# Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.26

## C-HS4 Draft Site Summary and Close-out Report

June 2014


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In association with:

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# Florida Onsite Sewage Nitrogen Reduction Strategies Study

## TASK C.26

## C-HS4 Draft Site Summary and Close-out Report

**Prepared for:**

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**June 2014**

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# Task C.26: Homesite C-HS4 Draft Site Summary and Close-out Report

## 1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 Instrumentation of Hillsborough County Home Site C-HS4 progress report dated April 2013 documents the test area design, number and location of monitoring points, and preliminary field parameters from monitoring points for this field site. Four sample events were conducted at this site; January 2013, April 2013, July 2013, and October 2013 and these were documented in the Task C.24 C-HS4 Sample Event Reports. The results of this testing are documented in the Task C.25 C-HS4 Data Summary Reports (Appendix G).

## 2.0 Purpose

This report documents the close-out of site C-HS4 including: description of the abandonment of monitoring points, summarization of the data collected during site monitoring, and analysis of the sample events conducted January 2013 through October 2013. The monitoring events consisted of measurement of household water meters, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of effluent and groundwater samples and their analyses in a NELAC certified laboratory.

## 3.0 Site and Monitoring Network Description

### 3.1 Project Site

The C-HS4 field site is also the B-HS2 passive nitrogen reduction system site located in Hillsborough County, FL adjacent to Eagle Lake and [redacted] Creek in a rural area. The Task B.6 installation report for the B-HS2 system documents the experimental system design which was installed in September 2012. The existing onsite sewage treatment and

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disposal system (OSTDS) consisted of a 1,050 gallon concrete septic tank located adjacent to the soil treatment unit which is a mounded drainfield (P.T.I.™ bundles). The new passive treatment system consists of a replacement 1,050 gallon two chamber concrete primary tank; 300 gallon concrete recirculation tank; 900 gallon concrete Stage 1 unsaturated media filter; 300 gallon concrete pump tank; and 1,500 gallon two chamber concrete Stage 2 saturated media biofilter.

## 3.2 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the soil treatment unit as depicted in Figure 1. A 10-foot by 5-foot grid spacing was staked. Transect lines A through S run east-west, roughly parallel to the groundwater flow direction and increase (higher letter identification) moving southward from the drainfield. Transect lines 0 through 10 run north-south, roughly perpendicular to the groundwater flow direction and increase moving from west to east. Based on initial screening data, 29 monitoring locations were chosen within the grid for standpipe piezometer installation. Groundwater monitoring points were installed in September and December 2012. Two types of monitoring points were installed using either hand or drilling methods: stainless steel drivepoints and standpipe piezometers. Stainless steel drivepoints consist of small stainless steel points with 7/8-inch screens connected to polypropylene tubing which extended to the ground surface. Standpipe piezometers consisted of either ¾-inch or 1-inch diameter PVC with a 1-foot or 5-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS4 Instrumentation Report for additional detail).

Each monitoring location was assigned a unique identification indicating grid location (self-explanatory), and depth below ground surface (bottom of the well screen in feet). For example E03-8 is a standpipe piezometer sampler located on the grid at E03 at 8 feet below ground surface. A schematic of the C-HS4 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers and sample identification is included in Appendix A.

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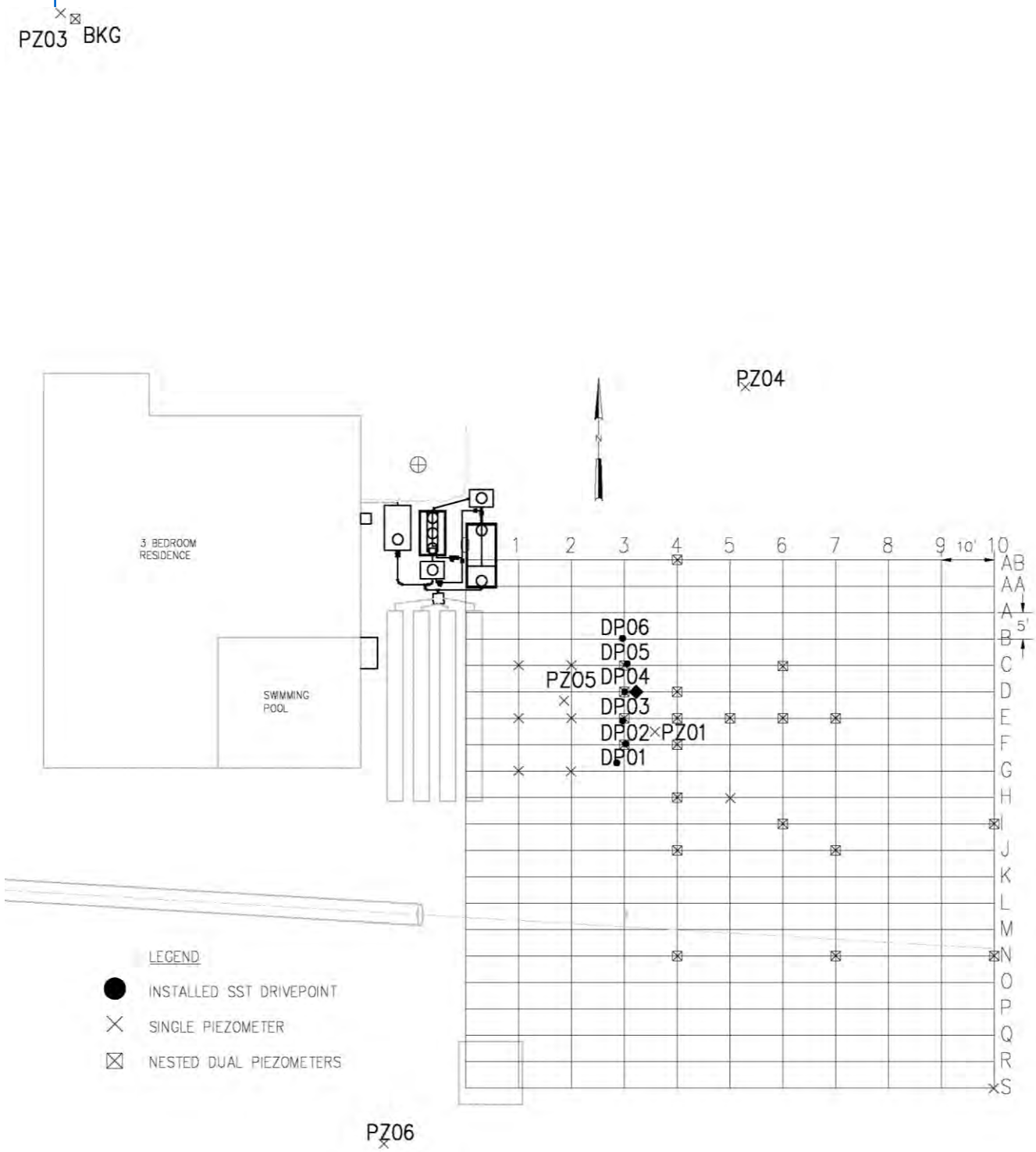


**Figure 1**
**C-HS4 Monitoring Network**

## 4.0 Site Close-out

The homeowner did not wish to take ownership and responsibility of the monitoring points (wells). The site groundwater monitoring network close-out consisted of the proper abandonment of all the monitoring points and restoring the site to its original configuration. The treatment system close-out is discussed in another deliverable; Task B.10. Current regulations (Southwest Florida Water Management District, Chapter 40D-3, Regulation of Wells) require that a water well contractor with a license from the State of Florida plug the abandoned wells. Therefore, the drilling company that installed the wells, Environmental Drilling Service, Inc., was hired to properly plug the abandoned wells. A total of 61 specific monitoring points were abandoned during the site close-out conducted June 9 and June 10, 2014. Table 1 lists the monitoring points that were abandoned. The piezometers were protected by 6 inch irrigation covers, which were dug up and removed. All holes were backfilled using native soil. The stainless steel drivepoint dedicated tubing was cut below ground surface and abandoned in place.

**Table 1**
**Site C-HS4 Monitoring Points Abandoned**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 1 | PZ01 | 1" Standpipe Piezometer, 5' screen | 19.08 | 9.48 |
| 2 | PZ02 | 1" Standpipe Piezometer, 5' screen | 28.72 | 16.54 |
| 3 | PZ03 | 1" Standpipe Piezometer, 5' screen | 24.85 | 19.00 |
| 4 | PZ04 | 1" Standpipe Piezometer, 5' screen | 18.82 | 13.02 |
| 5 | PZ06 | 1" Standpipe Piezometer, 5' screen | 22.17 | 11.02 |
| 6 | BKG-10 | 1" Standpipe Piezometer, 5' screen | 24.60 | 15.22 |
| 7 | BKG-15 | 3/4" Standpipe Piezometer, 1' screen | 24.60 | 10.17 |
| 8 | PZ-AB4-08 | 1" Standpipe Piezometer, 5' screen | 18.65 | 10.27 |
| 9 | PZ-AB4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.59 | 4.09 |
| 10 | PZ-C1 | 1" Standpipe Piezometer, 5' screen | 22.85 | 12.70 |
| 11 | PZ-C2 | 1" Standpipe Piezometer, 5' screen | 21.23 | 9.73 |
| 12 | PZ-C3-08 | 1" Standpipe Piezometer, 5' screen | 19.63 | 11.83 |
| 13 | PZ-C3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.09 |
| 14 | PZ-C6-08 | 1" Standpipe Piezometer, 5' screen | 17.53 | 9.03 |
| 15 | PZ-C6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.53 | 3.13 |
| 16 | PZ-D3-08 | 1" Standpipe Piezometer, 5' screen | 19.62 | 11.63 |
| 17 | PZ-D3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.08 |
| 18 | PZ-D4-08 | 1" Standpipe Piezometer, 5' screen | 18.77 | 10.89 |
| 19 | PZ-D4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.76 | 4.21 |
| 20 | PZ-E1 | 1" Standpipe Piezometer, 5' screen | 22.92 | 11.42 |
| 21 | PZ-E2 | 1" Standpipe Piezometer, 5' screen | 21.03 | 9.33 |
| 22 | PZ-E3-08 | 1" Standpipe Piezometer, 5' screen | 19.66 | 11.41 |
| 23 | PZ-E3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 4.98 |
| 24 | PZ-E4-08 | 1" Standpipe Piezometer, 5' screen | 18.70 | 10.80 |
| 25 | PZ-E4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.69 | 4.31 |
| 26 | PZ-E5-08 | 1" Standpipe Piezometer, 5' screen | 18.15 | 10.25 |
| 27 | PZ-E5-15 | 3/4" Standpipe Piezometer, 1' screen | 18.13 | 3.56 |
| 28 | PZ-E6-08 | 1" Standpipe Piezometer, 5' screen | 17.83 | 9.95 |
| 29 | PZ-E6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.85 | 3.45 |
| 30 | PZ-E7-08 | 1" Standpipe Piezometer, 5' screen | 17.55 | 8.87 |
| 31 | PZ-E7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.55 | 3.05 |
| 32 | PZ-F3-08 | 1" Standpipe Piezometer, 5' screen | 19.54 | 11.59 |
| 33 | PZ-F3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.55 | 5.05 |

