MIN		10.00	7.50	0.01										
	MAX		13.00	7.50	0.01										
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F11-24	MEAN		15.50	10.00	0.01										
	STD. DEV.		0.71												
	MIN		15.00	10.00	0.01										
	MAX		16.00	10.00	0.01										
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F11-27	MEAN		16.00	4.70	0.01										
	STD. DEV.		0.00												
	MIN		16.00	4.70	0.01										
	MAX		16.00	4.70	0.01										
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F12-10	MEAN		34.00	12.00	0.01										
	STD. DEV.		0.00												
	MIN		34.00	12.00	0.01										
	MAX		34.00	12.00	0.01										
	n	1	2	1	1	1	1	1	1	1	1	1	1	1	0
DP-F15-14	MEAN	0.10	32.50	17.00	0.01	0.01	61.00	0.11	33.00	0.05	9.20	0.17	14.00	34.00	
	STD. DEV.		2.12												
	MIN	0.10	31.00	17.00	0.01	0.01	61.00	0.11	33.00	0.05	9.20	0.17	14.00	34.00	
	MAX	0.10	34.00	17.00	0.01	0.01	61.00	0.11	33.00	0.05	9.20	0.17	14.00	34.00	
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F15-20	MEAN		14.00	7.90	0.01										
	STD. DEV.		5.66												
	MIN		10.00	7.90	0.01										
	MAX		18.00	7.90	0.01										
	n	0	2	1	1	0	0	0	0	0	0	0	0	0	0
DP-F15-26	MEAN		13.50	9.00	0.01										
	STD. DEV.		0.71												
	MIN		13.00	9.00	0.01										
	MAX		14.00	9.00	0.01										
	n	1	1	1	1	1	1	1	1	1	1	1	1	1	0
DP-G05-6	MEAN	0.08	4.10	0.14	0.01	0.18	30.00	0.05	11.00	8.20	3.30	0.40	2.80	2.60	
	STD. DEV.														
	MIN	0.08	4.10	0.14	0.01	0.18	30.00	0.05	11.00	8.20	3.30	0.40	2.80	2.60	
	MAX	0.08	4.10	0.14	0.01	0.18	30.00	0.05	11.00	8.20	3.30	0.40	2.80	2.60	
	n	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-G06-7	MEAN														
	STD. DEV.														
	MIN														
	MAX														

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_2-N	NO_3-N	PO_4-P	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na	
DP-G07-13	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	28.3		10.5	2.0	237.0					2.79	1.00	0.83	0.17	1.79	1.96						5.8	0.88	0.01										
	STD. DEV.	2.7		4.9	1.2	16.1					0.86	0.42	0.65	0.23	1.29	1.51						0.1												
	MIN	25.2	5.2	7	0.8	224					2.18	0.70	0.37	0.01	0.88	0.89						5.7	0.88	0.01										
	MAX	29.9	5.8	14	3.1	255					3.40	1.30	1.29	0.33	2.7	3.03						5.8	0.88	0.01										
DP-G07-15	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.78		5.37	1.51	273.25				10.00	4.14	0.61	0.59	0.02	3.53	3.55	1.40					5.65	1.80	0.01										
	STD. DEV.	3.13		1.18	1.23	17.27					1.27	0.24	0.24	0.02	1.50	1.51						0.92												
	MIN	21.40	4.70	4.00	0.70	254.00				10.00	2.68	0.45	0.45	0.01	1.80	1.81	1.40					5.00	1.80	0.01										
	MAX	28.70	5.53	6.10	3.33	296.00				10.00	4.95	0.88	0.87	0.04	4.50	4.51	1.40					6.30	1.80	0.01										
DP-G07-17	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.03		5.00	1.23	316.50					7.77	1.04	1.03	0.01	6.73	6.74						8.30	4.60	0.01										
	STD. DEV.	1.71		0.10	0.79	15.42					1.96	0.70	0.69	0.00	2.15	2.15						1.41												
	MIN	21.90	4.80	4.90	0.40	300.00					6.30	0.31	0.31	0.01	4.60	4.61						7.30	4.60	0.01										
	MAX	26.00	5.36	5.10	2.19	337.00					10.00	1.70	1.69	0.01	8.90	8.91						9.30	4.60	0.01										
DP-G07-21	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	23.80		5.05	0.98	319.00				10.00	12.33	1.58	1.55	0.02	10.75	10.77	0.57		1.70	1.24	0.07	14.00	9.00	0.01	0.01	60.00	0.06	24.00	0.06	8.65	0.19	12.35	7.45	
	STD. DEV.	1.49		0.87	0.60	30.80				0.00	2.45	0.89	0.86	0.03	2.10	2.12			0.85	0.79	0.07	2.83	0.71	0.00	0.00	24.04	0.01	7.07	0.03	0.21	0.02	3.75	0.07	
	MIN	22.20	4.60	4.00	0.40	274.00				10.00	9.80	0.51	0.51	0.01	8.50	8.51	0.57		1.10	0.68	0.02	12.00	8.50	0.01	0.01	43.00	0.05	19.00	0.05	8.50	0.17	9.70	7.40	
	MAX	25.30	5.60	6.10	1.66	343.00				10.00	15.60	2.60	2.53	0.07	13.00	13.07	0.57		2.30	1.80	0.12	16.00	9.50	0.01	0.01	77.00	0.07	29.00	0.08	8.80	0.20	15.00	7.50	
DP-G07-24	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.85		5.67	0.82	289.25					13.31	1.60	1.59	0.01	11.71	11.72						13.50	8.00	0.14										
	STD. DEV.	1.52		1.24	0.26	13.84					2.96	1.01	1.01	0.00	3.13	3.13						3.54												
	MIN	22.30	4.70	4.90	0.60	271.00					9.94	0.50	0.50	0.01	8.14	8.15						11.00	8.00	0.14										
	MAX	25.60	5.70	7.10	1.13	300.00					15.50	2.50	2.50	0.01	14.00	14.01						16.00	8.00	0.14										
DP-G07-27	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.88		4.70	1.33	305.25					11.85	1.71	1.71	0.01	10.13	10.14						15.00	7.70	0.01										
	STD. DEV.	1.73		0.61	0.36	13.82					5.17	1.03	1.03	0.00	4.21	4.21						0.00												
	MIN	22.30	4.70	4.00	0.95	293.00					8.44	0.74	0.74	0.01	7.70	7.71						15.00	7.70	0.01										
	MAX	25.70	5.20	5.10	1.80	325.00					17.80	2.80	2.80	0.01	15.00	15.01						15.00	7.70	0.01										
DP-G08-05	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	1	0
	MEAN	27.10		7.95	4.32	165.90				10.00	2.00	0.93	0.88	0.04	1.08	1.12	0.14		3.90	3.40	0.50	3.80	0.55	0.01	0.05	46.00	0.05	13.00	3.60	3.70	0.26	4.30	3.30	
	STD. DEV.	1.41		4.31	4.70	11.46					0.74	0.01	0.05	0.05	0.74	0.69																		
	MIN	26.10	5.60	4.90	1.00	157.80				10.00	1.48	0.92	0.85	0.01	0.55	0.63	0.14		3.90	3.40	0.50	3.80	0.55	0.01	0.05	46.00	0.05	13.00	3.60	3.70	0.26	4.30	3.30	
	MAX	28.10	5.70	11.00	7.64	174.00				10.00	2.52	0.93	0.92	0.08	1.60	1.61	0.14		3.90	3.40	0.50	3.80	0.55	0.01	0.05	46.00	0.05	13.00	3.60	3.70	0.26	4.30	3.30	
DP-G09-11	n	3	3	2	3	3	0	0	0	2	2	2	2	2	2	2	2	0	0	1	1	3	2	2	1	1	1	1	1	1	1	1	1	1	0
	MEAN	26.73		9.45	2.13	287.67				25.50	7.21	0.66	0.65	0.01	6.55	6.56	0.22			1.30	0.04	10.67	6.55	0.01	0.01	51.00	0.05	27.00	1.10	5.60	0.26	7.00	12.00	
	STD. DEV.	2.38		2.19	0.75	10.26				21.92	4.23	0.62	0.62	0.00	3.61	3.61	0.16					2.08	3.61	0.00										
	MIN	24.00	5.40	7.90	1.40	279.00				10.00	4.22	0.22	0.21	0.01	4.00	4.01	0.11			1.30	0.04	9.00	4.00	0.01	0.01	51.00	0.05	27.00	1.10	5.60	0.26	7.00	12.00	
	MAX	28.30	5.60	11.00	2.90	299.00				41.00	10.20	1.10	1.09	0.01	9.10	9.11	0.33			1.30	0.04	13.00	9.10	0.01	0.01	51.00	0.05	27.00	1.10	5.60	0.26	7.00	12.00	
DP-G11-8	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.33		3.50	1.03	308.67				10.00	12.65	2.25	2.24	0.01	10.40	10.41	0.06					22.00	8.80	0.01										
	STD. DEV.	3.59		0.71	0.34	12.34					2.19	0.07	0.07	0.00	2.26	2.27						1.41												
	MIN	21.20	4.60	3.00	0.70	295.00				10.00	11.10	2.20	2.19	0.01	8.80	8.81	0.06					21.00	8.80	0.01										
	MAX	27.60	5.10	4.00	1.38	319.00				10.00	14.20	2.30	2.29	0.02	12.00	12.02	0.06					23.00	8.80	0.01										
DP-G12-9	n	3	3	3	3	3	0	0	0	2	3	3	2	3	3	3	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.23		2.33	2.07	354.33				11.00	11.63	1.80	1.98	0.03	9.83	9.86	0.19		4.60	2.20	0.17	26.50	9.65	0.11	0.01	60.00	0.06	22.00	0.81	5.90	0.15	5.60	23.00	
	STD. DEV.	2.60		0.58	1.67	11.72				1.41	0.80	0.46	0.44	0.02	0.38	0.37						0.71	0.35	0.13										
	MIN	21.40	4.20	2.00	0.20	341.00				10.00	10.80	1.40	1.66	0.01	9.40	9.44	0.19		4.60	2.20	0.17	26.00	9.40	0.01	0.01	60.00	0.06	22.00	0.81	5.90	0.15	5.60	23.00	
	MAX	26.50	5.00	3.00	3.40	363.00				12.00	12.40	2.30	2.29	0.04	10.10	10.11	0.19		4.60	2.20	0.17	27.00	9.90	0.20	0.01	60.00	0.06	22.00	0.81	5.90	0.15	5.60	23.00	
DP-G12-15	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	23.88		5.80	0.61	472.00				10.00	23.33	2.08	1.76	0.31	21.25	21.56	1.10		2.90	1.75	0.04	30.50	17.50	0.01	0.03	53.50	0.07	31.00	0.34	8.00	0.20	10.70	26.50	
	STD. DEV.	2.16		0.84	0.37	40.02				0.00	5.24	1.16	1.15	0.08	4.86	4.79			0.99	0.49	0.03	3.54	3.54	0.00	0.02	0.71	0.02	5.66	0.23	1.56	0.02	1.84	3.54	
	MIN	21.80	4.70	5.10	0.20	415.00				10.00	16.20	1.00	0.78	0.22	15.00	15.39	1.10		2.20	1.40	0.01	28.00	15.00	0.01	0.01	53.00	0.06	27.00	0.17	6.90	0.18	9.40	24.00	
	MAX	26.20	5.50	6.90	0.96	508.00				10.00	28.70	3.40	3.04	0.39	26.00	26.28	1.10		3.60	2.10	0.06	33.00	20.00	0.01	0.04	54.00	0.09	35.00	0.50	9.10	0.21	12.00	29.00	
DP-G12-18	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	24.20		8.45	0.73	400.33				26.00	18.15	1.45	1.44	0.01	16.70	16.71	1.10		3.30	2.10	0.06	18.35	4.40	0.01	0.06	67.00	0.10	21.00	0.59	5.70	0.11	8.90	12.00	
	STD. DEV.	1.83		2.19	0.61	120.79					17.75	0.35	0.36	0.00	17.39	17.39						15.06												
	MIN	22.20	4.80	6.90	0.20	264.00				26.00	5.60	1.20	1.19	0.01	4.40	4.40	1.10		3.30	2.10	0.06	7.70	4.40	0.01	0.06	67.00	0.10	21.00	0.59	5.70	0.11	8.90	12.00	
	MAX	25.80	5.30	10.00	1.40	494.00				26.00	30.70	1.70	1.70	0.01	29.00	29.01	1.10		3.30	2.10	0.06	29.00	4.40	0.01	0.06	67.00	0.10	21.00	0.59	5.70	0.11	8.90	12.00	
DP-G12-21	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.83		7.58	0.52	413.25				10.00	18.07	2.02	1.98	0.03	16.05	16.08	0.37		3.50	2.00	0.01	11.90	10.10	0.01	0.01	62.00	0.07	33.00	0.18	7.60	0.18	15.00	12.00	
	STD. DEV.	1.37		2.57	0.36	156.40				0.00	9.39	1.66	1.62	0.05	10.33	10.32						2.97	4.10	0.00										
	MIN	22.70	4.90	4.10	0.10	271.00				10.00	8.70	0.06	0.06	0.01	7.20	7.21	0.37		3.50	2.00	0.01	9.80	7.20	0.01	0.01	62.00	0.07	33.00	0.18	7.60	0.18	15.00	12.00	
	MAX	25.50	5.40	10.00	0.99	636.00				10.00	31.06	4.00	3.90	0.10	31.00	31.01	0.37		3.50	2.00	0.01	14.00	13.00	0.01	0.01	62.00	0.07	33.00	0.18	7.60	0.18	15.00	12.00	
DP-G12-24	n	3	3	3	3	3	0	0	0	2	3	3	3	3	3	3	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.30		6.37	0.47	320.00				30.50	12.23	1.16	1.15	0.01	11.07	11.07	0.71		1.80	1.40	0.19	15.00	10.60	0.01	0.01	59.00	0.07	27.00	0.04	11.00	0.18	15.00	6.70	
	STD. DEV.	1.42		3.21	0.32	16.37				28.99	1.50	0.16	0.16	0.00	1.62	1.61						0.00	1.98	0.00										
	MIN	22.70	4.80	3.90	0.20	302.00				10.00	10.50	0.98	0.98	0.01	9.20	9.21	0.71		1.80	1.40	0.19	15.00	9.20	0.01	0.01	59.00	0.07	27.00	0.04	11.00	0.18	15.00	6.70	
	MAX	25.40	5.40	10.00	0.82	334.00				51.00	13.20	1.30	1.29	0.01	12.00	12.01	0.71		1.80	1.40	0.19	15.00	12.00	0.01	0.01	59.00	0.07	27.00	0.04	11.00	0.18	15.00	6.70	
DP-G12-27	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.90		7.00	0.32	363.75				10.00	14.23	1.13	1.01	0.12	13.10	13.22	0.14					14.00	8.30	0.01										
	STD. DEV.	1.12		2.67	0.16	99.64					5.02	0.41	0.52	0.11	5.43	5.54						1.41												
	MIN	22.90	4.70	4.90	0.10	289.00				10.00	9.80	0.68	0.46	0.01	8.30	8.31	0.14					13.00	8.30	0.01										
	MAX	25.30	5.40	10.00	0.45	509.00				10.00	19.68	1.50	1.49	0.22	19.00	19.22	0.14					15.00	8.30	0.01										

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	0
	MEAN	25.60		15.00	6.73	136.70					1.75	1.70	0.10	1.60	0.05	1.65																			
	STD. DEV.																																		
	MIN	25.60	6.30	15.00	6.73	136.70					1.75	1.70	0.10	1.60	0.05	1.65																			
	MAX	25.60	6.30	15.00	6.73	136.70					1.75	1.70	0.10	1.60	0.05	1.65																			
DP-H06-7	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.17		24.50	4.31	152.13				10.00	1.47	1.15	0.61	0.55	0.32	0.86	0.78					4.50	0.48	0.01											
	STD. DEV.	5.21		9.19	0.34	12.00					0.16	0.07	0.08	0.15	0.23	0.08						0.00													
	MIN	19.80	5.80	18.00	4.04	140.00				10.00	1.35	1.10	0.55	0.44	0.15	0.80	0.78					4.50	0.48	0.01											
	MAX	30.20	6.00	31.00	4.70	164.00				10.00	1.58	1.20	0.66	0.65	0.48	0.92	0.78					4.50	0.48	0.01											
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	0
	MEAN	20.20		2.00	1.57	151.30					1.69	0.71	0.66	0.05	0.98	1.03																			
	STD. DEV.																																		
	MIN	20.20	5.10	2.00	1.57	151.30					1.69	0.71	0.66	0.05	0.98	1.03																			
	MAX	20.20	5.10	2.00	1.57	151.30					1.69	0.71	0.66	0.05	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	0
	MEAN	22.70		24.00	2.97	189.00					2.95	2.20	1.32	0.88	0.75	1.63																			
	STD. DEV.																																		
	MIN	22.70	6.20	24.00	2.97	189.00					2.95	2.20	1.32	0.88	0.75	1.63																			
	MAX	22.70	6.20	24.00	2.97	189.00					2.95	2.20	1.32	0.88	0.75	1.63																			
DP-H09-12	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.53		6.45	1.63	257.00				50.00	6.02	1.02	1.01	0.01	5.00	5.01	0.08					5.65	2.60	0.01											
	STD. DEV.	2.28		0.64	1.53	14.73					3.65	0.25	0.25	0.00	3.39	3.39						0.07													
	MIN	21.90	5.00	6.00	0.70	248.00				50.00	3.44	0.84	0.83	0.01	2.60	2.61	0.08					5.60	2.60	0.01											
	MAX	25.90	5.70	6.90	3.40	274.00				50.00	8.60	1.20	1.19	0.01	7.40	7.41	0.08					5.70	2.60	0.01											
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	1	0
	MEAN	25.35		21.00	5.47	216.25				10.00	2.07	0.42	0.30	0.11	1.65	1.76			4.30	3.60	0.03	7.20	1.20	0.11	0.01	51.00	0.06	20.00	4.10	4.70	0.42	9.30	6.30		
	STD. DEV.	4.45		5.66	0.52	16.62					0.06	0.29	0.25	0.04	0.35	0.32																			
	MIN	22.20	5.60	17.00	5.10	204.50				10.00	2.02	0.21	0.12	0.09	1.40	1.54			4.30	3.60	0.03	7.20	1.20	0.11	0.01	51.00	0.06	20.00	4.10	4.70	0.42	9.30	6.30		
	MAX	28.50	6.20	25.00	5.83	228.00				10.00	2.11	0.62	0.48	0.14	1.90	1.99			4.30	3.60	0.03	7.20	1.20	0.11	0.01	51.00	0.06	20.00	4.10	4.70	0.42	9.30	6.30		
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	0
	MEAN	21.90		7.90	0.94	188.50					2.81	0.81	0.76	0.05	2.00	2.05																			
	STD. DEV.																																		
	MIN	21.90	5.60	7.90	0.94	188.50					2.81	0.81	0.76	0.05	2.00	2.05																			
	MAX	21.90	5.60	7.90	0.94	188.50					2.81	0.81	0.76	0.05	2.00	2.05																			
DP-I06-14	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	22.78		6.30	0.98	222.58				10.00	3.08	0.73	0.73	0.01	2.35	2.36	0.61		3.10	2.45	0.13	5.70	2.35	0.01	0.09	61.50	0.05	22.00	0.08	4.90	0.18	10.20	3.10		
	STD. DEV.	2.50		0.48	0.67	12.07				0.00	0.96	0.26	0.26	0.00	0.72	0.72			0.14	0.07	0.09	0.42	0.35	0.00	0.09	0.71	0.01	1.41	0.08	0.14	0.01	1.13	0.00		
	MIN	20.40	4.70	5.90	0.30	212.30				10.00	2.07	0.55	0.55	0.01	1.50	1.51	0.61		3.00	2.40	0.06	5.40	2.10	0.01	0.02	61.00	0.05	21.00	0.02	4.80	0.17	9.40	3.10		
	MAX	25.40	5.30	7.00	1.66	240.00				10.00	4.30	1.10	1.10	0.01	3.20	3.21	0.61		3.20	2.50	0.19	6.00	2.60	0.01	0.15	62.00	0.06	23.00	0.14	5.00	0.19	11.00	3.10		
DP-I06-20	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	22.93		3.30	0.88	354.25				10.00	15.22	1.19	1.18	0.01	14.03	14.04	0.17		1.70	1.80	0.10	12.50	9.10	0.01	0.05	73.00	0.05	28.00	0.05	6.70	0.06	16.00	6.90		
	STD. DEV.	1.78		1.13	0.69	16.58					4.01	0.77	0.77	0.00	4.53	4.53						0.71													
	MIN	21.40	4.90	2.00	0.30	330.00				10.00	11.10	0.46	0.46	0.01	9.10	9.11	0.17		1.70	1.80	0.10	12.00	9.10	0.01	0.05	73.00	0.05	28.00	0.05	6.70	0.06	16.00	6.90		
	MAX	24.80	5.10	4.00	1.80	367.00				10.00	19.10	2.00	1.99	0.01	18.00	18.01	0.17		1.70	1.80	0.10	13.00	9.10	0.01	0.05	73.00	0.05	28.00	0.05	6.70	0.06	16.00	6.90		
DP-I06-26	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	1	1	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.93		2.67	1.00	303.50					12.56	1.56	1.55	0.01	11.00	11.01			0.75	1.00		14.00	9.00	0.01											
	STD. DEV.	1.72		0.58	1.00	7.05					3.17	1.02	1.02	0.00	2.65	2.64						0.00													
	MIN	21.30	4.90	2.00	0.20	295.00					10.38	0.38	0.38	0.01	9.00	9.01			0.75	1.00		14.00	9.00	0.01											
	MAX	24.60	5.01	3.00	2.36	312.00					16.20	2.20	2.20	0.01	14.00	14.01			0.75	1.00		14.00	9.00	0.01											
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	0
	MEAN	19.40		17.00	2.23	170.70					1.28	0.42	0.38	0.04	0.86	0.90																			
	STD. DEV.																																		
	MIN	19.40	5.80	17.00	2.23	170.70					1.28	0.42	0.38	0.04	0.86	0.90																			
	MAX	19.40	5.80	17.00	2.23	170.70					1.28	0.42	0.38	0.04	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	0
	MEAN	23.00		15.00	4.69	191.50					2.44	2.10	0.90	1.20	0.34	1.54																			
	STD. DEV.																																		
	MIN	23.00	6.50	15.00	4.69	191.50					2.44	2.10	0.90	1.20	0.34	1.54																			
	MAX	23.00	6.50	15.00	4.69	191.50					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	0
	MEAN	21.50		3.00	0.77	180.60					2.22	0.72	0.72	0.01	1.50	1.51																			
	STD. DEV.																																		
	MIN	21.50	5.10	3.00	0.77	180.60					2.22	0.72	0.72	0.01	1.50	1.51																			
	MAX	21.50	5.10	3.00	0.77	180.60					2.22	0.72	0.72	0.01	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	0
	MEAN	20.20		27.00	5.10	173.40					1.75	1.40	0.74	0.66	0.35	1.01																			
	STD. DEV.																																		
	MIN	20.20	6.20	27.00	5.10	173.40					1.75	1.40	0.74	0.66	0.35	1.01																			
	MAX	20.20	6.20	27.00	5.10	173.40					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	0
	MEAN	21.40		17.00	0.90	166.80					1.03	0.64	0.38	0.26	0.39	0.65																			
	STD. DEV.																																		
	MIN	21.40	5.70	17.00	0.90	166.80					1.03	0.64	0.38	0.26	0.39	0.65																			
	MAX	21.40	5.70	17.00	0.90	166.80					1.03	0.64	0.38	0.26	0.39	0.65																			

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	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.90		8.50	0.96	120.20				10.00	4.55	0.83	0.82	0.01	3.72	3.73	0.30					3.85	0.34	0.01										
	STD. DEV.	2.61			0.80	22.43					4.55	0.23	0.22	0.00	4.78	4.78						1.06												
	MIN	21.90	4.70	6.00	0.40	95.00				10.00	1.33	0.67	0.67	0.01	0.34	0.35	0.30					3.10	0.34	0.01										
	MAX	26.60	5.60	11.00	1.87	138.00				10.00	7.77	0.99	0.98	0.01	7.10	7.11	0.30					4.60	0.34	0.01										
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
	MEAN	23.50		15.00	2.90	161.65					3.75	3.70	0.70	3.00	0.05	3.05						4.30												
	STD. DEV.	5.37			0.28	30.19																												
	MIN	19.70	5.90	15.00	2.70	140.30					3.75	3.70	0.70	3.00	0.05	3.05						4.30												
	MAX	27.30	6.00	15.00	3.10	183.00					3.75	3.70	0.70	3.00	0.05	3.05						4.30												
DP-J09-12	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.33		2.50	0.70	175.67					1.49	0.51	0.50	0.01	0.98	0.99						4.90	0.86	0.01										
	STD. DEV.	2.81		0.71	0.27	11.72					0.08	0.08	0.08	0.00	0.17	0.17						0.42												
	MIN	21.10	4.80	2.00	0.40	167.00					1.43	0.45	0.45	0.01	0.86	0.87						4.60	0.86	0.01										
	MAX	26.20	5.00	3.00	0.90	189.00					1.55	0.57	0.56	0.01	1.10	1.11						5.20	0.86	0.01										
DP-J09-14	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.55		3.00	1.18	229.28				10.00	5.03	0.63	0.62	0.01	4.40	4.41	0.40					6.70	2.30	0.01										
	STD. DEV.	2.27		1.00	1.42	16.12					2.78	0.19	0.19	0.00	2.67	2.66						1.56												
	MIN	21.40	4.50	2.00	0.30	210.00				10.00	2.98	0.42	0.42	0.01	2.30	2.31	0.40					5.60	2.30	0.01										
	MAX	26.10	4.80	4.00	3.29	249.00				10.00	8.19	0.79	0.79	0.01	7.40	7.41	0.40					7.80	2.30	0.01										
DP-J09-20	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	1	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.73		3.67	0.68	347.78				10.00	11.87	0.64	0.63	0.01	11.23	11.24	0.73			0.91		11.50	8.60	0.01										
	STD. DEV.	1.44		1.53	0.62	22.88					5.51	0.58	0.58	0.00	5.00	5.00																		
	MIN	22.10	4.40	2.00	0.20	320.00				10.00	8.15	0.05	0.05	0.01	8.10	8.11	0.73			0.91		10.00	8.60	0.01										
	MAX	25.50	5.00	5.00	1.57	368.00				10.00	18.20	1.20	1.20	0.01	17.00	17.01	0.73			0.91		13.00	8.60	0.01										
DP-J09-26	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.73		3.00	0.99	298.30					13.03	1.30	1.29	0.01	11.73	11.74						13.50	9.90	0.01										
	STD. DEV.	1.28		1.00	1.04	5.79					4.05	0.35	0.35	0.00	3.71	3.71						0.71												
	MIN	22.50	4.50	2.00	0.20	292.00					10.40	1.10	1.09	0.01	9.30	9.31						13.00	9.90	0.01										
	MAX	25.40	5.00	4.00	2.51	306.00					17.70	1.70	1.70	0.01	16.00	16.01						14.00	9.90	0.01										
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
	MEAN	24.00		14.00	3.48	186.60					3.40	2.40	0.00	2.40	1.00	3.40																		
	STD. DEV.																																	
	MIN	24.00	5.90	14.00	3.48	186.60					3.40	2.40	0.00	2.40	1.00	3.40																		
	MAX	24.00	5.90	14.00	3.48	186.60					3.40	2.40	0.00	2.40	1.00	3.40																		
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	0
	MEAN	23.70		2.00	1.02	196.70				14.00	2.65	0.55	0.55	0.01	2.10	2.11	0.01			1.10	0.16	6.30	2.10	0.01	0.01	65.00	0.05	16.00	0.04	4.20	0.15	3.80	2.90	
	STD. DEV.																																	
	MIN	23.70	4.40	2.00	1.02	196.70				14.00	2.65	0.55	0.55	0.01	2.10	2.11	0.01			1.10	0.16	6.30	2.10	0.01	0.01	65.00	0.05	16.00	0.04	4.20	0.15	3.80	2.90	
	MAX	23.70	4.40	2.00	1.02	196.70				14.00	2.65	0.55	0.55	0.01	2.10	2.11	0.01			1.10	0.16	6.30	2.10	0.01	0.01	65.00	0.05	16.00	0.04	4.20	0.15	3.80	2.90	
DP-J12-13	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.63		4.50	0.71	231.00					4.40	0.55	0.54	0.01	3.85	3.86						5.55	2.10	0.01										
	STD. DEV.	1.62		0.71	0.72	22.34					2.57	0.09	0.10	0.00	2.47	2.47						0.35												
	MIN	22.90	4.60	4.00	0.30	206.00					2.58	0.48	0.47	0.01	2.10	2.11						5.30	2.10	0.01										
	MAX	26.10	4.90	5.00	1.54	249.00					6.21	0.61	0.61	0.01	5.60	5.61						5.80	2.10	0.01										
DP-J12-15	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.23		3.97	0.86	280.13				10.00	6.19	0.49	0.49	0.01	5.70	5.71	0.77					6.75	3.60	0.01										
	STD. DEV.	2.02		1.95	0.56	10.51					2.41	0.46	0.46	0.00	2.52	2.52						0.78												
	MIN	22.10	4.60	2.00	0.30	265.00				10.00	4.57	0.05	0.05	0.01	3.60	3.61	0.77					6.20	3.60	0.01										
	MAX	26.80	5.10	5.90	1.50	287.50				10.00	8.96	0.97	0.96	0.01	8.50	8.51	0.77					7.30	3.60	0.01										
DP-J12-20	n	4	4	3	4	4	0	0	0	2	3	3	3	3	3	3	2.00	0	1	2	1	3	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	24.13		4.63	0.78	344.98				14.00	9.40	0.87	0.86	0.01	8.53	8.54	0.50		2.60	1.40	0.01	12.00	8.90	0.01	0.01	88.00	0.05	33.00	0.02	9.60	0.06	21.00	4.30	
	STD. DEV.	1.24		2.28	0.44	13.30				5.66	1.84	0.61	0.61	0.00	1.27	1.27	0.54			0.14		2.00	1.56	0.00										
	MIN	22.90	4.90	2.00	0.40	327.00				10.00	8.08	0.28	0.27	0.01	7.80	7.81	0.11		2.60	1.30	0.01	10.00	7.80	0.01	0.01	88.00	0.05	33.00	0.02	9.60	0.06	21.00	4.30	
	MAX	25.70	5.60	6.00	1.20	356.00				18.00	11.50	1.50	1.50	0.01	10.00	10.01	0.88		2.60	1.50	0.01	14.00	10.00	0.01	0.01	88.00	0.05	33.00	0.02	9.60	0.06	21.00	4.30	
DP-J12-27	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.88		3.33	0.67	300.53					14.13	0.80	0.79	0.01	13.33	13.34						15.00	12.00	0.01										
	STD. DEV.	1.00		1.15	0.44	12.68					2.52	0.44	0.44	0.00	2.31	2.31						0.00												
	MIN	22.60	4.70	2.00	0.20	282.00					12.29	0.29	0.28	0.01	12.00	12.01						15.00	12.00	0.01										
	MAX	24.90	5.10	4.00	1.14	310.00					17.00	1.10	1.10	0.01	16.00	16.01						15.00	12.00	0.01										
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
	MEAN	25.80		6.90	2.55	169.90					2.33	2.00	0.40	1.60	0.33	1.93						5.20												
	STD. DEV.	2.26			1.76	8.63																												
	MIN	24.20	5.10	6.90	1.30	163.80					2.33	2.00	0.40	1.60	0.33	1.93						5.20												
	MAX	27.40	6.00	6.90	3.79	176.00					2.33	2.00	0.40	1.60	0.33	1.93						5.20												
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
	MEAN	22.10		4.00	1.84	168.30					1.89	0.59	0.59	0.01	1.30	1.31																		
	STD. DEV.																																	
	MIN	22.10	4.90	4.00	1.84	168.30					1.89	0.59	0.59	0.01	1.30	1.31																		
	MAX	22.10	4.90	4.00	1.84	168.30					1.89	0.59	0.59	0.01	1.30	1.31																		
DP-K12-5	n	3	3	2	3	3	0	0	0	2	2	2	2	2	2	2	2	0	0	1	1	3	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	25.77		8.45	0.90	69.77				32.50	0.71	0.54	0.49	0.05	0.17	0.22	0.41			7.30	0.08	2.93	0.17	0.01	0.01	11.00	0.05	5.50	2.20	0.86	0.21	0.40	1.90	
	STD. DEV.	3.00		2.19	0.44	10.35				31.82	0.15	0.33	0.27	0.06	0.18	0.12	0.09					1.31	0.18	0.00										
	MIN	22.30	4.70	6.90	0.60	59.30				10.00	0.60	0.31	0.30	0.01	0.04	0.13	0.34			7.30	0.08	1.90	0.04	0.01	0.01	11.00	0.05	5.50	2.20	0.86	0.21	0.40	1.90	
	MAX	27.50	5.60	10.00	1.40	80.00				55.00	0.81	0.77	0.68	0.09	0.29	0.30	0.47			7.30	0.08	4.40	0.29	0.01	0.01	11.00	0.05	5.50	2.20	0.86	0.21	0.40	1.90	