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**Table 1 (continued)**
**Site C-HS4 Monitoring Points Abandoned**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 34 | PZ-F4-08 | 1" Standpipe Piezometer, 5' screen | 18.83 | 11.13 |
| 35 | PZ-F4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.88 | 4.48 |
| 36 | PZ-G1 | 1" Standpipe Piezometer, 5' screen | 20.72 | 12.82 |
| 37 | PZ-G2-12.5 | 2" Standpipe Piezometer, 7.5' screen | 21.03 | 8.88 |
| 38 | PZ-H4-08 | 1" Standpipe Piezometer, 5' screen | 19.19 | 10.91 |
| 39 | PZ-H4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.22 | 4.45 |
| 40 | PZ-H5-11.5 | 2" Standpipe Piezometer, 7.5' screen | 18.58 | 7.86 |
| 41 | PZ-I6-08 | 1" Standpipe Piezometer,5' screen | 18.42 | 9.37 |
| 42 | PZ-I6-15 | 3/4" Standpipe Piezometer, 1' screen | 18.42 | 3.87 |
| 43 | PZ-I10-08 | 1" Standpipe Piezometer, 5' screen | 16.87 | 8.95 |
| 44 | PZ-I10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.92 | 4.42 |
| 45 | PZ-J4-08 | 1" Standpipe Piezometer, 5' screen | 19.26 | 11.32 |
| 46 | PZ-J4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.25 | 4.73 |
| 47 | PZ-J7-08 | 1" Standpipe Piezometer, 5' screen | 17.86 | 9.41 |
| 48 | PZ-J7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.87 | 3.45 |
| 49 | PZ-N4-08 | 1" Standpipe Piezometer, 5' screen | 19.28 | 11.00 |
| 50 | PZ-N4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.30 | 4.82 |
| 51 | PZ-N7-08 | 1" Standpipe Piezometer, 5' screen | 18.01 | 9.46 |
| 52 | PZ-N7-15 | 3/4" Standpipe Piezometer, 1' screen | 18.03 | 3.23 |
| 53 | PZ-N10-08 | 1" Standpipe Piezometer, 5' screen | 16.92 | 9.17 |
| 54 | PZ-N10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.83 | 2.59 |
| 55 | PZ-S10-08 | 1" Standpipe Piezometer, 5' screen | 17.03 | 8.78 |
| 56 | DP01 | SST Drivepoint | 19.25 | |
| 57 | DP02 | SST Drivepoint | 19.24 | |
| 58 | DP03 | SST Drivepoint | 19.49 | |
| 59 | DP04 | SST Drivepoint | 19.22 | |
| 60 | DP05 | SST Drivepoint | 19.25 | |
| 61 | DP06 | SST Drivepoint | 19.38 | |

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

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## 5.0 Data Summary

Sample collection materials and methods are described in both the Task C.24 C-HS4 Sample Event Reports and the Task C.25 C-HS4 Data Summary Reports.

### 5.1 Operational Data and Site Conditions

A water meter for the home site was installed March 6, 2012. The water meter for the home site was read and recorded during each sample event. Table 2 summarizes the water meter readings and average daily water use for the residence at site C-HS4.

**Table 2**
**Water Meter Readings and Water Usage for C-HS4**

| Residence | Date Read | Meter Reading | Gallons/day since last reading | Gallons/day since installed |
|---|---|---|---|---|
| C-HS4 Residence | 3/6/2012 | 7,790 | Installed | Installed |
| | 1/1/2013 | 43,240 | 117.8 | 117.8 |
| | 2/5/2013 | 47,741 | 128.6 | 118.9 |
| | 4/23/2013 | 54,680 | 90.1 | 113.5 |
| | 7/24/2013 | 62,422 | 84.2 | 108.2 |
| | 10/15/2013 | 69,740 | 88.2 | 105.4 |
| | 11/5/2013 | 71,600 | 88.6 | 104.8 |
| Average gpd over the entire study period | | 92.3 | | |

A weather station (Balm in Wimauma, FL) is located approximately 10 miles from the site. Data from this weather station is available at the following website: http://fawn.ifas.ufl.edu/. Daily recorded meteorological data is provided in Appendix B.

### 5.2 Groundwater Levels

Figures 2, 3, 4 and 5 illustrate the surficial groundwater contours as measured within the standpipe piezometers during Sample Event 1 (January 16, 2013), Sample Event 2 (April 22, 2013), Sample Event 3 (July 24, 2013) and Sample Event 4 (October 23, 2013), respectively. A summary of all recorded groundwater elevations taken at the standpipe piezometers is presented in Appendix C. Groundwater flow at this site was generally from

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NW to SE, towards [redacted] Creek, at a gradient that varied from 0.022 ft/ft to 0.035 ft/ft in the area near the OSTDS over the study period.

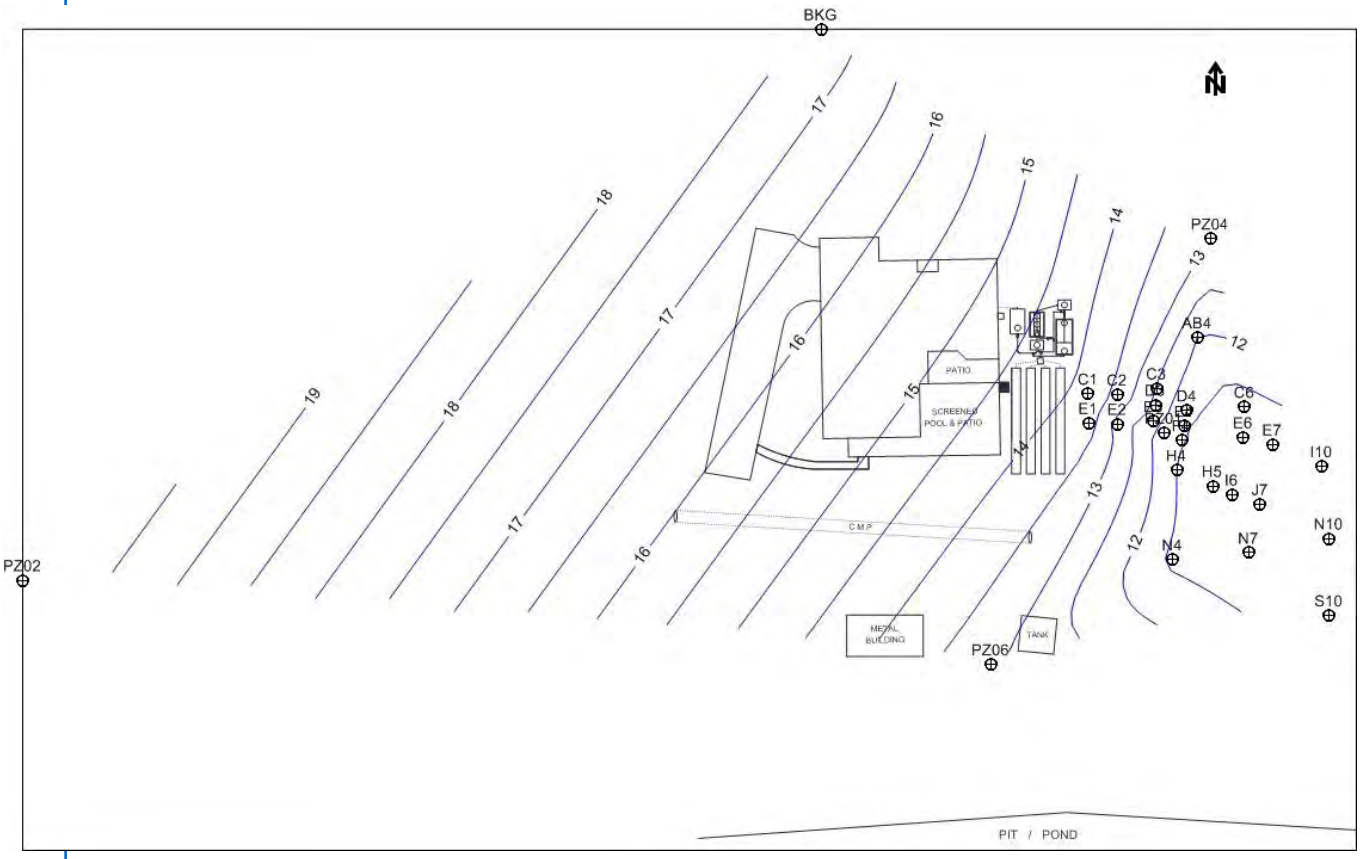


**Figure 2**
**Surficial Groundwater Contours SE1, January 16, 2013**

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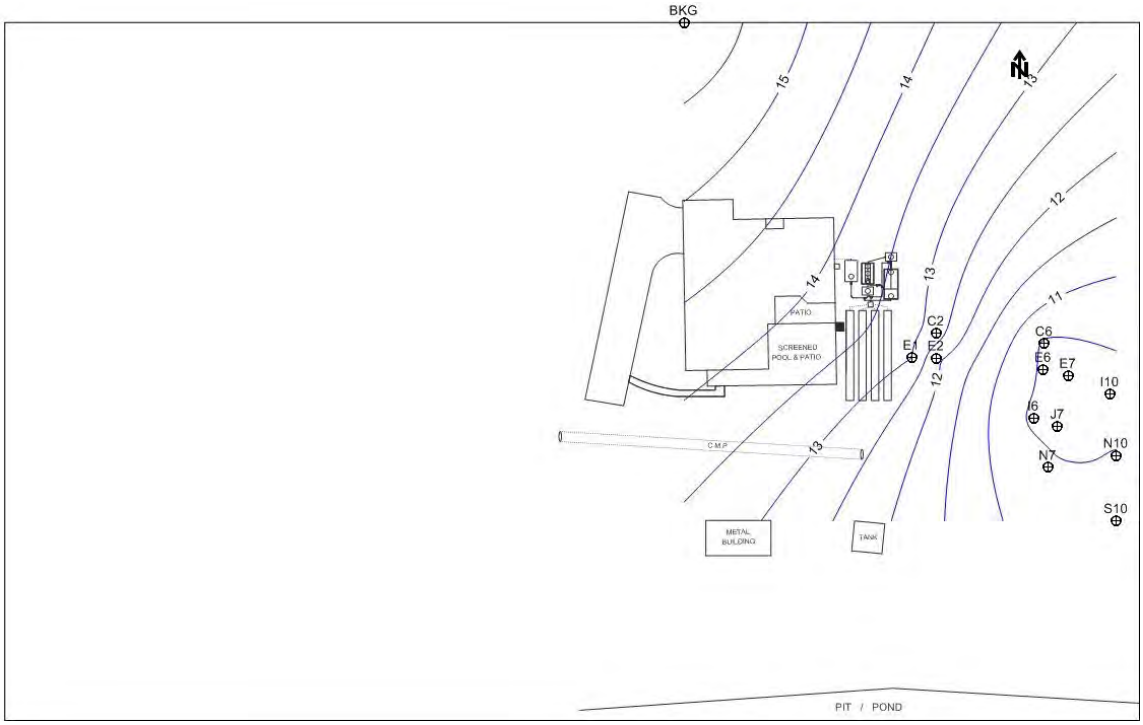