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_2-N	NO_3-N	PO_4-P	SO_4	B	Ca	Fe	Mg	Mn	K	Na	
DP-M07-15	n	3	3	3	3	3	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.70		5.97	0.60	281.67					6.26	0.41	0.41	0.01	5.85	5.85						9.10	5.10	0.24										
	STD. DEV.	1.95		4.00	0.27	19.66					0.61	0.20	0.20	0.00	0.45	0.45																		
	MIN	22.20	4.80	2.00	0.30	267.00					5.55	0.21	0.20	0.01	5.34	5.35						9.10	5.10	0.24										
	MAX	25.90	5.20	10.00	0.80	304.00					6.62	0.61	0.61	0.01	6.20	6.21						9.10	5.10	0.24										
DP-M07-21	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.08		4.67	0.52	363.48				10.00	13.18	0.84	0.84	0.01	12.33	12.34	1.10					13.50	12.00	0.01										
	STD. DEV.	1.18		4.62	0.28	9.91					0.89	0.67	0.67	0.00	0.58	0.58						0.71												
	MIN	22.50	4.90	2.00	0.30	351.00				10.00	12.17	0.17	0.16	0.01	12.00	12.01	1.10					13.00	12.00	0.01										
	MAX	25.30	5.20	10.00	0.88	374.90				10.00	13.86	1.50	1.50	0.01	13.00	13.01	1.10					14.00	12.00	0.01										
DP-M07-27	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.93		5.97	0.49	296.88					9.25	1.05	1.05	0.01	8.20	8.21	0.09					12.50	8.10	0.01										
	STD. DEV.	1.09		4.00	0.41	6.36				0.00	0.89	1.03	1.03	0.00	0.36	0.36						0.71												
	MIN	22.50	4.80	2.00	0.20	290.00				10.00	8.32	0.22	0.21	0.01	7.90	7.91	0.09					12.00	8.10	0.01										
	MAX	25.10	5.20	10.00	1.08	303.00				10.00	10.10	2.20	2.20	0.01	8.60	8.61	0.09					13.00	8.10	0.01										
DP-M12-10	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	25.73		9.45	1.51	166.87				10.00	1.40	0.70	0.63	0.06	0.71	0.77	0.13					4.60	0.37	0.15										
	STD. DEV.	1.55		0.78	0.53	8.78					0.13	0.13	0.16	0.03	0.26	0.29						0.28												
	MIN	24.00	5.10	8.90	0.90	161.60				10.00	1.31	0.60	0.52	0.05	0.52	0.57	0.13					4.40	0.37	0.15										
	MAX	27.00	5.70	10.00	1.83	177.00				10.00	1.49	0.79	0.74	0.08	0.89	0.97	0.13					4.80	0.37	0.15										
DP-N12-14	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.23		3.00	0.67	175.00				10.00	2.52	0.46	0.46	0.01	2.06	2.06	0.35		2.00	1.90	0.07	4.70	1.30	0.01	0.01	53.00	0.05	17.00	0.10	3.40	0.17	6.00	2.70	
	STD. DEV.	2.07		1.00	0.51	7.91					2.23	0.45	0.45	0.00	1.79	1.79						0.14												
	MIN	22.10	4.40	2.00	0.20	163.40				10.00	1.03	0.15	0.14	0.01	0.77	0.78	0.35		2.00	1.90	0.07	4.60	1.30	0.01	0.01	53.00	0.05	17.00	0.10	3.40	0.17	6.00	2.70	
	MAX	26.50	5.00	4.00	1.28	181.00				10.00	5.08	0.98	0.98	0.01	4.10	4.11	0.35		2.00	1.90	0.07	4.80	1.30	0.01	0.01	53.00	0.05	17.00	0.10	3.40	0.17	6.00	2.70	
DP-N12-18	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	25.03		5.00	0.60	243.67				10.00	5.84	0.84	0.83	0.01	5.00	5.01	1.10					6.95	3.90	0.01										
	STD. DEV.	1.76		1.41	0.44	8.50					1.93	0.37	0.38	0.00	1.56	1.55						1.06												
	MIN	23.20	4.70	4.00	0.30	234.00				10.00	4.47	0.57	0.56	0.01	3.90	3.91	1.10					6.20	3.90	0.01										
	MAX	26.70	5.10	6.00	1.11	250.00				10.00	7.20	1.10	1.10	0.01	6.10	6.11	1.10					7.70	3.90	0.01										
DP-N12-21	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	24.13		4.78	0.86	302.03				10.00	6.02	0.49	0.48	0.01	5.53	5.53	0.09		2.70	1.60	0.13	9.60	5.90	0.01	0.02	84.50	0.05	31.50	0.03	8.60	0.09	16.00	4.50	
	STD. DEV.	1.65		1.88	0.79	16.11				0.00	0.99	0.25	0.25	0.00	1.16	1.16			0.14	0.85	0.10	0.28	1.13	0.00	0.01	0.71	0.00	0.71	0.02	0.57	0.00	1.41	0.28	
	MIN	22.30	4.80	2.00	0.20	279.00				10.00	4.70	0.13	0.12	0.01	4.10	4.11	0.09		2.60	1.00	0.06	9.40	5.10	0.01	0.01	84.00	0.05	31.00	0.02	8.20	0.09	15.00	4.30	
	MAX	26.00	5.30	6.00	1.91	316.00				10.00	6.83	0.69	0.69	0.01	6.70	6.71	0.09		2.80	2.20	0.20	9.80	6.70	0.01	0.03	85.00	0.05	32.00	0.04	9.00	0.09	17.00	4.70	
DP-N12-24	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	0
	MEAN	24.90		5.45	0.36	353.67				67.00	12.68	0.68	0.67	0.01	12.00	12.01	0.13		2.30	2.20	0.09	15.00	12.00	0.01	0.05	83.00	0.05	31.00	0.10	11.00	0.04	23.00	6.70	
	STD. DEV.	0.92		0.78	0.37	5.51					0.88	0.88	0.89	0.00	0.00	0.00						1.41												
	MIN	24.10	4.60	4.90	0.10	348.00				67.00	12.05	0.05	0.04	0.01	12.00	12.01	0.13		2.30	2.20	0.09	14.00	12.00	0.01	0.05	83.00	0.05	31.00	0.10	11.00	0.04	23.00	6.70	
	MAX	25.90	5.20	6.00	0.78	359.00				67.00	13.30	1.30	1.30	0.01	12.00	12.01	0.13		2.30	2.20	0.09	16.00	12.00	0.01	0.05	83.00	0.05	31.00	0.10	11.00	0.04	23.00	6.70	
DP-N12-27	n	4	4	4	4	4	0	0	0	2	4	4	4	4	4	4	1	0	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	23.98		3.78	0.88	340.40				10.00	14.85	1.70	1.69	0.01	13.15	13.16	0.31		1.77	1.83	0.13	14.00	10.80	0.01	0.02	71.50	0.05	29.50	0.03	9.65	0.06	20.50	6.40	
	STD. DEV.	1.77		1.53	1.07	18.15				0.00	4.88	0.69	0.68	0.00	4.67	4.67			0.38	0.47	0.10	1.41	1.70	0.00	0.01	17.68	0.00	3.54	0.01	1.91	0.03	2.12	1.70	
	MIN	21.60	4.70	2.00	0.10	323.00				10.00	11.00	0.99	0.99	0.01	9.60	9.61	0.31		1.50	1.30	0.06	13.00	9.60	0.01	0.01	59.00	0.05	27.00	0.02	8.30	0.04	19.00	5.20	
	MAX	25.80	5.10	5.20	2.45	365.00				10.00	21.80	2.60	2.59	0.01	20.00	20.01	0.31		2.20	2.20	0.20	15.00	12.00	0.01	0.02	84.00	0.05	32.00	0.04	11.00	0.09	22.00	7.60	
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
	MEAN	22.00		2.00	1.22	186.15					0.19	0.14	0.14	0.01	0.05	0.06																		
	STD. DEV.	1.27		0.00	0.13	0.35					0.04	0.06	0.06	0.00	0.01	0.01																		
	MIN	21.10	4.30	2.00	1.13	185.90					0.16	0.10	0.10	0.01	0.04	0.05																		
	MAX	22.90	4.30	2.00	1.31	186.40					0.22	0.18	0.18	0.01	0.06	0.07																		
DP-O10-18	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.53		3.30	0.80	271.90				10.00	5.02	0.99	0.98	0.01	4.03	4.03	0.08					6.65	0.47	0.11										
	STD. DEV.	2.20		2.25	0.16	76.82					4.36	0.97	0.97	0.00	3.46	3.46						4.31												
	MIN	22.20	4.20	2.00	0.70	160.00				10.00	0.91	0.33	0.32	0.01	0.58	0.59	0.08					3.60	0.47	0.11										
	MAX	27.30	5.30	5.90	1.04	335.00				10.00	9.60	2.10	2.10	0.01	7.50	7.51	0.08					9.70	0.47	0.11										
DP-O10-24	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.38		5.00	0.64	297.05				10.00	8.28	1.65	1.63	0.02	6.62	6.65	0.14		2.40	2.60	0.07	10.90	3.80	0.01	0.05	77.00	0.05	32.00	0.05	7.20	0.16	14.00	3.50	
	STD. DEV.	2.05		4.36	0.27	86.33					10.70	2.39	2.40	0.03	8.33	8.32						5.80												
	MIN	21.80	4.20	2.00	0.30	182.20				10.00	0.16	0.09	0.09	0.01	0.07	0.08	0.14		2.40	2.60	0.07	6.80	3.80	0.01	0.05	77.00	0.05	32.00	0.05	7.20	0.16	14.00	3.50	
	MAX	26.80	5.10	10.00	0.95	366.00				10.00	20.40	4.40	4.40	0.06	16.00	16.01	0.14		2.40	2.60	0.07	15.00	3.80	0.01	0.05	77.00	0.05	32.00	0.05	7.20	0.16	14.00	3.50	
DP-Q15-15	n	3	3	3	3	3	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.73		2.67	1.21	301.47					4.39	0.39	0.38	0.01	4.00	4.01						9.50	5.60	0.01										
	STD. DEV.	3.66		0.58	0.96	15.59					2.28	0.10	0.09	0.00	2.19	2.19																		
	MIN	20.70	4.60	2.00	0.61	285.00					1.79	0.29	0.29	0.01	1.50	1.51						9.50	5.60	0.01										
	MAX	27.80	4.80	3.00	2.31	316.00					6.08	0.48	0.47	0.01	5.60	5.61						9.50	5.60	0.01										
DP-Q15-21	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.48		4.30	0.74	329.40					8.13	0.60	0.59	0.01	7.53	7.54						14.00	9.10	0.01										
	STD. DEV.	1.78		2.04	0.50	19.27					1.96	0.27	0.27	0.00	2.21	2.22						1.41												
	MIN	22.60	4.80	2.00	0.30	317.00					5.90	0.41	0.41	0.01	5.00	5.01						13.00	9.10	0.01										
	MAX	26.60	5.20	5.90	1.44	358.00					9.58	0.90	0.90	0.01	9.10	9.11						15.00	9.10	0.01										

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_2-N	NO_3-N	PO_4-P	SO_4	B	Ca	Fe	Mg	Mn	K	Na	
DP-Q15-26	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.20		5.97	0.75	333.75					9.35	0.68	0.67	0.02	8.67	8.68						14.00	11.00	0.01										
	STD. DEV.	2.33		4.00	0.48	38.22					1.96	0.22	0.20	0.02	2.17	2.16						1.41												
	MIN	21.50	4.80	2.00	0.30	293.00					7.59	0.46	0.45	0.01	6.70	6.74						13.00	11.00	0.01										
	MAX	26.80	5.20	10.00	1.33	385.00					11.46	0.89	0.85	0.04	11.00	11.01						15.00	11.00	0.01										
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	22.80		2.00	6.78	146.80					0.37	0.36	0.25	0.11	0.01	0.12																		
	STD. DEV.																																	
	MIN	22.80	4.60	2.00	6.78	146.80					0.37	0.36	0.25	0.11	0.01	0.12																		
	MAX	22.80	4.60	2.00	6.78	146.80					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	24.40		2.00	4.63	73.60					1.73	0.96	0.96	0.01	0.77	0.78																		
	STD. DEV.																																	
	MIN	24.40	4.70	2.00	4.63	73.60					1.73	0.96	0.96	0.01	0.77	0.78																		
	MAX	24.40	4.70	2.00	4.63	73.60					1.73	0.96	0.96	0.01	0.77	0.78																		
PZ03-H11-6	n	3	3	3	3	3	0	0	0	2	3	3	2	3	3	3	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	26.93		2.00	2.69	146.47				12.50	2.13	1.13	1.51	0.01	1.01	1.02	0.01		4.80	3.40	0.14	7.35	0.76	0.01	0.01	44.00	0.05	11.00	0.02	2.70	0.05	4.80	5.80	
	STD. DEV.	1.31		0.00	1.17	16.10				3.54	1.45	1.04	1.12	0.01	0.44	0.43						1.63	0.13	0.00										
	MIN	25.90	4.40	2.00	1.40	136.00				10.00	1.19	0.34	0.72	0.01	0.67	0.69	0.01		4.80	3.40	0.14	6.20	0.67	0.01	0.01	44.00	0.05	11.00	0.02	2.70	0.05	4.80	5.80	
	MAX	28.40	4.80	2.00	3.68	165.00				15.00	3.80	2.30	2.29	0.02	1.50	1.51	0.01		4.80	3.40	0.14	8.50	0.85	0.01	0.01	44.00	0.05	11.00	0.02	2.70	0.05	4.80	5.80	
PZ04-BKG-9	n	4	4	3	4	4	0	0	0	2	3	3	3	3	3	3	2	0	2	3	2	3	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	24.35		6.67	2.71	92.78				19.50	2.41	0.47	0.45	0.02	1.94	1.96	0.02		3.15	3.07	0.17	2.80	2.90	0.01	0.03	11.00	0.05	8.80	0.09	2.20	0.06	0.79	1.75	
	STD. DEV.	3.26		1.56	1.54	21.61				12.02	3.51	0.43	0.43	0.02	3.09	3.09	0.01		0.35	0.64	0.11	0.95	3.68	0.00	0.02	1.41	0.00	4.53	0.03	0.85	0.01	0.21	0.07	
	MIN	21.60	5.00	5.00	1.10	72.90				11.00	0.12	0.11	0.11	0.01	0.01	0.02	0.01		2.90	2.60	0.09	1.70	0.30	0.01	0.01	10.00	0.05	5.60	0.07	1.60	0.05	0.64	1.70	
	MAX	28.20	5.60	8.10	4.20	120.00				28.00	6.45	0.95	0.93	0.04	5.50	5.52	0.02		3.40	3.80	0.24	3.40	5.50	0.01	0.04	12.00	0.05	12.00	0.11	2.80	0.07	0.94	1.80	
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	21.80		6.90	4.38	98.80					4.80	1.20	1.17	0.03	3.60	3.63																		
	STD. DEV.																																	
	MIN	21.80	5.10	6.90	4.38	98.80					4.80	1.20	1.17	0.03	3.60	3.63																		
	MAX	21.80	5.10	6.90	4.38	98.80					4.80	1.20	1.17	0.03	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	23.10		3.00	5.41	59.40					0.26	0.25	0.21	0.04	0.01	0.05																		
	STD. DEV.																																	
	MIN	23.10	4.70	3.00	5.41	59.40					0.26	0.25	0.21	0.04	0.01	0.05																		
	MAX	23.10	4.70	3.00	5.41	59.40					0.26	0.25	0.21	0.04	0.01	0.05																		
PZ07-D05-7	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	26.03		4.00	1.26	290.20				22.00	8.25	1.45	1.43	0.02	6.80	6.82	0.01					25.00	10.00	0.01										
	STD. DEV.	1.10		1.41	1.10	69.73					4.31	0.21	0.24	0.03	4.53	4.55						5.66												
	MIN	25.30	4.60	3.00	0.39	221.60				22.00	5.20	1.30	1.26	0.01	3.60	3.61	0.01					21.00	10.00	0.01										
	MAX	27.30	4.70	5.00	2.50	361.00				22.00	11.30	1.60	1.60	0.04	10.00	10.04	0.01					29.00	10.00	0.01										
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	23.60		2.00	3.33	126.90					2.13	1.30	1.30	0.01	0.83	0.84																		
	STD. DEV.																																	
	MIN	23.60	4.80	2.00	3.33	126.90					2.13	1.30	1.30	0.01	0.83	0.84																		
	MAX	23.60	4.80	2.00	3.33	126.90					2.13	1.30	1.30	0.01	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	21.90		2.00	6.03	94.20					1.99	1.40	1.40	0.01	0.59	0.60																		
	STD. DEV.																																	
	MIN	21.90	5.20	2.00	6.03	94.20					1.99	1.40	1.40	0.01	0.59	0.60																		
	MAX	21.90	5.20	2.00	6.03	94.20					1.99	1.40	1.40	0.01	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	25.60		26.00	2.85	524.00					7.70	2.50	2.45	0.05	5.20	5.25																		
	STD. DEV.																																	
	MIN	25.60	6.00	26.00	2.85	524.00					7.70	2.50	2.45	0.05	5.20	5.25																		
	MAX	25.60	6.00	26.00	2.85	524.00					7.70	2.50	2.45	0.05	5.20	5.25																		
PZ11-E09-10	n	3	3	3	3	3	0	0	0	2	3	3	2	3	3	3	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	0
	MEAN	26.47		19.13	3.24	440.27				75.00	18.93	1.93	1.48	0.21	17.00	17.21	0.02		2.20	1.50	0.04	36.50	15.00	0.01	0.01	59.00	0.09	34.00	0.29	8.90	0.23	10.00	30.00	
	STD. DEV.	0.99		14.66	2.06	23.61				91.92	4.99	0.47	0.18	0.24	4.58	4.78						0.71	4.24	0.00										
	MIN	25.80	5.30	9.40	1.80	413.00				10.00	13.40	1.40	1.35	0.05	12.00	12.05	0.02		2.20	1.50	0.04	36.00	12.00	0.01	0.01	59.00	0.09	34.00	0.29	8.90	0.23	10.00	30.00	
	MAX	27.60	5.70	36.00	5.60	454.00				140.00	23.10	2.30	1.61	0.49	21.00	21.49	0.02		2.20	1.50	0.04	37.00	18.00	0.01	0.01	59.00	0.09	34.00	0.29	8.90	0.23	10.00	30.00	
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	21.40		7.90	2.48	125.50					2.15	0.75	0.71	0.04	1.40	1.44																		
	STD. DEV.																																	
	MIN	21.40	5.60	7.90	2.48	125.50					2.15	0.75	0.71	0.04	1.40	1.44																		
	MAX	21.40	5.60	7.90	2.48	125.50					2.15	0.75	0.71	0.04	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	24.50		15.00	1.04	246.10					7.59	0.19	0.19	0.01	7.40	7.41																		
	STD. DEV.																																	
	MIN	24.50	5.80	15.00	1.04	246.10					7.59	0.19	0.19	0.01	7.40	7.41																		
	MAX	24.50	5.80	15.00	1.04	246.10					7.59	0.19	0.19	0.01	7.40	7.41																		
PZ15-A11-6	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	27.10		6.95	2.44	126.33				38.00	1.07	0.68	0.63	0.04	0.40	0.44	0.01					11.90	0.52	0.01										
	STD. DEV.	2.30		2.90	0.70	60.00					0.27	0.09	0.09	0.00	0.18	0.18						7.21												
	MIN	24.80	4.80	4.90	1.70	84.00				38.00	0.88	0.61	0.57	0.04	0.27	0.31	0.01					6.80	0.52	0.01										
	MAX	29.40	5.30	9.00	3.10	195.00				38.00	1.26	0.74	0.70	0.04	0.52	0.56	0.01					17.00	0.52	0.01										

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	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	25.68		10.30	0.54	300.98				10.00	0.99	0.74	0.73	0.02	0.25	0.27	0.48					19.00	0.27	0.01										
	STD. DEV.	1.33		0.61	0.18	9.03					1.06	1.00	1.00	0.00	0.07	0.07						0.00												
	MIN	24.60	5.30	9.90	0.30	291.80				10.00	0.29	0.12	0.10	0.02	0.17	0.19	0.48					19.00	0.27	0.01										
	MAX	27.60	5.70	11.00	0.70	311.00				10.00	2.21	1.90	1.88	0.02	0.31	0.33	0.48					19.00	0.27	0.01										
PZ17-I15-26	n	4	4	3	4	4	0	0	0	0	3	3	3	3	3	3	0	0	1	1	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.88		3.37	1.20	297.80					12.73	0.76	0.63	0.13	11.97	12.10			4.00	1.00		14.00	9.20	0.01										
	STD. DEV.	1.54		0.64	1.03	11.60					3.86	0.67	0.47	0.22	4.37	4.25						0.00												
	MIN	22.10	4.80	3.00	0.20	283.00					10.30	0.18	0.17	0.01	9.20	9.58			4.00	1.00		14.00	9.20	0.01										
	MAX	25.40	5.70	4.10	2.46	307.10					17.18	1.50	1.12	0.38	17.00	17.01			4.00	1.00		14.00	9.20	0.01										
PZ18-R12-26	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	25.43		8.45	0.56	267.70				10.00	8.07	1.81	1.79	0.02	6.26	6.28	0.59					12.50	0.51	0.01										
	STD. DEV.	1.77		0.64	0.35	54.28					10.37	2.25	2.25	0.00	8.12	8.13						0.71												
	MIN	23.40	5.00	8.00	0.20	223.00				10.00	0.73	0.22	0.20	0.02	0.51	0.53	0.59					12.00	0.51	0.01										
	MAX	26.60	5.10	8.90	0.89	328.10				10.00	15.40	3.40	3.38	0.02	12.00	12.02	0.59					13.00	0.51	0.01										
PZ19-G10-26	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	0
	MEAN	23.87		4.00	0.69	299.37				10.00	14.30	1.60	1.59	0.02	12.70	12.72	0.05		0.77	1.10	0.19	15.00	8.40	0.01	0.09	52.00	0.05	22.00	0.03	8.20	0.21	11.00	6.20	
	STD. DEV.	0.75		0.00	0.34	4.65					5.09	0.99	0.99	0.00	6.08	6.08						0.00												
	MIN	23.10	5.00	4.00	0.40	294.00				10.00	10.70	0.90	0.89	0.01	8.40	8.42	0.05		0.77	1.10	0.19	15.00	8.40	0.01	0.09	52.00	0.05	22.00	0.03	8.20	0.21	11.00	6.20	
	MAX	24.60	5.10	4.00	1.07	302.10				10.00	17.90	2.30	2.28	0.02	17.00	17.01	0.05		0.77	1.10	0.19	15.00	8.40	0.01	0.09	52.00	0.05	22.00	0.03	8.20	0.21	11.00	6.20	
PZ20-G10-15	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	0
	MEAN	24.50		11.50	1.59	321.37				26.00	16.38	2.55	2.53	0.02	13.83	13.85	1.10		6.80	2.30	0.21	16.50	8.50	0.16	0.05	54.00	0.05	26.00	0.05	6.20	0.22	7.80	11.00	
	STD. DEV.	1.99		4.95	1.24	30.34					8.94	1.63	1.65	0.03	7.31	7.29						0.71												
	MIN	22.20	4.90	8.00	0.20	300.00				26.00	10.06	1.40	1.36	0.01	8.66	8.70	1.10		6.80	2.30	0.21	16.00	8.50	0.16	0.05	54.00	0.05	26.00	0.05	6.20	0.22	7.80	11.00	
	MAX	25.70	5.60	15.00	2.60	356.10				26.00	22.70	3.70	3.70	0.04	19.00	19.01	1.10		6.80	2.30	0.21	17.00	8.50	0.16	0.05	54.00	0.05	26.00	0.05	6.20	0.22	7.80	11.00	
PZ21-E11-26	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.37		6.00	0.72	293.87					10.16	0.98	0.91	0.07	9.19	9.25						15.00	8.90	0.17										
	STD. DEV.	0.67		2.83	0.31	5.22					0.44	0.60	0.52	0.08	0.16	0.09						2.83												
	MIN	23.60	4.90	4.00	0.36	288.00					9.85	0.55	0.54	0.01	9.07	9.19						13.00	8.90	0.17										
	MAX	24.80	5.20	8.00	0.90	298.00					10.47	1.40	1.28	0.12	9.30	9.31						17.00	8.90	0.17										
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	24.40		8.90	1.36	416.00					5.60	1.40	1.39	0.01	4.20	4.21																		
	STD. DEV.																																	
	MIN	24.40	5.30	8.90	1.36	416.00					5.60	1.40	1.39	0.01	4.20	4.21																		
	MAX	24.40	5.30	8.90	1.36	416.00					5.60	1.40	1.39	0.01	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	24.40		5.90	0.18	306.20					8.50	1.20	1.20	0.01	7.30	7.31																		
	STD. DEV.																																	
	MIN	24.40	5.40	5.90	0.18	306.20					8.50	1.20	1.20	0.01	7.30	7.31																		
	MAX	24.40	5.40	5.90	0.18	306.20					8.50	1.20	1.20	0.01	7.30	7.31																		
PZ24-BKG-26	n	4	4	3	4	4	0	0	0	2	3	3	3	3	3	3	2	0	3	3	2	3	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	24.28		4.03	0.58	290.53				11.00	11.97	1.23	1.21	0.03	10.74	10.77	0.61		1.85	1.10	0.07	16.33	10.05	0.07	0.07	42.50	0.05	20.50	0.07	10.35	0.17	8.45	7.75	
	STD. DEV.	0.99		0.06	0.15	13.15				1.41	0.85	0.65	0.62	0.03	1.49	1.46	0.83		1.55	0.31	0.08	2.31	1.34	0.08	0.08	0.71	0.00	0.71	0.05	0.92	0.01	0.64	0.07	
	MIN	23.10	4.80	4.00	0.40	270.90				10.00	11.00	0.60	0.60	0.01	9.10	9.16	0.03		0.64	0.79	0.01	15.00	9.10	0.01	0.01	42.00	0.05	20.00	0.04	9.70	0.16	8.00	7.70	
	MAX	25.50	5.10	4.10	0.70	299.00				12.00	12.60	1.90	1.84	0.06	12.00	12.01	1.20		3.60	1.40	0.12	19.00	11.00	0.12	0.12	43.00	0.05	21.00	0.11	11.00	0.17	8.90	7.80	
PZ25-A6.5-10	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	24.70		57.00	3.93	689.00				26.00	21.65	2.15	2.13	0.02	19.50	19.52	0.49					37.00	19.00	0.01										
	STD. DEV.	3.82		12.73	2.44	114.55					0.92	0.21	0.21	0.00	0.71	0.71																		
	MIN	22.00	6.00	48.00	2.20	608.00				26.00	21.00	2.00	1.98	0.02	19.00	19.02	0.49					37.00	19.00	0.01										
	MAX	27.40	6.00	66.00	5.65	770.00				26.00	22.30	2.30	2.28	0.02	20.00	20.02	0.49					37.00	19.00	0.01										
Blanks																																		
FB-DI	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	19.57		2.00	7.53	1.23				10.00	0.06	0.05	0.04	0.01	0.01	0.02	0.01					0.05	0.01	0.01										
	STD. DEV.	6.71		0.00	2.58	0.25					0.00	0.00	0.00	0.00	0.00	0.00						0.00												
	MIN	12.10	5.60	2.00	4.60	1.00				10.00	0.06	0.05	0.04	0.01	0.01	0.02	0.01					0.05	0.01	0.01										
	MAX	25.10	6.10	2.00	9.44	1.49				10.00	0.06	0.05	0.05	0.01	0.01	0.02	0.01					0.05	0.01	0.01										
FB-TAP	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	20.73		133.33	8.13	435.67				10.00	0.16	0.05	0.04	0.01	0.11	0.11	0.01					19.00	0.26	0.01										
	STD. DEV.	10.01		11.55	2.94	8.14					0.13	0.00	0.00	0.00	0.13	0.14																		
	MIN	9.60	6.97	120.00	5.20	430.00				10.00	0.06	0.05	0.04	0.01	0.01	0.02	0.01					19.00	0.26	0.01										
	MAX	29.00	7.70	140.00	11.07	445.00				10.00	0.31	0.05	0.05	0.01	0.26	0.27	0.01					19.00	0.26	0.01										
Equipment Rinsate	n	4	4	3	4	4	0	0	0	1	3	3	3	3	3	3	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
	MEAN	23.33		3.33	4.93	6.40				10.00	0.12	0.10	0.09	0.02	0.02	0.03	0.01					0.05	0.01	0.01										
	STD. DEV.	7.77		2.31	2.29	6.15					0.09	0.09	0.09	0.01	0.01	0.02						0.00												
	MIN	11.90	5.60	2.00	2.31	1.00				10.00	0.06	0.05	0.02	0.01	0.01	0.02	0.01					0.05	0.01	0.01										
	MAX	28.80	7.20	6.00	7.90	13.20				10.00	0.22	0.21	0.19	0.03	0.03	0.06	0.01					0.05	0.01	0.01										

NOTES:
All results in milligrams per liter (mg/L) except where indicated
Blank - Not sampled
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.
Orange - shaded data points indicate too many colonies were present. The numberic value represents the dilution factor times the maximum reportable number of colonies.
Blue-shaded data points indicate the number is greater than reported value.

Appendix H: Laboratory Report

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

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

October 26, 2011
Work Order: 1108619
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**STE-EX Pump Tank**						
Matrix		**Groundwater**						
SAL Sample Number		**1108619-01**						
Date/Time Collected		**09/28/11 12:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	7.0	DEP FT1100	0.1	0.1		09/28/11 12:00	SDH
Water Temperature	°C	29.4	DEP FT1400	0.1	0.1		09/28/11 12:00	SDH
Specific conductance	umhos/cm	721	DEP FT1200	0.1	0.1		09/28/11 12:00	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		09/28/11 12:00	SDH
Inorganics								
Ammonia as N	mg/L	28	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Carbonaceous BOD	mg/L	32	SM 5210B	2	2	09/30/11 09:50	10/05/11 09:30	JAG
Chloride	mg/L	68	EPA 300.0	0.20	0.050		10/04/11 18:43	MEJ
Nitrate (as N)	mg/L	0.24	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	3.2	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Total Alkalinity	mg/L	250	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	32	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Total Solids	mg/L	10 U	SM 2540B	10	10	09/30/11 14:33	10/04/11 08:12	JEW
Total Suspended Solids	mg/L	20	SM 2540D	1	1	09/29/11 09:49	09/30/11 12:11	JEW
Microbiology								
Fecal Coliforms Confirmed	MPN/100 mL	50	SM 9223B	2	2	09/28/11 15:52	09/29/11 16:20	MAS
Sample Description		**STE-EX Pump Tank**						
Matrix		**Groundwater**						
SAL Sample Number		**1108619-01RE1**						
Date/Time Collected		**09/28/11 12:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Inorganics								
Nitrate (as N)	mg/L	2.3	EPA 300.0	0.04	0.01		10/04/11 18:43	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/04/11 18:43	MEJ
Sample Description		**STE-EX Pump Tank-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108619-02**						
Date/Time Collected		**09/28/11 12:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	7.0	DEP FT1100	0.1	0.1		09/28/11 12:05	SDH

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**STE-EX Pump Tank-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108619-02**						
Date/Time Collected		**09/28/11 12:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Water Temperature	°C	29.4	DEP FT1400	0.1	0.1		09/28/11 12:05	SDH
Specific conductance	umhos/cm	721	DEP FT1200	0.1	0.1		09/28/11 12:05	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		09/28/11 12:05	SDH
Inorganics								
Ammonia as N	mg/L	28	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Carbonaceous BOD	mg/L	33	SM 5210B	2	2	09/30/11 09:50	10/05/11 09:30	JAG
Chloride	mg/L	42	EPA 300.0	0.20	0.050		10/04/11 18:43	MEJ
Nitrate (as N)	mg/L	0.24	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	3.0	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Total Alkalinity	mg/L	250	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	31	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Total Solids	mg/L	10 U	SM 2540B	10	10	09/30/11 14:33	10/04/11 08:12	JEW
Total Suspended Solids	mg/L	17	SM 2540D	1	1	09/29/11 09:49	09/30/11 12:11	JEW
Microbiology								
Fecal Coliforms Confirmed	MPN/100 mL	50	SM 9223B	2	2	09/28/11 15:52	09/29/11 16:20	MAS

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
Blank (BI12836-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12836-BS1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Nitrite (as N)	1.30	0.04	0.01	mg/L	1.4		93	85-115		
LCS Dup (BI12836-BSD1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4		95	85-115	2	200
Matrix Spike (BI12836-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 09/29/11					
Nitrate (as N)	16.7	0.04	0.01	mg/L	1.7	14.8	112	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4	ND	96	85-115		
Matrix Spike (BI12836-MS2)		**Source: 1108647-05**			Prepared & Analyzed: 09/29/11					
Nitrate (as N)	10.8 +O	0.04	0.01	mg/L	1.7	8.64	127	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Batch BI12906 - TSS prep										
Blank (BI12906-BLK1)					Prepared: 09/29/11 Analyzed: 09/30/11					
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BI12906-BS1)					Prepared: 09/29/11 Analyzed: 09/30/11					
Total Suspended Solids	49.5	1	1	mg/L	50		99	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12906 - TSS prep										
Duplicate (BI12906-DUP1)		**Source: 1107648-01**			Prepared: 09/29/11	Analyzed: 09/30/11				
Total Suspended Solids	151	1	1	mg/L		156			3	30
Duplicate (BI12906-DUP2)		**Source: 1108855-01**			Prepared: 09/29/11	Analyzed: 09/30/11				
Total Suspended Solids	122	1	1	mg/L		120			2	30
Batch BI13016 - BOD										
Blank (BI13016-BLK1)					Prepared: 09/30/11	Analyzed: 10/05/11				
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BI13016-BS1)					Prepared: 09/30/11	Analyzed: 10/05/11				
Carbonaceous BOD	183	2	2	mg/L	200		91	85-115		
LCS Dup (BI13016-BSD1)					Prepared: 09/30/11	Analyzed: 10/05/11				
Carbonaceous BOD	193	2	2	mg/L	200		97	85-115	6	200
Duplicate (BI13016-DUP1)		**Source: 1107658-01**			Prepared: 09/30/11	Analyzed: 10/05/11				
Carbonaceous BOD	110	2	2	mg/L		130			18	25
Batch BJ10401 - TS prep										
Blank (BJ10401-BLK1)					Prepared: 09/30/11	Analyzed: 10/04/11				
Total Solids	10 U	10	10	mg/L						
Duplicate (BJ10401-DUP1)		**Source: 1108619-02**			Prepared: 09/30/11	Analyzed: 10/04/11				
Total Solids	400	10	10	mg/L		ND				20

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10414 - alkalinity										
Blank (BJ10414-BLK1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10414-BS1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10414-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120		
Matrix Spike Dup (BJ10414-MSD1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120	0	26
Batch BJ10421 - Ion Chromatography 300.0 Prep										
Blank (BJ10421-BLK1)					Prepared & Analyzed: 10/04/11					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ10421-BS1)					Prepared & Analyzed: 10/04/11					
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4		97	85-115		
Nitrate (as N)	1.60	0.04	0.01	mg/L	1.7		94	85-115		
Chloride	2.78	0.20	0.050	mg/L	3.0		93	85-115		
LCS Dup (BJ10421-BSD1)					Prepared & Analyzed: 10/04/11					
Chloride	2.72	0.20	0.050	mg/L	3.0		91	85-115	2	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	2	200
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4		96	85-115	0.7	200

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10421 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ10421-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Nitrite (as N)	13.9	0.04	0.01	mg/L	14	ND	99	85-115		
Chloride	68.5 +O	0.20	0.050	mg/L	30	68.5	0	80-120		
Nitrate (as N)	16.9	0.04	0.01	mg/L	17	2.32	86	85-115		
Matrix Spike (BJ10421-MS2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4	ND	97	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7	ND	99	85-115		
Chloride	3.25	0.20	0.050	mg/L	3.0	ND	108	80-120		
Batch BJ10510 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ10510-BLK1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ10510-BS1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.546	0.040	0.010	mg/L	0.50		109	90-110		
Matrix Spike (BJ10510-MS1)		**Source: 1108620-04**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.653	0.040	0.010	mg/L	0.50	0.260	79	75-125		
Matrix Spike Dup (BJ10510-MSD1)		**Source: 1108620-04**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.746	0.040	0.010	mg/L	0.50	0.260	97	75-125	13	25
Batch BJ11018 - Digestion for TKN by EPA 351.2										
Blank (BJ11018-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

Hazen and Sawyer
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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11018 - Digestion for TKN by EPA 351.2										
LCS (BJ11018-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.62	0.20	0.05	mg/L	2.5		105	90-110		
Matrix Spike (BJ11018-MS1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.28	0.20	0.05	mg/L	2.5	1.01	91	80-120		
Matrix Spike Dup (BJ11018-MSD1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.24	0.20	0.05	mg/L	2.5	1.01	89	80-120	1	20
Batch BJ11409 - Ammonia by SEAL										
Blank (BJ11409-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11409-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11409-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.52	0.040	0.010	mg/L	0.50	ND	104	90-110		
Matrix Spike Dup (BJ11409-MSD1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50	ND	97	90-110	7	10

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* Qualifiers, Notes and Definitions

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

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

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

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

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

1108619

SOUTHERN ANALYTICAL LABORATORIES, INC.

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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

Lab Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool NO3, NO2, Cl, Alk-T, CBOD, TS, TSS	250mL P, H_2SO_4 TKN, NH3, TotalP			125ml P, Na2S2O3 Tcoliform/E. Coli (QT)-SM9223B			Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	STE-EX Pump Tank	092811	1206	GW		X	1	1			2			721	0.90	7.0	29.4		
02	STE-EX Pump TanD		1205	GW		X	1	1			2			721	0.90	7.0	29.4		

Containers Prepared/ Relinquished:	Date/Time: 0830 09-23-11	Received:	Date/Time: 0830 092311
Relinquished:	Date/Time: 1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108619

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

Chain of Custody

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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		**1108620-01**						
Date/Time Collected		**09/28/11 09:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		09/28/11 09:55	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		09/28/11 09:55	SDH
Specific conductance	umhos/cm	554	DEP FT1200	0.1	0.1		09/28/11 09:55	SDH
Dissolved Oxygen	mg/L	2.0	DEP FT1500	0.1	0.1		09/28/11 09:55	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	52	EPA 300.0	0.20	0.050		09/30/11 08:16	MEJ
Fluoride	mg/L	0.091	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	21	EPA 300.0	0.04	0.01		09/30/11 08:16	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.17	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Sulfate	mg/L	52	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Total Organic Carbon	mg/L	2.6	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.1	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.13	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 16:23	VWC
Calcium	mg/L	37	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:23	VWC
Iron	mg/L	0.076 I	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 16:23	VWC
Magnesium	mg/L	9.5	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:23	VWC
Manganese	mg/L	0.015	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 16:23	VWC
Potassium	mg/L	11	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:23	VWC
Sodium	mg/L	43	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:23	VWC

Sample Description	**DP-AA9-14-D**
Matrix	**Groundwater**
SAL Sample Number	**1108620-02**
Date/Time Collected	**09/28/11 10:00**
Collected by	**Sean Harmon**
Date/Time Received	**09/28/11 14:15**

Field Parameters

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-AA9-14-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108620-02**						
Date/Time Collected		**09/28/11 10:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
pH	SU	4.6	DEP FT1100	0.1	0.1		09/28/11 10:00	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		09/28/11 10:00	SDH
Specific conductance	umhos/cm	554	DEP FT1200	0.1	0.1		09/28/11 10:00	SDH
Dissolved Oxygen	mg/L	2.0	DEP FT1500	0.1	0.1		09/28/11 10:00	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	50	EPA 300.0	0.20	0.050		09/30/11 08:16	MEJ
Fluoride	mg/L	0.072	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	20	EPA 300.0	0.04	0.01		09/30/11 08:16	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.17	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Sulfate	mg/L	51	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Total Organic Carbon	mg/L	2.6	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.6	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.13	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 16:42	VWC
Calcium	mg/L	36	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:42	VWC
Iron	mg/L	0.56	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 16:42	VWC
Magnesium	mg/L	9.3	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:42	VWC
Manganese	mg/L	0.019	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 16:42	VWC
Potassium	mg/L	11	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:42	VWC
Sodium	mg/L	44	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:42	VWC
Sample Description		**DP-AA9-22**						
Matrix		**Groundwater**						
SAL Sample Number		**1108620-03**						
Date/Time Collected		**09/28/11 10:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 10:10	SDH