**Figure 3**
**Surficial Groundwater Contours SE2, April 22, 2013**

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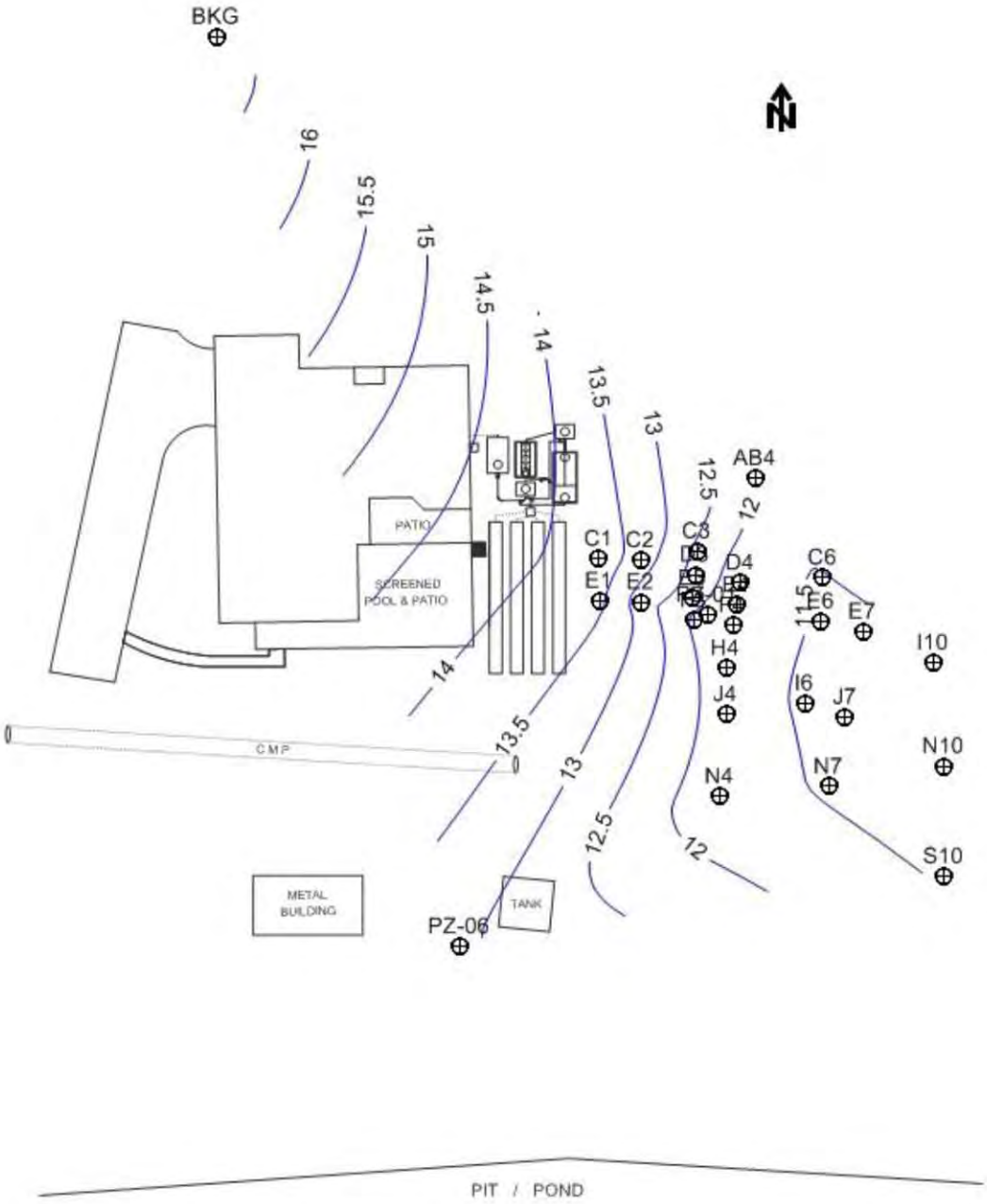


**Figure 4**
**Surficial Groundwater Contours SE3, July 24, 2013**

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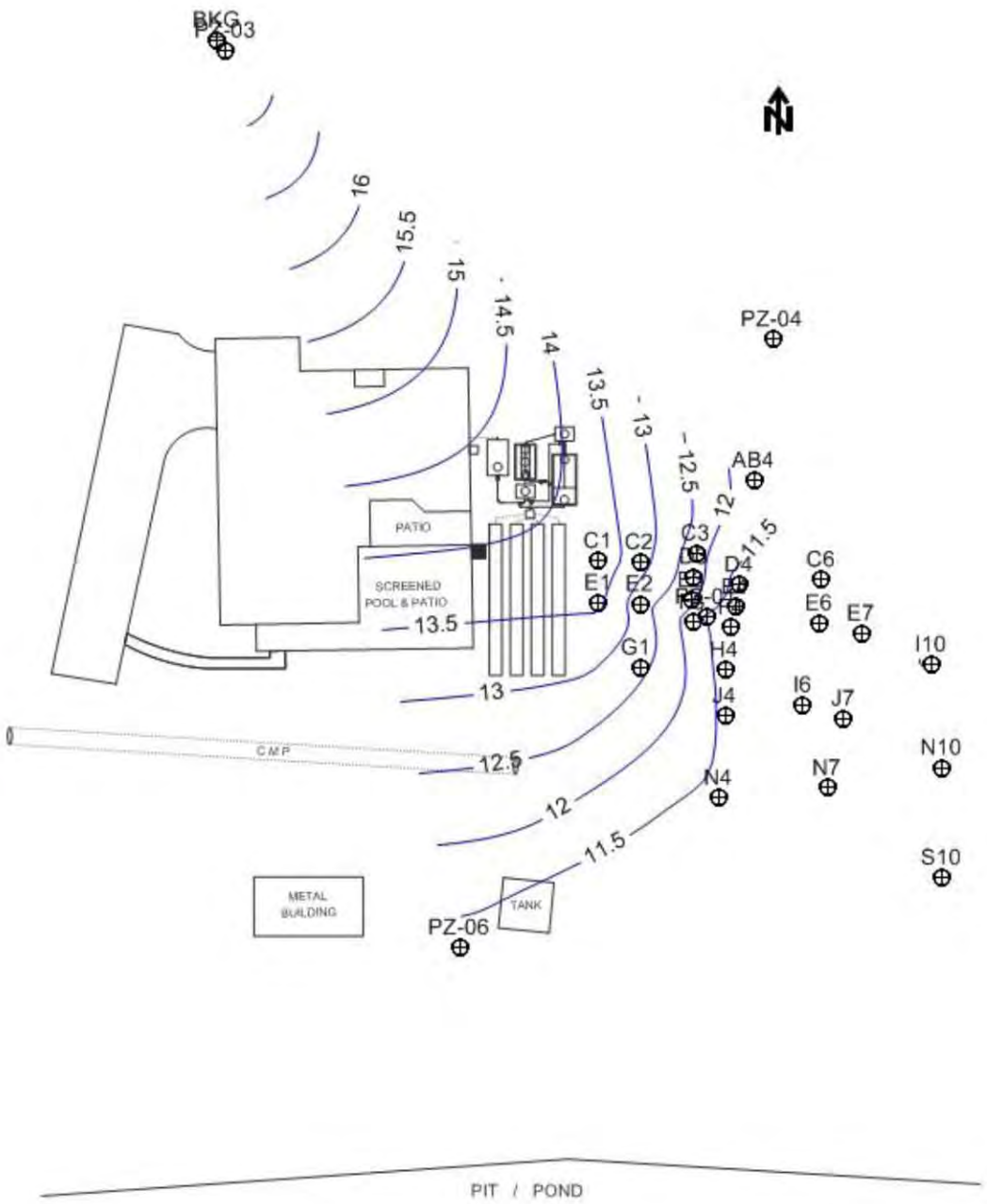


**Figure 5**
**Surficial Groundwater Contours SE4, October 23, 2013**

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## 5.3 Water Quality Analyses

The complete water quality analytical results for the four sample events are listed in Tables D.1 through D.4 of Appendix D. The summary of the water quality is presented in Table E.1 of Appendix E. To allow for a better visualization of the data collected at the site the mapping program **Surfer** was utilized. **Surfer** is a grid-based mapping program that interpolates irregularly spaced XYZ data into a regularly spaced grid. Although there are several methods used in Surfer to fill in areas where data is missing, the "natural neighbor" gridding method was used as the output gave the most informative graphs.

The general trend of the nitrogen plume at the site can be determined with the data collected. Although **Surfer** is an informative tool for mapping the information from the site, it cannot project a 3-dimensional view of concentrations with depth. Based on the distribution of points with depth, two "slices" were chosen for the groundwater data surrounding the system. The two slices were separated by elevation above sea level (NGVD29 datum).

The shallow and deep piezometer maximum concentrations of NOX measured throughout the monitoring period at all locations where groundwater samples were obtained are illustrated in Figures 6 and 7, respectively. For comparative purposes, similar plots of maximum specific conductivity (Figure 8 and 9), maximum chloride (Figure 10 and 11) and maximum sulfate (Figure 12 and 13) concentrations were created.

The nitrogen concentration was lower than most other sites monitored for this study which is likely because of the installation of the nitrogen reducing wastewater treatment system installed approximately four months prior to the start of the groundwater monitoring. The shallow and deep piezometer results appear to show the plume to be confined in a south-southeast direction from the drainfield.

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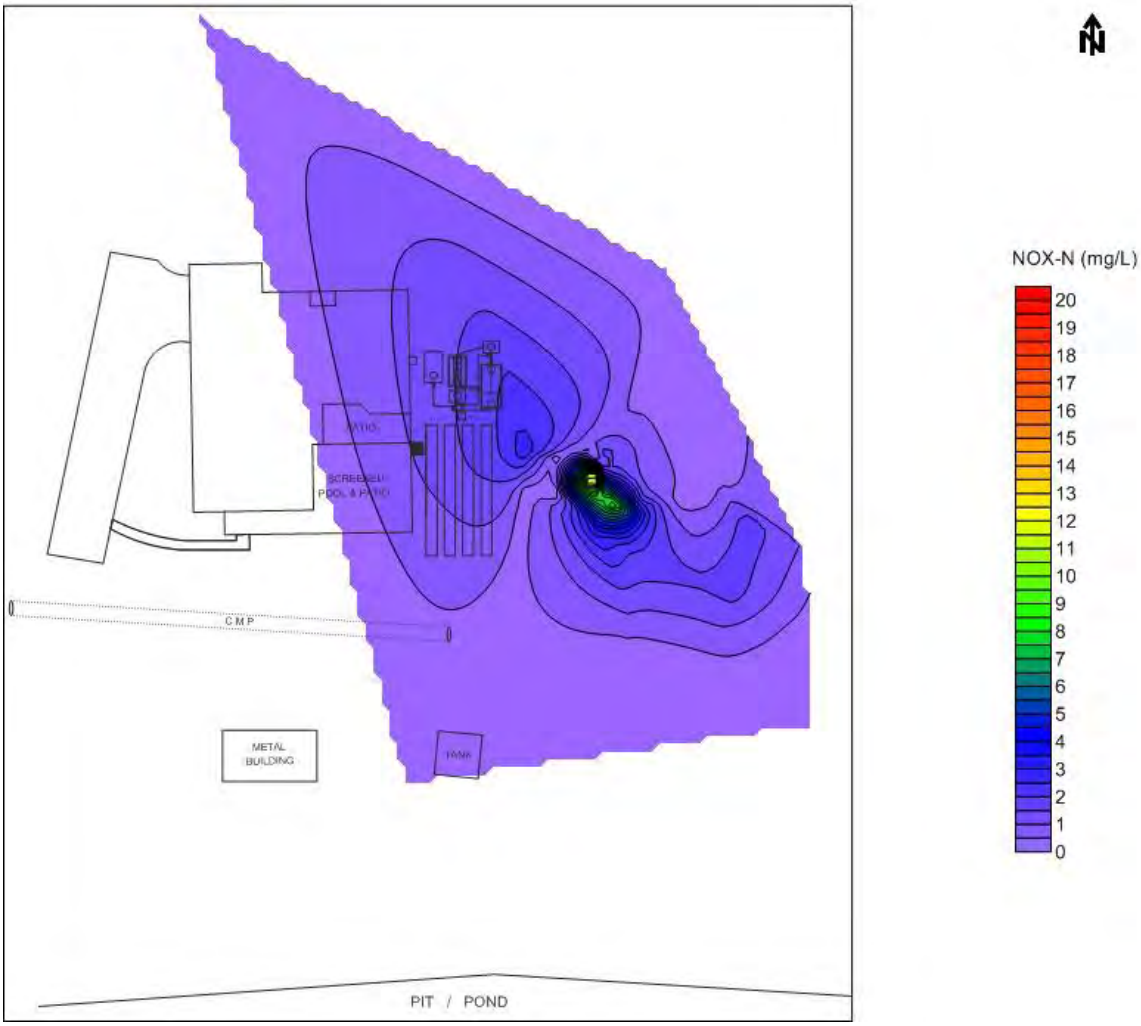


**Figure 6**
**Maximum NOX-N, Shallow GW Elev 7.9-17.6 ft above MSL**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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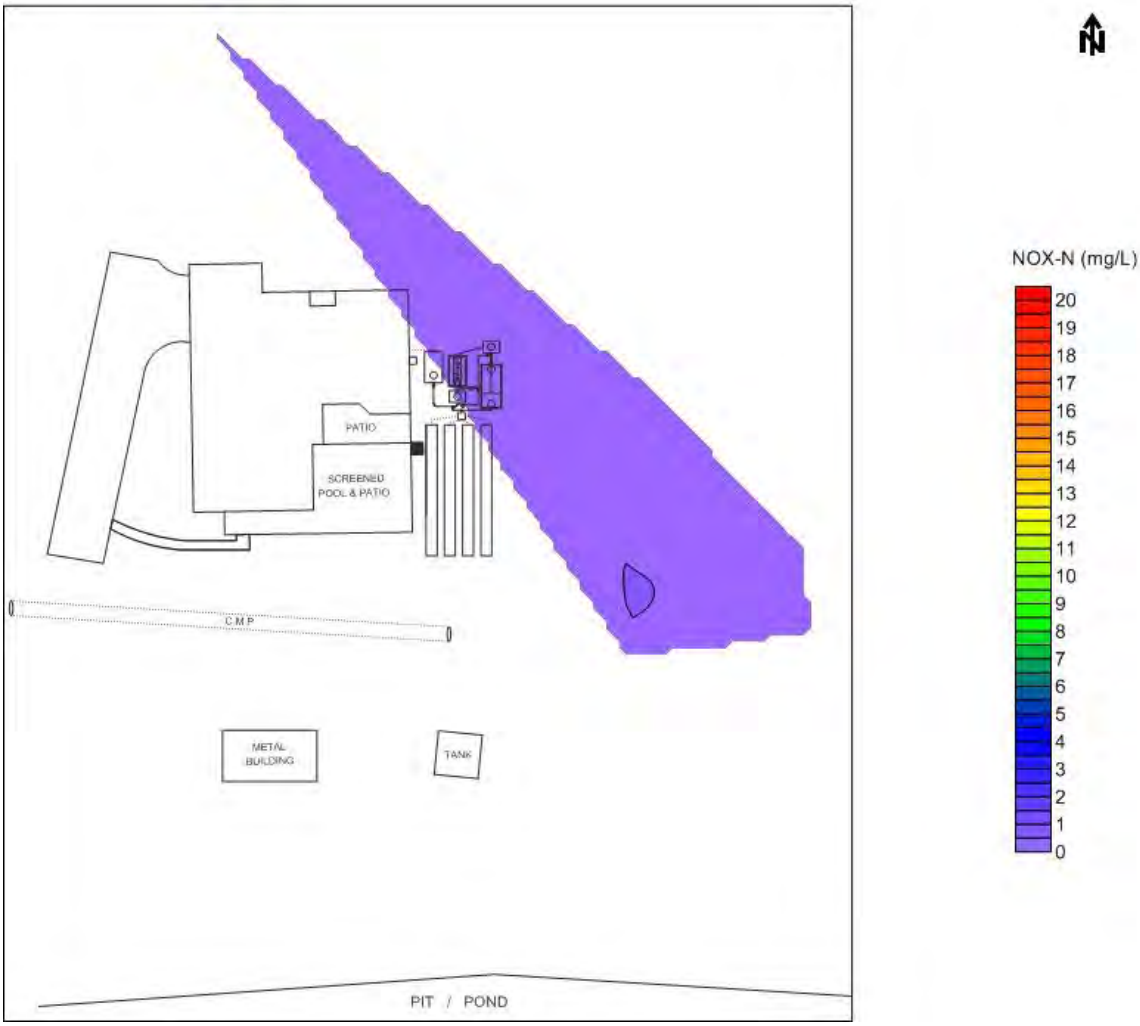


**Figure 7**
**Maximum NOX-N, Deep GW Elev 2.6-6.1 ft above MSL**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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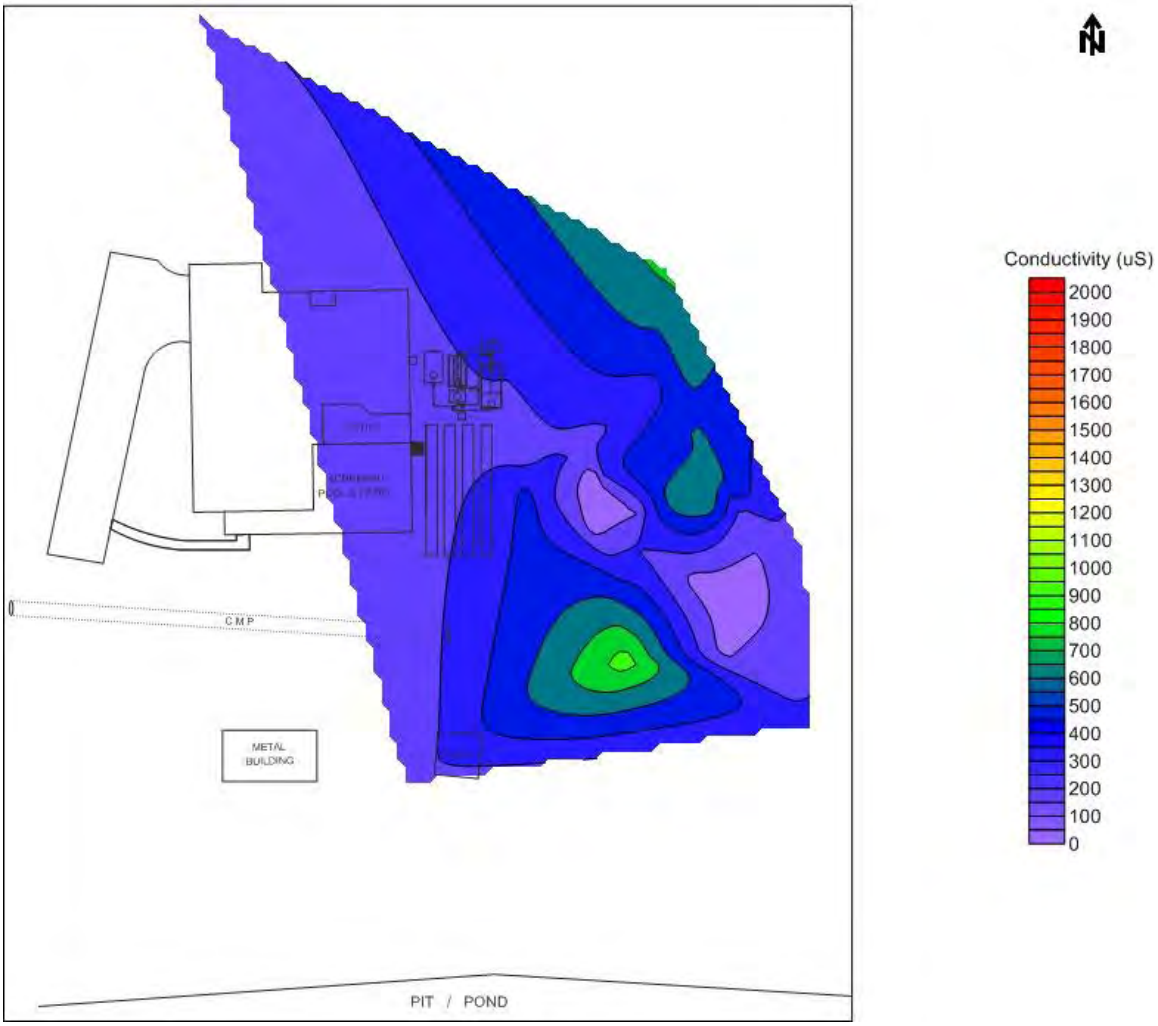


**Figure 8**
**Maximum Specific Conductance, Shallow GW Elev 7.9-17.6 ft above MSL**
**Schematic (using Surfer) illustrating specific conductance concentrations in the subsurface**

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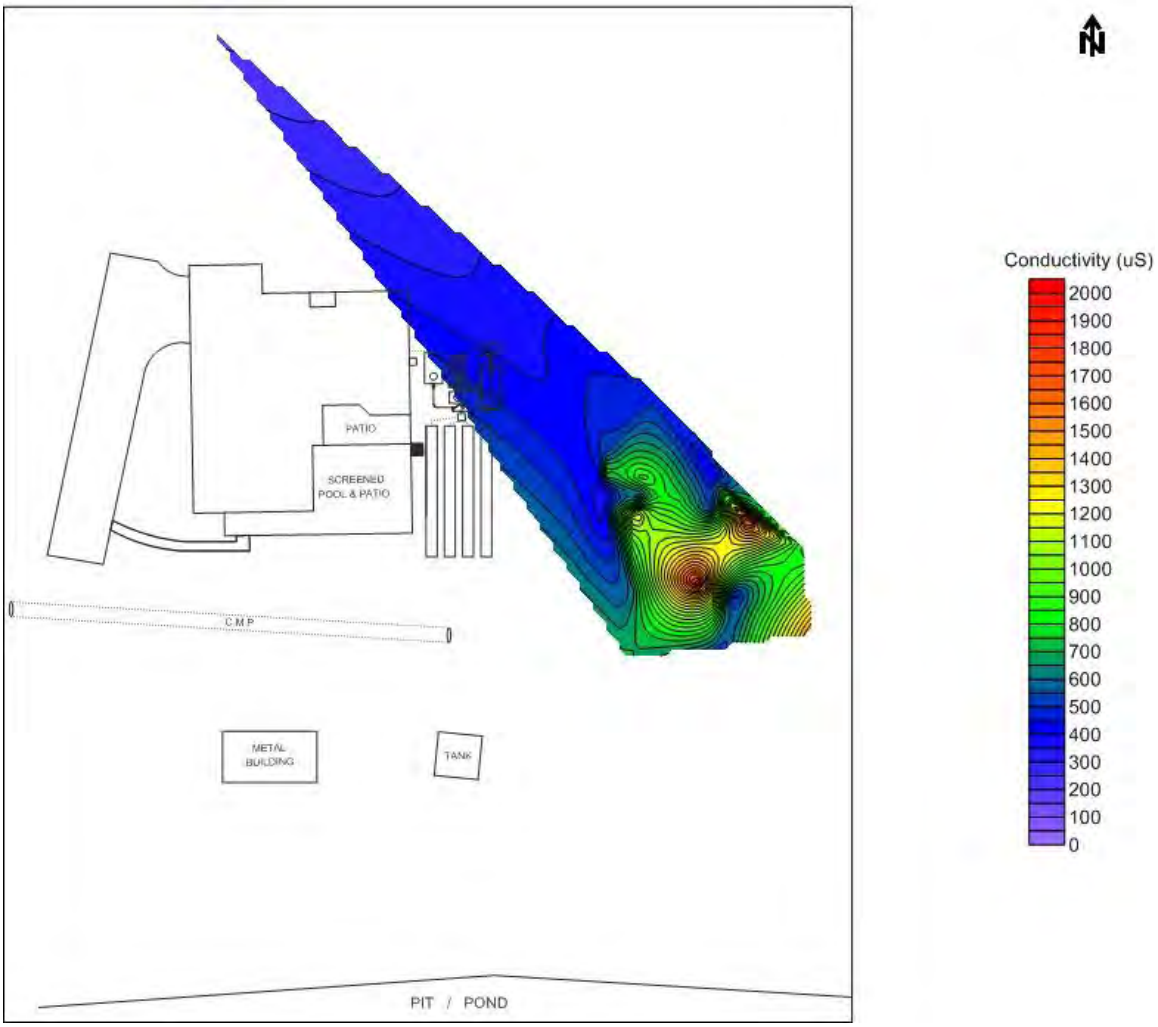


**Figure 9**
**Maximum Specific Conductance, Deep GW Elev 2.6-6.1 ft above MSL**
**Schematic (using Surfer) illustrating specific conductance concentrations in the subsurface**