FDOH Laboratory No.E84129
NELAP Accredited

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

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October 26, 2011
Work Order: 1108620
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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-AA9-22**						
Matrix		**Groundwater**						
SAL Sample Number		**1108620-03**						
Date/Time Collected		**09/28/11 10:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		09/28/11 10:10	SDH
Specific conductance	umhos/cm	369	DEP FT1200	0.1	0.1		09/28/11 10:10	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 10:10	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	19	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.36	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Sample Description		**DP-AA9-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1108620-04**						
Date/Time Collected		**09/28/11 10:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/28/11 10:15	SDH
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		09/28/11 10:15	SDH
Specific conductance	umhos/cm	267	DEP FT1200	0.1	0.1		09/28/11 10:15	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 10:15	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	16	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	9.4	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.18	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.26	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	2.7	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
Blank (BI12836-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
LCS (BI12836-BS1)					Prepared & Analyzed: 09/29/11					
Sulfate	8.19	0.60	0.20	mg/L	9.0		91	85-115		
Orthophosphate as P	0.875	0.040	0.010	mg/L	0.90		97	85-115		
Nitrite (as N)	1.30	0.04	0.01	mg/L	1.4		93	85-115		
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Fluoride	0.834	0.040	0.010	mg/L	0.90		93	85-115		
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
LCS Dup (BI12836-BSD1)					Prepared & Analyzed: 09/29/11					
Orthophosphate as P	0.871	0.040	0.010	mg/L	0.90		97	85-115	0.5	200
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115	0.4	200
Fluoride	0.859	0.040	0.010	mg/L	0.90		95	85-115	3	200
Sulfate	8.17	0.60	0.20	mg/L	9.0		91	85-115	0.2	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4		95	85-115	2	200
Matrix Spike (BI12836-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 09/29/11					
Chloride	21.9	0.20	0.050	mg/L	3.0	18.9	100	80-120		
Fluoride	0.937	0.040	0.010	mg/L	0.90	0.0599	97	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4	ND	96	85-115		
Sulfate	71.7 +O	0.60	0.20	mg/L	9.0	ND	797	85-115		
Orthophosphate as P	0.952	0.040	0.010	mg/L	0.90	ND	106	85-115		
Nitrate (as N)	16.7	0.04	0.01	mg/L	1.7	14.8	112	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12836-MS2)		**Source: 1108647-05**			Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Chloride	14.5 +O	0.20	0.050	mg/L	3.0	10.5	133	80-120		
Nitrate (as N)	10.8 +O	0.04	0.01	mg/L	1.7	8.64	127	85-115		
Orthophosphate as P	0.856	0.040	0.010	mg/L	0.90	0.0440	90	85-115		
Fluoride	0.963	0.040	0.010	mg/L	0.90	0.0689	99	85-115		
Sulfate	85.8 +O	0.60	0.20	mg/L	9.0	74.1	130	85-115		
Batch BI13009 - TOC prep										
Blank (BI13009-BLK1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13009-BS1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	10.1	1.0	0.50	mg/L	10		101	90-110		
Matrix Spike (BI13009-MS1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.1	1.0	0.50	mg/L	10	2.05	101	85-115		
Matrix Spike Dup (BI13009-MSD1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.5	1.0	0.50	mg/L	10	2.05	104	85-115	3	10
Batch BI13022 - Ion Chromatography 300.0 Prep										
Blank (BI13022-BLK1)					Prepared & Analyzed: 10/01/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13022 - Ion Chromatography 300.0 Prep										
LCS (BI13022-BS1)					Prepared & Analyzed: 10/01/11					
Chloride	2.91	0.20	0.050	mg/L	3.0		97	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
LCS (BI13022-BS2)					Prepared & Analyzed: 10/01/11					
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
LCS (BI13022-BS3)					Prepared & Analyzed: 10/01/11					
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7		101	85-115		
Chloride	2.99	0.20	0.050	mg/L	3.0		100	85-115		
LCS (BI13022-BS4)					Prepared & Analyzed: 10/01/11					
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	3.02	0.20	0.050	mg/L	3.0		101	85-115		
LCS (BI13022-BS5)					Prepared & Analyzed: 10/01/11					
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BI13022-BSD1)					Prepared & Analyzed: 10/01/11					
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115	1	200
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115	0	200
Matrix Spike (BI13022-MS1)		**Source: 1108850-01**			Prepared & Analyzed: 10/01/11					
Nitrate (as N)	169	0.04	0.01	mg/L	170	ND	99	85-115		
Chloride	988	0.20	0.050	mg/L	300	676	104	80-120		
Matrix Spike (BI13022-MS2)		**Source: 1108699-02**			Prepared & Analyzed: 10/01/11					
Chloride	73.6 +O	0.20	0.050	mg/L	3.0	84.2	NR	80-120		
Nitrate (as N)	2.05	0.04	0.01	mg/L	1.7	0.444	94	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10314 - COD prep										
Blank (BJ10314-BLK1)					Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10314-BS1)					Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		
Matrix Spike (BJ10314-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115		
Matrix Spike Dup (BJ10314-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115	0	32
Batch BJ10414 - alkalinity										
Blank (BJ10414-BLK1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10414-BS1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10414-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120		
Matrix Spike Dup (BJ10414-MSD1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120	0	26
Batch BJ10510 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ10510-BLK1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10510 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ10510-BS1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.546	0.040	0.010	mg/L	0.50		109	90-110		
Matrix Spike (BJ10510-MS1)		**Source: 1108620-04**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.653	0.040	0.010	mg/L	0.50	0.260	79	75-125		
Matrix Spike Dup (BJ10510-MSD1)		**Source: 1108620-04**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.746	0.040	0.010	mg/L	0.50	0.260	97	75-125	13	25
Batch BJ11018 - Digestion for TKN by EPA 351.2										
Blank (BJ11018-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11018-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.62	0.20	0.05	mg/L	2.5		105	90-110		
Matrix Spike (BJ11018-MS1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.28	0.20	0.05	mg/L	2.5	1.01	91	80-120		
Matrix Spike Dup (BJ11018-MSD1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.24	0.20	0.05	mg/L	2.5	1.01	89	80-120	1	20
Batch BJ11409 - Ammonia by SEAL										
Blank (BJ11409-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11409 - Ammonia by SEAL										
LCS (BJ11409-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11409-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.52	0.040	0.010	mg/L	0.50	ND	104	90-110		
Matrix Spike Dup (BJ11409-MSD1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50	ND	97	90-110	7	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13008 - DOC prep										
Blank (BI13008-BLK1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13008-BS1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	10.2	1.0	0.50	mg/L	10		102	90-110		
Matrix Spike (BI13008-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.8	1.0	0.50	mg/L	10	2.08	107	85-125		
Matrix Spike Dup (BI13008-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.9	1.0	0.50	mg/L	10	2.08	108	85-125	0.7	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Blank (BI13006-BLK1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	0.010 U	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Sodium	0.010 U	0.050	0.010	mg/L						
Potassium	0.016 I	0.050	0.010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Magnesium	0.025 I	0.050	0.010	mg/L						
LCS (BI13006-BS1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Iron	7.6	0.10	0.020	mg/L	8.0		94	85-115		
Sodium	19	0.050	0.010	mg/L	20		95	85-115		
Magnesium	19	0.050	0.010	mg/L	20		95	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Potassium	18	0.050	0.010	mg/L	20		89	85-115		
Calcium	18	0.050	0.010	mg/L	20		92	85-115		
Matrix Spike (BI13006-MS1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.015	98	70-130		
Boron	0.53	0.10	0.050	mg/L	0.40	0.13	101	70-130		
Sodium	63	0.050	0.010	mg/L	20	43	98	70-130		
Magnesium	29	0.050	0.010	mg/L	20	9.5	97	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	91	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Calcium	56	0.050	0.010	mg/L	20	37	93	70-130		
Matrix Spike (BI13006-MS2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	40	0.050	0.010	mg/L	20	21	96	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130		
Magnesium	25	0.050	0.010	mg/L	20	5.7	98	70-130		
Boron	0.50	0.10	0.050	mg/L	0.40	0.10	98	70-130		
Sodium	31	0.050	0.010	mg/L	20	12	96	70-130		
Iron	8.5	0.10	0.020	mg/L	8.0	0.59	98	70-130		
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.11	96	70-130		

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI13006-MSD1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Magnesium	29	0.050	0.010	mg/L	20	9.5	95	70-130	0.9	30
Boron	0.49	0.10	0.050	mg/L	0.40	0.13	91	70-130	8	30
Calcium	56	0.050	0.010	mg/L	20	37	94	70-130	0.5	30
Potassium	30	0.050	0.010	mg/L	20	11	94	70-130	1	30
Sodium	63	0.050	0.010	mg/L	20	43	96	70-130	0.6	30
Iron	7.8	0.10	0.020	mg/L	8.0	0.076	97	70-130	1	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.015	96	70-130	2	30
Matrix Spike Dup (BI13006-MSD2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130	0.03	30
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.11	93	70-130	3	30
Boron	0.42	0.10	0.050	mg/L	0.40	0.10	80	70-130	16	30
Sodium	31	0.050	0.010	mg/L	20	12	99	70-130	2	30
Iron	8.4	0.10	0.020	mg/L	8.0	0.59	98	70-130	0.3	30
Calcium	41	0.050	0.010	mg/L	20	21	100	70-130	2	30
Magnesium	25	0.050	0.010	mg/L	20	5.7	97	70-130	0.1	30

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* Qualifiers, Notes and Definitions

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

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

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

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

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

SAL Project No. 1108620

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: 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

Lab ID	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3, TotalP	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-AA9-14	092811	~~0900~~ 0955	GW		X	1		1		1	2	1	554	1.95	4.6	25.4		
02	DP-AA9-14-D		~~1005~~ 1000	GW		X	1		1		1	2	1	554	1.95	4.6	25.4		
03	DP-AA9-22		1010	GW		X		1	1					369.0	0.26	5.0	25.1		
04	DP-AA9-27		1015	GW		X		1	1					266.9	0.23	4.9	24.9		

Containers Prepared/ Relinquished:	Date/Time: 0835 09-23-11	Received:	Date/Time: 0835 092311
Relinquished:	Date/Time: 1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108620

Chain of Custody

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

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

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10002 Princess Palm Ave, Suite 200
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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D07-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-01**						
Date/Time Collected		**09/27/11 08:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		09/27/11 08:25	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		09/27/11 08:25	SDH
Specific conductance	umhos/cm	346	DEP FT1200	0.1	0.1		09/27/11 08:25	SDH
Dissolved Oxygen	mg/L	1.7	DEP FT1500	0.1	0.1		09/27/11 08:25	SDH
Inorganics								
Ammonia as N	mg/L	0.044	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	32	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	29	EPA 300.0	0.20	0.050		09/27/11 23:29	MEJ
Fluoride	mg/L	0.072	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Nitrate (as N)	mg/L	9.1	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Orthophosphate as P	mg/L	0.043	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.078	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	32	EPA 300.0	0.60	0.20		09/27/11 23:29	MEJ
Total Alkalinity	mg/L	31	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Total Organic Carbon	mg/L	12	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	12	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.091 I	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 14:39	VWC
Calcium	mg/L	28	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:39	VWC
Iron	mg/L	0.40	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 14:39	VWC
Magnesium	mg/L	5.0	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:39	VWC
Manganese	mg/L	0.0074 I	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 14:39	VWC
Potassium	mg/L	5.1	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:39	VWC
Sodium	mg/L	27	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:39	VWC

Sample Description	**DP-D07-9**
Matrix	**Groundwater**
SAL Sample Number	**1108622-02**
Date/Time Collected	**09/27/11 08:40**
Collected by	**Sean Harmon**
Date/Time Received	**09/27/11 14:00**

Field Parameters

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

Hazen and Sawyer
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Tampa, FL 33619

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Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D07-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-02**						
Date/Time Collected		**09/27/11 08:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
pH	SU	3.7	DEP FT1100	0.1	0.1		09/27/11 08:40	SDH
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		09/27/11 08:40	SDH
Specific conductance	umhos/cm	613	DEP FT1200	0.1	0.1		09/27/11 08:40	SDH
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		09/27/11 08:40	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	46	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	43	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Fluoride	mg/L	0.21	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Nitrate (as N)	mg/L	23	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.046	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	68	EPA 300.0	0.60	0.20		09/27/11 23:29	MEJ
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	3.3	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Total Organic Carbon	mg/L	2.9	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.8	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.12	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 14:43	VWC
Calcium	mg/L	37	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:43	VWC
Iron	mg/L	0.061 I	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 14:43	VWC
Magnesium	mg/L	8.4	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:43	VWC
Manganese	mg/L	0.011	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 14:43	VWC
Potassium	mg/L	12	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:43	VWC
Sodium	mg/L	39	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:43	VWC
Sample Description		**DP-D08-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-03**						
Date/Time Collected		**09/27/11 08:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/27/11 08:00	SDH

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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		**1108622-03**						
Date/Time Collected		**09/27/11 08:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		09/27/11 08:00	SDH
Specific conductance	umhos/cm	449	DEP FT1200	0.1	0.1		09/27/11 08:00	SDH
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		09/27/11 08:00	SDH
Inorganics								
Ammonia as N	mg/L	0.11	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	28	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	35	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	8.0	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.16	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	42	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Sample Description		**DP-D09-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-04**						
Date/Time Collected		**09/27/11 07:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/27/11 07:55	SDH
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		09/27/11 07:55	SDH
Specific conductance	umhos/cm	615	DEP FT1200	0.1	0.1		09/27/11 07:55	SDH
Dissolved Oxygen	mg/L	1.8	DEP FT1500	0.1	0.1		09/27/11 07:55	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	45	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Nitrate (as N)	mg/L	27	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.50	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D09-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-05**						
Date/Time Collected		**09/27/11 07:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		09/27/11 07:50	SDH
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		09/27/11 07:50	SDH
Specific conductance	umhos/cm	591	DEP FT1200	0.1	0.1		09/27/11 07:50	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 07:50	SDH
Inorganics								
Ammonia as N	mg/L	0.14	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	50	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Fluoride	mg/L	0.35	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Nitrate (as N)	mg/L	22	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Orthophosphate as P	mg/L	0.092	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.028 I	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	64	EPA 300.0	0.60	0.20		09/27/11 23:29	MEJ
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	2.8	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Total Organic Carbon	mg/L	2.9	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.3	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.12	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 14:46	VWC
Calcium	mg/L	37	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:46	VWC
Iron	mg/L	0.033 I	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 14:46	VWC
Magnesium	mg/L	9.5	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:46	VWC
Manganese	mg/L	0.0095 I	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 14:46	VWC
Potassium	mg/L	9.1	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:46	VWC
Sodium	mg/L	38	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:46	VWC

Sample Description	**DP-D11-11**
Matrix	**Groundwater**
SAL Sample Number	**1108622-06**
Date/Time Collected	**09/27/11 07:45**
Collected by	**Sean Harmon**
Date/Time Received	**09/27/11 14:00**

Field Parameters

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D11-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-06**						
Date/Time Collected		**09/27/11 07:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 07:45	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		09/27/11 07:45	SDH
Specific conductance	umhos/cm	442	DEP FT1200	0.1	0.1		09/27/11 07:45	SDH
Dissolved Oxygen	mg/L	2.3	DEP FT1500	0.1	0.1		09/27/11 07:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	33	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Nitrate (as N)	mg/L	16	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01	09/27/11 23:29	09/28/11 11:37	MEJ
Phosphorous - Total as P	mg/L	0.12	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	31	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Sample Description		**DP-D11-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-06RE1**						
Date/Time Collected		**09/27/11 07:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Inorganics								
Chloride	mg/L	33	EPA 300.0	0.20	0.050	09/30/11 11:37	09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01	09/30/11 11:37	09/28/11 11:37	MEJ
Sample Description		**DP-D12-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-07**						
Date/Time Collected		**09/27/11 07:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		09/27/11 07:40	SDH
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		09/27/11 07:40	SDH
Specific conductance	umhos/cm	486	DEP FT1200	0.1	0.1		09/27/11 07:40	SDH
Dissolved Oxygen	mg/L	1.2	DEP FT1500	0.1	0.1		09/27/11 07:40	SDH
Inorganics								

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D12-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-07**						
Date/Time Collected		**09/27/11 07:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Ammonia as N	mg/L	0.29	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	36	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Nitrate (as N)	mg/L	18	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.11	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Sample Description		**DP-D7.5-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-08**						
Date/Time Collected		**09/27/11 08:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/27/11 08:00	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		09/27/11 08:00	SDH
Specific conductance	umhos/cm	608	DEP FT1200	0.1	0.1		09/27/11 08:00	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/27/11 08:00	SDH
Inorganics								
Ammonia as N	mg/L	0.032 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	54	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Fluoride	mg/L	0.092	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Nitrate (as N)	mg/L	27	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Orthophosphate as P	mg/L	0.042	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.099	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	42	EPA 300.0	0.60	0.20		09/27/11 23:29	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Total Organic Carbon	mg/L	2.4	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.3	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D7.5-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-08**						
Date/Time Collected		**09/27/11 08:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Boron	mg/L	0.10	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 14:59	VWC
Calcium	mg/L	39	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:59	VWC
Iron	mg/L	0.044 I	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 14:59	VWC
Magnesium	mg/L	11	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 14:59	VWC
Manganese	mg/L	0.12	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 14:59	VWC
Potassium	mg/L	11	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:59	VWC
Sodium	mg/L	38	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 14:59	VWC
Sample Description		**DP-D7.5-14-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-09**						
Date/Time Collected		**09/27/11 08:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/27/11 08:05	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		09/27/11 08:05	SDH
Specific conductance	umhos/cm	608	DEP FT1200	0.1	0.1		09/27/11 08:05	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/27/11 08:05	SDH
Inorganics								
Ammonia as N	mg/L	0.032 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	52	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Fluoride	mg/L	0.082	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Nitrate (as N)	mg/L	27	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/27/11 23:29	MEJ
Phosphorous - Total as P	mg/L	0.077	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	41	EPA 300.0	0.60	0.20		09/27/11 23:29	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Total Organic Carbon	mg/L	2.0	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.2	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.12	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 16:46	VWC

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D7.5-14-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-09**						
Date/Time Collected		**09/27/11 08:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Calcium	mg/L	39	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:46	VWC
Iron	mg/L	0.049 I	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 16:46	VWC
Magnesium	mg/L	11	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:46	VWC
Manganese	mg/L	0.12	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 16:46	VWC
Potassium	mg/L	11	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:46	VWC
Sodium	mg/L	38	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:46	VWC
Sample Description		**DP-D7.5-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-10**						
Date/Time Collected		**09/27/11 08:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 08:25	SDH
Water Temperature	°C	24.2	DEP FT1400	0.1	0.1		09/27/11 08:25	SDH
Specific conductance	umhos/cm	531	DEP FT1200	0.1	0.1		09/27/11 08:25	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 08:25	SDH
Inorganics								
Ammonia as N	mg/L	0.019 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chloride	mg/L	42	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Nitrate (as N)	mg/L	25	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 23:29	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Sample Description		**DP-D7.5-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-10RE1**						
Date/Time Collected		**09/27/11 08:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Inorganics								
Chloride	mg/L	42	EPA 300.0	0.20	0.050		10/21/11 13:34	MEJ
Nitrate (as N)	mg/L	25	EPA 300.0	0.04	0.01	10/23/11 11:04	09/27/11 23:29	MEJ

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D7.5-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108622-11**						
Date/Time Collected		**09/27/11 08:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 08:35	SDH
Water Temperature	°C	24.2	DEP FT1400	0.1	0.1		09/27/11 08:35	SDH
Specific conductance	umhos/cm	289	DEP FT1200	0.1	0.1		09/27/11 08:35	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 08:35	SDH
Inorganics								
Ammonia as N	mg/L	0.88	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chloride	mg/L	14	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	8.7	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	0.92	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD

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Batch BI12718 - Ion Chromatography 300.0 Prep										
Blank (BI12718-BLK1)					Prepared & Analyzed: 09/27/11					
Nitrite (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						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
LCS (BI12718-BS1)					Prepared & Analyzed: 09/27/11					
Orthophosphate as P	0.907	0.040	0.010	mg/L	0.90		101	85-115		
Fluoride	0.845	0.040	0.010	mg/L	0.90		94	85-115		
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4		97	85-115		
Chloride	2.98	0.20	0.050	mg/L	3.0		99	85-115		
Sulfate	8.46	0.60	0.20	mg/L	9.0		94	85-115		
Nitrate (as N)	1.58	0.04	0.01	mg/L	1.7		93	85-115		
LCS Dup (BI12718-BSD1)					Prepared & Analyzed: 09/27/11					
Nitrate (as N)	1.64	0.04	0.01	mg/L	1.7		96	85-115	4	200
Sulfate	8.80	0.60	0.20	mg/L	9.0		98	85-115	4	200
Orthophosphate as P	0.969	0.040	0.010	mg/L	0.90		108	85-115	7	200
Chloride	3.03	0.20	0.050	mg/L	3.0		101	85-115	2	200
Fluoride	0.923	0.040	0.010	mg/L	0.90		103	85-115	9	200
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115	6	200
Matrix Spike (BI12718-MS1)		**Source: 1108514-01**			Prepared & Analyzed: 09/27/11					
Orthophosphate as P	90.1	0.040	0.010	mg/L	90		100	85-115		
Chloride	841	0.20	0.050	mg/L	300	550	97	80-120		
Sulfate	1,010	0.60	0.20	mg/L	900	222	88	85-115		
Nitrate (as N)	180	0.04	0.01	mg/L	170	9.58	100	85-115		
Nitrite (as N)	145	0.04	0.01	mg/L	140	ND	104	85-115		
Fluoride	91.3	0.040	0.010	mg/L	90		101	85-115		

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Batch BI12718 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12718-MS2)		**Source: 1108622-10**			Prepared & Analyzed: 09/27/11					
Chloride	49.6 +O	0.20	0.050	mg/L	3.0	42.4	240	80-120		
Nitrate (as N)	26.8 +O	0.04	0.01	mg/L	1.7	24.9	112	85-115		
Orthophosphate as P	0.978	0.040	0.010	mg/L	0.90	0.0881	99	85-115		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4	ND	104	85-115		
Fluoride	0.958	0.040	0.010	mg/L	0.90	0.0909	96	85-115		
Sulfate	44.7	0.60	0.20	mg/L	9.0	35.6	101	85-115		
Batch BI12751 - Ion Chromatography 300.0 Prep										
Blank (BI12751-BLK1)					Prepared & Analyzed: 09/27/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI12751-BS1)					Prepared & Analyzed: 09/27/11					
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4		94	85-115		
Chloride	2.73	0.20	0.050	mg/L	3.0		91	85-115		
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
LCS Dup (BI12751-BSD1)					Prepared & Analyzed: 09/27/11					
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	2	200
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4		97	85-115	3	200
Matrix Spike (BI12751-MS1)		**Source: 1108624-09**			Prepared & Analyzed: 09/27/11					
Nitrate (as N)	7.47	0.04	0.01	mg/L	1.7	5.59	111	85-115		
Chloride	17.8 +O	0.20	0.050	mg/L	3.0	13.9	130	80-120		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		

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Batch BI12751 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12751-MS2)		**Source: 1108628-09**			Prepared & Analyzed: 09/27/11					
Nitrate (as N)	23.2 +O	0.04	0.01	mg/L	1.7	18.5	276	85-115		
Chloride	39.2 +O	0.20	0.050	mg/L	3.0	31.6	253	80-120		
Nitrite (as N)	1.51	0.04	0.01	mg/L	1.4	ND	108	85-115		
Batch BI12807 - COD prep										
Blank (BI12807-BLK1)					Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI12807-BS1)					Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BI12807-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	77	25	10	mg/L	50	32	90	85-115		
Matrix Spike Dup (BI12807-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	75	25	10	mg/L	50	32	86	85-115	3	32
Batch BI12818 - alkalinity										
Blank (BI12818-BLK1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI12818-BS1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		

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Batch BI12818 - alkalinity										
Matrix Spike (BI12818-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	170	8.0	2.0	mg/L	120	31	108	80-120		
Matrix Spike Dup (BI12818-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	170	8.0	2.0	mg/L	120	31	108	80-120	0	26
Batch BI12821 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI12821-BLK1)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI12821-BLK2)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI12821-BLK3)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI12821-BLK4)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BI12821-BS1)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.467	0.040	0.010	mg/L	0.50		93	90-110		
LCS (BI12821-BS2)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.468	0.040	0.010	mg/L	0.50		94	90-110		
LCS (BI12821-BS3)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.478	0.040	0.010	mg/L	0.50		96	90-110		

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Batch BI12821 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BI12821-BS4)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.488	0.040	0.010	mg/L	0.50		98	90-110		
Matrix Spike (BI12821-MS1)		**Source: 1108510-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.513	0.040	0.010	mg/L	0.50	0.0732	88	75-125		
Matrix Spike (BI12821-MS2)		**Source: 1108525-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.04	0.040	0.010	mg/L	0.50	0.621	83	75-125		
Matrix Spike (BI12821-MS3)		**Source: 1108547-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.13	0.040	0.010	mg/L	0.50	0.669	93	75-125		
Matrix Spike (BI12821-MS4)		**Source: 1108599-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.510	0.040	0.010	mg/L	0.50	0.0440	93	75-125		
Matrix Spike Dup (BI12821-MSD1)		**Source: 1108510-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.541	0.040	0.010	mg/L	0.50	0.0732	94	75-125	5	25
Matrix Spike Dup (BI12821-MSD2)		**Source: 1108525-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.07	0.040	0.010	mg/L	0.50	0.621	91	75-125	3	25
Matrix Spike Dup (BI12821-MSD3)		**Source: 1108547-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.10	0.040	0.010	mg/L	0.50	0.669	87	75-125	3	25
Matrix Spike Dup (BI12821-MSD4)		**Source: 1108599-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.510	0.040	0.010	mg/L	0.50	0.0440	93	75-125	0.02	25
Batch BI12826 - TOC prep										
Blank (BI12826-BLK1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						

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Batch BI12826 - TOC prep										
LCS (BI12826-BS1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI12826-MS1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.9	1.0	0.50	mg/L	10	2.35	105	85-115		
Matrix Spike Dup (BI12826-MSD1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.8	1.0	0.50	mg/L	10	2.35	104	85-115	0.9	10
Batch BI12934 - Ion Chromatography 300.0 Prep										
Blank (BI12934-BLK1)					Prepared & Analyzed: 09/28/11					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12934-BS1)					Prepared & Analyzed: 09/28/11					
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4		96	85-115		
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115		
LCS Dup (BI12934-BSD1)					Prepared & Analyzed: 09/28/11					
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4		94	85-115	2	200
Chloride	2.73	0.20	0.050	mg/L	3.0		91	85-115	4	200
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Matrix Spike (BI12934-MS1)		**Source: 1108622-06**			Prepared & Analyzed: 09/28/11					
Nitrate (as N)	31.0	0.04	0.01	mg/L	17	15.9	89	85-115		
Chloride	60.3	0.20	0.050	mg/L	30	32.9	91	80-120		
Nitrite (as N)	13.9	0.04	0.01	mg/L	14	ND	99	85-115		

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Batch BI12934 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12934-MS2)		**Source: 1108906-01**			Prepared & Analyzed: 09/28/11					
Chloride	12.2	0.20	0.050	mg/L	3.0	9.09	104	80-120		
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4	ND	94	85-115		
Nitrate (as N)	3.34	0.04	0.01	mg/L	1.7	1.68	98	85-115		
Batch BI13021 - Ion Chromatography 300.0 Prep										
Blank (BI13021-BLK1)					Prepared & Analyzed: 10/01/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI13021-BS1)					Prepared & Analyzed: 10/01/11					
Chloride	3.02	0.20	0.050	mg/L	3.0		101	85-115		
LCS Dup (BI13021-BSD1)					Prepared & Analyzed: 10/01/11					
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115	3	200
Matrix Spike (BI13021-MS1)		**Source: 1108628-18**			Prepared & Analyzed: 10/01/11					
Chloride	16.6	0.20	0.050	mg/L	3.0	13.4	107	80-120		
Matrix Spike (BI13021-MS2)		**Source: 1108897-01**			Prepared & Analyzed: 10/01/11					
Chloride	82.6 +O	0.20	0.050	mg/L	3.0	280	NR	80-120		
Batch BJ10425 - Digestion for TKN by EPA 351.2										
Blank (BJ10425-BLK1)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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Batch BJ10425 - Digestion for TKN by EPA 351.2										
Blank (BJ10425-BLK2)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ10425-BS1)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.65	0.20	0.05	mg/L	2.5		106	90-110		
LCS (BJ10425-BS2)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.66	0.20	0.05	mg/L	2.5		106	90-110		
Matrix Spike (BJ10425-MS1)		**Source: 1108622-07**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	4.46	0.20	0.05	mg/L	2.5	2.51	78	80-120		
Matrix Spike (BJ10425-MS2)		**Source: 1108624-06**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	3.58	0.20	0.05	mg/L	2.5	1.29	92	80-120		
Matrix Spike Dup (BJ10425-MSD1)		**Source: 1108622-07**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	4.81	0.20	0.05	mg/L	2.5	2.51	92	80-120	8	20
Matrix Spike Dup (BJ10425-MSD2)		**Source: 1108624-06**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	4.24	0.20	0.05	mg/L	2.5	1.29	118	80-120	17	20
Batch BJ11217 - Ammonia by SEAL										
Blank (BJ11217-BLK1)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
Blank (BJ11217-BLK2)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11217 - Ammonia by SEAL										
LCS (BJ11217-BS1)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50		94	90-110		
LCS (BJ11217-BS2)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.50	0.040	0.010	mg/L	0.50		100	90-110		
Matrix Spike (BJ11217-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.51	0.040	0.010	mg/L	0.50	0.044	94	90-110		
Matrix Spike (BJ11217-MS2)		**Source: 1108624-06**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.51	0.040	0.010	mg/L	0.50	0.013	100	90-110		
Matrix Spike Dup (BJ11217-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.58 J3	0.040	0.010	mg/L	0.50	0.044	108	90-110	13	10
Matrix Spike Dup (BJ11217-MSD2)		**Source: 1108624-06**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	0.013	91	90-110	9	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12827 - DOC prep										
Blank (BI12827-BLK1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12827-BS1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	10.4	1.0	0.50	mg/L	10		104	90-110		
Matrix Spike (BI12827-MS1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.4	1.0	0.50	mg/L	10	1.83	106	85-125		
Matrix Spike Dup (BI12827-MSD1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.1	1.0	0.50	mg/L	10	1.83	102	85-125	3	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12710 - Metals Preparation for EPA Method 200.7										
Blank (BI12710-BLK1)					Prepared & Analyzed: 10/03/11					
Manganese	0.0010 U	0.010	0.0010	mg/L						
Sodium	0.078	0.050	0.010	mg/L						
Magnesium	0.053	0.050	0.010	mg/L						
Potassium	0.066	0.050	0.010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Iron	0.034 I	0.10	0.020	mg/L						
Calcium	0.034 I	0.050	0.010	mg/L						
LCS (BI12710-BS1)					Prepared & Analyzed: 10/03/11					
Boron	0.43	0.10	0.050	mg/L	0.40		107	85-115		
Iron	7.6	0.10	0.020	mg/L	8.0		95	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Calcium	19	0.050	0.010	mg/L	20		95	85-115		
Potassium	19	0.050	0.010	mg/L	20		93	85-115		
Sodium	20	0.050	0.010	mg/L	20		98	85-115		
Magnesium	19	0.050	0.010	mg/L	20		96	85-115		
Matrix Spike (BI12710-MS1)		**Source: 1108663-02**			Prepared & Analyzed: 10/03/11					
Iron	7.9	0.10	0.020	mg/L	8.0	0.11	97	70-130		
Boron	0.52	0.10	0.050	mg/L	0.40	ND	131	70-130		
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.048	99	70-130		
Magnesium	22	0.050	0.010	mg/L	20	2.8	97	70-130		
Potassium	19	0.050	0.010	mg/L	20	0.64	93	70-130		
Sodium	22	0.050	0.010	mg/L	20	1.7	101	70-130		
Calcium	31	0.050	0.010	mg/L	20	12	97	70-130		
Matrix Spike (BI12710-MS2)		**Source: 1108780-03**			Prepared & Analyzed: 10/03/11					
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0040	101	70-130		
Sodium	30	0.050	0.010	mg/L	20	9.7	101	70-130		
Boron	0.57	0.10	0.050	mg/L	0.40	ND	141	70-130		
Calcium	65	0.050	0.010	mg/L	20	45	101	70-130		
Magnesium	32	0.050	0.010	mg/L	20	12	96	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Potassium	22	0.050	0.010	mg/L	20	2.9	94	70-130		

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12710 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI12710-MSD1)		**Source: 1108663-02**			Prepared & Analyzed: 10/03/11					
Calcium	32	0.050	0.010	mg/L	20	12	102	70-130	3	30
Magnesium	23	0.050	0.010	mg/L	20	2.8	101	70-130	3	30
Boron	0.47	0.10	0.050	mg/L	0.40	ND	116	70-130	12	30
Manganese	0.45	0.010	0.0010	mg/L	0.40	0.048	100	70-130	1	30
Sodium	22	0.050	0.010	mg/L	20	1.7	101	70-130	0.4	30
Iron	8.1	0.10	0.020	mg/L	8.0	0.11	100	70-130	3	30
Potassium	21	0.050	0.010	mg/L	20	0.64	101	70-130	8	30
Matrix Spike Dup (BI12710-MSD2)		**Source: 1108780-03**			Prepared & Analyzed: 10/03/11					
Sodium	30	0.050	0.010	mg/L	20	9.7	102	70-130	0.8	30
Potassium	22	0.050	0.010	mg/L	20	2.9	98	70-130	3	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.0040	99	70-130	2	30
Calcium	65	0.050	0.010	mg/L	20	45	101	70-130	0.005	30
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	97	70-130	0.5	30
Magnesium	32	0.050	0.010	mg/L	20	12	97	70-130	0.6	30
Boron	0.50	0.10	0.050	mg/L	0.40	ND	126	70-130	11	30
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Blank (BI13006-BLK1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	0.010 U	0.050	0.010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Magnesium	0.025 I	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Sodium	0.010 U	0.050	0.010	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Potassium	0.016 I	0.050	0.010	mg/L						

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
LCS (BI13006-BS1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	18	0.050	0.010	mg/L	20		92	85-115		
Iron	7.6	0.10	0.020	mg/L	8.0		94	85-115		
Sodium	19	0.050	0.010	mg/L	20		95	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Potassium	18	0.050	0.010	mg/L	20		89	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Magnesium	19	0.050	0.010	mg/L	20		95	85-115		
Matrix Spike (BI13006-MS1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Boron	0.53	0.10	0.050	mg/L	0.40	0.13	101	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	91	70-130		
Calcium	56	0.050	0.010	mg/L	20	37	93	70-130		
Magnesium	29	0.050	0.010	mg/L	20	9.5	97	70-130		
Sodium	63	0.050	0.010	mg/L	20	43	98	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.015	98	70-130		
Matrix Spike (BI13006-MS2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.11	96	70-130		
Sodium	31	0.050	0.010	mg/L	20	12	96	70-130		
Magnesium	25	0.050	0.010	mg/L	20	5.7	98	70-130		
Boron	0.50	0.10	0.050	mg/L	0.40	0.10	98	70-130		
Iron	8.5	0.10	0.020	mg/L	8.0	0.59	98	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130		
Calcium	40	0.050	0.010	mg/L	20	21	96	70-130		
Matrix Spike Dup (BI13006-MSD1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Iron	7.8	0.10	0.020	mg/L	8.0	0.076	97	70-130	1	30
Calcium	56	0.050	0.010	mg/L	20	37	94	70-130	0.5	30
Sodium	63	0.050	0.010	mg/L	20	43	96	70-130	0.6	30
Boron	0.49	0.10	0.050	mg/L	0.40	0.13	91	70-130	8	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.015	96	70-130	2	30
Magnesium	29	0.050	0.010	mg/L	20	9.5	95	70-130	0.9	30
Potassium	30	0.050	0.010	mg/L	20	11	94	70-130	1	30

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI13006-MSD2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130	0.03	30
Sodium	31	0.050	0.010	mg/L	20	12	99	70-130	2	30
Boron	0.42	0.10	0.050	mg/L	0.40	0.10	80	70-130	16	30
Magnesium	25	0.050	0.010	mg/L	20	5.7	97	70-130	0.1	30
Calcium	41	0.050	0.010	mg/L	20	21	100	70-130	2	30
Iron	8.4	0.10	0.020	mg/L	8.0	0.59	98	70-130	0.3	30
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.11	93	70-130	3	30

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* Qualifiers, Notes and Definitions

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

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

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

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

J3	Quality control value for precision was outside control limits.
+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. 1108622

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

Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-D07-5	092711	0825	GW		X	1		1		1	2	1	345.8	1.68	5.7	26.0		
02	DP-D07-9		0840	GW		X	1		1		1	2	1	613	0.81	3.7	25.6		
03	DP-D08-9		0800	GW		X			1					448.7	2.79	5.0	25.3		
04	DP-D09-15		0755	GW		X			1					615	1.79	4.8	24.9		
05	DP-D09-8		0750	GW		X	1		1		1	2	1	591	0.48	4.6	25.8		
06	DP-D11-11		0745	GW		X			1					442.4	2.28	5.18	26.0		
07	DP-D12-11		0740	GW		X			1					486	1.19	4.6	25.7		
08	DP-D7.5-14		0800	GW		X	1		1		1	2	1	608	0.22	4.9	24.6		
09	DP-D7.5-14-D		0805	GW		X	1		1		1	2	1	608	0.22	4.9	24.6		
10	DP-D7.5-20		0825	GW		X		1		1				531	0.47	5.1	24.2		
11	DP-D7.5-26		0835	GW		X		1		1				289.1	0.54	5.2	24.2		

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished:	Date/Time: 0900 09-23-11	Received:	Date/Time: 0900 092311
Relinquished:	Date/Time: 1400 092711	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1108622

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.
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October 26, 2011
Work Order: 1108624
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		**1108624-01**						
Date/Time Collected		**09/27/11 08:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.0	DEP FT1100	0.1	0.1		09/27/11 08:55	SDH
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		09/27/11 08:55	SDH
Specific conductance	umhos/cm	76	DEP FT1200	0.1	0.1		09/27/11 08:55	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 08:55	SDH
Inorganics								
Ammonia as N	mg/L	0.25	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	3.6	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	0.33	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	1.0	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.58	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD

Sample Description		**DP-E07-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-02**						
Date/Time Collected		**09/27/11 09:09**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.0	DEP FT1100	0.1	0.1		09/27/11 09:09	SDH
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		09/27/11 09:09	SDH
Specific conductance	umhos/cm	264	DEP FT1200	0.1	0.1		09/27/11 09:09	SDH
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		09/27/11 09:09	SDH
Inorganics								
Ammonia as N	mg/L	0.12	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	12	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	7.2	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.12	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD

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October 26, 2011
Work Order: 1108624
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E08-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-03**						
Date/Time Collected		**09/27/11 09:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.2	DEP FT1100	0.1	0.1		09/27/11 09:25	SDH
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		09/27/11 09:25	SDH
Specific conductance	umhos/cm	304	DEP FT1200	0.1	0.1		09/27/11 09:25	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		09/27/11 09:25	SDH
Inorganics								
Ammonia as N	mg/L	0.088	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	22	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	9.1	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.086	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Sample Description		**DP-E10-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-04**						
Date/Time Collected		**09/27/11 09:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	3.9	DEP FT1100	0.1	0.1		09/27/11 09:35	SDH
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		09/27/11 09:35	SDH
Specific conductance	umhos/cm	352	DEP FT1200	0.1	0.1		09/27/11 09:35	SDH
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		09/27/11 09:35	SDH
Inorganics								
Ammonia as N	mg/L	0.045	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chloride	mg/L	31	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	9.1	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD

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Tampa, FL 33619

October 26, 2011
Work Order: 1108624
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		**1108624-05**						
Date/Time Collected		**09/27/11 09:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 09:35	SDH
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		09/27/11 09:35	SDH
Specific conductance	umhos/cm	506	DEP FT1200	0.1	0.1		09/27/11 09:35	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/27/11 09:35	SDH
Inorganics								
Ammonia as N	mg/L	0.045	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	39	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.031 I	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Total Alkalinity	mg/L	8.0	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD

Sample Description		**DP-E12-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-06**						
Date/Time Collected		**09/27/11 08:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		09/27/11 08:50	SDH
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		09/27/11 08:50	SDH
Specific conductance	umhos/cm	462	DEP FT1200	0.1	0.1		09/27/11 08:50	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 08:50	SDH
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	32	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Fluoride	mg/L	0.063	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	16	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.034 I	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	49	EPA 300.0	0.60	0.20		09/27/11 16:57	MEJ

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October 26, 2011
Work Order: 1108624
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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E12-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-06**						
Date/Time Collected		**09/27/11 08:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/04/11 13:26	10/11/11 16:54	SMD
Total Organic Carbon	mg/L	2.4	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.4	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.10	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 16:49	VWC
Calcium	mg/L	33	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:49	VWC
Iron	mg/L	0.27	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 16:49	VWC
Magnesium	mg/L	7.8	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:49	VWC
Manganese	mg/L	0.15	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 16:49	VWC
Potassium	mg/L	11	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:49	VWC
Sodium	mg/L	31	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:49	VWC
Sample Description		**DP-E12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-07**						
Date/Time Collected		**09/27/11 09:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 09:00	SDH
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		09/27/11 09:00	SDH
Specific conductance	umhos/cm	607	DEP FT1200	0.1	0.1		09/27/11 09:00	SDH
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		09/27/11 09:00	SDH
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	44	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Fluoride	mg/L	0.078	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	28	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.044	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	54	EPA 300.0	0.60	0.20		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	7.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-07**						
Date/Time Collected		**09/27/11 09:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Total Organic Carbon	mg/L	2.2	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.4	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.12	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 16:53	VWC
Calcium	mg/L	40	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:53	VWC
Iron	mg/L	0.046 I	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 16:53	VWC
Magnesium	mg/L	10	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:53	VWC
Manganese	mg/L	0.025	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 16:53	VWC
Potassium	mg/L	13	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:53	VWC
Sodium	mg/L	44	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:53	VWC
Sample Description		**DP-E12-22**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-08**						
Date/Time Collected		**09/27/11 09:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 09:10	SDH
Water Temperature	°C	25.2	DEP FT1400	0.1	0.1		09/27/11 09:10	SDH
Specific conductance	umhos/cm	311	DEP FT1200	0.1	0.1		09/27/11 09:10	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/27/11 09:10	SDH
Inorganics								
Ammonia as N	mg/L	0.014 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	8.9	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Fluoride	mg/L	0.10	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	7.6	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.13	SM 4500P-E	0.040	0.010	09/28/11 12:00	10/04/11 15:12	MEJ
Sulfate	mg/L	68	EPA 300.0	0.60	0.20		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E12-22**							
Matrix		**Groundwater**							
SAL Sample Number		**1108624-08**							
Date/Time Collected		**09/27/11 09:10**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/27/11 14:00**							
Total Organic Carbon	mg/L	2.3		SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	1.4		SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals									
Boron	mg/L	0.054	I	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 16:57	VWC
Calcium	mg/L	25		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:57	VWC
Iron	mg/L	0.020	U	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 16:57	VWC
Magnesium	mg/L	8.1		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:57	VWC
Manganese	mg/L	0.19		EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 16:57	VWC
Potassium	mg/L	13		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:57	VWC
Sodium	mg/L	6.8		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 16:57	VWC
Sample Description		**DP-E12-28**							
Matrix		**Groundwater**							
SAL Sample Number		**1108624-09**							
Date/Time Collected		**09/27/11 09:20**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/27/11 14:00**							
Field Parameters									
pH	SU	5.1		DEP FT1100	0.1	0.1		09/27/11 09:20	SDH
Water Temperature	°C	25.1		DEP FT1400	0.1	0.1		09/27/11 09:20	SDH
Specific conductance	umhos/cm	295		DEP FT1200	0.1	0.1		09/27/11 09:20	SDH
Dissolved Oxygen	mg/L	0.4		DEP FT1500	0.1	0.1		09/27/11 09:20	SDH
Inorganics									
Ammonia as N	mg/L	0.039	I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chloride	mg/L	14		EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	5.6		EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	4.0	I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.90		EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E12-28-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108624-10**						
Date/Time Collected		**09/27/11 09:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 09:25	SDH
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		09/27/11 09:25	SDH
Specific conductance	umhos/cm	295	DEP FT1200	0.1	0.1		09/27/11 09:25	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 09:25	SDH
Inorganics								
Ammonia as N	mg/L	0.040	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chloride	mg/L	14	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	5.7	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.84	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12747 - alkalinity										
Blank (BI12747-BLK1)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI12747-BLK2)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI12747-BS1)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120		108	90-110		
LCS (BI12747-BS2)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120		108	90-110		
Matrix Spike (BI12747-MS1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	ND	108	80-120		
Matrix Spike (BI12747-MS2)		**Source: 1108624-06**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	10	109	80-120		
Matrix Spike Dup (BI12747-MSD1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	ND	108	80-120	0	26
Matrix Spike Dup (BI12747-MSD2)		**Source: 1108624-06**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	10	109	80-120	0	26
Batch BI12751 - Ion Chromatography 300.0 Prep										
Blank (BI12751-BLK1)					Prepared & Analyzed: 09/27/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12751 - Ion Chromatography 300.0 Prep										
LCS (BI12751-BS1)					Prepared & Analyzed: 09/27/11					
Sulfate	8.22	0.60	0.20	mg/L	9.0		91	85-115		
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4		94	85-115		
Orthophosphate as P	0.853	0.040	0.010	mg/L	0.90		95	85-115		
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Fluoride	0.922	0.040	0.010	mg/L	0.90		102	85-115		
Chloride	2.73	0.20	0.050	mg/L	3.0		91	85-115		
LCS Dup (BI12751-BSD1)					Prepared & Analyzed: 09/27/11					
Orthophosphate as P	0.940	0.040	0.010	mg/L	0.90		104	85-115	10	200
Fluoride	0.902	0.040	0.010	mg/L	0.90		100	85-115	2	200
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	2	200
Sulfate	8.33	0.60	0.20	mg/L	9.0		93	85-115	1	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4		97	85-115	3	200
Matrix Spike (BI12751-MS1)		**Source: 1108624-09**			Prepared & Analyzed: 09/27/11					
Chloride	17.8 +O	0.20	0.050	mg/L	3.0	13.9	130	80-120		
Fluoride	1.07	0.040	0.010	mg/L	0.90	0.116	106	85-115		
Nitrate (as N)	7.47	0.04	0.01	mg/L	1.7	5.59	111	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Orthophosphate as P	0.920	0.040	0.010	mg/L	0.90	0.0491	97	85-115		
Sulfate	70.6 +O	0.60	0.20	mg/L	9.0	59.7	121	85-115		
Matrix Spike (BI12751-MS2)		**Source: 1108628-09**			Prepared & Analyzed: 09/27/11					
Chloride	39.2 +O	0.20	0.050	mg/L	3.0	31.6	253	80-120		
Nitrite (as N)	1.51	0.04	0.01	mg/L	1.4	ND	108	85-115		
Fluoride	0.925	0.040	0.010	mg/L	0.90	0.0738	95	85-115		
Nitrate (as N)	23.2 +O	0.04	0.01	mg/L	1.7	18.5	276	85-115		
Sulfate	64.3	0.60	0.20	mg/L	9.0	55.2	101	85-115		
Orthophosphate as P	0.903	0.040	0.010	mg/L	0.90	0.0522	95	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12807 - COD prep										
Blank (BI12807-BLK1)					Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI12807-BS1)					Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BI12807-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	77	25	10	mg/L	50	32	90	85-115		
Matrix Spike Dup (BI12807-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	75	25	10	mg/L	50	32	86	85-115	3	32
Batch BI12821 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI12821-BLK1)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI12821-BLK2)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI12821-BLK3)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI12821-BLK4)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BI12821-BS1)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.467	0.040	0.010	mg/L	0.50		93	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12821 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BI12821-BS2)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.468	0.040	0.010	mg/L	0.50		94	90-110		
LCS (BI12821-BS3)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.478	0.040	0.010	mg/L	0.50		96	90-110		
LCS (BI12821-BS4)					Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.488	0.040	0.010	mg/L	0.50		98	90-110		
Matrix Spike (BI12821-MS1)		**Source: 1108510-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.513	0.040	0.010	mg/L	0.50	0.0732	88	75-125		
Matrix Spike (BI12821-MS2)		**Source: 1108525-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.04	0.040	0.010	mg/L	0.50	0.621	83	75-125		
Matrix Spike (BI12821-MS3)		**Source: 1108547-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.13	0.040	0.010	mg/L	0.50	0.669	93	75-125		
Matrix Spike (BI12821-MS4)		**Source: 1108599-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.510	0.040	0.010	mg/L	0.50	0.0440	93	75-125		
Matrix Spike Dup (BI12821-MSD1)		**Source: 1108510-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.541	0.040	0.010	mg/L	0.50	0.0732	94	75-125	5	25
Matrix Spike Dup (BI12821-MSD2)		**Source: 1108525-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.07	0.040	0.010	mg/L	0.50	0.621	91	75-125	3	25
Matrix Spike Dup (BI12821-MSD3)		**Source: 1108547-02**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	1.10	0.040	0.010	mg/L	0.50	0.669	87	75-125	3	25

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12821 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike Dup (BI12821-MSD4)		**Source: 1108599-07**			Prepared: 09/28/11 Analyzed: 10/04/11					
Phosphorous - Total as P	0.510	0.040	0.010	mg/L	0.50	0.0440	93	75-125	0.02	25
Batch BI12826 - TOC prep										
Blank (BI12826-BLK1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12826-BS1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI12826-MS1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.9	1.0	0.50	mg/L	10	2.35	105	85-115		
Matrix Spike Dup (BI12826-MSD1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.8	1.0	0.50	mg/L	10	2.35	104	85-115	0.9	10
Batch BI13021 - Ion Chromatography 300.0 Prep										
Blank (BI13021-BLK1)					Prepared & Analyzed: 10/01/11					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI13021-BS1)					Prepared & Analyzed: 10/01/11					
Chloride	3.02	0.20	0.050	mg/L	3.0		101	85-115		
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13021 - Ion Chromatography 300.0 Prep										
LCS Dup (BI13021-BSD1)					Prepared & Analyzed: 10/01/11					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	2	200
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115	3	200
Matrix Spike (BI13021-MS1)		**Source: 1108628-18**			Prepared & Analyzed: 10/01/11					
Chloride	16.6	0.20	0.050	mg/L	3.0	13.4	107	80-120		
Nitrate (as N)	10.9	0.04	0.01	mg/L	1.7	8.99	112	85-115		
Matrix Spike (BI13021-MS2)		**Source: 1108897-01**			Prepared & Analyzed: 10/01/11					
Nitrate (as N)	1.83	0.04	0.01	mg/L	1.7	0.259	92	85-115		
Chloride	82.6 +O	0.20	0.050	mg/L	3.0	280	NR	80-120		
Batch BJ10425 - Digestion for TKN by EPA 351.2										
Blank (BJ10425-BLK1)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Blank (BJ10425-BLK2)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ10425-BS1)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.65	0.20	0.05	mg/L	2.5		106	90-110		
LCS (BJ10425-BS2)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.66	0.20	0.05	mg/L	2.5		106	90-110		
Matrix Spike (BJ10425-MS1)		**Source: 1108622-07**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	4.46	0.20	0.05	mg/L	2.5	2.51	78	80-120		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10425 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ10425-MS2)		**Source: 1108624-06**			Prepared: 10/04/11	Analyzed: 10/11/11				
Total Kjeldahl Nitrogen	3.58	0.20	0.05	mg/L	2.5	1.29	92	80-120		
Matrix Spike Dup (BJ10425-MSD1)		**Source: 1108622-07**			Prepared: 10/04/11	Analyzed: 10/11/11				
Total Kjeldahl Nitrogen	4.81	0.20	0.05	mg/L	2.5	2.51	92	80-120	8	20
Matrix Spike Dup (BJ10425-MSD2)		**Source: 1108624-06**			Prepared: 10/04/11	Analyzed: 10/11/11				
Total Kjeldahl Nitrogen	4.24	0.20	0.05	mg/L	2.5	1.29	118	80-120	17	20
Batch BJ10430 - Digestion for TKN by EPA 351.2										
Blank (BJ10430-BLK1)					Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ10430-BS1)					Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	2.38	0.20	0.05	mg/L	2.5		95	90-110		
Matrix Spike (BJ10430-MS1)		**Source: 1108628-16**			Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	3.46	0.20	0.05	mg/L	2.5	1.47	80	80-120		
Matrix Spike Dup (BJ10430-MSD1)		**Source: 1108628-16**			Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	4.07	0.20	0.05	mg/L	2.5	1.47	104	80-120	16	20
Batch BJ11217 - Ammonia by SEAL										
Blank (BJ11217-BLK1)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11217 - Ammonia by SEAL										
Blank (BJ11217-BLK2)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11217-BS1)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50		94	90-110		
LCS (BJ11217-BS2)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.50	0.040	0.010	mg/L	0.50		100	90-110		
Matrix Spike (BJ11217-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.51	0.040	0.010	mg/L	0.50	0.044	94	90-110		
Matrix Spike (BJ11217-MS2)		**Source: 1108624-06**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.51	0.040	0.010	mg/L	0.50	0.013	100	90-110		
Matrix Spike Dup (BJ11217-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.58 J3	0.040	0.010	mg/L	0.50	0.044	108	90-110	13	10
Matrix Spike Dup (BJ11217-MSD2)		**Source: 1108624-06**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	0.013	91	90-110	9	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12827 - DOC prep										
Blank (BI12827-BLK1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12827-BS1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	10.4	1.0	0.50	mg/L	10		104	90-110		
Matrix Spike (BI12827-MS1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.4	1.0	0.50	mg/L	10	1.83	106	85-125		
Matrix Spike Dup (BI12827-MSD1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.1	1.0	0.50	mg/L	10	1.83	102	85-125	3	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Blank (BI13006-BLK1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	0.010 U	0.050	0.010	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Potassium	0.016 I	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Magnesium	0.025 I	0.050	0.010	mg/L						
Sodium	0.010 U	0.050	0.010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
LCS (BI13006-BS1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Magnesium	19	0.050	0.010	mg/L	20		95	85-115		
Calcium	18	0.050	0.010	mg/L	20		92	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Potassium	18	0.050	0.010	mg/L	20		89	85-115		
Sodium	19	0.050	0.010	mg/L	20		95	85-115		
Iron	7.6	0.10	0.020	mg/L	8.0		94	85-115		
Matrix Spike (BI13006-MS1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Magnesium	29	0.050	0.010	mg/L	20	9.5	97	70-130		
Calcium	56	0.050	0.010	mg/L	20	37	93	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Sodium	63	0.050	0.010	mg/L	20	43	98	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	91	70-130		
Boron	0.53	0.10	0.050	mg/L	0.40	0.13	101	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.015	98	70-130		
Matrix Spike (BI13006-MS2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Boron	0.50	0.10	0.050	mg/L	0.40	0.10	98	70-130		
Sodium	31	0.050	0.010	mg/L	20	12	96	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130		
Magnesium	25	0.050	0.010	mg/L	20	5.7	98	70-130		
Calcium	40	0.050	0.010	mg/L	20	21	96	70-130		
Iron	8.5	0.10	0.020	mg/L	8.0	0.59	98	70-130		
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.11	96	70-130		

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI13006-MSD1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Iron	7.8	0.10	0.020	mg/L	8.0	0.076	97	70-130	1	30
Boron	0.49	0.10	0.050	mg/L	0.40	0.13	91	70-130	8	30
Calcium	56	0.050	0.010	mg/L	20	37	94	70-130	0.5	30
Magnesium	29	0.050	0.010	mg/L	20	9.5	95	70-130	0.9	30
Potassium	30	0.050	0.010	mg/L	20	11	94	70-130	1	30
Sodium	63	0.050	0.010	mg/L	20	43	96	70-130	0.6	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.015	96	70-130	2	30
Matrix Spike Dup (BI13006-MSD2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130	0.03	30
Magnesium	25	0.050	0.010	mg/L	20	5.7	97	70-130	0.1	30
Sodium	31	0.050	0.010	mg/L	20	12	99	70-130	2	30
Calcium	41	0.050	0.010	mg/L	20	21	100	70-130	2	30
Boron	0.42	0.10	0.050	mg/L	0.40	0.10	80	70-130	16	30
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.11	93	70-130	3	30
Iron	8.4	0.10	0.020	mg/L	8.0	0.59	98	70-130	0.3	30

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* Qualifiers, Notes and Definitions

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

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

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

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

J3	Quality control value for precision was outside control limits.
+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. 1108624

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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-E04-8	092711	0855	GW		X		1	1					76.0	0.63	4.0	26.9		
02	DP-E07-10		0909	GW		X		1	1					264.5	1.00	4.0	26.5		
03	DP-E08-8		0925	GW		X		1	1					304.2	0.69	4.2	26.8		
04	DP-E10-6		0935	GW		X		1		1				351.4	0.80	3.9	27.1		
05	DP-E11-12		0935	GW		X		1	1					506	0.31	5.7	26.4		
06	DP-E12-10		0850	GW		X	1		1		1	2	1	461.8	0.39	5.3	25.9		
07	DP-E12-15		0900	GW		X	1		1		1	2	1	607	1.00	5.1	25.7		
08	DP-E12-22		0910	GW		X	1		1		1	2	1	310.9	0.22	5.2	25.2		
09	DP-E1[illegible]-28		0920	GW		X		1		1				295.1	0.41	5.1	25.1		
10	DP-E1[illegible]-28-D		0925	GW		X		1		1				295.1	0.41	5.1	25.1		
				GW		X													

Containers Prepared/ Relinquished:	Date/Time: 0940 09-23-11	Received:	Date/Time: 0940 092311
Relinquished:	Date/Time: 1400 092711	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108624

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

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10002 Princess Palm Ave, Suite 200
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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F04-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-01**						
Date/Time Collected		**09/27/11 11:12**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		09/27/11 11:12	SDH
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		09/27/11 11:12	SDH
Specific conductance	umhos/cm	280	DEP FT1200	0.1	0.1		09/27/11 11:12	SDH
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		09/27/11 11:12	SDH
Inorganics								
Ammonia as N	mg/L	0.026 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		09/28/11 08:00	ARM
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	2.1	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.24	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.075	SM 4500P-E	0.040	0.010	10/03/11 11:23	10/05/11 15:03	SMD
Total Alkalinity	mg/L	52	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	0.35	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F04-22**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-02**						
Date/Time Collected		**09/27/11 11:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 11:05	SDH
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		09/27/11 11:05	SDH
Specific conductance	umhos/cm	270	DEP FT1200	0.1	0.1		09/27/11 11:05	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 11:05	SDH
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chloride	mg/L	12	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	7.6	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

SOUTHERN ANALYTICAL LABORATORIES, INC.
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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F04-32**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-03**						
Date/Time Collected		**09/27/11 11:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		09/27/11 11:00	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		09/27/11 11:00	SDH
Specific conductance	umhos/cm	290	DEP FT1200	0.1	0.1		09/27/11 11:00	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 11:00	SDH
Inorganics								
Ammonia as N	mg/L	0.060	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	19	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	0.48	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.21	SM 4500P-E	0.040	0.010	10/03/11 11:23	10/05/11 15:03	SMD
Total Alkalinity	mg/L	42	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	0.18 I	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F05-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-04**						
Date/Time Collected		**09/27/11 10:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/27/11 10:45	SDH
Water Temperature	°C	28.8	DEP FT1400	0.1	0.1		09/27/11 10:45	SDH
Specific conductance	umhos/cm	178	DEP FT1200	0.1	0.1		09/27/11 10:45	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 10:45	SDH
Inorganics								
Ammonia as N	mg/L	0.13	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	4.3	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	0.42	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.10	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.18	SM 4500P-E	0.040	0.010	10/03/11 11:23	10/05/11 15:03	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	0.44	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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October 26, 2011
Work Order: 1108628
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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		**1108628-05**						
Date/Time Collected		**09/27/11 10:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/27/11 10:20	SDH
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		09/27/11 10:20	SDH
Specific conductance	umhos/cm	298	DEP FT1200	0.1	0.1		09/27/11 10:20	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 10:20	SDH
Inorganics								
Ammonia as N	mg/L	0.033 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	12	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	7.2	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.33	SM 4500P-E	0.040	0.010	10/03/11 11:23	10/05/11 15:03	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F08-28**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-06**						
Date/Time Collected		**09/27/11 10:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 10:25	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		09/27/11 10:25	SDH
Specific conductance	umhos/cm	298	DEP FT1200	0.1	0.1		09/27/11 10:25	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 10:25	SDH
Inorganics								
Ammonia as N	mg/L	0.026 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chloride	mg/L	20	EPA 300.0	0.20	0.050		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	1.5	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 09:00	09/28/11 11:56	JAG
Total Kjeldahl Nitrogen	mg/L	0.34	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F10-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-07**						
Date/Time Collected		**09/27/11 10:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.2	DEP FT1100	0.1	0.1		09/27/11 10:00	SDH
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		09/27/11 10:00	SDH
Specific conductance	umhos/cm	446	DEP FT1200	0.1	0.1		09/27/11 10:00	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 10:00	SDH
Inorganics								
Ammonia as N	mg/L	0.38	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	32	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Fluoride	mg/L	0.18	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Orthophosphate as P	mg/L	0.044	EPA 300.0	0.040	0.010		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.076	SM 4500P-E	0.040	0.010	10/03/11 11:23	10/05/11 15:03	SMD
Sulfate	mg/L	55	EPA 300.0	0.60	0.20		09/27/11 16:57	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	2.7	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Total Organic Carbon	mg/L	2.0	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.5	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.090 I	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:00	VWC
Calcium	mg/L	30	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:00	VWC
Iron	mg/L	0.054 I	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:00	VWC
Magnesium	mg/L	7.9	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:00	VWC
Manganese	mg/L	0.15	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:00	VWC
Potassium	mg/L	9.1	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:00	VWC
Sodium	mg/L	29	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:00	VWC

Sample Description	**DP-F11-11**
Matrix	**Groundwater**
SAL Sample Number	**1108628-08**
Date/Time Collected	**09/27/11 09:50**
Collected by	**Sean Harmon**
Date/Time Received	**09/27/11 14:00**

Field Parameters

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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		**1108628-08**						
Date/Time Collected		**09/27/11 09:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
pH	SU	5.0	DEP FT1100	0.1	0.1		09/27/11 09:50	SDH
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		09/27/11 09:50	SDH
Specific conductance	umhos/cm	389	DEP FT1200	0.1	0.1		09/27/11 09:50	SDH
Dissolved Oxygen	mg/L	1.5	DEP FT1500	0.1	0.1		09/27/11 09:50	SDH
Inorganics								
Ammonia as N	mg/L	0.11	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	31	EPA 300.0	0.20	0.050		10/01/11 16:46	MEJ
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.10	SM 4500P-E	0.040	0.010	10/03/11 11:23	10/05/11 15:03	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F11-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-09**						
Date/Time Collected		**09/27/11 10:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 10:00	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		09/27/11 10:00	SDH
Specific conductance	umhos/cm	490	DEP FT1200	0.1	0.1		09/27/11 10:00	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 10:00	SDH
Inorganics								
Ammonia as N	mg/L	0.052	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	32	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	18	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 16:57	MEJ
Phosphorous - Total as P	mg/L	0.28	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F11-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-09RE1**						
Date/Time Collected		**09/27/11 10:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Inorganics								
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		10/21/11 12:44	MEJ
Nitrate (as N)	mg/L	18	EPA 300.0	0.04	0.01	10/23/11 11:07	09/27/11 16:07	MEJ
Sample Description		**DP-F11-15-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-10**						
Date/Time Collected		**09/27/11 10:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 10:05	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		09/27/11 10:05	SDH
Specific conductance	umhos/cm	490	DEP FT1200	0.1	0.1		09/27/11 10:05	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/27/11 10:05	SDH
Inorganics								
Ammonia as N	mg/L	0.053	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	35	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	19	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.31	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F11-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-11**						
Date/Time Collected		**09/27/11 10:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		09/27/11 10:10	SDH
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		09/27/11 10:10	SDH
Specific conductance	umhos/cm	271	DEP FT1200	0.1	0.1		09/27/11 10:10	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/27/11 10:10	SDH

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F11-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-11**						
Date/Time Collected		**09/27/11 10:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Inorganics								
Ammonia as N	mg/L	0.036 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	8.9	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	7.0	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.087	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	0.18 I	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F11-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-12**						
Date/Time Collected		**09/27/11 10:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 10:15	SDH
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		09/27/11 10:15	SDH
Specific conductance	umhos/cm	298	DEP FT1200	0.1	0.1		09/27/11 10:15	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 10:15	SDH
Inorganics								
Ammonia as N	mg/L	0.047	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	34	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	10	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	7.5	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.81	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	0.92	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F11-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-13**						
Date/Time Collected		**09/27/11 10:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 10:20	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		09/27/11 10:20	SDH
Specific conductance	umhos/cm	296	DEP FT1200	0.1	0.1		09/27/11 10:20	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 10:20	SDH
Inorganics								
Ammonia as N	mg/L	0.032 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	16	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.35	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F11-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-14**						
Date/Time Collected		**09/27/11 10:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 10:25	SDH
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		09/27/11 10:25	SDH
Specific conductance	umhos/cm	306	DEP FT1200	0.1	0.1		09/27/11 10:25	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 10:25	SDH
Inorganics								
Ammonia as N	mg/L	0.044	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	16	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	4.7	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.55	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	0.40	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD

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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		**1108628-15**						
Date/Time Collected		**09/27/11 09:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	3.8	DEP FT1100	0.1	0.1		09/27/11 09:45	SDH
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		09/27/11 09:45	SDH
Specific conductance	umhos/cm	423	DEP FT1200	0.1	0.1		09/27/11 09:45	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 09:45	SDH
Inorganics								
Ammonia as N	mg/L	0.074	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	34	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.097	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	0.28	EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Sample Description		**DP-F15-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-16**						
Date/Time Collected		**09/28/11 10:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 10:35	SDH
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		09/28/11 10:35	SDH
Specific conductance	umhos/cm	457	DEP FT1200	0.1	0.1		09/28/11 10:35	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/28/11 10:35	SDH
Inorganics								
Ammonia as N	mg/L	0.068	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	31	EPA 300.0	0.20	0.050		10/04/11 18:43	MEJ
Fluoride	mg/L	0.10	EPA 300.0	0.040	0.010		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/28/11 14:21	MEJ
Phosphorous - Total as P	mg/L	0.072	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Sulfate	mg/L	61	EPA 300.0	0.60	0.20		09/28/11 14:21	MEJ

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Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F15-14**							
Matrix		**Groundwater**							
SAL Sample Number		**1108628-16**							
Date/Time Collected		**09/28/11 10:35**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/28/11 14:15**							
Total Alkalinity	mg/L	9.0		SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.5		EPA 351.2	0.20	0.05	10/04/11 13:56	10/06/11 13:41	SMD
Total Organic Carbon	mg/L	1.9		SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2.0		SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals									
Boron	mg/L	0.11		EPA 200.7	0.10	0.050	10/04/11 09:37	10/04/11 16:04	VWC
Calcium	mg/L	33		EPA 200.7	0.50	0.042	10/04/11 09:37	10/04/11 16:04	VWC
Iron	mg/L	0.048	I	EPA 200.7	0.10	0.020	10/04/11 09:37	10/04/11 16:04	VWC
Magnesium	mg/L	9.2		EPA 200.7	0.50	0.020	10/04/11 09:37	10/04/11 16:04	VWC
Manganese	mg/L	0.17		EPA 200.7	0.010	0.0010	10/04/11 09:37	10/04/11 16:04	VWC
Potassium	mg/L	14		EPA 200.7	0.050	0.010	10/04/11 09:37	10/04/11 16:04	VWC
Sodium	mg/L	34		EPA 200.7	0.50	0.13	10/04/11 09:37	10/04/11 16:04	VWC
Sample Description		**DP-F15-20**							
Matrix		**Groundwater**							
SAL Sample Number		**1108628-17**							
Date/Time Collected		**09/28/11 10:45**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/28/11 14:15**							
Field Parameters									
pH	SU	5.0		DEP FT1100	0.1	0.1		09/28/11 10:45	SDH
Water Temperature	°C	25.3		DEP FT1400	0.1	0.1		09/28/11 10:45	SDH
Specific conductance	umhos/cm	290		DEP FT1200	0.1	0.1		09/28/11 10:45	SDH
Dissolved Oxygen	mg/L	0.4		DEP FT1500	0.1	0.1		09/28/11 10:45	SDH
Inorganics									
Ammonia as N	mg/L	0.16		EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	10		EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	7.9		EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Phosphorous - Total as P	mg/L	0.50		SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	5.0	I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.34		EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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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		**1108628-18**						
Date/Time Collected		**09/28/11 10:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/28/11 10:50	SDH
Water Temperature	°C	25.2	DEP FT1400	0.1	0.1		09/28/11 10:50	SDH
Specific conductance	umhos/cm	280	DEP FT1200	0.1	0.1		09/28/11 10:50	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 10:50	SDH
Inorganics								
Ammonia as N	mg/L	0.031 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	13	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	9.0	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Phosphorous - Total as P	mg/L	0.12	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD
Sample Description		**DP-F15-26-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108628-19**						
Date/Time Collected		**09/28/11 10:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/28/11 10:55	SDH
Water Temperature	°C	25.2	DEP FT1400	0.1	0.1		09/28/11 10:55	SDH
Specific conductance	umhos/cm	280	DEP FT1200	0.1	0.1		09/28/11 10:55	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 10:55	SDH
Inorganics								
Ammonia as N	mg/L	0.034 I	EPA 350.1	0.040	0.010		10/12/11 16:24	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	13	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Nitrate (as N)	mg/L	9.0	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Phosphorous - Total as P	mg/L	0.11	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12751 - Ion Chromatography 300.0 Prep										
Blank (BI12751-BLK1)					Prepared & Analyzed: 09/27/11					
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						
Fluoride	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12751-BS1)					Prepared & Analyzed: 09/27/11					
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4		94	85-115		
Orthophosphate as P	0.853	0.040	0.010	mg/L	0.90		95	85-115		
Chloride	2.73	0.20	0.050	mg/L	3.0		91	85-115		
Sulfate	8.22	0.60	0.20	mg/L	9.0		91	85-115		
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Fluoride	0.922	0.040	0.010	mg/L	0.90		102	85-115		
LCS Dup (BI12751-BSD1)					Prepared & Analyzed: 09/27/11					
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	2	200
Fluoride	0.902	0.040	0.010	mg/L	0.90		100	85-115	2	200
Sulfate	8.33	0.60	0.20	mg/L	9.0		93	85-115	1	200
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4		97	85-115	3	200
Orthophosphate as P	0.940	0.040	0.010	mg/L	0.90		104	85-115	10	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Matrix Spike (BI12751-MS1)		**Source: 1108624-09**			Prepared & Analyzed: 09/27/11					
Fluoride	1.07	0.040	0.010	mg/L	0.90	0.116	106	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Orthophosphate as P	0.920	0.040	0.010	mg/L	0.90	0.0491	97	85-115		
Nitrate (as N)	7.47	0.04	0.01	mg/L	1.7	5.59	111	85-115		
Sulfate	70.6 +O	0.60	0.20	mg/L	9.0	59.7	121	85-115		
Chloride	17.8 +O	0.20	0.050	mg/L	3.0	13.9	130	80-120		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12751 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12751-MS2)		**Source: 1108628-09**			Prepared & Analyzed: 09/27/11					
Fluoride	0.925	0.040	0.010	mg/L	0.90	0.0738	95	85-115		
Sulfate	64.3	0.60	0.20	mg/L	9.0	55.2	101	85-115		
Nitrate (as N)	23.2 +O	0.04	0.01	mg/L	1.7	18.5	276	85-115		
Orthophosphate as P	0.903	0.040	0.010	mg/L	0.90	0.0522	95	85-115		
Nitrite (as N)	1.51	0.04	0.01	mg/L	1.4	ND	108	85-115		
Chloride	39.2 +O	0.20	0.050	mg/L	3.0	ND	NR	80-120		
Batch BI12752 - Ion Chromatography 300.0 Prep										
Blank (BI12752-BLK1)					Prepared & Analyzed: 09/27/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12752-BS1)					Prepared & Analyzed: 09/27/11					
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115		
Nitrate (as N)	1.62	0.04	0.01	mg/L	1.7		95	85-115		
Chloride	3.12	0.20	0.050	mg/L	3.0		104	85-115		
LCS Dup (BI12752-BSD1)					Prepared & Analyzed: 09/27/11					
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115	0	200
Nitrate (as N)	1.64	0.04	0.01	mg/L	1.7		96	85-115	1	200
Chloride	3.06	0.20	0.050	mg/L	3.0		102	85-115	2	200
Matrix Spike (BI12752-MS1)		**Source: 1108644-04**			Prepared & Analyzed: 09/27/11					
Nitrate (as N)	11.4	0.04	0.01	mg/L	1.7	9.50	112	85-115		
Chloride	18.5	0.20	0.050	mg/L	3.0	15.8	90	80-120		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4	ND	99	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12752 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12752-MS2)		**Source: 1108644-14**			Prepared & Analyzed: 09/27/11					
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Chloride	17.9	0.20	0.050	mg/L	3.0	14.8	103	80-120		
Nitrate (as N)	10.6 +O	0.04	0.01	mg/L	1.7	8.26	138	85-115		
Batch BI12807 - COD prep										
Blank (BI12807-BLK1)					Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI12807-BS1)					Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BI12807-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	77	25	10	mg/L	50	32	90	85-115		
Matrix Spike Dup (BI12807-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Chemical Oxygen Demand	75	25	10	mg/L	50	32	86	85-115	3	32
Batch BI12818 - alkalinity										
Blank (BI12818-BLK1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI12818-BS1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12818 - alkalinity										
Matrix Spike (BI12818-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	170	8.0	2.0	mg/L	120	31	108	80-120		
Matrix Spike Dup (BI12818-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	170	8.0	2.0	mg/L	120	31	108	80-120	0	26
Batch BI12819 - alkalinity										
Blank (BI12819-BLK1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI12819-BS1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BI12819-MS1)		**Source: 1108628-07**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	10	100	80-120		
Matrix Spike Dup (BI12819-MSD1)		**Source: 1108628-07**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	10	100	80-120	0	26
Batch BI12826 - TOC prep										
Blank (BI12826-BLK1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12826-BS1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12826 - TOC prep										
Matrix Spike (BI12826-MS1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.9	1.0	0.50	mg/L	10	2.35	105	85-115		
Matrix Spike Dup (BI12826-MSD1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.8	1.0	0.50	mg/L	10	2.35	104	85-115	0.9	10
Batch BI12929 - COD prep										
Blank (BI12929-BLK1)					Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI12929-BS1)					Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		
Matrix Spike (BI12929-MS1)		**Source: 1108628-03**			Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115		
Matrix Spike Dup (BI12929-MSD1)		**Source: 1108628-03**			Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115	0	32
Batch BI13009 - TOC prep										
Blank (BI13009-BLK1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13009-BS1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	10.1	1.0	0.50	mg/L	10		101	90-110		

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Batch BI13009 - TOC prep										
Matrix Spike (BI13009-MS1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.1	1.0	0.50	mg/L	10	2.05	101	85-115		
Matrix Spike Dup (BI13009-MSD1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.5	1.0	0.50	mg/L	10	2.05	104	85-115	3	10
Batch BI13021 - Ion Chromatography 300.0 Prep										
Blank (BI13021-BLK1)					Prepared & Analyzed: 10/01/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
LCS (BI13021-BS1)					Prepared & Analyzed: 10/01/11					
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115		
Nitrite (as N)	1.49	0.04	0.01	mg/L	1.4		106	85-115		
Fluoride	0.901	0.040	0.010	mg/L	0.90		100	85-115		
Chloride	3.02	0.20	0.050	mg/L	3.0		101	85-115		
Sulfate	8.77	0.60	0.20	mg/L	9.0		97	85-115		
Orthophosphate as P	0.942	0.040	0.010	mg/L	0.90		105	85-115		
LCS Dup (BI13021-BSD1)					Prepared & Analyzed: 10/01/11					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	2	200
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	6	200
Orthophosphate as P	0.855	0.040	0.010	mg/L	0.90		95	85-115	10	200
Fluoride	0.887	0.040	0.010	mg/L	0.90		99	85-115	2	200
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115	3	200
Sulfate	8.86	0.60	0.20	mg/L	9.0		98	85-115	1	200

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Batch BI13021 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI13021-MS1)		**Source: 1108628-18**			Prepared & Analyzed: 10/01/11					
Fluoride	1.44	0.040	0.010	mg/L	0.90	0.611	92	85-115		
Chloride	16.6	0.20	0.050	mg/L	3.0	13.4	107	80-120		
Sulfate	61.0	0.60	0.20	mg/L	9.0	51.2	109	85-115		
Nitrate (as N)	10.9	0.04	0.01	mg/L	1.7	8.99	112	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Orthophosphate as P	0.894	0.040	0.010	mg/L	0.90	0.0488	94	85-115		
Matrix Spike (BI13021-MS2)		**Source: 1108897-01**			Prepared & Analyzed: 10/01/11					
Sulfate	125 +O	0.60	0.20	mg/L	9.0	132	NR	85-115		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	ND	105	85-115		
Orthophosphate as P	0.894	0.040	0.010	mg/L	0.90	0.0423	95	85-115		
Chloride	82.6 +O	0.20	0.050	mg/L	3.0	280	NR	80-120		
Fluoride	1.31	0.040	0.010	mg/L	0.90	0.493	91	85-115		
Nitrate (as N)	1.83	0.04	0.01	mg/L	1.7	0.259	92	85-115		
Batch BI13022 - Ion Chromatography 300.0 Prep										
Blank (BI13022-BLK1)					Prepared & Analyzed: 10/01/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI13022-BS1)					Prepared & Analyzed: 10/01/11					
Chloride	2.91	0.20	0.050	mg/L	3.0		97	85-115		
LCS (BI13022-BS2)					Prepared & Analyzed: 10/01/11					
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115		
LCS (BI13022-BS3)					Prepared & Analyzed: 10/01/11					
Chloride	2.99	0.20	0.050	mg/L	3.0		100	85-115		

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Batch BI13022 - Ion Chromatography 300.0 Prep										
LCS (BI13022-BS4)					Prepared & Analyzed: 10/01/11					
Chloride	3.02	0.20	0.050	mg/L	3.0		101	85-115		
LCS (BI13022-BS5)					Prepared & Analyzed: 10/01/11					
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115		
LCS Dup (BI13022-BSD1)					Prepared & Analyzed: 10/01/11					
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115	1	200
Matrix Spike (BI13022-MS1)		**Source: 1108850-01**			Prepared & Analyzed: 10/01/11					
Chloride	988	0.20	0.050	mg/L	300	676	104	80-120		
Matrix Spike (BI13022-MS2)		**Source: 1108699-02**			Prepared & Analyzed: 10/01/11					
Chloride	73.6 +O	0.20	0.050	mg/L	3.0	84.2	NR	80-120		
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ10103-BLK2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10103-BS1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BJ10103-BS2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		

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Batch BJ10103 - alkalinity										
Matrix Spike (BJ10103-MS1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	3.0	98	80-120		
Matrix Spike (BJ10103-MS2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120		
Matrix Spike Dup (BJ10103-MSD1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	8	26
Matrix Spike Dup (BJ10103-MSD2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	0	26
Batch BJ10305 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ10305-BLK1)					Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BJ10305-BLK2)					Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ10305-BS1)					Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.501	0.040	0.010	mg/L	0.50		100	90-110		
LCS (BJ10305-BS2)					Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.508	0.040	0.010	mg/L	0.50		102	90-110		
Matrix Spike (BJ10305-MS1)		**Source: 1108772-08**			Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.669	0.040	0.010	mg/L	0.50	0.193	95	75-125		

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Batch BJ10305 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike (BJ10305-MS2)		**Source: 1108711-07**			Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.542	0.040	0.010	mg/L	0.50	0.0601	96	75-125		
Matrix Spike Dup (BJ10305-MSD1)		**Source: 1108772-08**			Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.617	0.040	0.010	mg/L	0.50	0.193	85	75-125	8	25
Matrix Spike Dup (BJ10305-MSD2)		**Source: 1108711-07**			Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.540	0.040	0.010	mg/L	0.50	0.0601	96	75-125	0.3	25
Batch BJ10314 - COD prep										
Blank (BJ10314-BLK1)					Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10314-BS1)					Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		
Matrix Spike (BJ10314-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115		
Matrix Spike Dup (BJ10314-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115	0	32
Batch BJ10421 - Ion Chromatography 300.0 Prep										
Blank (BJ10421-BLK1)					Prepared & Analyzed: 10/04/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						