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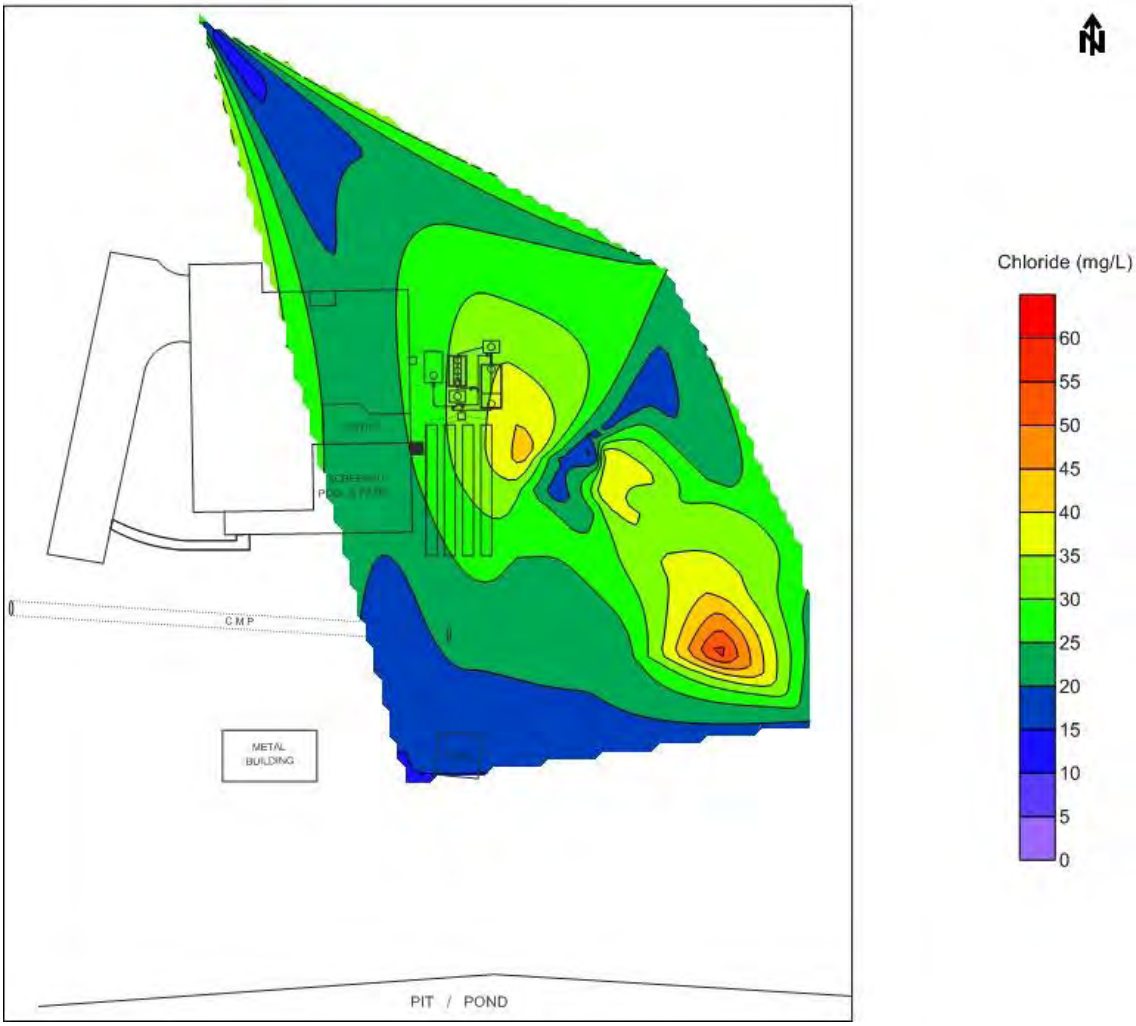


**Figure 10**
**Maximum Chloride, Shallow GW Elev 7.9-17.6 ft above MSL**
**Schematic (using Surfer) illustrating chloride concentrations in the subsurface**

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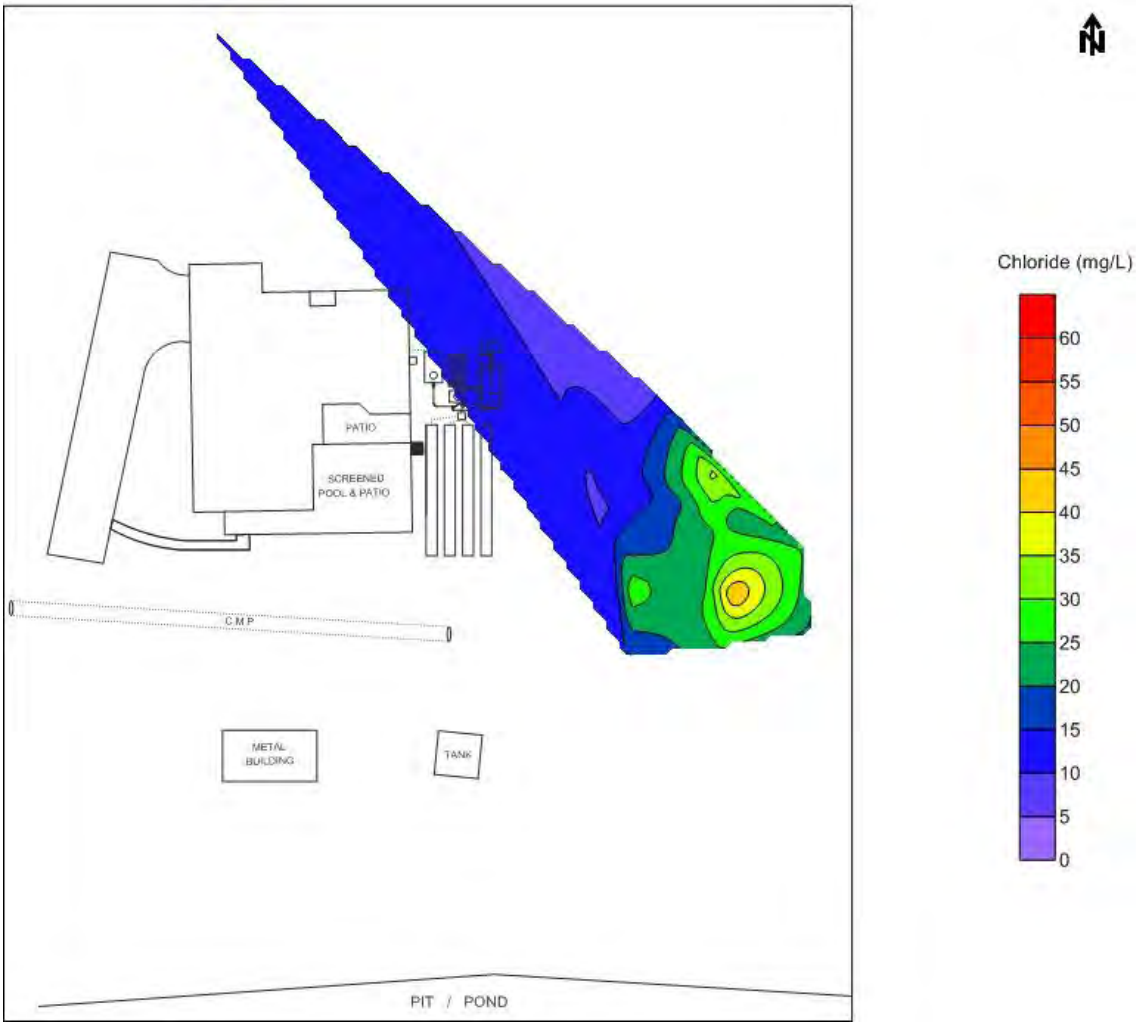


**Figure 11**
**Maximum Chloride, Deep GW Elev 2.6-6.1 ft above MSL**
**Schematic (using Surfer) illustrating chloride concentrations in the subsurface**

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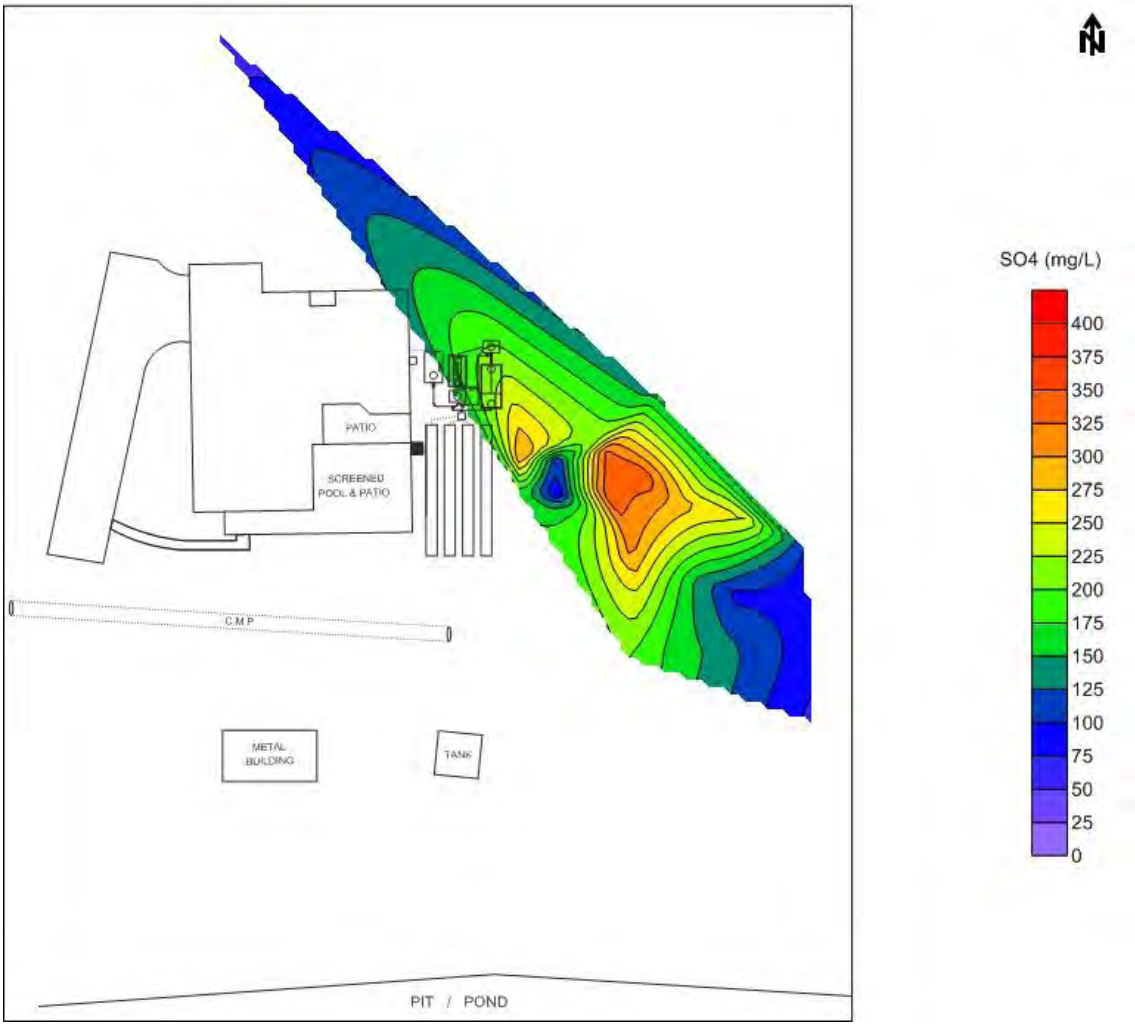


**Figure 12**
**Maximum Sulfate, Shallow GW Elev 7.9-17.6 ft above MSL**
**Schematic (using Surfer) illustrating sulfate concentrations in the subsurface**