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Batch BJ10421 - Ion Chromatography 300.0 Prep										
LCS (BJ10421-BS1)					Prepared & Analyzed: 10/04/11					
Chloride	2.78	0.20	0.050	mg/L	3.0		93	85-115		
Nitrate (as N)	1.60	0.04	0.01	mg/L	1.7		94	85-115		
LCS Dup (BJ10421-BSD1)					Prepared & Analyzed: 10/04/11					
Chloride	2.72	0.20	0.050	mg/L	3.0		91	85-115	2	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	2	200
Matrix Spike (BJ10421-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Nitrate (as N)	16.9	0.04	0.01	mg/L	17	0.238	98	85-115		
Chloride	68.5 +O	0.20	0.050	mg/L	30	68.5	0	80-120		
Matrix Spike (BJ10421-MS2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Chloride	3.25	0.20	0.050	mg/L	3.0	ND	108	80-120		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7	ND	99	85-115		
Batch BJ10426 - COD prep										
Blank (BJ10426-BLK1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10426-BS1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BJ10426-MS1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		
Matrix Spike Dup (BJ10426-MSD1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10430 - Digestion for TKN by EPA 351.2										
Blank (BJ10430-BLK1)					Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ10430-BS1)					Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	2.38	0.20	0.05	mg/L	2.5		95	90-110		
Matrix Spike (BJ10430-MS1)		**Source: 1108628-16**			Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	3.46	0.20	0.05	mg/L	2.5	1.47	80	80-120		
Matrix Spike Dup (BJ10430-MSD1)		**Source: 1108628-16**			Prepared: 10/04/11	Analyzed: 10/06/11				
Total Kjeldahl Nitrogen	4.07	0.20	0.05	mg/L	2.5	1.47	104	80-120	16	20
Batch BJ10508 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ10508-BLK1)					Prepared: 10/05/11	Analyzed: 10/06/11				
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ10508-BS1)					Prepared: 10/05/11	Analyzed: 10/06/11				
Phosphorous - Total as P	0.533	0.040	0.010	mg/L	0.50		107	90-110		
Matrix Spike (BJ10508-MS1)		**Source: 1108644-13**			Prepared: 10/05/11	Analyzed: 10/06/11				
Phosphorous - Total as P	1.07	0.040	0.010	mg/L	0.50	0.706	73	75-125		
Matrix Spike Dup (BJ10508-MSD1)		**Source: 1108644-13**			Prepared: 10/05/11	Analyzed: 10/06/11				
Phosphorous - Total as P	1.08	0.040	0.010	mg/L	0.50	0.706	75	75-125	1	25
Batch BJ11017 - Digestion for TKN by EPA 351.2										
Blank (BJ11017-BLK1)					Prepared: 10/10/11	Analyzed: 10/14/11				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11017 - Digestion for TKN by EPA 351.2										
LCS (BJ11017-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.32	0.20	0.05	mg/L	2.5		93	90-110		
Matrix Spike (BJ11017-MS1)		**Source: 1108781-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	4.63	0.20	0.05	mg/L	2.5	2.01	105	80-120		
Matrix Spike Dup (BJ11017-MSD1)		**Source: 1108781-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	4.58	0.20	0.05	mg/L	2.5	2.01	103	80-120	1	20
Batch BJ11217 - Ammonia by SEAL										
Blank (BJ11217-BLK1)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
Blank (BJ11217-BLK2)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11217-BS1)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50		94	90-110		
LCS (BJ11217-BS2)					Prepared & Analyzed: 10/12/11					
Ammonia as N	0.50	0.040	0.010	mg/L	0.50		100	90-110		
Matrix Spike (BJ11217-MS1)		**Source: 1108622-01**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.51	0.040	0.010	mg/L	0.50	0.044	94	90-110		
Matrix Spike (BJ11217-MS2)		**Source: 1108624-06**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.51	0.040	0.010	mg/L	0.50	0.013	100	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11217 - Ammonia by SEAL										
Matrix Spike Dup (BJ11217-MSD1)		**Source: 1108622-01**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.58 J3	0.040	0.010	mg/L	0.50	0.044	108	90-110	13	10
Matrix Spike Dup (BJ11217-MSD2)		**Source: 1108624-06**			Prepared & Analyzed: 10/12/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	0.013	91	90-110	9	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12827 - DOC prep										
Blank (BI12827-BLK1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12827-BS1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	10.4	1.0	0.50	mg/L	10		104	90-110		
Matrix Spike (BI12827-MS1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.4	1.0	0.50	mg/L	10	1.83	106	85-125		
Matrix Spike Dup (BI12827-MSD1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.1	1.0	0.50	mg/L	10	1.83	102	85-125	3	25
Batch BI13008 - DOC prep										
Blank (BI13008-BLK1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13008-BS1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	10.2	1.0	0.50	mg/L	10		102	90-110		
Matrix Spike (BI13008-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.8	1.0	0.50	mg/L	10	2.08	107	85-125		
Matrix Spike Dup (BI13008-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.9	1.0	0.50	mg/L	10	2.08	108	85-125	0.7	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Blank (BI13006-BLK1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	0.010 U	0.050	0.010	mg/L						
Magnesium	0.025 I	0.050	0.010	mg/L						
Potassium	0.016 I	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Sodium	0.010 U	0.050	0.010	mg/L						
LCS (BI13006-BS1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Iron	7.6	0.10	0.020	mg/L	8.0		94	85-115		
Calcium	18	0.050	0.010	mg/L	20		92	85-115		
Sodium	19	0.050	0.010	mg/L	20		95	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Potassium	18	0.050	0.010	mg/L	20		89	85-115		
Magnesium	19	0.050	0.010	mg/L	20		95	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Matrix Spike (BI13006-MS1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Boron	0.53	0.10	0.050	mg/L	0.40	0.13	101	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	91	70-130		
Magnesium	29	0.050	0.010	mg/L	20	9.5	97	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.015	98	70-130		
Calcium	56	0.050	0.010	mg/L	20	37	93	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Sodium	63	0.050	0.010	mg/L	20	43	98	70-130		
Matrix Spike (BI13006-MS2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	40	0.050	0.010	mg/L	20	21	96	70-130		
Boron	0.50	0.10	0.050	mg/L	0.40	0.10	98	70-130		
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.11	96	70-130		
Sodium	31	0.050	0.010	mg/L	20	12	96	70-130		
Magnesium	25	0.050	0.010	mg/L	20	5.7	98	70-130		
Iron	8.5	0.10	0.020	mg/L	8.0	0.59	98	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130		

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

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Metals - Quality Control

Analyte	Result		PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7											
Matrix Spike Dup (BI13006-MSD1)			**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	56		0.050	0.010	mg/L	20	37	94	70-130	0.5	30
Boron	0.49		0.10	0.050	mg/L	0.40	0.13	91	70-130	8	30
Potassium	30		0.050	0.010	mg/L	20	11	94	70-130	1	30
Iron	7.8		0.10	0.020	mg/L	8.0	0.076	97	70-130	1	30
Sodium	63		0.050	0.010	mg/L	20	43	96	70-130	0.6	30
Manganese	0.40		0.010	0.0010	mg/L	0.40	0.015	96	70-130	2	30
Magnesium	29		0.050	0.010	mg/L	20	9.5	95	70-130	0.9	30
Matrix Spike Dup (BI13006-MSD2)			**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Manganese	0.48		0.010	0.0010	mg/L	0.40	0.11	93	70-130	3	30
Boron	0.42		0.10	0.050	mg/L	0.40	0.10	80	70-130	16	30
Potassium	29		0.050	0.010	mg/L	20	8.9	99	70-130	0.03	30
Magnesium	25		0.050	0.010	mg/L	20	5.7	97	70-130	0.1	30
Sodium	31		0.050	0.010	mg/L	20	12	99	70-130	2	30
Calcium	41		0.050	0.010	mg/L	20	21	100	70-130	2	30
Iron	8.4		0.10	0.020	mg/L	8.0	0.59	98	70-130	0.3	30
Batch BJ10404 - Metals Preparation for EPA Method 200.7											
Blank (BJ10404-BLK1)						Prepared & Analyzed: 10/04/11					
Manganese	0.0010	U	0.010	0.0010	mg/L						
Magnesium	0.051	I	0.50	0.020	mg/L						
Sodium	0.13	U	0.50	0.13	mg/L						
Calcium	0.042	U	0.50	0.042	mg/L						
Iron	0.037	I	0.10	0.020	mg/L						
Boron	0.050	U	0.10	0.050	mg/L						
Potassium	0.11		0.050	0.010	mg/L						

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10404 - Metals Preparation for EPA Method 200.7										
LCS (BJ10404-BS1)					Prepared & Analyzed: 10/04/11					
Magnesium	21	0.50	0.020	mg/L	20		107	85-115		
Potassium	21	0.050	0.010	mg/L	20		107	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		102	85-115		
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Iron	8.6	0.10	0.020	mg/L	8.0		107	85-115		
Calcium	21	0.50	0.042	mg/L	20		104	85-115		
Matrix Spike (BJ10404-MS1)		**Source: 1107616-01**			Prepared & Analyzed: 10/04/11					
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0067	102	70-130		
Magnesium	51	0.50	0.020	mg/L	20	29	113	70-130		
Sodium	280 +O	0.50	0.13	mg/L	20	250	140	70-130		
Boron	0.63	0.10	0.050	mg/L	0.40	0.23	100	70-130		
Potassium	39	0.050	0.010	mg/L	20	16	114	70-130		
Iron	8.6	0.10	0.020	mg/L	8.0	0.11	106	70-130		
Calcium	85	0.50	0.042	mg/L	20	61	122	70-130		
Matrix Spike (BJ10404-MS2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Sodium	22	0.50	0.13	mg/L	20	0.15	107	70-130		
Iron	8.7	0.10	0.020	mg/L	8.0	0.034	109	70-130		
Calcium	21	0.50	0.042	mg/L	20	ND	106	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	102	70-130		
Boron	0.39	0.10	0.050	mg/L	0.40	ND	97	70-130		
Potassium	22	0.050	0.010	mg/L	20	0.089	108	70-130		
Magnesium	22	0.50	0.020	mg/L	20	ND	109	70-130		
Matrix Spike Dup (BJ10404-MSD1)		**Source: 1107616-01**			Prepared & Analyzed: 10/04/11					
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0067	103	70-130	0.8	30
Sodium	280 +O	0.50	0.13	mg/L	20	250	132	70-130	0.5	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.11	106	70-130	0.3	30
Calcium	85	0.50	0.042	mg/L	20	61	121	70-130	0.2	30
Magnesium	52	0.50	0.020	mg/L	20	29	114	70-130	0.2	30
Potassium	37	0.050	0.010	mg/L	20	16	107	70-130	4	30
Boron	0.64	0.10	0.050	mg/L	0.40	0.23	100	70-130	0.4	30

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10404 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ10404-MSD2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Sodium	21	0.50	0.13	mg/L	20	0.15	104	70-130	3	30
Boron	0.38	0.10	0.050	mg/L	0.40	ND	96	70-130	0.6	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	101	70-130	1	30
Potassium	21	0.050	0.010	mg/L	20	0.089	103	70-130	4	30
Magnesium	21	0.50	0.020	mg/L	20	ND	107	70-130	2	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.034	107	70-130	2	30
Calcium	21	0.50	0.042	mg/L	20	ND	105	70-130	1	30

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* Qualifiers, Notes and Definitions

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

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

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

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

J3	Quality control value for precision was outside control limits.
+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. 1108628

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 Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-F04-17	092711	1112	GW		X		1	1					280.5	0.81	5.8	27.8		
02	DP-F04-22		1105	GW		X		1		1				270.7	0.58	5.2	25.9		
03	DP-F04-32		1100	GW		X		1	1					290.5	0.53	5.9	26.0		
04	DP-F05-5		1045	GW		X		1	1					177.8	0.64	4.8	28.8		
05	DP-F08-20		1020	GW		X		1	1					297.8	0.56	5.0	25.9		
06	DP-F08-28		1025	GW		X		1		1				297.8	0.54	5.1	25.4		
07	DP-F10-11		1000	GW		X	1		1		1	2	1	445.6	0.54	4.2	27.0		
08	DP-F11-11		0950	GW		X		1	1					389.0	1.49	5.0	27.2		
09	DP-F11-15		1000	GW		X		1	1					490	0.51	5.1	26.2		
10	DP-F11-15-D		1005	GW		X		1	1					490	0.51	5.1	26.2		
11	DP-F11-18		1010	GW		X		1	1					270.6	0.26	5.3	25.8		
12	DP-F11-21	092711	1015					1	1					297.9	0.40	5.2	25.6		

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished:	Date/Time: 1000 09-03-11	Received:	Date/Time: 1000 092311
Relinquished:	Date/Time: 1400 092711	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108628

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. 1108628

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GOREC 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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
13	DP-F11-24	092711	1020	GW		X		1	1					296.2	0.56	5.1	25.4		
14	DP-F11-27	092711	1025	GW		X		1	1					306.1	0.37	5.2	25.3		
15	DP-F12-10	092711	0945	GW		X		1	1					422.7	0.64	3.8	26.7		
16	DP-F15-14	092811	1035	GW		X		1	1		1	2	1	459.8	0.43	5.0	26.1		
17	DP-F15-20		1045	GW		X		1	1					280.4	0.39	5.0	25.3		
18	DP-F15-26		1050	GW		X		1	1					280.5	0.28	4.9	25.2		
19	DP-F15-26-D		1055	GW		X		1	1					280.5	0.28	4.9	25.2		

Containers Prepared/ Relinquished:	Date/Time: 1000 09-23-11	Received:	Date/Time: 1000 092311
Relinquished:	Date/Time: 1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108628

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

Chain of Custody

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

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

October 26, 2011
Work Order: 1108644
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G07-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-01**						
Date/Time Collected		**09/27/11 11:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 11:35	SDH
Water Temperature	°C	29.8	DEP FT1400	0.1	0.1		09/27/11 11:35	SDH
Specific conductance	umhos/cm	224	DEP FT1200	0.1	0.1		09/27/11 11:35	SDH
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		09/27/11 11:35	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chloride	mg/L	5.7	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	0.88	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Total Alkalinity	mg/L	7.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

Sample Description		**DP-G07-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-02**						
Date/Time Collected		**09/27/11 11:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		09/27/11 11:50	SDH
Water Temperature	°C	28.7	DEP FT1400	0.1	0.1		09/27/11 11:50	SDH
Specific conductance	umhos/cm	254	DEP FT1200	0.1	0.1		09/27/11 11:50	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		09/27/11 11:50	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	5.0	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	1.8	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	1.4	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.88	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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

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

October 26, 2011
Work Order: 1108644
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		**1108644-03**						
Date/Time Collected		**09/27/11 12:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/27/11 12:00	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		09/27/11 12:00	SDH
Specific conductance	umhos/cm	300	DEP FT1200	0.1	0.1		09/27/11 12:00	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 12:00	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chloride	mg/L	7.3	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	4.6	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

Sample Description		**DP-G07-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-04**						
Date/Time Collected		**09/27/11 12:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		09/27/11 12:05	SDH
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		09/27/11 12:05	SDH
Specific conductance	umhos/cm	274	DEP FT1200	0.1	0.1		09/27/11 12:05	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 12:05	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	16	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Fluoride	mg/L	0.12	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	9.5	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.57	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Sulfate	mg/L	43	EPA 300.0	0.60	0.20		09/27/11 17:00	MEJ
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G07-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-04**						
Date/Time Collected		**09/27/11 12:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Total Organic Carbon	mg/L	1.1	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	0.68 I	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:04	VWC
Calcium	mg/L	19	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:04	VWC
Iron	mg/L	0.084 I	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:04	VWC
Magnesium	mg/L	8.5	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:04	VWC
Manganese	mg/L	0.20	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:04	VWC
Potassium	mg/L	9.7	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:04	VWC
Sodium	mg/L	7.5	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:04	VWC
Sample Description		**DP-G07-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-05**						
Date/Time Collected		**09/27/11 12:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		09/27/11 12:15	SDH
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		09/27/11 12:15	SDH
Specific conductance	umhos/cm	300	DEP FT1200	0.1	0.1		09/27/11 12:15	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 12:15	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chloride	mg/L	11	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	8.0	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.14	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G07-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-06**						
Date/Time Collected		**09/27/11 12:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		09/27/11 12:25	SDH
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		09/27/11 12:25	SDH
Specific conductance	umhos/cm	300	DEP FT1200	0.1	0.1		09/27/11 12:25	SDH
Dissolved Oxygen	mg/L	1.2	DEP FT1500	0.1	0.1		09/27/11 12:25	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	7.7	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

Sample Description		**DP-G08-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-07**						
Date/Time Collected		**09/27/11 11:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		09/27/11 11:55	SDH
Water Temperature	°C	28.1	DEP FT1400	0.1	0.1		09/27/11 11:55	SDH
Specific conductance	umhos/cm	174	DEP FT1200	0.1	0.1		09/27/11 11:55	SDH
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		09/27/11 11:55	SDH
Inorganics								
Ammonia as N	mg/L	0.082	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	3.8	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Fluoride	mg/L	0.50	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	0.55	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Orthophosphate as P	mg/L	0.045	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.14	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Sulfate	mg/L	46	EPA 300.0	0.60	0.20		09/27/11 17:00	MEJ
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.93	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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Sample Description		**DP-G08-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-07**						
Date/Time Collected		**09/27/11 11:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Total Organic Carbon	mg/L	3.9	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.4	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:07	VWC
Calcium	mg/L	13	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:07	VWC
Iron	mg/L	3.6	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:07	VWC
Magnesium	mg/L	3.7	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:07	VWC
Manganese	mg/L	0.26	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:07	VWC
Potassium	mg/L	4.3	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:07	VWC
Sodium	mg/L	3.3	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:07	VWC
Sample Description		**DP-G09-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-08**						
Date/Time Collected		**09/27/11 11:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		09/27/11 11:45	SDH
Water Temperature	°C	28.3	DEP FT1400	0.1	0.1		09/27/11 11:45	SDH
Specific conductance	umhos/cm	299	DEP FT1200	0.1	0.1		09/27/11 11:45	SDH
Dissolved Oxygen	mg/L	1.4	DEP FT1500	0.1	0.1		09/27/11 11:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	9.0	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	4.0	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.33	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.22	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G11-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-09**						
Date/Time Collected		**09/27/11 11:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		09/27/11 11:35	SDH
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		09/27/11 11:35	SDH
Specific conductance	umhos/cm	319	DEP FT1200	0.1	0.1		09/27/11 11:35	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		09/27/11 11:35	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	23	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	8.8	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.062	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD
Sample Description		**DP-G12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-10**						
Date/Time Collected		**09/27/11 10:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 10:50	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		09/27/11 10:50	SDH
Specific conductance	umhos/cm	415	DEP FT1200	0.1	0.1		09/27/11 10:50	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 10:50	SDH
Inorganics								
Ammonia as N	mg/L	0.39	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	28	EPA 300.0	0.20	0.050		09/28/11 14:21	MEJ
Fluoride	mg/L	0.058	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		09/28/11 14:21	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Orthophosphate as P	mg/L	0.042	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	1.1	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Sulfate	mg/L	54	EPA 300.0	0.60	0.20		09/27/11 17:00	MEJ

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-10**						
Date/Time Collected		**09/27/11 10:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD
Total Organic Carbon	mg/L	2.2	SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.4	SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals								
Boron	mg/L	0.087 I	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:20	VWC
Calcium	mg/L	27	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:20	VWC
Iron	mg/L	0.50	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:20	VWC
Magnesium	mg/L	6.9	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:20	VWC
Manganese	mg/L	0.18	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:20	VWC
Potassium	mg/L	9.4	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:20	VWC
Sodium	mg/L	24	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:20	VWC
Sample Description		**DP-G12-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-11**						
Date/Time Collected		**09/27/11 11:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		09/27/11 11:05	SDH
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		09/27/11 11:05	SDH
Specific conductance	umhos/cm	264	DEP FT1200	0.1	0.1		09/27/11 11:05	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/27/11 11:05	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	26	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	7.7	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Fluoride	mg/L	0.060	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	4.4	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Orthophosphate as P	mg/L	0.056	EPA 300.0	0.040	0.010		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	1.1	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Sulfate	mg/L	67	EPA 300.0	0.60	0.20		09/27/11 17:00	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG

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Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G12-18**							
Matrix		**Groundwater**							
SAL Sample Number		**1108644-11**							
Date/Time Collected		**09/27/11 11:05**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/27/11 14:00**							
Total Kjeldahl Nitrogen	mg/L	1.2		EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD
Total Organic Carbon	mg/L	3.3		SM 5310B	1.0	0.50		09/28/11 11:42	ARM
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2.1		SM 5310B	1.0	0.50		09/28/11 16:54	ARM
Metals									
Boron	mg/L	0.10		EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:23	VWC
Calcium	mg/L	21		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:23	VWC
Iron	mg/L	0.59		EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:23	VWC
Magnesium	mg/L	5.7		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:23	VWC
Manganese	mg/L	0.11		EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:23	VWC
Potassium	mg/L	8.9		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:23	VWC
Sodium	mg/L	12		EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:23	VWC
Sample Description		**DP-G12-21**							
Matrix		**Groundwater**							
SAL Sample Number		**1108644-12**							
Date/Time Collected		**09/27/11 11:15**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/27/11 14:00**							
Field Parameters									
pH	SU	5.3		DEP FT1100	0.1	0.1		09/27/11 11:15	SDH
Water Temperature	°C	25.5		DEP FT1400	0.1	0.1		09/27/11 11:15	SDH
Specific conductance	umhos/cm	271		DEP FT1200	0.1	0.1		09/27/11 11:15	SDH
Dissolved Oxygen	mg/L	0.5		DEP FT1500	0.1	0.1		09/27/11 11:15	SDH
Inorganics									
Ammonia as N	mg/L	0.010	I	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	9.8		EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	7.2		EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.37		SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10		SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	1.5		EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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October 26, 2011
Work Order: 1108644
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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		**1108644-13**						
Date/Time Collected		**09/27/11 11:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/27/11 11:20	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		09/27/11 11:20	SDH
Specific conductance	umhos/cm	302	DEP FT1200	0.1	0.1		09/27/11 11:20	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/27/11 11:20	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:40	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	9.2	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.71	SM 4500P-E	0.040	0.010	10/05/11 10:39	10/06/11 13:16	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD
Sample Description		**DP-G12-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1108644-14**						
Date/Time Collected		**09/27/11 11:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/27/11 11:25	SDH
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		09/27/11 11:25	SDH
Specific conductance	umhos/cm	289	DEP FT1200	0.1	0.1		09/27/11 11:25	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/27/11 11:25	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/27/11 17:00	MEJ
Nitrate (as N)	mg/L	8.3	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 17:00	MEJ
Phosphorous - Total as P	mg/L	0.14	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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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		**1108644-15**						
Date/Time Collected		**09/22/11 00:00-09/27/11 10:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/27/11 14:00**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/27/11 10:45	SDH
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		09/27/11 10:45	SDH
Specific conductance	umhos/cm	363	DEP FT1200	0.1	0.1		09/27/11 10:45	SDH
Dissolved Oxygen	mg/L	3.4	DEP FT1500	0.1	0.1		09/27/11 10:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/03/11 08:40	10/03/11 13:33	ARP
Chloride	mg/L	27	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	9.9	EPA 300.0	0.04	0.01		09/29/11 07:55	MMF
Nitrite (as N)	mg/L	0.20	EPA 300.0	0.04	0.01		09/29/11 07:55	MMF
Phosphorous - Total as P	mg/L	0.19	SM 4500P-E	0.040	0.010	10/05/11 10:46	10/06/11 13:23	SMD
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	09/28/11 11:00	09/28/11 12:03	JAG
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/10/11 10:24	10/14/11 11:32	SMD

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12747 - alkalinity										
Blank (BI12747-BLK1)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI12747-BLK2)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI12747-BS1)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120		108	90-110		
LCS (BI12747-BS2)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120		108	90-110		
Matrix Spike (BI12747-MS1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	ND	108	80-120		
Matrix Spike (BI12747-MS2)		**Source: 1108624-06**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	10	109	80-120		
Matrix Spike Dup (BI12747-MSD1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	ND	108	80-120	0	26
Matrix Spike Dup (BI12747-MSD2)		**Source: 1108624-06**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	10	109	80-120	0	26
Batch BI12752 - Ion Chromatography 300.0 Prep										
Blank (BI12752-BLK1)					Prepared & Analyzed: 09/27/11					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
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						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12752 - Ion Chromatography 300.0 Prep										
LCS (BI12752-BS1)					Prepared & Analyzed: 09/27/11					
Fluoride	0.955	0.040	0.010	mg/L	0.90		106	85-115		
Nitrate (as N)	1.62	0.04	0.01	mg/L	1.7		95	85-115		
Orthophosphate as P	0.948	0.040	0.010	mg/L	0.90		105	85-115		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115		
Sulfate	8.53	0.60	0.20	mg/L	9.0		95	85-115		
Chloride	3.12	0.20	0.050	mg/L	3.0		104	85-115		
LCS Dup (BI12752-BSD1)					Prepared & Analyzed: 09/27/11					
Orthophosphate as P	0.909	0.040	0.010	mg/L	0.90		101	85-115	4	200
Nitrate (as N)	1.64	0.04	0.01	mg/L	1.7		96	85-115	1	200
Fluoride	0.930	0.040	0.010	mg/L	0.90		103	85-115	3	200
Sulfate	8.49	0.60	0.20	mg/L	9.0		94	85-115	0.5	200
Chloride	3.06	0.20	0.050	mg/L	3.0		102	85-115	2	200
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115	0	200
Matrix Spike (BI12752-MS1)		**Source: 1108644-04**			Prepared & Analyzed: 09/27/11					
Nitrate (as N)	11.4	0.04	0.01	mg/L	1.7	9.50	112	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4	ND	99	85-115		
Fluoride	0.996	0.040	0.010	mg/L	0.90	0.115	98	85-115		
Sulfate	52.1	0.60	0.20	mg/L	9.0	43.4	97	85-115		
Orthophosphate as P	0.888	0.040	0.010	mg/L	0.90	ND	99	85-115		
Chloride	18.5	0.20	0.050	mg/L	3.0	15.8	90	80-120		
Matrix Spike (BI12752-MS2)		**Source: 1108644-14**			Prepared & Analyzed: 09/27/11					
Chloride	17.9	0.20	0.050	mg/L	3.0	14.8	103	80-120		
Fluoride	1.06	0.040	0.010	mg/L	0.90	0.191	97	85-115		
Nitrate (as N)	10.6 +O	0.04	0.01	mg/L	1.7	8.26	138	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Orthophosphate as P	0.885	0.040	0.010	mg/L	0.90	ND	98	85-115		
Sulfate	63.8 +O	0.60	0.20	mg/L	9.0	51.7	134	85-115		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12819 - alkalinity										
Blank (BI12819-BLK1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI12819-BS1)					Prepared & Analyzed: 09/28/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BI12819-MS1)		**Source: 1108628-07**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	10	100	80-120		
Matrix Spike Dup (BI12819-MSD1)		**Source: 1108628-07**			Prepared & Analyzed: 09/28/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	10	100	80-120	0	26
Batch BI12826 - TOC prep										
Blank (BI12826-BLK1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12826-BS1)					Prepared & Analyzed: 09/28/11					
Total Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI12826-MS1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.9	1.0	0.50	mg/L	10	2.35	105	85-115		
Matrix Spike Dup (BI12826-MSD1)		**Source: 1108622-08**			Prepared & Analyzed: 09/28/11					
Total Organic Carbon	12.8	1.0	0.50	mg/L	10	2.35	104	85-115	0.9	10
Batch BI12836 - Ion Chromatography 300.0 Prep										
Blank (BI12836-BLK1)					Prepared & Analyzed: 09/29/11					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
LCS (BI12836-BS1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
Nitrite (as N)	1.30	0.04	0.01	mg/L	1.4		93	85-115		
LCS Dup (BI12836-BSD1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115	0.4	200
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4		95	85-115	2	200
Matrix Spike (BI12836-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 09/29/11					
Nitrate (as N)	16.7	0.04	0.01	mg/L	1.7	14.8	112	85-115		
Chloride	21.9	0.20	0.050	mg/L	3.0	18.9	100	80-120		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4	ND	96	85-115		
Matrix Spike (BI12836-MS2)		**Source: 1108647-05**			Prepared & Analyzed: 09/29/11					
Nitrate (as N)	10.8 +O	0.04	0.01	mg/L	1.7	8.64	127	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Chloride	14.5 +O	0.20	0.050	mg/L	3.0	10.5	133	80-120		
Batch BI12929 - COD prep										
Blank (BI12929-BLK1)					Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI12929-BS1)					Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12929 - COD prep										
Matrix Spike (BI12929-MS1)		**Source: 1108628-03**			Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115		
Matrix Spike Dup (BI12929-MSD1)		**Source: 1108628-03**			Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115	0	32
Batch BI13021 - Ion Chromatography 300.0 Prep										
Blank (BI13021-BLK1)					Prepared & Analyzed: 10/01/11					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI13021-BS1)					Prepared & Analyzed: 10/01/11					
Chloride	3.02	0.20	0.050	mg/L	3.0		101	85-115		
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115		
LCS Dup (BI13021-BSD1)					Prepared & Analyzed: 10/01/11					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	2	200
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115	3	200
Matrix Spike (BI13021-MS1)		**Source: 1108628-18**			Prepared & Analyzed: 10/01/11					
Nitrate (as N)	10.9	0.04	0.01	mg/L	1.7	8.99	112	85-115		
Chloride	16.6	0.20	0.050	mg/L	3.0	13.4	107	80-120		
Matrix Spike (BI13021-MS2)		**Source: 1108897-01**			Prepared & Analyzed: 10/01/11					
Chloride	82.6 +O	0.20	0.050	mg/L	3.0	280	NR	80-120		
Nitrate (as N)	1.83	0.04	0.01	mg/L	1.7	0.259	92	85-115		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10314 - COD prep										
Blank (BJ10314-BLK1)					Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10314-BS1)					Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		
Matrix Spike (BJ10314-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115		
Matrix Spike Dup (BJ10314-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 10/03/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115	0	32
Batch BJ10508 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ10508-BLK1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ10508-BS1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.533	0.040	0.010	mg/L	0.50		107	90-110		
Matrix Spike (BJ10508-MS1)		**Source: 1108644-13**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	1.07	0.040	0.010	mg/L	0.50	0.706	73	75-125		
Matrix Spike Dup (BJ10508-MSD1)		**Source: 1108644-13**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	1.08	0.040	0.010	mg/L	0.50	0.706	75	75-125	1	25
Batch BJ10510 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ10510-BLK1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10510 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ10510-BS1)					Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.546	0.040	0.010	mg/L	0.50		109	90-110		
Matrix Spike (BJ10510-MS1)		**Source: 1108620-04**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.653	0.040	0.010	mg/L	0.50	0.260	79	75-125		
Matrix Spike Dup (BJ10510-MSD1)		**Source: 1108620-04**			Prepared: 10/05/11 Analyzed: 10/06/11					
Phosphorous - Total as P	0.746	0.040	0.010	mg/L	0.50	0.260	97	75-125	13	25
Batch BJ11017 - Digestion for TKN by EPA 351.2										
Blank (BJ11017-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11017-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.32	0.20	0.05	mg/L	2.5		93	90-110		
Matrix Spike (BJ11017-MS1)		**Source: 1108781-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	4.63	0.20	0.05	mg/L	2.5	2.01	105	80-120		
Matrix Spike Dup (BJ11017-MSD1)		**Source: 1108781-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	4.58	0.20	0.05	mg/L	2.5	2.01	103	80-120	1	20
Batch BJ11408 - Ammonia by SEAL										
Blank (BJ11408-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11408 - Ammonia by SEAL										
LCS (BJ11408-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11408-MS1)		**Source: 1108798-07**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	0.015	91	90-110		
Matrix Spike Dup (BJ11408-MSD1)		**Source: 1108798-07**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	0.015	91	90-110	0.5	10
Batch BJ11409 - Ammonia by SEAL										
Blank (BJ11409-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11409-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11409-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.52	0.040	0.010	mg/L	0.50	ND	104	90-110		
Matrix Spike Dup (BJ11409-MSD1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50	ND	97	90-110	7	10

Hazen and Sawyer
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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12827 - DOC prep										
Blank (BI12827-BLK1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12827-BS1)					Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	10.4	1.0	0.50	mg/L	10		104	90-110		
Matrix Spike (BI12827-MS1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.4	1.0	0.50	mg/L	10	1.83	106	85-125		
Matrix Spike Dup (BI12827-MSD1)		**Source: 1108622-02**			Prepared & Analyzed: 09/28/11					
Dissolved Organic Carbon	12.1	1.0	0.50	mg/L	10	1.83	102	85-125	3	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Blank (BI13006-BLK1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Boron	0.050 U	0.10	0.050	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Sodium	0.010 U	0.050	0.010	mg/L						
Potassium	0.016 I	0.050	0.010	mg/L						
Calcium	0.010 U	0.050	0.010	mg/L						
Magnesium	0.025 I	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
LCS (BI13006-BS1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Iron	7.6	0.10	0.020	mg/L	8.0		94	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Calcium	18	0.050	0.010	mg/L	20		92	85-115		
Sodium	19	0.050	0.010	mg/L	20		95	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Magnesium	19	0.050	0.010	mg/L	20		95	85-115		
Potassium	18	0.050	0.010	mg/L	20		89	85-115		
Matrix Spike (BI13006-MS1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Sodium	63	0.050	0.010	mg/L	20	43	98	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.015	98	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Magnesium	29	0.050	0.010	mg/L	20	9.5	97	70-130		
Boron	0.53	0.10	0.050	mg/L	0.40	0.13	101	70-130		
Calcium	56	0.050	0.010	mg/L	20	37	93	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	91	70-130		
Matrix Spike (BI13006-MS2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Iron	8.5	0.10	0.020	mg/L	8.0	0.59	98	70-130		
Sodium	31	0.050	0.010	mg/L	20	12	96	70-130		
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.11	96	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130		
Calcium	40	0.050	0.010	mg/L	20	21	96	70-130		
Boron	0.50	0.10	0.050	mg/L	0.40	0.10	98	70-130		
Magnesium	25	0.050	0.010	mg/L	20	5.7	98	70-130		

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI13006-MSD1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.015	96	70-130	2	30
Sodium	63	0.050	0.010	mg/L	20	43	96	70-130	0.6	30
Magnesium	29	0.050	0.010	mg/L	20	9.5	95	70-130	0.9	30
Iron	7.8	0.10	0.020	mg/L	8.0	0.076	97	70-130	1	30
Boron	0.49	0.10	0.050	mg/L	0.40	0.13	91	70-130	8	30
Potassium	30	0.050	0.010	mg/L	20	11	94	70-130	1	30
Calcium	56	0.050	0.010	mg/L	20	37	94	70-130	0.5	30
Matrix Spike Dup (BI13006-MSD2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.11	93	70-130	3	30
Magnesium	25	0.050	0.010	mg/L	20	5.7	97	70-130	0.1	30
Iron	8.4	0.10	0.020	mg/L	8.0	0.59	98	70-130	0.3	30
Boron	0.42	0.10	0.050	mg/L	0.40	0.10	80	70-130	16	30
Calcium	41	0.050	0.010	mg/L	20	21	100	70-130	2	30
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130	0.03	30
Sodium	31	0.050	0.010	mg/L	20	12	99	70-130	2	30

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* Qualifiers, Notes and Definitions

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

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

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

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

+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. 1108644

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 F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-G07-13	092711	1135	GW		X		1		1				223.9	0.79	5.2	29.8		
02	DP-G07-15		1150	GW		X		1	1					253.7	0.68	4.7	28.7		
03	DP-G07-17		1200	GW		X		1		1				299.6	0.38	4.8	26.0		
04	DP-G07-21		1205	GW		X	1		1		1	2	1	274.5	0.37	4.6	25.3		
05	DP-G07-24		1215	GW		X		1		1				299.6	0.64	4.7	25.6		
06	DP-G07-27		1225	GW		X		1		1				300.3	1.17	4.7	25.7		
07	DP-G08-5		1155	GW		X	1		1		1	2	1	173.8	1.03	5.7	28.1		
08	DP-G09-11		1145	GW		X		1	1					229.2	1.39	5.6	28.3		
09	DP-G11-8		1135	GW		X		1	1					318.8	0.68	4.6	27.2		
10	DP-G12-15		1050	GW		X	1		1		1	2	1	415.0	0.37	5.1	26.2		
11	DP-G12-18		1105	GW		X	1		1		1	2	1	264.4	0.56	5.3	25.8		
12	DP-G12-21	092711	1115	GW		X		1	1					270.9	0.46	5.3	25.5		

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
9R	1200 9/23/11		1200 092311
Relinquished:	Date/Time: 1400 092711	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1108644

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. 1108644

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 Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
13	DP-G12-24	092711	1120	GW		X		1	1					301.8	0.38	5.2	75.4		
14	DP-G12-27		1125	GW		X		1	1					289.3	0.33	5.1	75.3		
15	DP-G12-9		1045	GW		X		1	1					363.6	3.42	5.0	74.8		

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
YR	1200 9/23/11		1200 092311
Relinquished:	Date/Time: 1400 092711	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108644

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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