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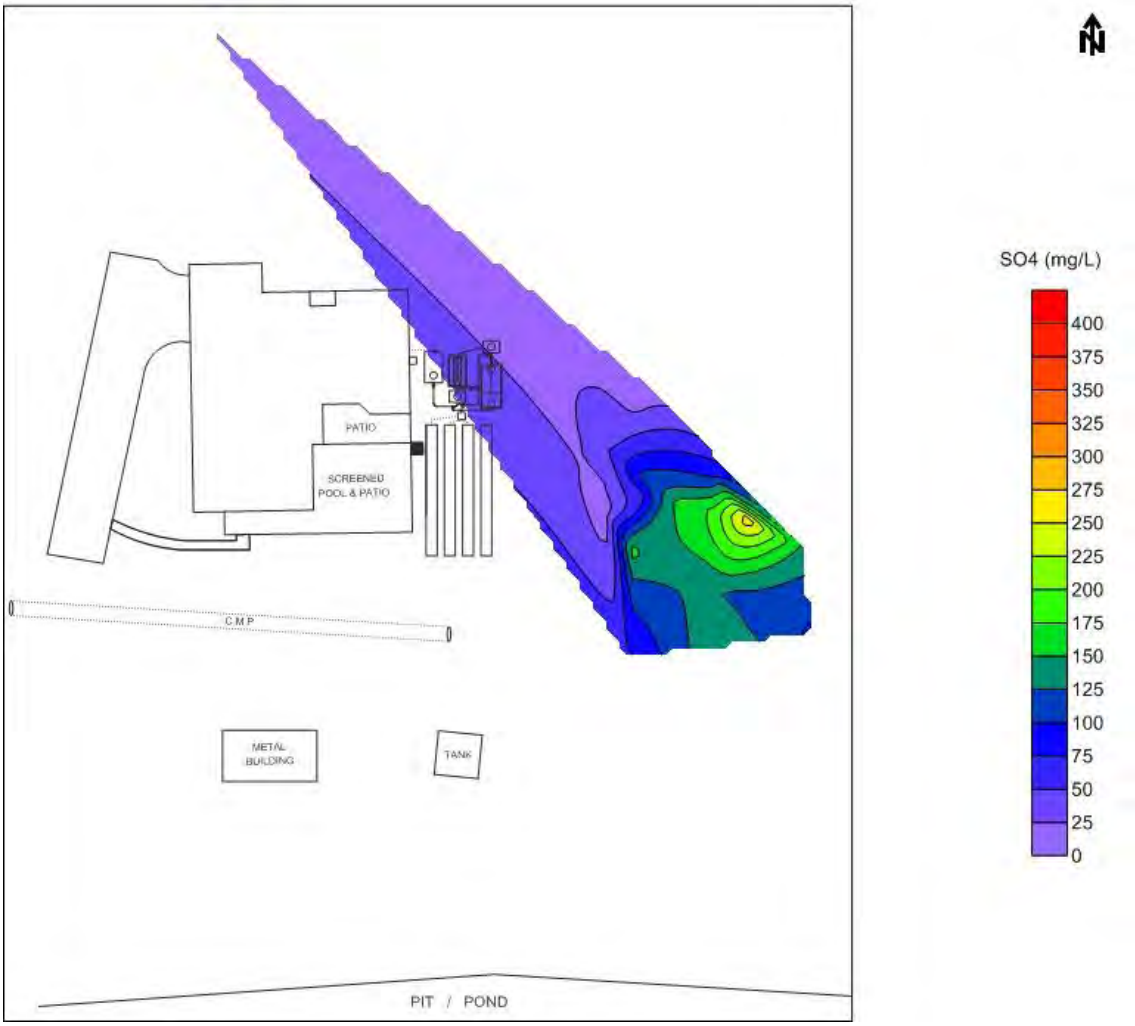


**Figure 13**
**Maximum Sulfate, Deep GW Elev 2.6-6.1 ft above MSL**
**Schematic (using Surfer) illustrating sulfate concentrations in the subsurface**

## 5.4 Soil Characteristics

Continuous soil samples were collected using the direct push method at grid locations BKG, DP-04 and E7. Soil samples were collected in direct push hollow tubes. The soil descriptions are provided in Appendix F, Table F.1. The soil samples were submitted to

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the University of Florida IFAS Analytical Services Laboratory and University of Florida SWS Mineralogy Core Laboratory for analysis. The soil samples were analyzed for particle size distribution (see Table F.2), pH, organic matter, cation exchange capacity (CEC), ammonia, nitrate, TKN, phosphorus, potassium, calcium, magnesium, and sodium concentrations (see Table F.3). The complete soil data set is included in Appendix F.

## 6.0 Summary

Further analysis of the results obtained at this site will occur as Task C results are compiled and summarized for use in Task D. The insight gained from monitoring the C-HS4 plume will provide information needed for the development of the groundwater model in Task D.

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# Appendix A: C-HS4 Sample Identification

**Table A.1**

**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 1a | C-HS4-STE | Wastewater | N/A | N/A |
| 1b | B-HS2-ST2 | Treated effluent from PNRS | N/A | N/A |
| 2 | PZ01 | 1" Standpipe Piezometer, 5' screen | 19.08 | 9.48 |
| 3 | PZ02 | 1" Standpipe Piezometer, 5' screen | 28.72 | 16.54 |
| 4 | PZ03 | 1" Standpipe Piezometer, 5' screen | 24.85 | 19.00 |
| 5 | PZ04 | 1" Standpipe Piezometer, 5' screen | 18.82 | 13.02 |
| 6 | PZ05 | 1" Standpipe Piezometer, 5' screen | 20.79 | NR |
| 7 | PZ06 | 1" Standpipe Piezometer, 5' screen | 22.17 | 11.02 |
| 8 | BKG-10 | 1" Standpipe Piezometer, 5' screen | 24.60 | 15.22 |
| 9 | BKG-15 | 3/4" Standpipe Piezometer, 1' screen | 24.60 | 10.17 |
| 10 | PZ-AB4-08 | 1" Standpipe Piezometer, 5' screen | 18.65 | 10.27 |
| 11 | PZ-AB4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.59 | 4.09 |
| 12 | PZ-C1 | 1" Standpipe Piezometer, 5' screen | 22.85 | 12.70 |
| 13 | PZ-C2 | 1" Standpipe Piezometer, 5' screen | 21.23 | 9.73 |
| 14 | PZ-C3-08 | 1" Standpipe Piezometer, 5' screen | 19.63 | 11.83 |
| 15 | PZ-C3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.09 |
| 16 | PZ-C6-08 | 1" Standpipe Piezometer, 5' screen | 17.53 | 9.03 |
| 17 | PZ-C6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.53 | 3.13 |
| 18 | PZ-D3-08 | 1" Standpipe Piezometer, 5' screen | 19.62 | 11.63 |
| 19 | PZ-D3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.08 |
| 20 | PZ-D4-08 | 1" Standpipe Piezometer, 5' screen | 18.77 | 10.89 |
| 21 | PZ-D4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.76 | 4.21 |
| 22 | PZ-E1 | 1" Standpipe Piezometer, 5' screen | 22.92 | 11.42 |
| 23 | PZ-E2 | 1" Standpipe Piezometer, 5' screen | 21.03 | 9.33 |
| 24 | PZ-E3-08 | 1" Standpipe Piezometer, 5' screen | 19.66 | 11.41 |
| 25 | PZ-E3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 4.98 |
| 26 | PZ-E4-08 | 1" Standpipe Piezometer, 5' screen | 18.70 | 10.80 |
| 27 | PZ-E4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.69 | 4.31 |
| 28 | PZ-E5-08 | 1" Standpipe Piezometer, 5' screen | 18.15 | 10.25 |
| 29 | PZ-E5-15 | 3/4" Standpipe Piezometer, 1' screen | 18.13 | 3.56 |
| 30 | PZ-E6-08 | 1" Standpipe Piezometer, 5' screen | 17.83 | 9.95 |

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**Table A.1 (continued)**
**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 31 | PZ-E6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.85 | 3.45 |
| 32 | PZ-E7-08 | 1" Standpipe Piezometer, 5' screen | 17.55 | 8.87 |
| 33 | PZ-E7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.55 | 3.05 |
| 34 | PZ-F3-08 | 1" Standpipe Piezometer, 5' screen | 19.54 | 11.59 |
| 35 | PZ-F3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.55 | 5.05 |
| 36 | PZ-F4-08 | 1" Standpipe Piezometer, 5' screen | 18.83 | 11.13 |
| 37 | PZ-F4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.88 | 4.48 |
| 38 | PZ-G1 | 1" Standpipe Piezometer, 5' screen | 20.72 | 12.82 |
| 39 | PZ-G2-12.5 | 2" Standpipe Piezometer, 7.5' screen | 21.03 | 8.88 |
| 40 | PZ-H4-08 | 1" Standpipe Piezometer, 5' screen | 19.19 | 10.91 |
| 41 | PZ-H4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.22 | 4.45 |
| 42 | PZ-H5-11.5 | 2" Standpipe Piezometer, 7.5' screen | 18.58 | 7.86 |
| 43 | PZ-I6-08 | 1" Standpipe Piezometer,5' screen | 18.42 | 9.37 |
| 44 | PZ-I6-15 | 3/4" Standpipe Piezometer, 1' screen | 18.42 | 3.87 |
| 45 | PZ-I10-08 | 1" Standpipe Piezometer, 5' screen | 16.87 | 8.95 |
| 46 | PZ-I10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.92 | 4.42 |
| 47 | PZ-J4-08 | 1" Standpipe Piezometer, 5' screen | 19.26 | 11.32 |
| 48 | PZ-J4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.25 | 4.73 |
| 49 | PZ-J7-08 | 1" Standpipe Piezometer, 5' screen | 17.86 | 9.41 |
| 50 | PZ-J7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.87 | 3.45 |
| 51 | PZ-N4-08 | 1" Standpipe Piezometer, 5' screen | 19.28 | 11.00 |
| 52 | PZ-N4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.30 | 4.82 |
| 53 | PZ-N7-08 | 1" Standpipe Piezometer, 5' screen | 18.01 | 9.46 |
| 54 | PZ-N7-15 | 3/4" Standpipe Piezometer, 1' screen | 18.03 | 3.23 |
| 55 | PZ-N10-08 | 1" Standpipe Piezometer, 5' screen | 16.92 | 9.17 |
| 56 | PZ-N10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.83 | 2.59 |
| 57 | PZ-S10-08 | 1" Standpipe Piezometer, 5' screen | 17.03 | 8.78 |
| 58 | DP01 | SST Drivepoint | 19.25 | |
| 59 | DP02 | SST Drivepoint | 19.24 | |
| 60 | DP03 | SST Drivepoint | 19.49 | |
| 61 | DP04 | SST Drivepoint | 19.22 | |
| 62 | DP05 | SST Drivepoint | 19.25 | |
| 63 | DP06 | SST Drivepoint | 19.38 | |

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

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# Appendix B: Weather Station Data