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

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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		**1108645-01**						
Date/Time Collected		**09/28/11 07:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		09/28/11 07:35	SDH
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		09/28/11 07:35	SDH
Specific conductance	umhos/cm	140	DEP FT1200	0.1	0.1		09/28/11 07:35	SDH
Dissolved Oxygen	mg/L	4.2	DEP FT1500	0.1	0.1		09/28/11 07:35	SDH
Inorganics								
Ammonia as N	mg/L	0.44	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	4.5	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	0.48	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.78	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	31	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Sample Description		**DP-H09-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1108645-02**						
Date/Time Collected		**09/28/11 07:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 07:45	SDH
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		09/28/11 07:45	SDH
Specific conductance	umhos/cm	248	DEP FT1200	0.1	0.1		09/28/11 07:45	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		09/28/11 07:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	50	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	5.7	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	2.6	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.084	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.84	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
Blank (BI12836-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI12836-BS1)					Prepared & Analyzed: 09/29/11					
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Nitrite (as N)	1.30	0.04	0.01	mg/L	1.4		93	85-115		
LCS Dup (BI12836-BSD1)					Prepared & Analyzed: 09/29/11					
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115	0.4	200
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4		95	85-115	2	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Matrix Spike (BI12836-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4	ND	96	85-115		
Nitrate (as N)	16.7	0.04	0.01	mg/L	1.7	14.8	112	85-115		
Chloride	21.9	0.20	0.050	mg/L	3.0	18.9	100	80-120		
Matrix Spike (BI12836-MS2)		**Source: 1108647-05**			Prepared & Analyzed: 09/29/11					
Chloride	14.5 +O	0.20	0.050	mg/L	3.0	10.5	133	80-120		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Nitrate (as N)	10.8 +O	0.04	0.01	mg/L	1.7	8.64	127	85-115		
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10103-BS1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BJ10103-BS2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10103-MS1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	3.0	98	80-120		
Matrix Spike (BJ10103-MS2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120		
Matrix Spike Dup (BJ10103-MSD1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	8	26
Matrix Spike Dup (BJ10103-MSD2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	0	26
Batch BJ10426 - COD prep										
Blank (BJ10426-BLK1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10426-BS1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10426 - COD prep										
Matrix Spike (BJ10426-MS1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		
Matrix Spike Dup (BJ10426-MSD1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11012-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ11012-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11012-MS1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.505	0.040	0.010	mg/L	0.50	0.0735	86	75-125		
Matrix Spike Dup (BJ11012-MSD1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.534	0.040	0.010	mg/L	0.50	0.0735	92	75-125	6	25
Batch BJ11018 - Digestion for TKN by EPA 351.2										
Blank (BJ11018-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11018-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.62	0.20	0.05	mg/L	2.5		105	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11018 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ11018-MS1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.28	0.20	0.05	mg/L	2.5	1.01	91	80-120		
Matrix Spike Dup (BJ11018-MSD1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.24	0.20	0.05	mg/L	2.5	1.01	89	80-120	1	20
Batch BJ11409 - Ammonia by SEAL										
Blank (BJ11409-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11409-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11409-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.52	0.040	0.010	mg/L	0.50	ND	104	90-110		
Matrix Spike Dup (BJ11409-MSD1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50	ND	97	90-110	7	10

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* Qualifiers, Notes and Definitions

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

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

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

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

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

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SAL Project No. 1108645

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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-H06-7	092811	0735	GW		X		1	1					140.3	4.24	5.8	25.5		
02	DP-H09-12	↓	0745	GW		X		1	1					247.9	0.94	5.1	25.9		

Containers Prepared/ Relinquished:	Date/Time: 1318 09-23-11	Received:	Date/Time: 1318 092311
Relinquished:	Date/Time: 1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108645

Chain of Custody

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

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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		**1108646-01**						
Date/Time Collected		**09/28/11 07:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 07:50	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		09/28/11 07:50	SDH
Specific conductance	umhos/cm	220	DEP FT1200	0.1	0.1		09/28/11 07:50	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/28/11 07:50	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	5.4	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Fluoride	mg/L	0.064	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	2.6	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.15	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.61	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Sulfate	mg/L	61	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	7.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.71	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Total Organic Carbon	mg/L	3.2	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.5	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:34	VWC
Calcium	mg/L	21	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:34	VWC
Iron	mg/L	0.14	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:34	VWC
Magnesium	mg/L	4.8	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:34	VWC
Manganese	mg/L	0.17	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:34	VWC
Potassium	mg/L	9.4	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:34	VWC
Sodium	mg/L	3.1	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:34	VWC

Sample Description	**DP-I06-20**
Matrix	**Groundwater**
SAL Sample Number	**1108646-02**
Date/Time Collected	**09/28/11 08:05**
Collected by	**Sean Harmon**
Date/Time Received	**09/28/11 14:15**

Field Parameters

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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		**1108646-02**						
Date/Time Collected		**09/28/11 08:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 08:05	SDH
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		09/28/11 08:05	SDH
Specific conductance	umhos/cm	330	DEP FT1200	0.1	0.1		09/28/11 08:05	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/28/11 08:05	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	12	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Fluoride	mg/L	0.096	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	9.1	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.052	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.17	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Sulfate	mg/L	73	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Total Organic Carbon	mg/L	1.7	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.8	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:37	VWC
Calcium	mg/L	28	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:37	VWC
Iron	mg/L	0.048 I	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:37	VWC
Magnesium	mg/L	6.7	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:37	VWC
Manganese	mg/L	0.060	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:37	VWC
Potassium	mg/L	16	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:37	VWC
Sodium	mg/L	6.9	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:37	VWC
Sample Description		**DP-I06-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108646-03**						
Date/Time Collected		**09/28/11 08:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 08:10	SDH

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-I06-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108646-03**						
Date/Time Collected		**09/28/11 08:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		09/28/11 08:10	SDH
Specific conductance	umhos/cm	295	DEP FT1200	0.1	0.1		09/28/11 08:10	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 08:10	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chloride	mg/L	14	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	9.0	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/10/11 10:26	10/14/11 15:43	SMD
Sample Description		**DP-I12-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1108646-04**						
Date/Time Collected		**09/28/11 07:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 07:40	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		09/28/11 07:40	SDH
Specific conductance	umhos/cm	95	DEP FT1200	0.1	0.1		09/28/11 07:40	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/28/11 07:40	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	3.1	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	0.34	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.30	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.99	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
Blank (BI12836-BLK1)					Prepared & Analyzed: 09/29/11					
Fluoride	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12836-BS1)					Prepared & Analyzed: 09/29/11					
Sulfate	8.19	0.60	0.20	mg/L	9.0		91	85-115		
Nitrite (as N)	1.30	0.04	0.01	mg/L	1.4		93	85-115		
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Orthophosphate as P	0.875	0.040	0.010	mg/L	0.90		97	85-115		
Fluoride	0.834	0.040	0.010	mg/L	0.90		93	85-115		
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
LCS Dup (BI12836-BSD1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4		95	85-115	2	200
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115	0.4	200
Orthophosphate as P	0.871	0.040	0.010	mg/L	0.90		97	85-115	0.5	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Sulfate	8.17	0.60	0.20	mg/L	9.0		91	85-115	0.2	200
Fluoride	0.859	0.040	0.010	mg/L	0.90		95	85-115	3	200
Matrix Spike (BI12836-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 09/29/11					
Fluoride	0.937	0.040	0.010	mg/L	0.90	0.0599	97	85-115		
Orthophosphate as P	0.952	0.040	0.010	mg/L	0.90	ND	106	85-115		
Sulfate	71.7 +O	0.60	0.20	mg/L	9.0	ND	797	85-115		
Chloride	21.9	0.20	0.050	mg/L	3.0	18.9	100	80-120		
Nitrate (as N)	16.7	0.04	0.01	mg/L	1.7	14.8	112	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4	ND	96	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12836-MS2)		**Source: 1108647-05**			Prepared & Analyzed: 09/29/11					
Fluoride	0.963	0.040	0.010	mg/L	0.90	0.0689	99	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Nitrate (as N)	10.8 +O	0.04	0.01	mg/L	1.7	8.64	127	85-115		
Orthophosphate as P	0.856	0.040	0.010	mg/L	0.90	0.0440	90	85-115		
Chloride	14.5 +O	0.20	0.050	mg/L	3.0	10.5	133	80-120		
Sulfate	85.8 +O	0.60	0.20	mg/L	9.0	74.1	130	85-115		
Batch BI13009 - TOC prep										
Blank (BI13009-BLK1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13009-BS1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	10.1	1.0	0.50	mg/L	10		101	90-110		
Matrix Spike (BI13009-MS1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.1	1.0	0.50	mg/L	10	2.05	101	85-115		
Matrix Spike Dup (BI13009-MSD1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.5	1.0	0.50	mg/L	10	2.05	104	85-115	3	10
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10103-BS1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BJ10103-BS2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10103-MS1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	3.0	98	80-120		
Matrix Spike (BJ10103-MS2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120		
Matrix Spike Dup (BJ10103-MSD1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	8	26
Matrix Spike Dup (BJ10103-MSD2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	0	26
Batch BJ10426 - COD prep										
Blank (BJ10426-BLK1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10426-BS1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10426 - COD prep										
Matrix Spike (BJ10426-MS1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		
Matrix Spike Dup (BJ10426-MSD1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11012-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ11012-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11012-MS1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.505	0.040	0.010	mg/L	0.50	0.0735	86	75-125		
Matrix Spike Dup (BJ11012-MSD1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.534	0.040	0.010	mg/L	0.50	0.0735	92	75-125	6	25
Batch BJ11018 - Digestion for TKN by EPA 351.2										
Blank (BJ11018-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11018-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.62	0.20	0.05	mg/L	2.5		105	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11018 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ11018-MS1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.28	0.20	0.05	mg/L	2.5	1.01	91	80-120		
Matrix Spike Dup (BJ11018-MSD1)		**Source: 1108798-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	3.24	0.20	0.05	mg/L	2.5	1.01	89	80-120	1	20
Batch BJ11019 - Digestion for TKN by EPA 351.2										
Blank (BJ11019-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11019-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ11019-MS1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	0.334	92	80-120		
Matrix Spike Dup (BJ11019-MSD1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.10	0.20	0.05	mg/L	2.5	0.334	71	80-120	22	20
Batch BJ11409 - Ammonia by SEAL										
Blank (BJ11409-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11409-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		97	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11409 - Ammonia by SEAL										
Matrix Spike (BJ11409-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.52	0.040	0.010	mg/L	0.50	ND	104	90-110		
Matrix Spike Dup (BJ11409-MSD1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50	ND	97	90-110	7	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13008 - DOC prep										
Blank (BI13008-BLK1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13008-BS1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	10.2	1.0	0.50	mg/L	10		102	90-110		
Matrix Spike (BI13008-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.8	1.0	0.50	mg/L	10	2.08	107	85-125		
Matrix Spike Dup (BI13008-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.9	1.0	0.50	mg/L	10	2.08	108	85-125	0.7	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Blank (BI13006-BLK1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Boron	0.050 U	0.10	0.050	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Potassium	0.016 I	0.050	0.010	mg/L						
Sodium	0.010 U	0.050	0.010	mg/L						
Calcium	0.010 U	0.050	0.010	mg/L						
Magnesium	0.025 I	0.050	0.010	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
LCS (BI13006-BS1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Potassium	18	0.050	0.010	mg/L	20		89	85-115		
Sodium	19	0.050	0.010	mg/L	20		95	85-115		
Calcium	18	0.050	0.010	mg/L	20		92	85-115		
Iron	7.6	0.10	0.020	mg/L	8.0		94	85-115		
Magnesium	19	0.050	0.010	mg/L	20		95	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Matrix Spike (BI13006-MS1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.015	98	70-130		
Calcium	56	0.050	0.010	mg/L	20	37	93	70-130		
Boron	0.53	0.10	0.050	mg/L	0.40	0.13	101	70-130		
Magnesium	29	0.050	0.010	mg/L	20	9.5	97	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	91	70-130		
Sodium	63	0.050	0.010	mg/L	20	43	98	70-130		
Matrix Spike (BI13006-MS2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	40	0.050	0.010	mg/L	20	21	96	70-130		
Sodium	31	0.050	0.010	mg/L	20	12	96	70-130		
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.11	96	70-130		
Iron	8.5	0.10	0.020	mg/L	8.0	0.59	98	70-130		
Boron	0.50	0.10	0.050	mg/L	0.40	0.10	98	70-130		
Magnesium	25	0.050	0.010	mg/L	20	5.7	98	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130		

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI13006-MSD1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Magnesium	29	0.050	0.010	mg/L	20	9.5	95	70-130	0.9	30
Calcium	56	0.050	0.010	mg/L	20	37	94	70-130	0.5	30
Iron	7.8	0.10	0.020	mg/L	8.0	0.076	97	70-130	1	30
Potassium	30	0.050	0.010	mg/L	20	11	94	70-130	1	30
Boron	0.49	0.10	0.050	mg/L	0.40	0.13	91	70-130	8	30
Sodium	63	0.050	0.010	mg/L	20	43	96	70-130	0.6	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.015	96	70-130	2	30
Matrix Spike Dup (BI13006-MSD2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Magnesium	25	0.050	0.010	mg/L	20	5.7	97	70-130	0.1	30
Calcium	41	0.050	0.010	mg/L	20	21	100	70-130	2	30
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130	0.03	30
Boron	0.42	0.10	0.050	mg/L	0.40	0.10	80	70-130	16	30
Sodium	31	0.050	0.010	mg/L	20	12	99	70-130	2	30
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.11	93	70-130	3	30
Iron	8.4	0.10	0.020	mg/L	8.0	0.59	98	70-130	0.3	30

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* Qualifiers, Notes and Definitions

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

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

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

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

+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. 1108646

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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-I06-14	092811	0750	GW		X	1		1		1	2	1	219.5	0.53	5.1	25.4		
02	DP-I06-20		0805	GW		X	1		1		1	2	1	330.3	0.38	5.1	24.8		
03	DP-I06-26		0810	GW		X		1		1				294.9	0.34	5.0	24.6		
04	DP-I12-6		0740	GW		X		1	1					95.1	0.56	5.1	26.2		

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished:	1300 9/23/11		9/23/11 1300
Relinquished:	1415 092811		
Relinquished:			
Relinquished:			
Relinquished:			

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

Instructions / Remarks:

1108646

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

Chain of Custody

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-J09-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1108647-03**						
Date/Time Collected		**09/28/11 07:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 07:55	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		09/28/11 07:55	SDH
Specific conductance	umhos/cm	171	DEP FT1200	0.1	0.1		09/28/11 07:55	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		09/28/11 07:55	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chloride	mg/L	4.6	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	0.86	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.57	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

Sample Description		**DP-J09-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1108647-04**						
Date/Time Collected		**09/28/11 08:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/28/11 08:00	SDH
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		09/28/11 08:00	SDH
Specific conductance	umhos/cm	210	DEP FT1200	0.1	0.1		09/28/11 08:00	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/28/11 08:00	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	2.3	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.40	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.68	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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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		**1108647-05**						
Date/Time Collected		**09/28/11 08:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 08:05	SDH
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		09/28/11 08:05	SDH
Specific conductance	umhos/cm	320	DEP FT1200	0.1	0.1		09/28/11 08:05	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 08:05	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	10	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	8.6	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.73	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.66	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Sample Description		**DP-J09-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108647-06**						
Date/Time Collected		**09/28/11 08:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/28/11 08:10	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		09/28/11 08:10	SDH
Specific conductance	umhos/cm	292	DEP FT1200	0.1	0.1		09/28/11 08:10	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/28/11 08:10	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 15:41	SMD
Chloride	mg/L	14	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	9.9	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

SOUTHERN ANALYTICAL LABORATORIES, INC.
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Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-J12-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1108647-07**						
Date/Time Collected		**09/28/11 08:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/28/11 08:35	SDH
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		09/28/11 08:35	SDH
Specific conductance	umhos/cm	206	DEP FT1200	0.1	0.1		09/28/11 08:35	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 08:35	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chloride	mg/L	5.3	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	2.1	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.48	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

Sample Description		**DP-J12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108647-08**						
Date/Time Collected		**09/28/11 08:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/28/11 08:40	SDH
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		09/28/11 08:40	SDH
Specific conductance	umhos/cm	265	DEP FT1200	0.1	0.1		09/28/11 08:40	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/28/11 08:40	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	6.2	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	3.6	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.77	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.97	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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

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

October 26, 2011
Work Order: 1108647
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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-J12-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1108647-09**						
Date/Time Collected		**09/28/11 08:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 08:45	SDH
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		09/28/11 08:45	SDH
Specific conductance	umhos/cm	327	DEP FT1200	0.1	0.1		09/28/11 08:45	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/28/11 08:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	10	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	7.8	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.88	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.28	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Sample Description		**DP-J12-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1108647-10**						
Date/Time Collected		**09/28/11 08:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/28/11 08:50	SDH
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		09/28/11 08:50	SDH
Specific conductance	umhos/cm	282	DEP FT1200	0.1	0.1		09/28/11 08:50	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/28/11 08:50	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.29	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12836 - Ion Chromatography 300.0 Prep										
Blank (BI12836-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI12836-BS1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.30	0.04	0.01	mg/L	1.4		93	85-115		
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
LCS Dup (BI12836-BSD1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4		95	85-115	2	200
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115	0.4	200
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Matrix Spike (BI12836-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 09/29/11					
Nitrate (as N)	16.7	0.04	0.01	mg/L	1.7	14.8	112	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4	ND	96	85-115		
Chloride	21.9	0.20	0.050	mg/L	3.0	18.9	100	80-120		
Matrix Spike (BI12836-MS2)		**Source: 1108647-05**			Prepared & Analyzed: 09/29/11					
Chloride	14.5 +O	0.20	0.050	mg/L	3.0	10.5	133	80-120		
Nitrate (as N)	10.8 +O	0.04	0.01	mg/L	1.7	8.64	127	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Batch BI12837 - Ion Chromatography 300.0 Prep										
Blank (BI12837-BLK1)					Prepared & Analyzed: 09/29/11					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12837 - Ion Chromatography 300.0 Prep										
LCS (BI12837-BS1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
Chloride	3.03	0.20	0.050	mg/L	3.0		101	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
LCS Dup (BI12837-BSD1)					Prepared & Analyzed: 09/29/11					
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115	2	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	2	200
Matrix Spike (BI12837-MS1)		**Source: 1108650-04**			Prepared & Analyzed: 09/29/11					
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.372	86	85-115		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	0.151	94	85-115		
Chloride	7.07	0.20	0.050	mg/L	3.0	4.44	88	80-120		
Matrix Spike (BI12837-MS2)		**Source: 1108661-02**			Prepared & Analyzed: 09/29/11					
Nitrate (as N)	11.1 +O	0.04	0.01	mg/L	1.7	9.10	118	85-115		
Chloride	18.0	0.20	0.050	mg/L	3.0	14.8	107	80-120		
Nitrite (as N)	1.49	0.04	0.01	mg/L	1.4	ND	106	85-115		
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ10103-BLK2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10103 - alkalinity										
LCS (BJ10103-BS1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BJ10103-BS2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10103-MS1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	3.0	98	80-120		
Matrix Spike (BJ10103-MS2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120		
Matrix Spike Dup (BJ10103-MSD1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	8	26
Matrix Spike Dup (BJ10103-MSD2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	0	26
Batch BJ10426 - COD prep										
Blank (BJ10426-BLK1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10426-BS1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BJ10426-MS1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10426 - COD prep										
Matrix Spike Dup (BJ10426-MSD1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11012-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ11012-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11012-MS1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.505	0.040	0.010	mg/L	0.50	0.0735	86	75-125		
Matrix Spike Dup (BJ11012-MSD1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.534	0.040	0.010	mg/L	0.50	0.0735	92	75-125	6	25
Batch BJ11019 - Digestion for TKN by EPA 351.2										
Blank (BJ11019-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11019-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ11019-MS1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	0.334	92	80-120		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11019 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BJ11019-MSD1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.10	0.20	0.05	mg/L	2.5	0.334	71	80-120	22	20
Batch BJ11409 - Ammonia by SEAL										
Blank (BJ11409-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11409-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11409-MS1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.52	0.040	0.010	mg/L	0.50	ND	104	90-110		
Matrix Spike Dup (BJ11409-MSD1)		**Source: 1108620-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50	ND	97	90-110	7	10
Batch BJ11735 - Ammonia by SEAL										
Blank (BJ11735-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11735-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.49	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11735-MS1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	ND	94	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11735 - Ammonia by SEAL										
Matrix Spike Dup (BJ11735-MSD1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.46	0.040	0.010	mg/L	0.50	ND	91	90-110	3	10

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* Qualifiers, Notes and Definitions

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

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

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

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

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

SAL Project No. 1108647

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: 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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-J08-6	DRY	DRY	GW		X		1	1					—	—	—	—		
02	DP-J08-6-D	DRY	DRY	GW		X		1	1					—	—	—	—		
03	DP-J09-12	092811	~~0800~~ 0755 SH	GW		X		1		1				170.9	0.86	5.0	26.2		
04	DP-J09-14	092811	0800	GW		X		1	1					210.5	0.41	4.8	26.1		
05	DP-J09-20	092811	0805	GW		X		1	1					319.9	0.36	5.0	25.5		
06	DP-J09-~~1~~-26 (Mislabled)	092811 ~~092811~~	0810 ~~0800~~ SH	GW		X		1		1				~~170.9~~	~~0.86~~	~~5.0~~	~~26.3~~	SH	
07	DP-J12-13	092811	0835	GW		X		1		1				206.1	0.29	4.9	26.1		
08	DP-J12-15	092811	0840	GW		X		1	1					265.2	0.52	4.9	26.8		
09	DP-J12-20	092811	0845	GW		X		1	1					326.9	0.41	5.1	25.7		
10	DP-J12-27	092811	0850	GW		X		1		1				281.7	0.39	4.9	24.9		

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished: JR	Date/Time: 1330 9/23/11	Received:	Date/Time: 1330 092311
Relinquished:	Date/Time: 1115 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

~~06~~ SH ~~Ph 4.8~~ SH

~~04 CON 210.5~~

~~DO 0.41~~

~~Temp 26.1~~

1108647

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

Chain of Custody

Date Time Ph CON do Temp

092811 0810 DP-J09-26 4.8 291.6 0.52 25.4

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

Hazen and Sawyer
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Tampa, FL 33619

October 26, 2011
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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-K12-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1108648-02**						
Date/Time Collected		**09/28/11 09:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 09:00	SDH
Water Temperature	°C	27.5	DEP FT1400	0.1	0.1		09/28/11 09:00	SDH
Specific conductance	umhos/cm	70	DEP FT1200	0.1	0.1		09/28/11 09:00	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/28/11 09:00	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	4.4	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	0.29	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.47	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.31	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12837 - Ion Chromatography 300.0 Prep										
Blank (BI12837-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI12837-BS1)					Prepared & Analyzed: 09/29/11					
Chloride	3.03	0.20	0.050	mg/L	3.0		101	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
LCS Dup (BI12837-BSD1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115	2	200
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	2	200
Matrix Spike (BI12837-MS1)		**Source: 1108650-04**			Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	0.151	94	85-115		
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.372	86	85-115		
Chloride	7.07	0.20	0.050	mg/L	3.0	4.44	88	80-120		
Matrix Spike (BI12837-MS2)		**Source: 1108661-02**			Prepared & Analyzed: 09/29/11					
Chloride	18.0	0.20	0.050	mg/L	3.0	14.8	107	80-120		
Nitrite (as N)	1.49	0.04	0.01	mg/L	1.4	ND	106	85-115		
Nitrate (as N)	11.1 +O	0.04	0.01	mg/L	1.7	9.10	118	85-115		
Batch BJ10414 - alkalinity										
Blank (BJ10414-BLK1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

Hazen and Sawyer
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Tampa, FL 33619

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10414 - alkalinity										
LCS (BJ10414-BS1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10414-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120		
Matrix Spike Dup (BJ10414-MSD1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120	0	26
Batch BJ10426 - COD prep										
Blank (BJ10426-BLK1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10426-BS1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BJ10426-MS1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		
Matrix Spike Dup (BJ10426-MSD1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11012-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ11012-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11012-MS1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.505	0.040	0.010	mg/L	0.50	0.0735	86	75-125		
Matrix Spike Dup (BJ11012-MSD1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.534	0.040	0.010	mg/L	0.50	0.0735	92	75-125	6	25
Batch BJ11019 - Digestion for TKN by EPA 351.2										
Blank (BJ11019-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11019-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ11019-MS1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	0.334	92	80-120		
Matrix Spike Dup (BJ11019-MSD1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.10	0.20	0.05	mg/L	2.5	0.334	71	80-120	22	20
Batch BJ11735 - Ammonia by SEAL										
Blank (BJ11735-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11735 - Ammonia by SEAL										
LCS (BJ11735-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.49	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11735-MS1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	ND	94	90-110		
Matrix Spike Dup (BJ11735-MSD1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.46	0.040	0.010	mg/L	0.50	ND	91	90-110	3	10

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

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* Qualifiers, Notes and Definitions

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

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

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

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

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

SAL Project No. 1108648

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: 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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-K10-7	092811	DRY	GW		X		1	1										
02	DP-~~K10-5~~ K12-5	092811	0900	GW		X		1	1					70.0	0.64	5.0	27.5		
	DP-K10-7 Dupe -	092811	DRY																
	(was told to Move																		
	dupe from J08-6 to																		
	K10-7 Because J08-6																		
	was dry - K10-7																		
	was also Dry - SH																		

Containers Prepared/ Relinquished:	Date/Time: 1300 09-28-11	Received:	Date/Time: 1300 092811
Relinquished:	Date/Time: 1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108648

Chain of Custody

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

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-M07-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108650-01**						
Date/Time Collected		**09/28/11 08:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/28/11 08:45	SDH
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		09/28/11 08:45	SDH
Specific conductance	umhos/cm	274	DEP FT1200	0.1	0.1		09/28/11 08:45	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 08:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chloride	mg/L	9.1	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	5.1	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.24	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.21	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Sample Description		**DP-M07-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1108650-02**						
Date/Time Collected		**09/28/11 08:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/28/11 08:55	SDH
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		09/28/11 08:55	SDH
Specific conductance	umhos/cm	351	DEP FT1200	0.1	0.1		09/28/11 08:55	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 08:55	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	13	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	1.1	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.17 I	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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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-M07-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1108650-03**						
Date/Time Collected		**09/28/11 09:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 09:00	SDH
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		09/28/11 09:00	SDH
Specific conductance	umhos/cm	290	DEP FT1200	0.1	0.1		09/28/11 09:00	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/28/11 09:00	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	12	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	8.1	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.093	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.22	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Sample Description		**DP-M12-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1108650-04**						
Date/Time Collected		**09/28/11 08:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		09/28/11 08:30	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		09/28/11 08:30	SDH
Specific conductance	umhos/cm	162	DEP FT1200	0.1	0.1		09/28/11 08:30	SDH
Dissolved Oxygen	mg/L	1.8	DEP FT1500	0.1	0.1		09/28/11 08:30	SDH
Inorganics								
Ammonia as N	mg/L	0.046	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	4.4	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	0.37	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.15	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.13	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.79	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12837 - Ion Chromatography 300.0 Prep										
Blank (BI12837-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI12837-BS1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Chloride	3.03	0.20	0.050	mg/L	3.0		101	85-115		
LCS Dup (BI12837-BSD1)					Prepared & Analyzed: 09/29/11					
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115	2	200
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	2	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Matrix Spike (BI12837-MS1)		**Source: 1108650-04**			Prepared & Analyzed: 09/29/11					
Chloride	7.07	0.20	0.050	mg/L	3.0	4.44	88	80-120		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	0.151	94	85-115		
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.372	86	85-115		
Matrix Spike (BI12837-MS2)		**Source: 1108661-02**			Prepared & Analyzed: 09/29/11					
Chloride	18.0	0.20	0.050	mg/L	3.0	14.8	107	80-120		
Nitrate (as N)	11.1 +O	0.04	0.01	mg/L	1.7	9.10	118	85-115		
Nitrite (as N)	1.49	0.04	0.01	mg/L	1.4	ND	106	85-115		
Batch BJ10414 - alkalinity										
Blank (BJ10414-BLK1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10414 - alkalinity										
LCS (BJ10414-BS1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10414-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120		
Matrix Spike Dup (BJ10414-MSD1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120	0	26
Batch BJ10426 - COD prep										
Blank (BJ10426-BLK1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10426-BS1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BJ10426-MS1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		
Matrix Spike Dup (BJ10426-MSD1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11012-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ11012-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11012-MS1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.505	0.040	0.010	mg/L	0.50	0.0735	86	75-125		
Matrix Spike Dup (BJ11012-MSD1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.534	0.040	0.010	mg/L	0.50	0.0735	92	75-125	6	25
Batch BJ11019 - Digestion for TKN by EPA 351.2										
Blank (BJ11019-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11019-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ11019-MS1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	0.334	92	80-120		
Matrix Spike Dup (BJ11019-MSD1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.10	0.20	0.05	mg/L	2.5	0.334	71	80-120	22	20
Batch BJ11735 - Ammonia by SEAL										
Blank (BJ11735-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11735 - Ammonia by SEAL										
LCS (BJ11735-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.49	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11735-MS1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	ND	94	90-110		
Matrix Spike Dup (BJ11735-MSD1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.46	0.040	0.010	mg/L	0.50	ND	91	90-110	3	10

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* Qualifiers, Notes and Definitions

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

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

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

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

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

HH 9-08-11

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. H86 1108650

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 Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-M07-15	09 28 11	0845	GW		X		1		1				274.0	0.27	5.2	25.9		
02	DP-M07-21		0855	GW		X		1	1					351.2	0.26	5.2	25.3		
03	DP-M07-27		0900	GW		X		1	1					299.5	0.25	5.1	25.1		
04	DP-M12-10		0830	GW		X		1	1					161.8	1.78	5.6	26.2		

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished:	1300 09-23-11		1300 09 23 11
Relinquished:	1415 09 28 11		
Relinquished:			
Relinquished:			
Relinquished:			

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

Instructions / Remarks:

1108650

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

Chain of Custody

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-N12-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1108655-01**						
Date/Time Collected		**09/28/11 09:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 09:15	SDH
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		09/28/11 09:15	SDH
Specific conductance	umhos/cm	181	DEP FT1200	0.1	0.1		09/28/11 09:15	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 09:15	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	4.6	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Fluoride	mg/L	0.074	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	1.3	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.35	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Sulfate	mg/L	53	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.15 I	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Total Organic Carbon	mg/L	2.0	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.9	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/30/11 09:43	10/03/11 17:41	VWC
Calcium	mg/L	17	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:41	VWC
Iron	mg/L	0.10	EPA 200.7	0.10	0.020	09/30/11 09:43	10/03/11 17:41	VWC
Magnesium	mg/L	3.4	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:41	VWC
Manganese	mg/L	0.17	EPA 200.7	0.010	0.0010	09/30/11 09:43	10/03/11 17:41	VWC
Potassium	mg/L	6.0	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:41	VWC
Sodium	mg/L	2.7	EPA 200.7	0.050	0.010	09/30/11 09:43	10/03/11 17:41	VWC

Sample Description	**DP-N12-18**
Matrix	**Groundwater**
SAL Sample Number	**1108655-02**
Date/Time Collected	**09/28/11 09:25**
Collected by	**Sean Harmon**
Date/Time Received	**09/28/11 14:15**

Field Parameters

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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		**1108655-02**						
Date/Time Collected		**09/28/11 09:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 09:25	SDH
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		09/28/11 09:25	SDH
Specific conductance	umhos/cm	234	DEP FT1200	0.1	0.1		09/28/11 09:25	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/28/11 09:25	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	7.7	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	3.9	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	1.1	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.57	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Sample Description		**DP-N12-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1108655-03**						
Date/Time Collected		**09/28/11 09:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		09/28/11 09:35	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		09/28/11 09:35	SDH
Specific conductance	umhos/cm	316	DEP FT1200	0.1	0.1		09/28/11 09:35	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 09:35	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/04/11 08:30	10/04/11 13:30	ARP
Chloride	mg/L	9.8	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Fluoride	mg/L	0.062	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	6.7	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.093	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Sulfate	mg/L	85	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC

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October 26, 2011
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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		**1108655-03**						
Date/Time Collected		**09/28/11 09:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Total Kjeldahl Nitrogen	mg/L	0.13 I	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Total Organic Carbon	mg/L	2.8	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.2	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	10/04/11 09:37	10/04/11 16:08	VWC
Calcium	mg/L	31	EPA 200.7	0.50	0.042	10/04/11 09:37	10/04/11 16:08	VWC
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	10/04/11 09:37	10/04/11 16:08	VWC
Magnesium	mg/L	9.0	EPA 200.7	0.50	0.020	10/04/11 09:37	10/04/11 16:08	VWC
Manganese	mg/L	0.088	EPA 200.7	0.010	0.0010	10/04/11 09:37	10/04/11 16:08	VWC
Potassium	mg/L	17	EPA 200.7	0.050	0.010	10/04/11 09:37	10/04/11 16:08	VWC
Sodium	mg/L	4.7	EPA 200.7	0.50	0.13	10/04/11 09:37	10/04/11 16:08	VWC
Sample Description		**DP-N12-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1108655-04**						
Date/Time Collected		**09/28/11 09:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		09/28/11 09:45	SDH
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		09/28/11 09:45	SDH
Specific conductance	umhos/cm	359	DEP FT1200	0.1	0.1		09/28/11 09:45	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/28/11 09:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	67	EPA 410.4	25	10	10/05/11 09:00	10/05/11 13:37	ARP
Chloride	mg/L	14	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Fluoride	mg/L	0.089	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.051	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.13	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Sulfate	mg/L	83	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-N12-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1108655-04**						
Date/Time Collected		**09/28/11 09:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Total Organic Carbon	mg/L	2.3	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.2	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	10/04/11 09:37	10/04/11 16:11	VWC
Calcium	mg/L	31	EPA 200.7	0.50	0.042	10/04/11 09:37	10/04/11 16:11	VWC
Iron	mg/L	0.098 I	EPA 200.7	0.10	0.020	10/04/11 09:37	10/04/11 16:11	VWC
Magnesium	mg/L	11	EPA 200.7	0.50	0.020	10/04/11 09:37	10/04/11 16:11	VWC
Manganese	mg/L	0.042	EPA 200.7	0.010	0.0010	10/04/11 09:37	10/04/11 16:11	VWC
Potassium	mg/L	23	EPA 200.7	0.050	0.010	10/04/11 09:37	10/04/11 16:11	VWC
Sodium	mg/L	6.7	EPA 200.7	0.50	0.13	10/04/11 09:37	10/04/11 16:11	VWC
Sample Description		**DP-N12-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1108655-05**						
Date/Time Collected		**09/28/11 09:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 09:55	SDH
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		09/28/11 09:55	SDH
Specific conductance	umhos/cm	323	DEP FT1200	0.1	0.1		09/28/11 09:55	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 09:55	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/05/11 09:00	10/05/11 13:37	ARP
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Fluoride	mg/L	0.061	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.31	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Sulfate	mg/L	59	EPA 300.0	0.60	0.20		09/29/11 11:10	MMF
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	10/11/11 11:42	10/17/11 11:43	SMD
Total Organic Carbon	mg/L	1.6	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ

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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		**1108655-05**						
Date/Time Collected		**09/28/11 09:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.3	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	10/04/11 09:37	10/04/11 16:15	VWC
Calcium	mg/L	27	EPA 200.7	0.50	0.042	10/04/11 09:37	10/04/11 16:15	VWC
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	10/04/11 09:37	10/04/11 16:15	VWC
Magnesium	mg/L	8.3	EPA 200.7	0.50	0.020	10/04/11 09:37	10/04/11 16:15	VWC
Manganese	mg/L	0.085	EPA 200.7	0.010	0.0010	10/04/11 09:37	10/04/11 16:15	VWC
Potassium	mg/L	19	EPA 200.7	0.050	0.010	10/04/11 09:37	10/04/11 16:15	VWC
Sodium	mg/L	7.6	EPA 200.7	0.50	0.13	10/04/11 09:37	10/04/11 16:15	VWC

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12837 - Ion Chromatography 300.0 Prep										
Blank (BI12837-BLK1)					Prepared & Analyzed: 09/29/11					
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
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						
LCS (BI12837-BS1)					Prepared & Analyzed: 09/29/11					
Sulfate	8.71	0.60	0.20	mg/L	9.0		97	85-115		
Orthophosphate as P	0.914	0.040	0.010	mg/L	0.90		102	85-115		
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Fluoride	0.904	0.040	0.010	mg/L	0.90		100	85-115		
Chloride	3.03	0.20	0.050	mg/L	3.0		101	85-115		
LCS Dup (BI12837-BSD1)					Prepared & Analyzed: 09/29/11					
Orthophosphate as P	0.897	0.040	0.010	mg/L	0.90		100	85-115	2	200
Sulfate	8.79	0.60	0.20	mg/L	9.0		98	85-115	0.9	200
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115	2	200
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	2	200
Fluoride	0.894	0.040	0.010	mg/L	0.90		99	85-115	1	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Matrix Spike (BI12837-MS1)		**Source: 1108650-04**			Prepared & Analyzed: 09/29/11					
Sulfate	53.1 +O	0.60	0.20	mg/L	9.0	46.7	71	85-115		
Orthophosphate as P	0.923	0.040	0.010	mg/L	0.90	0.0435	98	85-115		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	0.151	94	85-115		
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.372	86	85-115		
Chloride	7.07	0.20	0.050	mg/L	3.0	4.44	88	80-120		
Fluoride	0.972	0.040	0.010	mg/L	0.90	0.126	94	85-115		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12837 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12837-MS2)		**Source: 1108661-02**			Prepared & Analyzed: 09/29/11					
Fluoride	0.958	0.040	0.010	mg/L	0.90	0.0843	97	85-115		
Sulfate	86.6	0.60	0.20	mg/L	9.0	77.7	99	85-115		
Orthophosphate as P	0.875	0.040	0.010	mg/L	0.90	0.0602	91	85-115		
Chloride	18.0	0.20	0.050	mg/L	3.0	14.8	107	80-120		
Nitrite (as N)	1.49	0.04	0.01	mg/L	1.4	ND	106	85-115		
Nitrate (as N)	11.1 +O	0.04	0.01	mg/L	1.7	9.10	118	85-115		
Batch BI13009 - TOC prep										
Blank (BI13009-BLK1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13009-BS1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	10.1	1.0	0.50	mg/L	10		101	90-110		
Matrix Spike (BI13009-MS1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.1	1.0	0.50	mg/L	10	2.05	101	85-115		
Matrix Spike Dup (BI13009-MSD1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.5	1.0	0.50	mg/L	10	2.05	104	85-115	3	10
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10103-BS1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BJ10103-BS2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10103-MS1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	3.0	98	80-120		
Matrix Spike (BJ10103-MS2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120		
Matrix Spike Dup (BJ10103-MSD1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	8	26
Matrix Spike Dup (BJ10103-MSD2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	0	26
Batch BJ10426 - COD prep										
Blank (BJ10426-BLK1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10426-BS1)					Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		

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Batch BJ10426 - COD prep										
Matrix Spike (BJ10426-MS1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		
Matrix Spike Dup (BJ10426-MSD1)		**Source: 1108655-03**			Prepared & Analyzed: 10/04/11					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32
Batch BJ10524 - COD prep										
Blank (BJ10524-BLK1)					Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10524-BS1)					Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	53	25	10	mg/L	50		106	90-110		
Matrix Spike (BJ10524-MS1)		**Source: 1108655-04**			Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	120	25	10	mg/L	50	67	112	85-115		
Matrix Spike Dup (BJ10524-MSD1)		**Source: 1108655-04**			Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	120	25	10	mg/L	50	67	108	85-115	2	32
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11012-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ11012-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50		95	90-110		

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Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike (BJ11012-MS1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.505	0.040	0.010	mg/L	0.50	0.0735	86	75-125		
Matrix Spike Dup (BJ11012-MSD1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.534	0.040	0.010	mg/L	0.50	0.0735	92	75-125	6	25
Batch BJ11019 - Digestion for TKN by EPA 351.2										
Blank (BJ11019-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11019-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ11019-MS1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	0.334	92	80-120		
Matrix Spike Dup (BJ11019-MSD1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.10	0.20	0.05	mg/L	2.5	0.334	71	80-120	22	20
Batch BJ11111 - Digestion for TKN by EPA 351.2										
Blank (BJ11111-BLK1)					Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11111-BS1)					Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	2.32	0.20	0.05	mg/L	2.5		93	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11111 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ11111-MS1)		**Source: 1108966-01**			Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	7.13	0.20	0.05	mg/L	5.0	2.30	97	80-120		
Matrix Spike Dup (BJ11111-MSD1)		**Source: 1108966-01**			Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	7.72	0.20	0.05	mg/L	5.0	2.30	108	80-120	8	20
Batch BJ11735 - Ammonia by SEAL										
Blank (BJ11735-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11735-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.49	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11735-MS1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	ND	94	90-110		
Matrix Spike Dup (BJ11735-MSD1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.46	0.040	0.010	mg/L	0.50	ND	91	90-110	3	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13008 - DOC prep										
Blank (BI13008-BLK1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13008-BS1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	10.2	1.0	0.50	mg/L	10		102	90-110		
Matrix Spike (BI13008-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.8	1.0	0.50	mg/L	10	2.08	107	85-125		
Matrix Spike Dup (BI13008-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.9	1.0	0.50	mg/L	10	2.08	108	85-125	0.7	25

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13006 - Metals Preparation for EPA Method 200.7										
Blank (BI13006-BLK1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	0.010 U	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Magnesium	0.025 I	0.050	0.010	mg/L						
Potassium	0.016 I	0.050	0.010	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Sodium	0.010 U	0.050	0.010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
LCS (BI13006-BS1)					Prepared: 09/30/11 Analyzed: 10/03/11					
Magnesium	19	0.050	0.010	mg/L	20		95	85-115		
Iron	7.6	0.10	0.020	mg/L	8.0		94	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Sodium	19	0.050	0.010	mg/L	20		95	85-115		
Calcium	18	0.050	0.010	mg/L	20		92	85-115		
Potassium	18	0.050	0.010	mg/L	20		89	85-115		
Matrix Spike (BI13006-MS1)		**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.015	98	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	91	70-130		
Magnesium	29	0.050	0.010	mg/L	20	9.5	97	70-130		
Sodium	63	0.050	0.010	mg/L	20	43	98	70-130		
Calcium	56	0.050	0.010	mg/L	20	37	93	70-130		
Boron	0.53	0.10	0.050	mg/L	0.40	0.13	101	70-130		
Matrix Spike (BI13006-MS2)		**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Magnesium	25	0.050	0.010	mg/L	20	5.7	98	70-130		
Sodium	31	0.050	0.010	mg/L	20	12	96	70-130		
Calcium	40	0.050	0.010	mg/L	20	21	96	70-130		
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.11	96	70-130		
Boron	0.50	0.10	0.050	mg/L	0.40	0.10	98	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.9	99	70-130		
Iron	8.5	0.10	0.020	mg/L	8.0	0.59	98	70-130		

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Batch BI13006 - Metals Preparation for EPA Method 200.7											
Matrix Spike Dup (BI13006-MSD1)			**Source: 1108620-01**			Prepared: 09/30/11 Analyzed: 10/03/11					
Calcium	56		0.050	0.010	mg/L	20	37	94	70-130	0.5	30
Iron	7.8		0.10	0.020	mg/L	8.0	0.076	97	70-130	1	30
Manganese	0.40		0.010	0.0010	mg/L	0.40	0.015	96	70-130	2	30
Potassium	30		0.050	0.010	mg/L	20	11	94	70-130	1	30
Sodium	63		0.050	0.010	mg/L	20	43	96	70-130	0.6	30
Boron	0.49		0.10	0.050	mg/L	0.40	0.13	91	70-130	8	30
Magnesium	29		0.050	0.010	mg/L	20	9.5	95	70-130	0.9	30
Matrix Spike Dup (BI13006-MSD2)			**Source: 1108644-11**			Prepared: 09/30/11 Analyzed: 10/03/11					
Iron	8.4		0.10	0.020	mg/L	8.0	0.59	98	70-130	0.3	30
Manganese	0.48		0.010	0.0010	mg/L	0.40	0.11	93	70-130	3	30
Magnesium	25		0.050	0.010	mg/L	20	5.7	97	70-130	0.1	30
Potassium	29		0.050	0.010	mg/L	20	8.9	99	70-130	0.03	30
Calcium	41		0.050	0.010	mg/L	20	21	100	70-130	2	30
Boron	0.42		0.10	0.050	mg/L	0.40	0.10	80	70-130	16	30
Sodium	31		0.050	0.010	mg/L	20	12	99	70-130	2	30
Batch BJ10404 - Metals Preparation for EPA Method 200.7											
Blank (BJ10404-BLK1)						Prepared & Analyzed: 10/04/11					
Magnesium	0.051	I	0.50	0.020	mg/L						
Boron	0.050	U	0.10	0.050	mg/L						
Potassium	0.11		0.050	0.010	mg/L						
Calcium	0.042	U	0.50	0.042	mg/L						
Iron	0.037	I	0.10	0.020	mg/L						
Manganese	0.0010	U	0.010	0.0010	mg/L						
Sodium	0.13	U	0.50	0.13	mg/L						

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Batch BJ10404 - Metals Preparation for EPA Method 200.7										
LCS (BJ10404-BS1)					Prepared & Analyzed: 10/04/11					
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Potassium	21	0.050	0.010	mg/L	20		107	85-115		
Iron	8.6	0.10	0.020	mg/L	8.0		107	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		102	85-115		
Magnesium	21	0.50	0.020	mg/L	20		107	85-115		
Calcium	21	0.50	0.042	mg/L	20		104	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Matrix Spike (BJ10404-MS1)		**Source: 1107616-01**			Prepared & Analyzed: 10/04/11					
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0067	102	70-130		
Boron	0.63	0.10	0.050	mg/L	0.40	0.23	100	70-130		
Potassium	39	0.050	0.010	mg/L	20	16	114	70-130		
Sodium	280 +O	0.50	0.13	mg/L	20	250	140	70-130		
Calcium	85	0.50	0.042	mg/L	20	61	122	70-130		
Iron	8.6	0.10	0.020	mg/L	8.0	0.11	106	70-130		
Magnesium	51	0.50	0.020	mg/L	20	29	113	70-130		
Matrix Spike (BJ10404-MS2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Calcium	21	0.50	0.042	mg/L	20	ND	106	70-130		
Sodium	22	0.50	0.13	mg/L	20	0.15	107	70-130		
Iron	8.7	0.10	0.020	mg/L	8.0	0.034	109	70-130		
Potassium	22	0.050	0.010	mg/L	20	0.089	108	70-130		
Magnesium	22	0.50	0.020	mg/L	20	ND	109	70-130		
Boron	0.39	0.10	0.050	mg/L	0.40	ND	97	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	102	70-130		
Matrix Spike Dup (BJ10404-MSD1)		**Source: 1107616-01**			Prepared & Analyzed: 10/04/11					
Boron	0.64	0.10	0.050	mg/L	0.40	0.23	100	70-130	0.4	30
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0067	103	70-130	0.8	30
Magnesium	52	0.50	0.020	mg/L	20	29	114	70-130	0.2	30
Sodium	280 +O	0.50	0.13	mg/L	20	250	132	70-130	0.5	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.11	106	70-130	0.3	30
Potassium	37	0.050	0.010	mg/L	20	16	107	70-130	4	30
Calcium	85	0.50	0.042	mg/L	20	61	121	70-130	0.2	30

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Batch BJ10404 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ10404-MSD2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	101	70-130	1	30
Magnesium	21	0.50	0.020	mg/L	20	ND	107	70-130	2	30
Potassium	21	0.050	0.010	mg/L	20	0.089	103	70-130	4	30
Calcium	21	0.50	0.042	mg/L	20	ND	105	70-130	1	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.034	107	70-130	2	30
Sodium	21	0.50	0.13	mg/L	20	0.15	104	70-130	3	30
Boron	0.38	0.10	0.050	mg/L	0.40	ND	96	70-130	0.6	30

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* Qualifiers, Notes and Definitions

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

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

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

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

+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. 1108655

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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-N12-14	092811	0915	GW		X	1		1		1	2	1	181.3	0.32	5.0	26.5		
02	DP-N12-18		0925	GW		X		1	1					234.2	0.45	5.1	26.9		
03	DP-N12-21		0935	GW		X	1		1		1	2	1	315.8	0.33	5.3	26.0		
04	DP-N12-24		0945	GW		X	1		1		1	2	1	359.4	0.23	5.2	25.9		
05	DP-N12-27		0955	GW		X	1		1		1	2	1	323.3	0.31	5.1	25.8		

	Date/Time	Received	Date/Time
Containers Prepared / Relinquished:	1300 09-23-11	Received:	1300 092311
Relinquished:	1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108655

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

Chain of Custody

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

October 27, 2011
Work Order: 1108658
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		**1108658-01**						
Date/Time Collected		**09/28/11 09:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.2	DEP FT1100	0.1	0.1		09/28/11 09:15	SDH
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		09/28/11 09:15	SDH
Specific conductance	umhos/cm	160	DEP FT1200	0.1	0.1		09/28/11 09:15	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		09/28/11 09:15	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/05/11 09:00	10/05/11 13:37	ARP
Chloride	mg/L	3.6	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	0.47	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.11	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.078	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.33	EPA 351.2	0.20	0.05	10/10/11 10:29	10/14/11 15:47	SMD
Sample Description		**DP-O10-18-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108658-02**						
Date/Time Collected		**09/28/11 09:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.2	DEP FT1100	0.1	0.1		09/28/11 09:20	SDH
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		09/28/11 09:20	SDH
Specific conductance	umhos/cm	160	DEP FT1200	0.1	0.1		09/28/11 09:20	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		09/28/11 09:20	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/05/11 09:00	10/05/11 13:37	ARP
Chloride	mg/L	3.7	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	0.38	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.074	SM 4500P-E	0.040	0.010	10/10/11 09:55	10/12/11 15:06	SMD
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.48	EPA 351.2	0.20	0.05	10/11/11 11:42	10/14/11 15:47	SMD

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October 27, 2011
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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-O10-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1108658-03**						
Date/Time Collected		**09/28/11 09:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/28/11 09:30	SDH
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		09/28/11 09:30	SDH
Specific conductance	umhos/cm	279	DEP FT1200	0.1	0.1		09/28/11 09:30	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		09/28/11 09:30	SDH
Inorganics								
Ammonia as N	mg/L	0.060	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/05/11 09:00	10/05/11 13:37	ARP
Chloride	mg/L	6.8	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Fluoride	mg/L	0.067	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	3.8	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Orthophosphate as P	mg/L	0.054	EPA 300.0	0.040	0.010		09/29/11 11:10	MMF
Phosphorous - Total as P	mg/L	0.14	SM 4500P-E	0.040	0.010	10/10/11 09:57	10/12/11 15:38	SMD
Sulfate	mg/L	77	EPA 300.0	0.60	0.20		10/04/11 18:43	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.47	EPA 351.2	0.20	0.05	10/11/11 11:42	10/14/11 15:48	SMD
Total Organic Carbon	mg/L	2.4	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.6	SM 5310B	1.0	0.50		09/29/11 08:16	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	10/04/11 09:37	10/04/11 16:18	VWC
Calcium	mg/L	32	EPA 200.7	0.50	0.042	10/04/11 09:37	10/04/11 16:18	VWC
Iron	mg/L	0.048 I	EPA 200.7	0.10	0.020	10/04/11 09:37	10/04/11 16:18	VWC
Magnesium	mg/L	7.2	EPA 200.7	0.50	0.020	10/04/11 09:37	10/04/11 16:18	VWC
Manganese	mg/L	0.16	EPA 200.7	0.010	0.0010	10/04/11 09:37	10/04/11 16:18	VWC
Potassium	mg/L	14	EPA 200.7	0.050	0.010	10/04/11 09:37	10/04/11 16:18	VWC
Sodium	mg/L	3.5	EPA 200.7	0.50	0.13	10/04/11 09:37	10/04/11 16:18	VWC

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12837 - Ion Chromatography 300.0 Prep										
Blank (BI12837-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI12837-BS1)					Prepared & Analyzed: 09/29/11					
Orthophosphate as P	0.914	0.040	0.010	mg/L	0.90		102	85-115		
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Fluoride	0.904	0.040	0.010	mg/L	0.90		100	85-115		
Chloride	3.03	0.20	0.050	mg/L	3.0		101	85-115		
LCS Dup (BI12837-BSD1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	2	200
Fluoride	0.894	0.040	0.010	mg/L	0.90		99	85-115	1	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Orthophosphate as P	0.897	0.040	0.010	mg/L	0.90		100	85-115	2	200
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115	2	200
Matrix Spike (BI12837-MS1)		**Source: 1108650-04**			Prepared & Analyzed: 09/29/11					
Chloride	7.07	0.20	0.050	mg/L	3.0	4.44	88	80-120		
Orthophosphate as P	0.923	0.040	0.010	mg/L	0.90	0.0435	98	85-115		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	0.151	94	85-115		
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.372	86	85-115		
Fluoride	0.972	0.040	0.010	mg/L	0.90	0.126	94	85-115		
Matrix Spike (BI12837-MS2)		**Source: 1108661-02**			Prepared & Analyzed: 09/29/11					
Fluoride	0.958	0.040	0.010	mg/L	0.90	0.0843	97	85-115		
Chloride	18.0	0.20	0.050	mg/L	3.0	14.8	107	80-120		
Nitrate (as N)	11.1 +O	0.04	0.01	mg/L	1.7	9.10	118	85-115		
Nitrite (as N)	1.49	0.04	0.01	mg/L	1.4	ND	106	85-115		
Orthophosphate as P	0.875	0.040	0.010	mg/L	0.90	0.0602	91	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13009 - TOC prep										
Blank (BI13009-BLK1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13009-BS1)					Prepared & Analyzed: 09/29/11					
Total Organic Carbon	10.1	1.0	0.50	mg/L	10		101	90-110		
Matrix Spike (BI13009-MS1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.1	1.0	0.50	mg/L	10	2.05	101	85-115		
Matrix Spike Dup (BI13009-MSD1)		**Source: 1108655-01**			Prepared & Analyzed: 09/29/11					
Total Organic Carbon	12.5	1.0	0.50	mg/L	10	2.05	104	85-115	3	10
Batch BJ10414 - alkalinity										
Blank (BJ10414-BLK1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10414-BS1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10414-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120		
Matrix Spike Dup (BJ10414-MSD1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120	0	26
Batch BJ10421 - Ion Chromatography 300.0 Prep										
Blank (BJ10421-BLK1)					Prepared & Analyzed: 10/04/11					
Sulfate	0.20 U	0.60	0.20	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10421 - Ion Chromatography 300.0 Prep										
LCS (BJ10421-BS1)					Prepared & Analyzed: 10/04/11					
Sulfate	8.43	0.60	0.20	mg/L	9.0		94	85-115		
LCS Dup (BJ10421-BSD1)					Prepared & Analyzed: 10/04/11					
Sulfate	8.30	0.60	0.20	mg/L	9.0		92	85-115	2	200
Matrix Spike (BJ10421-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Sulfate	131 +O	0.60	0.20	mg/L	90		146	85-115		
Matrix Spike (BJ10421-MS2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Sulfate	8.74	0.60	0.20	mg/L	9.0	ND	97	85-115		
Batch BJ10524 - COD prep										
Blank (BJ10524-BLK1)					Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ10524-BS1)					Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	53	25	10	mg/L	50		106	90-110		
Matrix Spike (BJ10524-MS1)		**Source: 1108655-04**			Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	120	25	10	mg/L	50	67	112	85-115		
Matrix Spike Dup (BJ10524-MSD1)		**Source: 1108655-04**			Prepared & Analyzed: 10/05/11					
Chemical Oxygen Demand	120	25	10	mg/L	50	67	108	85-115	2	32
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11012-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11012 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ11012-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11012-MS1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.505	0.040	0.010	mg/L	0.50	0.0735	86	75-125		
Matrix Spike Dup (BJ11012-MSD1)		**Source: 1108658-02**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.534	0.040	0.010	mg/L	0.50	0.0735	92	75-125	6	25
Batch BJ11013 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ11013-BLK1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ11013-BS1)					Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.450	0.040	0.010	mg/L	0.50		90	90-110		
Matrix Spike (BJ11013-MS1)		**Source: 1109000-07**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.484	0.040	0.010	mg/L	0.50	0.0417	89	75-125		
Matrix Spike Dup (BJ11013-MSD1)		**Source: 1109000-07**			Prepared: 10/10/11 Analyzed: 10/12/11					
Phosphorous - Total as P	0.490	0.040	0.010	mg/L	0.50	0.0417	90	75-125	1	25
Batch BJ11019 - Digestion for TKN by EPA 351.2										
Blank (BJ11019-BLK1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11019 - Digestion for TKN by EPA 351.2										
LCS (BJ11019-BS1)					Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ11019-MS1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	0.334	92	80-120		
Matrix Spike Dup (BJ11019-MSD1)		**Source: 1108658-01**			Prepared: 10/10/11 Analyzed: 10/14/11					
Total Kjeldahl Nitrogen	2.10	0.20	0.05	mg/L	2.5	0.334	71	80-120	22	20
Batch BJ11111 - Digestion for TKN by EPA 351.2										
Blank (BJ11111-BLK1)					Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11111-BS1)					Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	2.32	0.20	0.05	mg/L	2.5		93	90-110		
Matrix Spike (BJ11111-MS1)		**Source: 1108966-01**			Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	7.13	0.20	0.05	mg/L	5.0	2.30	97	80-120		
Matrix Spike Dup (BJ11111-MSD1)		**Source: 1108966-01**			Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	7.72	0.20	0.05	mg/L	5.0	2.30	108	80-120	8	20
Batch BJ11735 - Ammonia by SEAL										
Blank (BJ11735-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11735 - Ammonia by SEAL										
LCS (BJ11735-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.49	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11735-MS1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	ND	94	90-110		
Matrix Spike Dup (BJ11735-MSD1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.46	0.040	0.010	mg/L	0.50	ND	91	90-110	3	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI13008 - DOC prep										
Blank (BI13008-BLK1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI13008-BS1)					Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	10.2	1.0	0.50	mg/L	10		102	90-110		
Matrix Spike (BI13008-MS1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.8	1.0	0.50	mg/L	10	2.08	107	85-125		
Matrix Spike Dup (BI13008-MSD1)		**Source: 1108620-01**			Prepared & Analyzed: 09/29/11					
Dissolved Organic Carbon	12.9	1.0	0.50	mg/L	10	2.08	108	85-125	0.7	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10404 - Metals Preparation for EPA Method 200.7										
Blank (BJ10404-BLK1)					Prepared & Analyzed: 10/04/11					
Manganese	0.0010 U	0.010	0.0010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Potassium	0.11	0.050	0.010	mg/L						
Iron	0.037 I	0.10	0.020	mg/L						
Magnesium	0.051 I	0.50	0.020	mg/L						
LCS (BJ10404-BS1)					Prepared & Analyzed: 10/04/11					
Calcium	21	0.50	0.042	mg/L	20		104	85-115		
Iron	8.6	0.10	0.020	mg/L	8.0		107	85-115		
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		102	85-115		
Magnesium	21	0.50	0.020	mg/L	20		107	85-115		
Potassium	21	0.050	0.010	mg/L	20		107	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		97	85-115		
Matrix Spike (BJ10404-MS1)		**Source: 1107616-01**			Prepared & Analyzed: 10/04/11					
Boron	0.63	0.10	0.050	mg/L	0.40	0.23	100	70-130		
Calcium	85	0.50	0.042	mg/L	20	61	122	70-130		
Iron	8.6	0.10	0.020	mg/L	8.0	0.11	106	70-130		
Magnesium	51	0.50	0.020	mg/L	20	29	113	70-130		
Potassium	39	0.050	0.010	mg/L	20	16	114	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0067	102	70-130		
Sodium	280 +O	0.50	0.13	mg/L	20	250	140	70-130		
Matrix Spike (BJ10404-MS2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	102	70-130		
Magnesium	22	0.50	0.020	mg/L	20	ND	109	70-130		
Calcium	21	0.50	0.042	mg/L	20	ND	106	70-130		
Sodium	22	0.50	0.13	mg/L	20	0.15	107	70-130		
Boron	0.39	0.10	0.050	mg/L	0.40	ND	97	70-130		
Potassium	22	0.050	0.010	mg/L	20	0.089	108	70-130		
Iron	8.7	0.10	0.020	mg/L	8.0	0.034	109	70-130		

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10404 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ10404-MSD1)		**Source: 1107616-01**			Prepared & Analyzed: 10/04/11					
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0067	103	70-130	0.8	30
Magnesium	52	0.50	0.020	mg/L	20	29	114	70-130	0.2	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.11	106	70-130	0.3	30
Boron	0.64	0.10	0.050	mg/L	0.40	0.23	100	70-130	0.4	30
Potassium	37	0.050	0.010	mg/L	20	16	107	70-130	4	30
Calcium	85	0.50	0.042	mg/L	20	61	121	70-130	0.2	30
Sodium	280 +O	0.50	0.13	mg/L	20	250	132	70-130	0.5	30
Matrix Spike Dup (BJ10404-MSD2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Sodium	21	0.50	0.13	mg/L	20	0.15	104	70-130	3	30
Calcium	21	0.50	0.042	mg/L	20	ND	105	70-130	1	30
Potassium	21	0.050	0.010	mg/L	20	0.089	103	70-130	4	30
Magnesium	21	0.50	0.020	mg/L	20	ND	107	70-130	2	30
Boron	0.38	0.10	0.050	mg/L	0.40	ND	96	70-130	0.6	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	101	70-130	1	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.034	107	70-130	2	30

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* Qualifiers, Notes and Definitions

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

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

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

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

+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. 1108658

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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-010-18	092811	0915	GW		X		1	1					159.5	0.72	4.2	27.3		
02	DP-010-18-D	↓	0920	GW		X		1	1					159.5	0.72	4.2	27.3		
03	DP-010-24	↓	0930	GW		X	1		1		1	2	1	279.0	0.60	4.9	26.8		

Containers Prepared / Relinquished:	Date/Time: 1230 09-23-11	Received:	Date/Time: 1230 092311
Relinquished:	Date/Time: 1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108658

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

Chain of Custody

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Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-Q15-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108661-01**						
Date/Time Collected		**09/28/11 10:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		09/28/11 10:55	SDH
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		09/28/11 10:55	SDH
Specific conductance	umhos/cm	316	DEP FT1200	0.1	0.1		09/28/11 10:55	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		09/28/11 10:55	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chloride	mg/L	9.5	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	5.6	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.48	EPA 351.2	0.20	0.05	10/11/11 11:42	10/14/11 15:50	SMD

Sample Description		**DP-Q15-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1108661-02**						
Date/Time Collected		**09/28/11 11:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 11:00	SDH
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		09/28/11 11:00	SDH
Specific conductance	umhos/cm	317	DEP FT1200	0.1	0.1		09/28/11 11:00	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		09/28/11 11:00	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/29/11 11:10	MMF
Nitrate (as N)	mg/L	9.1	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/29/11 11:10	MMF
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.48	EPA 351.2	0.20	0.05	10/11/11 11:42	10/14/11 15:52	SMD

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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		**1108661-03**						
Date/Time Collected		**09/28/11 11:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 11:10	SDH
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		09/28/11 11:10	SDH
Specific conductance	umhos/cm	293	DEP FT1200	0.1	0.1		09/28/11 11:10	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 11:10	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chloride	mg/L	13	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	10/04/11 10:00	10/04/11 12:09	JAG
Total Kjeldahl Nitrogen	mg/L	0.46	EPA 351.2	0.20	0.05	10/11/11 11:42	10/14/11 15:53	SMD

Sample Description		**DP-Q15-26-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1108661-04**						
Date/Time Collected		**09/28/11 11:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/28/11 11:15	SDH
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		09/28/11 11:15	SDH
Specific conductance	umhos/cm	293	DEP FT1200	0.1	0.1		09/28/11 11:15	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/28/11 11:15	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/14/11 16:00	SMD
Chloride	mg/L	13	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/11/11 11:42	10/14/11 15:55	SMD

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12837 - Ion Chromatography 300.0 Prep										
Blank (BI12837-BLK1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12837-BS1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
Chloride	3.03	0.20	0.050	mg/L	3.0		101	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
LCS Dup (BI12837-BSD1)					Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	2	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115	2	200
Matrix Spike (BI12837-MS1)		**Source: 1108650-04**			Prepared & Analyzed: 09/29/11					
Chloride	7.07	0.20	0.050	mg/L	3.0	4.44	88	80-120		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	0.151	94	85-115		
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.372	86	85-115		
Matrix Spike (BI12837-MS2)		**Source: 1108661-02**			Prepared & Analyzed: 09/29/11					
Nitrite (as N)	1.49	0.04	0.01	mg/L	1.4	ND	106	85-115		
Nitrate (as N)	11.1 +O	0.04	0.01	mg/L	1.7	9.10	118	85-115		
Chloride	18.0	0.20	0.050	mg/L	3.0	14.8	107	80-120		
Batch BI12934 - Ion Chromatography 300.0 Prep										
Blank (BI12934-BLK1)					Prepared & Analyzed: 09/28/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12934 - Ion Chromatography 300.0 Prep										
LCS (BI12934-BS1)					Prepared & Analyzed: 09/28/11					
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4		96	85-115		
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115		
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115		
LCS Dup (BI12934-BSD1)					Prepared & Analyzed: 09/28/11					
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115	0.6	200
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4		94	85-115	2	200
Chloride	2.73	0.20	0.050	mg/L	3.0		91	85-115	4	200
Matrix Spike (BI12934-MS1)		**Source: 1108622-06**			Prepared & Analyzed: 09/28/11					
Nitrite (as N)	13.9	0.04	0.01	mg/L	14	ND	99	85-115		
Nitrate (as N)	31.0	0.04	0.01	mg/L	17	15.9	89	85-115		
Chloride	60.3	0.20	0.050	mg/L	30	32.9	91	80-120		
Matrix Spike (BI12934-MS2)		**Source: 1108906-01**			Prepared & Analyzed: 09/28/11					
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4	ND	94	85-115		
Nitrate (as N)	3.34	0.04	0.01	mg/L	1.7	1.68	98	85-115		
Chloride	12.2	0.20	0.050	mg/L	3.0	9.09	104	80-120		
Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ10103-BLK2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10103 - alkalinity										
LCS (BJ10103-BS1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BJ10103-BS2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10103-MS1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	3.0	98	80-120		
Matrix Spike (BJ10103-MS2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120		
Matrix Spike Dup (BJ10103-MSD1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	8	26
Matrix Spike Dup (BJ10103-MSD2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	0	26
Batch BJ10414 - alkalinity										
Blank (BJ10414-BLK1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10414-BS1)					Prepared & Analyzed: 10/04/11					
Total Alkalinity	130	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10414-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ10414 - alkalinity										
Matrix Spike Dup (BJ10414-MSD1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Total Alkalinity	360	8.0	2.0	mg/L	120	250	92	80-120	0	26
Batch BJ11111 - Digestion for TKN by EPA 351.2										
Blank (BJ11111-BLK1)					Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ11111-BS1)					Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	2.32	0.20	0.05	mg/L	2.5		93	90-110		
Matrix Spike (BJ11111-MS1)		**Source: 1108966-01**			Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	7.13	0.20	0.05	mg/L	5.0	2.30	97	80-120		
Matrix Spike Dup (BJ11111-MSD1)		**Source: 1108966-01**			Prepared: 10/11/11 Analyzed: 10/17/11					
Total Kjeldahl Nitrogen	7.72	0.20	0.05	mg/L	5.0	2.30	108	80-120	8	20
Batch BJ11735 - Ammonia by SEAL										
Blank (BJ11735-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11735-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.49	0.040	0.010	mg/L	0.50		97	90-110		
Matrix Spike (BJ11735-MS1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	ND	94	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11735 - Ammonia by SEAL										
Matrix Spike Dup (BJ11735-MSD1)		**Source: 1108661-03**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.46	0.040	0.010	mg/L	0.50	ND	91	90-110	3	10
Batch BJ11736 - Ammonia by SEAL										
Blank (BJ11736-BLK1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11736-BS1)					Prepared & Analyzed: 10/14/11					
Ammonia as N	0.50	0.040	0.010	mg/L	0.50		100	90-110		
Matrix Spike (BJ11736-MS1)		**Source: 1109016-01**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.46	0.040	0.010	mg/L	0.50	ND	92	90-110		
Matrix Spike Dup (BJ11736-MSD1)		**Source: 1109016-01**			Prepared & Analyzed: 10/14/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50	ND	94	90-110	2	10

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* Qualifiers, Notes and Definitions

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

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

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

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

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

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1108661

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 Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na	Field Conductivity	Field DO	Field pH	Field Temperature		No. of Containers (Total per each location)
01	DP-Q15-15	092811	1055	GW		X		1		1				516.1	0.73	4.6	27.8		
02	DP-Q15-21	092811	1100	GW		X		1		1				316.6	0.49	5.0	26.6		
03	DP-Q15-26	092811	1110	GW		X		1		1				293.4	0.34	5.1	26.8		
04	DP-Q15-26-D	092811	1115	GW		X		1		1				293.4	0.34	5.1	26.8		

	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished:	1215 09-25-11	Received:	092811 1215
Relinquished:	1415 092811	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1108661

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

Chain of Custody

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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		**1108663-01**						
Date/Time Collected		**09/26/11 08:43**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		09/26/11 08:43	SDH
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		09/26/11 08:43	SDH
Specific conductance	umhos/cm	136	DEP FT1200	0.1	0.1		09/26/11 08:43	SDH
Dissolved Oxygen	mg/L	1.4	DEP FT1500	0.1	0.1		09/26/11 08:43	SDH
Inorganics								
Ammonia as N	mg/L	0.024 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	8.5	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	0.67	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.74	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD
Sample Description		**PZ04-BKG-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-02**						
Date/Time Collected		**09/26/11 10:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/26/11 10:35	SDH
Water Temperature	°C	28.2	DEP FT1400	0.1	0.1		09/26/11 10:35	SDH
Specific conductance	umhos/cm	120	DEP FT1200	0.1	0.1		09/26/11 10:35	SDH
Dissolved Oxygen	mg/L	1.7	DEP FT1500	0.1	0.1		09/26/11 10:35	SDH
Inorganics								
Ammonia as N	mg/L	0.017 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	3.4	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Fluoride	mg/L	0.24	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	5.5	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Orthophosphate as P	mg/L	0.042	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Sulfate	mg/L	10	EPA 300.0	0.60	0.20		09/27/11 10:49	MEJ

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Sample Description		**PZ04-BKG-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-02**						
Date/Time Collected		**09/26/11 10:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.95	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD
Total Organic Carbon	mg/L	3.4	SM 5310B	1.0	0.50		09/27/11 09:32	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.8	SM 5310B	1.0	0.50		09/27/11 17:46	ARM
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 15:03	VWC
Calcium	mg/L	12	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:03	VWC
Iron	mg/L	0.11	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 15:03	VWC
Magnesium	mg/L	2.8	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:03	VWC
Manganese	mg/L	0.048	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 15:03	VWC
Potassium	mg/L	0.64	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:03	VWC
Sodium	mg/L	1.7	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:03	VWC
Sample Description		**PZ07-D05-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-03**						
Date/Time Collected		**09/26/11 09:22**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		09/26/11 09:22	SDH
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		09/26/11 09:22	SDH
Specific conductance	umhos/cm	361	DEP FT1200	0.1	0.1		09/26/11 09:22	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		09/26/11 09:22	SDH
Inorganics								
Ammonia as N	mg/L	0.042	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	29	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	5.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ11-E09-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-04**						
Date/Time Collected		**09/26/11 09:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		09/26/11 09:15	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		09/26/11 09:15	SDH
Specific conductance	umhos/cm	413	DEP FT1200	0.1	0.1		09/26/11 09:15	SDH
Dissolved Oxygen	mg/L	5.6	DEP FT1500	0.1	0.1		09/26/11 09:15	SDH
Inorganics								
Ammonia as N	mg/L	0.046	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	140	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	37	EPA 300.0	0.20	0.050		10/01/11 07:59	MEJ
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.021 I	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	36	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD

Sample Description		**PZ15-A11-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-05**						
Date/Time Collected		**09/26/11 09:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/26/11 09:35	SDH
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		09/26/11 09:35	SDH
Specific conductance	umhos/cm	84	DEP FT1200	0.1	0.1		09/26/11 09:35	SDH
Dissolved Oxygen	mg/L	1.7	DEP FT1500	0.1	0.1		09/26/11 09:35	SDH
Inorganics								
Ammonia as N	mg/L	0.040	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	38	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	6.8	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	0.52	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.010 I	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	9.0	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.74	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ16-C12-28**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-06**						
Date/Time Collected		**09/26/11 10:03**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		09/26/11 10:03	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		09/26/11 10:03	SDH
Specific conductance	umhos/cm	311	DEP FT1200	0.1	0.1		09/26/11 10:03	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		09/26/11 10:03	SDH
Inorganics								
Ammonia as N	mg/L	0.022 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	19	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	0.27	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.48	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	0.21	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD
Sample Description		**PZ17-I15-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-07**						
Date/Time Collected		**09/28/11 10:48**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/28/11 10:48	SDH
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		09/28/11 10:48	SDH
Specific conductance	umhos/cm	283	DEP FT1200	0.1	0.1		09/28/11 10:48	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/28/11 10:48	SDH
Inorganics								
Ammonia as N	mg/L	0.38	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chloride	mg/L	14	EPA 300.0	0.20	0.050		09/28/11 11:37	MEJ
Nitrate (as N)	mg/L	9.2	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 11:37	MEJ
Total Alkalinity	mg/L	3.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD

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Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ18-R12-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-08**						
Date/Time Collected		**09/28/11 11:44**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/28/11 11:44	SDH
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		09/28/11 11:44	SDH
Specific conductance	umhos/cm	223	DEP FT1200	0.1	0.1		09/28/11 11:44	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/28/11 11:44	SDH
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	12	EPA 300.0	0.20	0.050		09/28/11 17:20	MEJ
Nitrate (as N)	mg/L	0.51	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Phosphorous - Total as P	mg/L	0.59	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	8.0	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.22	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD

Sample Description		**PZ19-G10-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-09**						
Date/Time Collected		**09/26/11 08:08**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		09/26/11 08:08	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		09/26/11 08:08	SDH
Specific conductance	umhos/cm	302	DEP FT1200	0.1	0.1		09/26/11 08:08	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/26/11 08:08	SDH
Inorganics								
Ammonia as N	mg/L	0.016 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Fluoride	mg/L	0.19	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	8.4	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Orthophosphate as P	mg/L	0.093	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.053	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Sulfate	mg/L	52	EPA 300.0	0.60	0.20		09/27/11 10:49	MEJ

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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		**1108663-09**						
Date/Time Collected		**09/26/11 08:08**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD
Total Organic Carbon	mg/L	0.77 I	SM 5310B	1.0	0.50		09/27/11 09:32	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.1	SM 5310B	1.0	0.50		09/27/11 17:46	ARM
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 15:13	VWC
Calcium	mg/L	22	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:13	VWC
Iron	mg/L	0.034 I	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 15:13	VWC
Magnesium	mg/L	8.2	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:13	VWC
Manganese	mg/L	0.21	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 15:13	VWC
Potassium	mg/L	11	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:13	VWC
Sodium	mg/L	6.2	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:13	VWC
Sample Description		**PZ20-G10-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-10**						
Date/Time Collected		**09/26/11 08:36**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		09/26/11 08:36	SDH
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		09/26/11 08:36	SDH
Specific conductance	umhos/cm	308	DEP FT1200	0.1	0.1		09/26/11 08:36	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		09/26/11 08:36	SDH
Inorganics								
Ammonia as N	mg/L	0.041	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	26	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	16	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Fluoride	mg/L	0.21	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	8.5	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.16	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Orthophosphate as P	mg/L	0.052	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	1.1	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Sulfate	mg/L	54	EPA 300.0	0.60	0.20		09/27/11 10:49	MEJ
Total Alkalinity	mg/L	8.0	SM 2320B	8.0	2.0		09/27/11 16:00	KTC

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ20-G10-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-10**						
Date/Time Collected		**09/26/11 08:36**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD
Total Organic Carbon	mg/L	6.8	SM 5310B	1.0	0.50		09/27/11 09:32	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.3	SM 5310B	1.0	0.50		09/27/11 17:46	ARM
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 15:16	VWC
Calcium	mg/L	26	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:16	VWC
Iron	mg/L	0.054 I	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 15:16	VWC
Magnesium	mg/L	6.2	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:16	VWC
Manganese	mg/L	0.22	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 15:16	VWC
Potassium	mg/L	7.8	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:16	VWC
Sodium	mg/L	11	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:16	VWC
Sample Description		**PZ21-E11-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-11**						
Date/Time Collected		**09/26/11 08:14**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		09/26/11 08:14	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		09/26/11 08:14	SDH
Specific conductance	umhos/cm	298	DEP FT1200	0.1	0.1		09/26/11 08:14	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		09/26/11 08:14	SDH
Inorganics								
Ammonia as N	mg/L	0.12	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chloride	mg/L	13	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	8.9	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.17	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Total Alkalinity	mg/L	8.0	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/03/11 13:38	10/05/11 14:44	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ24-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-12**						
Date/Time Collected		**09/26/11 10:48**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		09/26/11 10:48	SDH
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		09/26/11 10:48	SDH
Specific conductance	umhos/cm	299	DEP FT1200	0.1	0.1		09/26/11 10:48	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		09/26/11 10:48	SDH
Inorganics								
Ammonia as N	mg/L	0.018 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Fluoride	mg/L	0.12	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.12	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Orthophosphate as P	mg/L	0.12	EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.028 I	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Sulfate	mg/L	42	EPA 300.0	0.60	0.20		09/27/11 10:49	MEJ
Total Alkalinity	mg/L	4.0 I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/04/11 13:23	10/11/11 16:57	SMD
Total Organic Carbon	mg/L	0.64 I	SM 5310B	1.0	0.50		09/27/11 09:32	ARM
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.4	SM 5310B	1.0	0.50		09/27/11 17:46	ARM
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 15:20	VWC
Calcium	mg/L	20	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:20	VWC
Iron	mg/L	0.035 I	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 15:20	VWC
Magnesium	mg/L	11	EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:20	VWC
Manganese	mg/L	0.16	EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 15:20	VWC
Potassium	mg/L	8.0	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:20	VWC
Sodium	mg/L	7.8	EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:20	VWC