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# Table B.1
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Dec-12 | 63.76 | 52.12 | 78.49 | 64.86 | 53.65 | 78.67 | 64.80 | 53.65 | 76.96 | 67.11 | 65.68 | 68.45 | 56.95 | 78 | 0 | 0 | 145.70 | 7.05 | 1.30 | 19.57 | 47 | 0.07 | 60.00 |
| 2-Dec-12 | 67.54 | 58.41 | 81.30 | 68.27 | 59.29 | 80.94 | 68.03 | 60.04 | 79.74 | 67.79 | 66.65 | 69.21 | 59.85 | 78 | 0 | 0 | 154.15 | 6.92 | 0.63 | 24.23 | 64 | 0.07 | 62.91 |
| 3-Dec-12 | 67.51 | 57.58 | 81.52 | 68.30 | 59.20 | 81.25 | 68.53 | 62.22 | 79.03 | 68.58 | 67.57 | 69.93 | 59.80 | 77 | 0 | 0 | 130.55 | 6.51 | 1.53 | 19.07 | 73 | 0.07 | 62.89 |
| 4-Dec-12 | 64.89 | 53.33 | 79.57 | 65.89 | 54.73 | 79.21 | 66.86 | 57.88 | 77.38 | 68.08 | 66.56 | 69.44 | 55.92 | 74 | 0 | 0 | 157.37 | 6.53 | 1.77 | 16.73 | 93 | 0.06 | 59.80 |
| 5-Dec-12 | 65.88 | 53.82 | 79.86 | 66.80 | 55.71 | 79.11 | 67.10 | 57.90 | 77.20 | 68.13 | 66.58 | 69.53 | 58.81 | 77 | 0 | 0 | 129.37 | 5.19 | 0.07 | 15.50 | 68 | 0.06 | 61.78 |
| 6-Dec-12 | 68.13 | 60.06 | 80.62 | 68.79 | 60.67 | 80.29 | 68.76 | 61.41 | 78.28 | 69.19 | 68.04 | 70.56 | 61.71 | 80 | 0 | 0 | 135.09 | 5.71 | 0.90 | 16.27 | 73 | 0.07 | 64.20 |
| 7-Dec-12 | 66.10 | 59.81 | 79.43 | 66.70 | 60.75 | 79.09 | 66.84 | 60.73 | 77.56 | 69.35 | 68.38 | 70.70 | 62.37 | 87 | 0 | 0 | 117.78 | 5.31 | 0.33 | 13.60 | 59 | 0.06 | 63.89 |
| 8-Dec-12 | 70.14 | 61.65 | 82.47 | 70.50 | 62.37 | 82.02 | 70.01 | 63.37 | 80.96 | 70.03 | 69.01 | 71.40 | 65.92 | 87 | 0.2 | 0.05 | 107.49 | 4.62 | 0.30 | 13.17 | 106 | 0.07 | 67.42 |
| 9-Dec-12 | 68.80 | 59.23 | 79.83 | 69.43 | 60.80 | 79.20 | 69.39 | 63.55 | 77.95 | 70.63 | 69.24 | 72.19 | 65.97 | 90 | 0.01 | 0.01 | 138.07 | 3.14 | 0.00 | 46.07 | 343 | 0.06 | 67.11 |
| 10-Dec-12 | 69.98 | 59.27 | 82.63 | 70.65 | 61.03 | 82.74 | 70.49 | 62.85 | 81.45 | 70.08 | 68.83 | 71.15 | 67.87 | 91 | 0.67 | 0.29 | 74.68 | 6.92 | 0.07 | 22.33 | 172 | 0.07 | 68.75 |
| 11-Dec-12 | 71.01 | 66.13 | 79.14 | 71.51 | 66.67 | 79.18 | 71.13 | 66.61 | 77.94 | 70.80 | 69.89 | 71.89 | 70.01 | 95 | 0.22 | 0.15 | 70.42 | 4.87 | 0.00 | 15.80 | 190 | 0.06 | 70.47 |
| 12-Dec-12 | 72.19 | 64.65 | 81.50 | 72.71 | 65.35 | 80.91 | 72.37 | 65.91 | 79.56 | 71.39 | 70.25 | 72.61 | 70.02 | 92 | 0.05 | 0.05 | 89.79 | 4.97 | 0.07 | 16.33 | 197 | 0.06 | 70.83 |
| 13-Dec-12 | 63.81 | 54.64 | 70.11 | 63.92 | 54.97 | 70.57 | 63.35 | 55.04 | 70.16 | 70.91 | 69.53 | 71.76 | 60.22 | 88 | 0 | 0 | 108.11 | 8.81 | 2.10 | 20.43 | 10 | 0.05 | 61.57 |
| 14-Dec-12 | 58.71 | 54.30 | 69.13 | 58.77 | 54.34 | 68.77 | 58.30 | 54.07 | 67.06 | 68.61 | 67.87 | 69.46 | 55.72 | 90 | 0 | 0 | 116.53 | 7.91 | 2.10 | 16.70 | 29 | 0.05 | 56.94 |
| 15-Dec-12 | 62.96 | 53.94 | 77.52 | 63.67 | 54.45 | 77.34 | 63.87 | 54.66 | 75.83 | 68.22 | 66.96 | 69.87 | 59.49 | 88 | 0 | 0 | 116.81 | 5.24 | 0.70 | 13.90 | 69 | 0.06 | 61.04 |
| 16-Dec-12 | 66.67 | 55.81 | 80.85 | 67.48 | 57.47 | 80.55 | 67.86 | 60.12 | 78.87 | 68.30 | 66.67 | 69.96 | 61.95 | 85 | 0 | 0 | 136.44 | 4.38 | 0.07 | 15.57 | 122 | 0.06 | 63.90 |
| 17-Dec-12 | 68.21 | 55.76 | 80.56 | 69.08 | 57.83 | 80.80 | 69.15 | 61.48 | 79.27 | 68.90 | 67.37 | 70.34 | 64.11 | 86 | 0 | 0 | 139.08 | 5.34 | 0.00 | 18.93 | 185 | 0.06 | 65.79 |
| 18-Dec-12 | 68.34 | 53.82 | 78.67 | 69.04 | 55.38 | 78.71 | 68.72 | 56.26 | 77.22 | 69.73 | 68.90 | 71.08 | 64.93 | 88 | 0 | 0 | 129.79 | 6.21 | 0.83 | 21.53 | 274 | 0.06 | 66.30 |
| 19-Dec-12 | 58.20 | 41.67 | 79.09 | 60.13 | 45.81 | 78.12 | 62.03 | 49.78 | 78.04 | 67.20 | 65.50 | 68.86 | 47.66 | 70 | 0 | 0 | 169.04 | 3.71 | 0.07 | 13.13 | 79 | 0.05 | 53.23 |
| 20-Dec-12 | 67.50 | 50.25 | 82.13 | 68.27 | 52.77 | 82.08 | 68.27 | 55.65 | 80.53 | 66.88 | 65.10 | 68.76 | 61.84 | 82 | 0.57 | 0.25 | 145.48 | 9.10 | 1.23 | 23.43 | 172 | N/A | 64.10 |
| 21-Dec-12 | 55.83 | 40.08 | 68.54 | 56.44 | 43.38 | 69.33 | 56.05 | 46.74 | 68.79 | 66.71 | 64.47 | 68.72 | 44.50 | 66 | 0.02 | 0.01 | 168.99 | 10.85 | 1.23 | 28.03 | 321 | 0.05 | 50.14 |
| 22-Dec-12 | 47.51 | 33.93 | 63.70 | 48.47 | 37.27 | 62.96 | 48.70 | 37.36 | 62.01 | 62.81 | 61.54 | 64.36 | 29.88 | 55 | 0 | 0 | 174.82 | 5.91 | 0.73 | 18.07 | 343 | 0.04 | 40.56 |
| 23-Dec-12 | 50.14 | 33.11 | 70.39 | 51.17 | 36.01 | 69.04 | 52.34 | 38.82 | 67.96 | 61.24 | 59.34 | 63.05 | 37.26 | 63 | 0 | 0 | 140.07 | 3.89 | 0.07 | 23.30 | 50 | 0.04 | 44.58 |
| 24-Dec-12 | 56.86 | 46.42 | 67.15 | 57.96 | 47.93 | 67.69 | 59.29 | 51.67 | 67.12 | 62.39 | 61.25 | 63.54 | 50.82 | 78 | 0 | 0 | 64.20 | 3.85 | 0.17 | 14.30 | 147 | 0.05 | 53.90 |
| 25-Dec-12 | 62.23 | 50.79 | 75.07 | 63.26 | 52.25 | 75.20 | 64.05 | 54.37 | 73.90 | 63.03 | 61.39 | 64.69 | 57.23 | 82 | 0 | 0 | 97.29 | 5.81 | 0.07 | 18.77 | 147 | 0.06 | 59.55 |
| 26-Dec-12 | 64.62 | 52.95 | 78.57 | 65.18 | 53.73 | 78.76 | 64.95 | 53.74 | 77.49 | 64.66 | 63.64 | 65.98 | 60.46 | 85 | 0.22 | 0.21 | 81.90 | 10.88 | 0.97 | 31.10 | 237 | 0.07 | 62.18 |
| 27-Dec-12 | 50.15 | 36.85 | 63.41 | 50.86 | 39.90 | 62.58 | 50.73 | 39.80 | 61.12 | 62.72 | 61.12 | 64.33 | 43.86 | 79 | 0 | 0 | 167.74 | 4.43 | 0.10 | 12.97 | 344 | 0.04 | 47.27 |
| 28-Dec-12 | 56.32 | 37.73 | 72.30 | 56.80 | 39.21 | 71.94 | 56.66 | 41.64 | 70.83 | 61.62 | 59.59 | 63.55 | 51.27 | 84 | 0.34 | 0.11 | 114.21 | 5.56 | 0.27 | 14.67 | 98 | 0.05 | 53.65 |
| 29-Dec-12 | 66.04 | 53.82 | 72.68 | 66.58 | 54.48 | 72.95 | 66.20 | 54.46 | 72.39 | 64.95 | 63.57 | 66.38 | 63.20 | 89 | 0.15 | 0.06 | 77.98 | 11.00 | 2.37 | 25.63 | 262 | 0.06 | 64.37 |
| 30-Dec-12 | 46.57 | 37.51 | 57.13 | 46.79 | 38.15 | 56.64 | 46.45 | 37.88 | 55.09 | 61.84 | 60.55 | 64.11 | 38.16 | 73 | 0 | 0 | 160.42 | 8.63 | 1.27 | 22.20 | 25 | 0.04 | 42.74 |
| 31-Dec-12 | 56.39 | 42.12 | 74.32 | 57.05 | 42.56 | 74.05 | 57.36 | 42.60 | 72.95 | 61.11 | 59.14 | 63.41 | 49.97 | 79 | 0 | 0 | 156.33 | 5.54 | 0.00 | 17.33 | 88 | 0.05 | 53.07 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Jan-13 | 61.47 | 48.29 | 77.20 | 62.51 | 49.95 | 76.91 | 63.79 | 53.38 | 75.63 | 62.47 | 60.53 | 64.69 | 56.16 | 82 | 0 | 0 | 142.02 | 4.40 | 0.00 | 18.73 | 169 | 0.06 | 58.65 |
| 2-Jan-13 | 65.56 | 53.60 | 79.93 | 66.18 | 55.29 | 78.98 | 66.52 | 58.66 | 77.32 | 63.99 | 62.17 | 66.15 | 62.00 | 88 | 0 | 0 | 119.87 | 4.98 | 0.00 | 16.00 | 233 | 0.06 | 63.48 |
| 3-Jan-13 | 65.74 | 56.98 | 78.96 | 65.85 | 58.32 | 78.62 | 65.59 | 58.21 | 77.14 | 65.88 | 64.71 | 67.44 | 63.11 | 92 | 0.13 | 0.03 | 79.69 | 4.68 | 0.07 | 18.77 | 88 | 0.06 | 64.06 |
| 4-Jan-13 | 58.44 | 55.35 | 63.21 | 58.45 | 55.26 | 63.18 | 58.12 | 55.13 | 62.24 | 65.33 | 64.76 | 66.45 | 57.00 | 95 | 0.01 | 0.01 | 42.11 | 7.06 | 1.53 | 15.60 | 35 | 0.04 | 57.57 |
| 5-Jan-13 | 64.51 | 55.58 | 76.53 | 64.61 | 55.69 | 75.63 | 64.12 | 55.54 | 74.25 | 65.46 | 64.11 | 67.08 | 58.79 | 82 | 0 | 0 | 117.37 | 6.33 | 1.33 | 15.63 | 55 | 0.06 | 60.97 |
| 6-Jan-13 | 67.83 | 58.68 | 80.73 | 68.09 | 59.70 | 80.29 | 67.80 | 61.30 | 79.16 | 67.09 | 65.50 | 69.10 | 65.11 | 91 | 0.03 | 0.02 | 112.32 | 5.27 | 0.00 | 16.67 | 89 | 0.07 | 66.11 |
| 7-Jan-13 | 62.16 | 59.31 | 65.71 | 62.37 | 59.58 | 66.06 | 62.10 | 58.89 | 65.95 | 66.91 | 66.07 | 68.07 | 59.68 | 91 | 0 | 0 | 36.62 | 8.07 | 2.47 | 20.97 | 45 | 0.04 | 60.68 |
| 8-Jan-13 | 69.74 | 59.72 | 82.65 | 70.05 | 60.35 | 82.45 | 69.65 | 60.48 | 81.03 | 67.01 | 65.26 | 69.24 | 64.74 | 85 | 0.04 | 0.02 | 152.74 | 7.19 | 1.10 | 16.27 | 79 | 0.07 | 66.51 |
| 9-Jan-13 | 73.78 | 65.73 | 85.10 | 74.43 | 66.61 | 84.94 | 74.03 | 67.57 | 83.41 | 68.91 | 67.69 | 70.50 | 67.88 | 82 | 0 | 0 | 128.63 | 8.68 | 2.70 | 22.13 | 114 | 0.08 | 69.92 |
| 10-Jan-13 | 72.31 | 64.72 | 81.88 | 72.95 | 65.70 | 82.04 | 72.57 | 66.24 | 80.44 | 69.46 | 68.41 | 70.48 | 66.18 | 81 | 0 | 0 | 122.46 | 8.71 | 1.80 | 23.67 | 109 | 0.07 | 68.36 |
| 11-Jan-13 | 70.52 | 61.29 | 82.87 | 71.21 | 62.87 | 82.60 | 71.02 | 63.97 | 80.56 | 69.29 | 67.71 | 70.90 | 65.09 | 83 | 0 | 0 | 151.31 | 7.35 | 1.17 | 21.40 | 121 | 0.08 | 67.11 |
| 12-Jan-13 | 70.35 | 60.08 | 82.78 | 71.07 | 61.52 | 82.62 | 71.11 | 63.41 | 81.00 | 69.47 | 68.07 | 70.92 | 64.07 | 80 | 0 | 0 | 141.12 | 7.04 | 0.63 | 23.13 | 115 | 0.07 | 66.42 |
| 13-Jan-13 | 70.18 | 60.57 | 81.99 | 70.88 | 61.70 | 81.43 | 70.89 | 62.29 | 80.28 | 69.71 | 68.16 | 71.22 | 63.93 | 80 | 0 | 0 | 136.40 | 5.80 | 0.03 | 15.83 | 130 | 0.07 | 66.27 |
| 14-Jan-13 | 67.35 | 57.87 | 80.71 | 68.29 | 59.40 | 80.22 | 68.85 | 60.19 | 79.70 | 69.49 | 68.11 | 70.79 | 61.39 | 81 | 0 | 0 | 128.68 | 5.08 | 0.00 | 20.13 | 127 | N/A | 63.83 |
| 15-Jan-13 | 67.81 | 53.85 | 82.06 | 68.47 | 55.67 | 81.37 | 69.11 | 59.59 | 80.10 | 68.84 | 67.03 | 70.68 | 62.15 | 82 | 0 | 0 | 144.48 | 4.32 | 0.20 | 16.20 | 126 | 0.07 | 64.36 |
| 16-Jan-13 | 68.28 | 55.94 | 83.64 | 69.07 | 58.14 | 82.27 | 69.63 | 61.81 | 81.01 | 69.45 | 67.87 | 71.01 | 61.53 | 80 | 0 | 0 | 148.89 | 4.27 | 0.00 | 16.67 | 164 | 0.07 | 64.19 |
| 17-Jan-13 | 60.71 | 55.00 | 72.28 | 61.24 | 55.09 | 72.64 | 61.49 | 54.97 | 71.74 | 68.12 | 66.96 | 69.24 | 57.81 | 89 | 0.04 | 0.01 | 49.69 | 8.64 | 0.00 | 26.00 | 259 | 0.06 | 59.13 |
| 18-Jan-13 | 52.86 | 38.45 | 64.45 | 52.68 | 38.91 | 63.63 | 52.21 | 38.87 | 61.93 | 65.53 | 63.97 | 66.88 | 46.50 | 80 | 0.01 | 0.01 | 132.96 | 9.23 | 1.60 | 22.83 | 21 | 0.05 | 49.39 |
| 19-Jan-13 | 62.78 | 52.70 | 74.79 | 62.94 | 52.84 | 74.39 | 62.61 | 52.84 | 72.79 | 65.98 | 64.67 | 67.46 | 56.07 | 79 | 0 | 0 | 122.00 | 9.38 | 1.67 | 23.57 | 48 | 0.07 | 58.77 |
| 20-Jan-13 | 64.46 | 58.23 | 75.34 | 64.76 | 58.35 | 74.77 | 64.57 | 58.37 | 73.18 | 66.94 | 65.86 | 68.34 | 60.05 | 85 | 0 | 0 | 102.85 | 6.29 | 1.20 | 17.03 | 52 | 0.06 | 61.78 |
| 21-Jan-13 | 64.42 | 58.53 | 75.00 | 64.79 | 59.14 | 74.10 | 64.46 | 59.16 | 73.26 | 67.48 | 66.47 | 68.79 | 58.94 | 82 | 0 | 0 | 92.03 | 4.88 | 0.07 | 15.93 | 355 | 0.06 | 61.12 |
| 22-Jan-13 | 56.75 | 46.44 | 66.49 | 57.49 | 49.32 | 66.56 | 57.45 | 50.68 | 65.19 | 66.15 | 65.14 | 67.46 | 42.30 | 60 | 0 | 0 | 104.70 | 6.62 | 0.97 | 19.03 | 18 | 0.06 | 49.65 |
| 23-Jan-13 | 54.15 | 41.77 | 71.33 | 55.14 | 42.90 | 70.39 | 55.54 | 43.51 | 69.22 | 64.24 | 62.53 | 65.95 | 36.56 | 54 | 0 | 0 | 183.92 | 5.40 | 0.50 | 17.10 | 21 | 0.06 | 46.25 |
| 24-Jan-13 | 55.37 | 37.34 | 73.40 | 56.31 | 40.90 | 72.19 | 57.07 | 43.48 | 70.83 | 63.56 | 61.54 | 65.66 | 45.08 | 70 | 0 | 0 | 178.56 | 5.01 | 0.23 | 16.80 | 356 | 0.06 | 50.35 |
| 25-Jan-13 | 58.29 | 41.75 | 75.70 | 59.10 | 42.87 | 75.06 | 59.82 | 47.21 | 74.01 | 63.94 | 61.95 | 66.15 | 49.15 | 74 | 0 | 0 | 179.77 | 4.11 | 0.33 | 14.97 | 356 | 0.07 | 53.53 |
| 26-Jan-13 | 58.31 | 40.81 | 75.96 | 59.26 | 43.27 | 74.62 | 60.25 | 46.71 | 73.22 | 64.07 | 61.90 | 66.27 | 51.96 | 80 | 0 | 0 | 181.40 | 3.73 | 0.13 | 12.70 | 355 | 0.07 | 55.04 |
| 27-Jan-13 | 61.96 | 45.90 | 78.13 | 63.08 | 48.42 | 78.12 | 63.94 | 52.03 | 76.59 | 64.56 | 62.58 | 66.60 | 54.13 | 76 | 0 | 0 | 183.22 | 6.35 | 0.90 | 18.53 | 74 | 0.08 | 57.74 |
| 28-Jan-13 | 66.90 | 54.52 | 81.03 | 67.46 | 56.07 | 80.64 | 67.71 | 58.75 | 79.23 | 65.69 | 64.02 | 67.59 | 60.90 | 82 | 0 | 0 | 129.62 | 7.19 | 1.57 | 19.07 | 91 | 0.08 | 63.25 |
| 29-Jan-13 | 68.91 | 56.46 | 82.13 | 69.56 | 58.14 | 82.11 | 69.76 | 60.13 | 80.76 | 67.09 | 65.48 | 68.79 | 63.89 | 84 | 0 | 0 | 127.84 | 6.41 | 1.03 | 20.60 | 127 | 0.08 | 65.81 |
| 30-Jan-13 | 71.00 | 63.25 | 82.22 | 71.48 | 63.88 | 81.82 | 70.98 | 64.18 | 79.99 | 68.27 | 66.96 | 69.76 | 64.99 | 82 | 0 | 0 | 174.63 | 12.67 | 2.73 | 30.80 | 173 | 0.1 | 67.14 |
| 31-Jan-13 | 57.55 | 40.23 | 68.67 | 57.83 | 43.55 | 69.26 | 57.36 | 45.43 | 69.04 | 67.86 | 65.79 | 69.01 | 44.19 | 66 | 0.04 | 0.01 | 193.88 | 7.81 | 0.93 | 27.57 | 335 | 0.07 | 50.63 |