Sample Description	**PZ24-BKG-26-D**
Matrix	**Groundwater**
SAL Sample Number	**1108663-13**
Date/Time Collected	**09/26/11 10:54**
Collected by	**Sean Harmon**
Date/Time Received	**09/26/11 14:55**

Field Parameters

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Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ24-BKG-26-D**							
Matrix		**Groundwater**							
SAL Sample Number		**1108663-13**							
Date/Time Collected		**09/26/11 10:54**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/26/11 14:55**							
pH	SU	4.8		DEP FT1100	0.1	0.1		09/26/11 10:54	SDH
Water Temperature	°C	25.5		DEP FT1400	0.1	0.1		09/26/11 10:54	SDH
Specific conductance	umhos/cm	299		DEP FT1200	0.1	0.1		09/26/11 10:54	SDH
Dissolved Oxygen	mg/L	0.4		DEP FT1500	0.1	0.1		09/26/11 10:54	SDH
Inorganics									
Ammonia as N	mg/L	0.015	I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	16		EPA 300.0	0.20	0.050		09/27/11 10:49	MEJ
Fluoride	mg/L	0.11		EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Nitrate (as N)	mg/L	12		EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Orthophosphate as P	mg/L	0.090		EPA 300.0	0.040	0.010		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.022	I	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Sulfate	mg/L	45		EPA 300.0	0.60	0.20		09/27/11 10:49	MEJ
Total Alkalinity	mg/L	4.0	I	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	1.3		EPA 351.2	0.20	0.05	10/04/11 13:23	10/11/11 16:57	SMD
Total Organic Carbon	mg/L	0.63	I	SM 5310B	1.0	0.50		09/27/11 09:32	ARM
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	1.3		SM 5310B	1.0	0.50		09/27/11 17:46	ARM
Metals									
Boron	mg/L	0.050	U	EPA 200.7	0.10	0.050	09/27/11 09:32	10/03/11 15:23	VWC
Calcium	mg/L	20		EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:23	VWC
Iron	mg/L	0.022	I	EPA 200.7	0.10	0.020	09/27/11 09:32	10/03/11 15:23	VWC
Magnesium	mg/L	11		EPA 200.7	0.050	0.010	09/27/11 09:32	10/03/11 15:23	VWC
Manganese	mg/L	0.16		EPA 200.7	0.010	0.0010	09/27/11 09:32	10/03/11 15:23	VWC
Potassium	mg/L	8.3		EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:23	VWC
Sodium	mg/L	8.0		EPA 200.7	0.50	0.10	09/27/11 09:32	10/03/11 15:23	VWC
Sample Description		**PZ25-A06-10**							
Matrix		**Groundwater**							
SAL Sample Number		**1108663-14**							
Date/Time Collected		**09/26/11 09:51**							
Collected by		**Sean Harmon**							
Date/Time Received		**09/26/11 14:55**							
Field Parameters									
pH	SU	6.0		DEP FT1100	0.1	0.1		09/26/11 09:51	SDH

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NELAP Accredited

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

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ25-A06-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1108663-14**						
Date/Time Collected		**09/26/11 09:51**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/26/11 14:55**						
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		09/26/11 09:51	SDH
Specific conductance	umhos/cm	608	DEP FT1200	0.1	0.1		09/26/11 09:51	SDH
Dissolved Oxygen	mg/L	2.2	DEP FT1500	0.1	0.1		09/26/11 09:51	SDH
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	26	EPA 410.4	25	10		09/27/11 10:00	MMF
Chloride	mg/L	37	EPA 300.0	0.20	0.050		10/04/11 18:43	MEJ
Nitrate (as N)	mg/L	19	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/27/11 10:49	MEJ
Phosphorous - Total as P	mg/L	0.49	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	66	SM 2320B	8.0	2.0		09/27/11 16:00	KTC
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	10/04/11 13:23	10/11/11 16:57	SMD
Sample Description		**Equipment Blank**						
Matrix		**Reagent Water**						
SAL Sample Number		**1108663-15**						
Date/Time Collected		**09/28/11 09:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		09/28/11 09:40	SDH
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		09/28/11 09:40	SDH
Specific conductance	umhos/cm	1	DEP FT1200	0.1	0.1		09/28/11 09:40	SDH
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		09/28/11 09:40	SDH
Inorganics								
Ammonia as N	mg/L	0.021 I	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		09/28/11 17:20	MEJ
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	6.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.21	EPA 351.2	0.20	0.05	10/04/11 13:23	10/11/11 16:57	SMD

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**Field Blank - DI**						
Matrix		**Reagent Water**						
SAL Sample Number		**1108663-16**						
Date/Time Collected		**09/28/11 09:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		09/28/11 09:45	SDH
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		09/28/11 09:45	SDH
Specific conductance	umhos/cm	1	DEP FT1200	0.1	0.1		09/28/11 09:45	SDH
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		09/28/11 09:45	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		09/28/11 17:20	MEJ
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	2.0 I	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	10/04/11 13:23	10/11/11 16:57	SMD
Sample Description		**Field Blank - Tap**						
Matrix		**Reagent Water**						
SAL Sample Number		**1108663-17**						
Date/Time Collected		**09/28/11 12:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**09/28/11 14:15**						
Field Parameters								
pH	SU	7.6	DEP FT1100	0.1	0.1		09/28/11 12:15	SDH
Water Temperature	°C	29.0	DEP FT1400	0.1	0.1		09/28/11 12:15	SDH
Specific conductance	umhos/cm	430	DEP FT1200	0.1	0.1		09/28/11 12:15	SDH
Dissolved Oxygen	mg/L	5.2	DEP FT1500	0.1	0.1		09/28/11 12:15	SDH
Inorganics								
Ammonia as N	mg/L	0.010 U	EPA 350.1	0.040	0.010		10/11/11 16:44	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/29/11 09:20	09/29/11 15:40	ARP
Chloride	mg/L	19	EPA 300.0	0.20	0.050		09/28/11 17:20	MEJ
Nitrate (as N)	mg/L	0.26	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/28/11 17:20	MEJ
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	10/03/11 11:13	10/05/11 14:30	SMD
Total Alkalinity	mg/L	120	SM 2320B	8.0	2.0		10/01/11 11:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	10/04/11 13:23	10/11/11 16:57	SMD

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Batch BI12717 - Ion Chromatography 300.0 Prep										
Blank (BI12717-BLK1)					Prepared & Analyzed: 09/27/11					
Sulfate	0.20 U	0.60	0.20	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						
Chloride	0.050 U	0.20	0.050	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12717-BS1)					Prepared & Analyzed: 09/27/11					
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115		
Chloride	2.70	0.20	0.050	mg/L	3.0		90	85-115		
Orthophosphate as P	0.917	0.040	0.010	mg/L	0.90		102	85-115		
Sulfate	8.11	0.60	0.20	mg/L	9.0		90	85-115		
Nitrite (as N)	1.30	0.04	0.01	mg/L	1.4		93	85-115		
Fluoride	0.866	0.040	0.010	mg/L	0.90		96	85-115		
LCS Dup (BI12717-BSD1)					Prepared & Analyzed: 09/27/11					
Orthophosphate as P	0.925	0.040	0.010	mg/L	0.90		103	85-115	0.9	200
Fluoride	0.824	0.040	0.010	mg/L	0.90		92	85-115	5	200
Nitrite (as N)	1.29	0.04	0.01	mg/L	1.4		92	85-115	0.8	200
Sulfate	8.15	0.60	0.20	mg/L	9.0		91	85-115	0.5	200
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115	0	200
Chloride	2.70	0.20	0.050	mg/L	3.0		90	85-115	0	200
Matrix Spike (BI12717-MS1)		**Source: 1108663-06**			Prepared & Analyzed: 09/27/11					
Chloride	22.6	0.20	0.050	mg/L	3.0	19.3	110	80-120		
Fluoride	1.26	0.040	0.010	mg/L	0.90	0.415	94	85-115		
Nitrate (as N)	8.39 J5	0.04	0.01	mg/L	1.7	0.268	478	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4	ND	96	85-115		
Orthophosphate as P	1.29	0.040	0.010	mg/L	0.90	0.361	103	85-115		
Sulfate	97.6	0.60	0.20	mg/L	9.0	89.3	92	85-115		

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Batch BI12717 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12717-MS2)		**Source: 1108308-01**			Prepared & Analyzed: 09/27/11					
Orthophosphate as P	98.0	0.040	0.010	mg/L	90		109	85-115		
Nitrate (as N)	169	0.04	0.01	mg/L	170	0.866	99	85-115		
Fluoride	94.9	0.040	0.010	mg/L	90	0.262	105	85-115		
Nitrite (as N)	151	0.04	0.01	mg/L	140	ND	108	85-115		
Chloride	344	0.20	0.050	mg/L	300	32.7	104	80-120		
Sulfate	1,440	0.60	0.20	mg/L	900	614	92	85-115		
Batch BI12742 - COD prep										
Blank (BI12742-BLK1)					Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI12742-BS1)					Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	53	25	10	mg/L	50		106	90-110		
LCS (BI12742-BS2)					Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		
LCS (BI12742-BS3)					Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	53	25	10	mg/L	50		106	90-110		
LCS (BI12742-BS4)					Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	53	25	10	mg/L	50		106	90-110		
LCS (BI12742-BS5)					Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		

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Batch BI12742 - COD prep										
Matrix Spike (BI12742-MS1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	63	25	10	mg/L	50	15	96	85-115		
Matrix Spike Dup (BI12742-MSD1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Chemical Oxygen Demand	65	25	10	mg/L	50	15	100	85-115	3	32
Batch BI12744 - TOC prep										
Blank (BI12744-BLK1)					Prepared & Analyzed: 09/27/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
Blank (BI12744-BLK2)					Prepared & Analyzed: 09/27/11					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12744-BS1)					Prepared & Analyzed: 09/27/11					
Total Organic Carbon	10.8	1.0	0.50	mg/L	10		108	90-110		
LCS (BI12744-BS2)					Prepared & Analyzed: 09/27/11					
Total Organic Carbon	10.5	1.0	0.50	mg/L	10		105	90-110		
Matrix Spike (BI12744-MS1)		**Source: 1108663-02**			Prepared & Analyzed: 09/27/11					
Total Organic Carbon	14.2	1.0	0.50	mg/L	10	3.40	108	85-115		
Matrix Spike (BI12744-MS2)		**Source: 1108772-03**			Prepared & Analyzed: 09/27/11					
Total Organic Carbon	32.1	1.0	0.50	mg/L	20	13.9	91	85-115		
Matrix Spike Dup (BI12744-MSD1)		**Source: 1108663-02**			Prepared & Analyzed: 09/27/11					
Total Organic Carbon	13.7	1.0	0.50	mg/L	10	3.40	103	85-115	4	10

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Batch BI12744 - TOC prep										
Matrix Spike Dup (BI12744-MSD2)		**Source: 1108772-03**			Prepared & Analyzed: 09/27/11					
Total Organic Carbon	30.7	1.0	0.50	mg/L	20	13.9	84	85-115	4	10
Batch BI12747 - alkalinity										
Blank (BI12747-BLK1)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI12747-BLK2)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI12747-BS1)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120		108	90-110		
LCS (BI12747-BS2)					Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120		108	90-110		
Matrix Spike (BI12747-MS1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	ND	108	80-120		
Matrix Spike (BI12747-MS2)		**Source: 1108624-06**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	10	109	80-120		
Matrix Spike Dup (BI12747-MSD1)		**Source: 1108663-01**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	ND	108	80-120	0	26
Matrix Spike Dup (BI12747-MSD2)		**Source: 1108624-06**			Prepared & Analyzed: 09/27/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	10	109	80-120	0	26

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Batch BI12929 - COD prep										
Blank (BI12929-BLK1)					Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI12929-BS1)					Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50		110	90-110		
Matrix Spike (BI12929-MS1)		**Source: 1108628-03**			Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115		
Matrix Spike Dup (BI12929-MSD1)		**Source: 1108628-03**			Prepared & Analyzed: 09/29/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	ND	110	85-115	0	32
Batch BI12934 - Ion Chromatography 300.0 Prep										
Blank (BI12934-BLK1)					Prepared & Analyzed: 09/28/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI12934-BS1)					Prepared & Analyzed: 09/28/11					
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115		
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4		96	85-115		
LCS Dup (BI12934-BSD1)					Prepared & Analyzed: 09/28/11					
Chloride	2.73	0.20	0.050	mg/L	3.0		91	85-115	4	200
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4		94	85-115	2	200
Nitrate (as N)	1.56	0.04	0.01	mg/L	1.7		92	85-115	0.6	200

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Batch BI12934 - Ion Chromatography 300.0 Prep										
Matrix Spike (BI12934-MS1)		**Source: 1108622-06**			Prepared & Analyzed: 09/28/11					
Nitrite (as N)	13.9	0.04	0.01	mg/L	14	ND	99	85-115		
Nitrate (as N)	31.0	0.04	0.01	mg/L	17	15.9	89	85-115		
Chloride	60.3	0.20	0.050	mg/L	30	32.9	91	80-120		
Matrix Spike (BI12934-MS2)		**Source: 1108906-01**			Prepared & Analyzed: 09/28/11					
Chloride	12.2	0.20	0.050	mg/L	3.0	9.09	104	80-120		
Nitrite (as N)	1.32	0.04	0.01	mg/L	1.4	ND	94	85-115		
Nitrate (as N)	3.34	0.04	0.01	mg/L	1.7	1.68	98	85-115		
Batch BI13021 - Ion Chromatography 300.0 Prep										
Blank (BI13021-BLK1)					Prepared & Analyzed: 10/01/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BI13021-BS1)					Prepared & Analyzed: 10/01/11					
Chloride	3.02	0.20	0.050	mg/L	3.0		101	85-115		
LCS Dup (BI13021-BSD1)					Prepared & Analyzed: 10/01/11					
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115	3	200
Matrix Spike (BI13021-MS1)		**Source: 1108628-18**			Prepared & Analyzed: 10/01/11					
Chloride	16.6	0.20	0.050	mg/L	3.0	13.4	107	80-120		
Matrix Spike (BI13021-MS2)		**Source: 1108897-01**			Prepared & Analyzed: 10/01/11					
Chloride	82.6 +O	0.20	0.050	mg/L	3.0	280	NR	80-120		

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Batch BJ10103 - alkalinity										
Blank (BJ10103-BLK1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ10103-BLK2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ10103-BS1)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BJ10103-BS2)					Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BJ10103-MS1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	3.0	98	80-120		
Matrix Spike (BJ10103-MS2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120		
Matrix Spike Dup (BJ10103-MSD1)		**Source: 1108663-07**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	8	26
Matrix Spike Dup (BJ10103-MSD2)		**Source: 1108647-03**			Prepared & Analyzed: 10/01/11					
Total Alkalinity	140	8.0	2.0	mg/L	120	3.0	106	80-120	0	26
Batch BJ10304 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ10304-BLK1)					Prepared: 10/03/11 Analyzed: 10/05/11					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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Batch BJ10304 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ10304-BS1)					Prepared: 10/03/11	Analyzed: 10/05/11				
Phosphorous - Total as P	0.500	0.040	0.010	mg/L	0.50		100	90-110		
Matrix Spike (BJ10304-MS1)		**Source: 1108683-02**			Prepared: 10/03/11	Analyzed: 10/05/11				
Phosphorous - Total as P	0.468	0.040	0.010	mg/L	0.50	ND	94	75-125		
Matrix Spike Dup (BJ10304-MSD1)		**Source: 1108683-02**			Prepared: 10/03/11	Analyzed: 10/05/11				
Phosphorous - Total as P	0.483	0.040	0.010	mg/L	0.50	ND	97	75-125	3	25
Batch BJ10315 - Digestion for TKN by EPA 351.2										
Blank (BJ10315-BLK1)					Prepared: 10/03/11	Analyzed: 10/05/11				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Blank (BJ10315-BLK2)					Prepared: 10/03/11	Analyzed: 10/05/11				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Blank (BJ10315-BLK3)					Prepared: 10/03/11	Analyzed: 10/05/11				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Blank (BJ10315-BLK4)					Prepared: 10/03/11	Analyzed: 10/05/11				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ10315-BS1)					Prepared: 10/03/11	Analyzed: 10/05/11				
Total Kjeldahl Nitrogen	2.62	0.20	0.05	mg/L	2.5		105	90-110		
LCS (BJ10315-BS2)					Prepared: 10/03/11	Analyzed: 10/05/11				
Total Kjeldahl Nitrogen	2.59	0.20	0.05	mg/L	2.5		103	90-110		

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Batch BJ10315 - Digestion for TKN by EPA 351.2										
LCS (BJ10315-BS3)					Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	2.61	0.20	0.05	mg/L	2.5		104	90-110		
LCS (BJ10315-BS4)					Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	2.66	0.20	0.05	mg/L	2.5		106	90-110		
Matrix Spike (BJ10315-MS1)		**Source: 1108325-04**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	3.00	0.20	0.05	mg/L	2.5	0.690	92	80-120		
Matrix Spike (BJ10315-MS2)		**Source: 1108330-06**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	2.74	0.20	0.05	mg/L	2.5	0.383	94	80-120		
Matrix Spike (BJ10315-MS3)		**Source: 1108663-01**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	3.29	0.20	0.05	mg/L	2.5	0.738	102	80-120		
Matrix Spike (BJ10315-MS4)		**Source: 1108663-11**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	4.24	0.20	0.05	mg/L	2.5	1.36	115	80-120		
Matrix Spike Dup (BJ10315-MSD1)		**Source: 1108325-04**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	3.14	0.20	0.05	mg/L	2.5	0.690	98	80-120	5	20
Matrix Spike Dup (BJ10315-MSD2)		**Source: 1108330-06**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	2.67	0.20	0.05	mg/L	2.5	0.383	91	80-120	3	20
Matrix Spike Dup (BJ10315-MSD3)		**Source: 1108663-01**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	3.17	0.20	0.05	mg/L	2.5	0.738	97	80-120	4	20
Matrix Spike Dup (BJ10315-MSD4)		**Source: 1108663-11**			Prepared: 10/03/11 Analyzed: 10/05/11					
Total Kjeldahl Nitrogen	4.27	0.20	0.05	mg/L	2.5	1.36	116	80-120	0.8	20

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Batch BJ10421 - Ion Chromatography 300.0 Prep										
Blank (BJ10421-BLK1)					Prepared & Analyzed: 10/04/11					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ10421-BS1)					Prepared & Analyzed: 10/04/11					
Nitrate (as N)	1.60	0.04	0.01	mg/L	1.7		94	85-115		
Chloride	2.78	0.20	0.050	mg/L	3.0		93	85-115		
LCS Dup (BJ10421-BSD1)					Prepared & Analyzed: 10/04/11					
Nitrate (as N)	1.57	0.04	0.01	mg/L	1.7		92	85-115	2	200
Chloride	2.72	0.20	0.050	mg/L	3.0		91	85-115	2	200
Matrix Spike (BJ10421-MS1)		**Source: 1108619-01**			Prepared & Analyzed: 10/04/11					
Chloride	68.5 +O	0.20	0.050	mg/L	30	68.5	0	80-120		
Nitrate (as N)	16.9	0.04	0.01	mg/L	17	0.238	98	85-115		
Matrix Spike (BJ10421-MS2)		**Source: 1108761-04**			Prepared & Analyzed: 10/04/11					
Chloride	3.25	0.20	0.050	mg/L	3.0	ND	108	80-120		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7	ND	99	85-115		
Batch BJ10424 - Digestion for TKN by EPA 351.2										
Blank (BJ10424-BLK1)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Blank (BJ10424-BLK2)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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Batch BJ10424 - Digestion for TKN by EPA 351.2										
LCS (BJ10424-BS1)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.68	0.20	0.05	mg/L	2.5		107	90-110		
LCS (BJ10424-BS2)					Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.34	0.20	0.05	mg/L	2.5		93	90-110		
Matrix Spike (BJ10424-MS1)		**Source: 1108685-02**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	3.32	0.20	0.05	mg/L	2.5	0.827	99	80-120		
Matrix Spike (BJ10424-MS2)		**Source: 1108772-05**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.74	0.20	0.05	mg/L	2.5	0.762	79	80-120		
Matrix Spike Dup (BJ10424-MSD1)		**Source: 1108685-02**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	3.25	0.20	0.05	mg/L	2.5	0.827	96	80-120	2	20
Matrix Spike Dup (BJ10424-MSD2)		**Source: 1108772-05**			Prepared: 10/04/11 Analyzed: 10/11/11					
Total Kjeldahl Nitrogen	2.94	0.20	0.05	mg/L	2.5	0.762	87	80-120	7	20
Batch BJ11107 - Ammonia by SEAL										
Blank (BJ11107-BLK1)					Prepared & Analyzed: 10/11/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
Blank (BJ11107-BLK2)					Prepared & Analyzed: 10/11/11					
Ammonia as N	0.010 U	0.040	0.010	mg/L						
LCS (BJ11107-BS1)					Prepared & Analyzed: 10/11/11					
Ammonia as N	0.47	0.040	0.010	mg/L	0.50		94	90-110		

Hazen and Sawyer
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Tampa, FL 33619

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ11107 - Ammonia by SEAL										
LCS (BJ11107-BS2)					Prepared & Analyzed: 10/11/11					
Ammonia as N	0.48	0.040	0.010	mg/L	0.50		95	90-110		
Matrix Spike (BJ11107-MS1)		**Source: 1108614-01**			Prepared & Analyzed: 10/11/11					
Ammonia as N	0.52	0.040	0.010	mg/L	0.50	ND	103	90-110		
Matrix Spike (BJ11107-MS2)		**Source: 1108663-17**			Prepared & Analyzed: 10/11/11					
Ammonia as N	0.57	0.040	0.010	mg/L	0.50	ND	114	90-110		
Matrix Spike Dup (BJ11107-MSD1)		**Source: 1108614-01**			Prepared & Analyzed: 10/11/11					
Ammonia as N	0.55	0.040	0.010	mg/L	0.50	ND	110	90-110	6	10
Matrix Spike Dup (BJ11107-MSD2)		**Source: 1108663-17**			Prepared & Analyzed: 10/11/11					
Ammonia as N	0.54	0.040	0.010	mg/L	0.50	ND	108	90-110	5	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12745 - DOC prep										
Blank (BI12745-BLK1)					Prepared & Analyzed: 09/27/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI12745-BS1)					Prepared & Analyzed: 09/27/11					
Dissolved Organic Carbon	10.5	1.0	0.50	mg/L	10		105	90-110		
Matrix Spike (BI12745-MS1)		**Source: 1108663-09**			Prepared & Analyzed: 09/27/11					
Dissolved Organic Carbon	11.7	1.0	0.50	mg/L	10	1.10	106	85-125		
Matrix Spike Dup (BI12745-MSD1)		**Source: 1108663-09**			Prepared & Analyzed: 09/27/11					
Dissolved Organic Carbon	11.8	1.0	0.50	mg/L	10	1.10	107	85-125	0.9	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12710 - Metals Preparation for EPA Method 200.7										
Blank (BI12710-BLK1)					Prepared & Analyzed: 10/03/11					
Boron	0.050 U	0.10	0.050	mg/L						
Iron	0.034 I	0.10	0.020	mg/L						
Potassium	0.066	0.050	0.010	mg/L						
Calcium	0.034 I	0.050	0.010	mg/L						
Magnesium	0.053	0.050	0.010	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Sodium	0.078	0.050	0.010	mg/L						
LCS (BI12710-BS1)					Prepared & Analyzed: 10/03/11					
Iron	7.6	0.10	0.020	mg/L	8.0		95	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		96	85-115		
Calcium	19	0.050	0.010	mg/L	20		95	85-115		
Magnesium	19	0.050	0.010	mg/L	20		96	85-115		
Boron	0.43	0.10	0.050	mg/L	0.40		107	85-115		
Potassium	19	0.050	0.010	mg/L	20		93	85-115		
Sodium	20	0.050	0.010	mg/L	20		98	85-115		
Matrix Spike (BI12710-MS1)		**Source: 1108663-02**			Prepared & Analyzed: 10/03/11					
Calcium	31	0.050	0.010	mg/L	20	12	97	70-130		
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.048	99	70-130		
Boron	0.52	0.10	0.050	mg/L	0.40	ND	131	70-130		
Potassium	19	0.050	0.010	mg/L	20	0.64	93	70-130		
Sodium	22	0.050	0.010	mg/L	20	1.7	101	70-130		
Magnesium	22	0.050	0.010	mg/L	20	2.8	97	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.11	97	70-130		
Matrix Spike (BI12710-MS2)		**Source: 1108780-03**			Prepared & Analyzed: 10/03/11					
Potassium	22	0.050	0.010	mg/L	20	2.9	94	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0040	101	70-130		
Sodium	30	0.050	0.010	mg/L	20	9.7	101	70-130		
Magnesium	32	0.050	0.010	mg/L	20	12	96	70-130		
Boron	0.57	0.10	0.050	mg/L	0.40	ND	141	70-130		
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	98	70-130		
Calcium	65	0.050	0.010	mg/L	20	45	101	70-130		

Hazen and Sawyer
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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI12710 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI12710-MSD1)		**Source: 1108663-02**			Prepared & Analyzed: 10/03/11					
Iron	8.1	0.10	0.020	mg/L	8.0	0.11	100	70-130	3	30
Calcium	32	0.050	0.010	mg/L	20	12	102	70-130	3	30
Manganese	0.45	0.010	0.0010	mg/L	0.40	0.048	100	70-130	1	30
Sodium	22	0.050	0.010	mg/L	20	1.7	101	70-130	0.4	30
Potassium	21	0.050	0.010	mg/L	20	0.64	101	70-130	8	30
Boron	0.47	0.10	0.050	mg/L	0.40	ND	116	70-130	12	30
Magnesium	23	0.050	0.010	mg/L	20	2.8	101	70-130	3	30
Matrix Spike Dup (BI12710-MSD2)		**Source: 1108780-03**			Prepared & Analyzed: 10/03/11					
Calcium	65	0.050	0.010	mg/L	20	45	101	70-130	0.005	30
Iron	7.9	0.10	0.020	mg/L	8.0	0.076	97	70-130	0.5	30
Magnesium	32	0.050	0.010	mg/L	20	12	97	70-130	0.6	30
Boron	0.50	0.10	0.050	mg/L	0.40	ND	126	70-130	11	30
Potassium	22	0.050	0.010	mg/L	20	2.9	98	70-130	3	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.0040	99	70-130	2	30
Sodium	30	0.050	0.010	mg/L	20	9.7	102	70-130	0.8	30

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* Qualifiers, Notes and Definitions

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

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

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

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

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

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1108663

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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na						No. of Containers (Total per each location)
01	PZ03-H11-6	092611	0843	GW		X		1	1										
02	PZ04-BKG-9	092611	1035	GW		X	1		1		1	2	1						
03	PZ07-D05-7	092611	0922	GW		X		1	1										
04	PZ11-E09-10	092611	0915	GW		X		1	1										
05	PZ15-A11-6	092611	0935	GW		X		1	1										
06	PZ16-C12-28	092611	1003	GW		X		1	1										
07	PZ17-I15-26	092811	1048	GW		X		1		1									
08	PZ18-R12-26	092811	1144	GW		X		1	1										
09	PZ19-G10-26	092611	0808	GW		X	1		1		1	2	1						
10	PZ20-G10-15	092611	0836	GW		X	1		1		1	2	1						
11	PZ21-E11-26	092611	0814	GW		X		1	1										
12	PZ24-BKG-26	092611	1048	GW		X	1		1		1	2	1						

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: JR	9/23/11 1415		9/23/11 1415
Relinquished:	092611 1455	Received:	Date/Time:
Relinquished:	092811 1415	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

01-06
09-12
9-8

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:

1108663

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. 1108663

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

	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool F, Cl, NO3, OP, SO4, NO2, Alk-T	1LP, Cool NO3, NO2, Cl, Alk-T	250mL P, H_2SO_4 TKN, NH_3, TotalP, COD	250mL P, H_2SO_4 TKN, NH_3	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, K, Fe, Mg, Mn, Na						No. of Containers (Total per each location)
13	PZ24-BKG-26-D	092611	1054	GW		X	1		1		1	2	1						
14	PZ25-A06-10	092611	0951	GW		X		1	1										
15	Equipment blank	092811	0940	R		X		1	1										
16	Field Blank - DI	092811	0945	R		X		1	1										
17	Field Blank - Tap	092811	1215	R		X		1	1										

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
9R	1415 9/23/11		1415 92311
Relinquished:	Date/Time:	Received:	Date/Time:
	1455 92611		
Relinquished:	Date/Time:	Received:	Date/Time:
	9/28/11	9/28/11, 1415	
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

B-14

15-17

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:

1108663

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 & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	P23	Sample ID	01	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)	6.40	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.156	1/4 WELL VOLUME		3 WELL VOLUMES	0.468	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0833	PURGE TIME END	0842	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0836	0.30	0.30	0.10	6.52	4.4	26.4	133.8	1.48	13.9	clear	none
0839	0.30	0.60	0.10	|	4.4	26.5	134.9	1.39	8.67	|	|
0842	0.30	0.90	0.10	|	4.4	26.5	136.5	1.36	6.82	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0843	SAMPLING ENDED	0843	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	11086663	Project Name	GCREC Mound Groundwater Analyses
Well Number	MW04	Sample ID	D2	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)	5.94	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.1836	1/4 WELL VOLUME		3 WELL VOLUMES	0.5508	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1025	PURGE TIME END	1035	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
1028	0.30	0.30	0.10	6.02	4.98	28.1	117.5	1.74	7.08	CLEAR	NONE
1031	0.30	0.60	|	|	5.0	28.3	119.3	1.77	1.75	|	NONE
1034	0.30	0.90	|	|	5.0	28.2	119.9	1.74	0.97	|	NONE

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1035	SAMPLING ENDED	1035	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	11086663	Project Name	GCREC Mound Groundwater Analyses
Well Number	MW01	Sample ID	03	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)	6.04	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.177	1/4 WELL VOLUME		3 WELL VOLUMES	0.53	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0912	PURGE TIME END	0921	TOTAL PURGED	0.90	
INST. ID	X	X	X	X	SAL-SAM-63-04	SAL-SAM-65-04	SAL-SAM-63-04	SAL-SAM-55-04	SAL-SAM-02	X	X
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0915	0.30	0.30	0.10	6.09	4.62	25.4	375.0	0.80	8.94	CLEAR	NONE
0918	0.30	0.60	0.10		4.61	25.5	368.4	0.83	8.85	↓	↓
0921	0.30	0.90	0.10		4.60	25.5	360.8	0.86	8.78		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	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	0922	SAMPLING ENDED	0922	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ11	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	3.0	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.8	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.136	1/4 WELL VOLUME		3 WELL VOLUMES	0.408	5 WELL VOLUMES			

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0905	PURGE TIME END	0914	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0908	0.30	0.30	0.10	N/A	5.5	25.8	408.1	4.79	13.6	clear	NOM
0911	|	0.60	|	|	5.5	25.9	411.1	4.86	11.1	|	|
0914	|	0.90	|	|	5.7	26.0	413.2	5.61	8.74	|	|

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

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

SAMPLING DATA

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	11086663	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ15	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.25	WELL CAPACITY (gal/ft)	0.06	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	4.91	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	0.155	1/4 WELL VOLUME		3 WELL VOLUMES	0.466	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0925	PURGE TIME END	0934	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	SAL-SAM-0 7	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0928	0.30	0.30	0.10	4.99	4.7	27.1	83.7	1.99	19.2	clear	NONE
0931	|	0.60	|	|	4.7	27.1	84.0	1.80	17.4	|	
0934	|	0.90	|	|	4.8	27.1	84.2	1.66	16.8	|	

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	0935	SAMPLING ENDED	0935	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	(Y) N	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy								
COMMENTS									

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

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

Reviewed By: Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	11086663	Project Name	GCREC Mound Groundwater Analyses
Well Number	P216	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	2.62	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	29.0	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	0.52	1/4 WELL VOLUME	0.13	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	0950	PURGE TIME END	1002	TOTAL PURGED	1.20	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0956	0.60	0.60	0.10	N/A	~~24.8~~ 5.4	24.8	309.8	0.46	10.6	clear	none
0959	0.30	0.90	|	|	~~24~~ 5.4	24.8	309.3	0.36	9.63	|	|
1002	0.30	1.20	|	|	5.3	24.6	310.9	0.33	7.49	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1003	SAMPLING ENDED	1003	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	cloudy								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092811	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ17	Sample ID	07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.89	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	0.44	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	1030	PURGE TIME END	1047	TOTAL PURGED	1.70	
INST. ID	X	X	X	X	SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	SAL-SAM-02	X	X

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1035	0.50	0.50	0.10	N/A	4.9	25.2	279.9	0.51	332	Brown	None
1038	0.30	0.80			4.8	25.1	280.2	0.36	158		
1041	0.30	1.10			4.8	25.0	281.5	0.34	57.6		
1044	0.30	1.40			4.8	24.9	283.2	0.27	23.6		
1047	0.30	1.70			4.8	24.9	283.4	0.25	14.2	clear	

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1048	SAMPLING ENDED	1048	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (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 windy								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092811	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	P2-18	Sample ID	08	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.46	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	25.49	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	0.46	1/4 WELL VOLUME	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	1126	PURGE TIME END	1143	TOTAL PURGED	1.70	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
1131	0.50	0.50	0.10	N/A	5.1	26.9	221.9	0.35	Above Detectable	Brown	None
1134	0.30	0.80			5.1	26.4	222.1	0.35	360		
1137	0.30	1.10			5.1	26.4	222.4	0.36	209		
1140	0.30	1.40			5.0	26.4	222.5	0.28	137.6		
1143	0.30	1.70			5.0	26.3	222.6	0.25	79.1		

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	1144	SAMPLING ENDED	1144	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny and breezy								
COMMENTS									

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

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

Reviewed By: Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	11086663	Project Name	GCREC Mound Groundwater Analyses
Well Number	P219	Sample ID	09	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)	6.96	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	3.68	1/4 WELL VOLUME	0.92	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	0744	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0759	3.75	3.75	0.25	N/A	5.0	24.5	302.6	0.46	19.4	clear	NONE
0803	1.00	4.75	|	|	5.0	24.6	302.2	0.57	14.3	|	|
0807	1.00	5.75	|	|	5.0	24.6	302.4	0.42	11.6	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0808	SAMPLING ENDED	0808	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Drizzle								
COMMENTS									

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

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

Reviewed By: Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ20	Sample ID	1D	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	6.96	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.36	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.24	1/4 WELL VOLUME		3 WELL VOLUMES	0.74	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0820	PURGE TIME END	0835	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0823	0.30	0.30	0.10	N/A	5.0	25.5	312.1	0.61	397	Brown	None
0826	0.30	0.60			5.0	25.5	311.6	0.33	391		
0829	0.30	0.90			5.0	25.5	311.1	0.25	384		
0832	0.30	1.20			5.0	25.5	310.8	0.23	376		
0835	0.30	1.50			4.9	25.6	307.6	0.23	370		

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

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 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	0836	SAMPLING ENDED	0836	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	cloudy						
COMMENTS							

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

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

Reviewed By: Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	11086663	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ 21	Sample ID	11	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)	6.87	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	3.70	1/4 WELL VOLUME	0.92	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	0742	PURGE TIME END	0813 SH ~~0805~~	TOTAL PURGED	7.75

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0757	3.75	3.75	0.25	7.03	5.5	24.6	307.9	0.76	142	Gray	None
0801	1.0	4.75			5.2	24.7	300.3	0.95	76.8		
0805	1.0	5.75			5.2	24.7	300.0	0.91	70.0		
0809	1.0	6.75			5.1	24.7	300.2	0.96	72.6		
0813	1.0	7.75			5.1	24.7	297.6	0.92	73.7		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0814 ~~0806~~	SAMPLING ENDED	0814 ~~0806~~	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)	SK	DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Drizzle						
COMMENTS							

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

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

Reviewed By: Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	11086663	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ24	Sample ID	12	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)	8.84	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	3.38	1/4 WELL VOLUME	0.84	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	1025	PURGE TIME END	1047	TOTAL PURGED	5.5

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
1039	3.5	3.5	0.25	8.92	11.9	25.6	299.1	0.30	5.92	clear	None
1043	1.0	4.5	↑	↑	4.9	25.6	298.8	0.33	4.57	↑	↑
1047	1.0	5.5	↑	↑	4.8	25.5	299.3	0.36	3.41	↑	↑

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:	
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT	SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)	

SAMPLING INITIATED	1047 SH	SAMPLING ENDED	1049 SH	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	(Y) ~~N~~	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED	SH 092611				

WEATHER CONDITIONS	cloudy
COMMENTS	

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

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

Reviewed By: Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092611	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	P225	Sample ID	14	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	10.93 ~~10.93~~ 53	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	13.52	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.0518	1/4 WELL VOLUME		3 WELL VOLUMES	0.1554	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0941	PURGE TIME END	0951	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-04	SAL-SAM-65-04	SAL-SAM-63-04	SAL-SAM-55-04	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)
0944	0.30	0.30	0.10		6.0	27.4	604	2.26	22.7	CLEAR	NONE
0947	0.30	0.60	0.10		6.0	↓	612	2.23	11.28	↓	↓
0950	0.30	0.90	0.10		6.0	↓	608	2.21	5.32	↓	↓

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

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 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	0951	SAMPLING ENDED	0951	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Cloudy						
COMMENTS							

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

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

Reviewed By: Date:

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092811	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	EQ Blank	Sample ID	15	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0940					5.6	25.1	1.4	4.61	0.31	clear	NONE

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0940	SAMPLING ENDED	0940	FIELD CLEANED	(Y) N	CLEANING STEPS	DI x2
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (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 / windy						
COMMENTS							

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

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

Reviewed By: Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092811	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	Blank - Field	Sample ID	16	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
0945					5.6	25.1	1.4	4.61	0.31	clear	None

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0945	SAMPLING ENDED	0945	FIELD CLEANED	(Y) N	CLEANING STEPS	DI
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	clear / windy						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen & Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	092011	SAL Project #	1108663	Project Name	GCREC Mound Groundwater Analyses
Well Number	Tap - Blank	Sample ID	17	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-4	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)
1215					7.60	29.0	430.0	5.18	1.59	clear	None

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		SAL				SAMPLER(S) SIGNATURES:					
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)			
SAMPLING INITIATED	1215	SAMPLING ENDED	1215	FIELD CLEANED	Y (N)	CLEANING STEPS					
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?		Y N (N/A)	SEMI-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

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