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# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Feb-13 | 51.91 | 39.09 | 68.90 | 52.67 | 40.25 | 67.75 | 52.81 | 40.61 | 66.99 | 64.28 | 62.53 | 65.84 | 32.47 | 52 | 0 | 0 | 200.94 | 6.68 | 0.30 | 22.13 | 11 | 0.07 | 43.59 |
| 2-Feb-13 | 55.20 | 38.47 | 73.18 | 55.78 | 40.61 | 72.00 | 55.65 | 41.47 | 71.11 | 63.57 | 61.43 | 65.82 | 41.55 | 63 | 0 | 0 | 194.00 | 5.09 | 0.17 | 14.43 | 15 | 0.08 | 48.54 |
| 3-Feb-13 | 54.40 | 39.80 | 71.74 | 55.31 | 43.51 | 70.92 | 55.62 | 44.27 | 68.95 | 63.56 | 61.45 | 65.57 | 46.44 | 74 | 0 | 0 | 183.67 | 5.46 | 0.20 | 19.70 | 339 | 0.08 | 50.55 |
| 4-Feb-13 | 52.61 | 34.71 | 72.27 | 53.80 | 38.22 | 71.01 | 55.19 | 42.53 | 70.07 | 63.14 | 60.94 | 65.37 | 41.56 | 70 | 0 | 0 | 198.33 | 3.71 | 0.03 | 15.23 | 350 | 0.07 | 47.62 |
| 5-Feb-13 | 58.14 | 38.62 | 77.86 | 59.15 | 41.03 | 76.60 | 60.32 | 43.31 | 75.29 | 63.45 | 61.00 | 66.11 | 46.64 | 66 | 0 | 0 | 191.10 | 3.97 | 0.17 | 47.13 | 65 | 0.08 | 52.33 |
| 6-Feb-13 | 65.27 | 50.86 | 79.11 | 65.89 | 52.29 | 78.21 | 66.60 | 56.26 | 76.98 | 65.11 | 63.34 | 67.14 | 56.69 | 74 | 0 | 0 | 121.85 | 4.00 | 0.30 | 14.13 | 100 | 0.08 | 60.23 |
| 7-Feb-13 | 69.20 | 59.04 | 82.54 | 69.63 | 59.92 | 81.93 | 69.29 | 60.75 | 79.95 | 66.76 | 65.23 | 68.43 | 62.17 | 79 | 0.04 | 0.02 | 153.43 | 10.32 | 1.53 | 39.17 | 168 | 0.1 | 64.77 |
| 8-Feb-13 | 67.66 | 53.98 | 78.26 | 67.89 | 55.62 | 77.67 | 67.26 | 56.08 | 76.05 | 67.96 | 66.63 | 69.58 | 61.33 | 81 | 0 | 0 | 200.65 | 7.04 | 1.33 | 21.57 | 303 | 0.1 | 63.66 |
| 9-Feb-13 | 61.80 | 47.34 | 77.00 | 62.20 | 49.50 | 76.73 | 62.19 | 52.07 | 74.95 | 66.97 | 65.26 | 68.67 | 53.45 | 77 | 0 | 0 | 200.21 | 6.96 | 0.67 | 17.00 | 50 | 0.09 | 57.03 |
| 10-Feb-13 | 66.90 | 55.24 | 80.15 | 67.29 | 56.25 | 79.83 | 67.11 | 58.37 | 78.17 | 67.25 | 65.75 | 68.95 | 58.38 | 75 | 0 | 0 | 163.81 | 9.41 | 3.33 | 24.23 | 113 | 0.1 | 61.70 |
| 11-Feb-13 | 68.35 | 55.47 | 82.98 | 68.94 | 57.13 | 82.36 | 69.00 | 59.83 | 80.98 | 68.13 | 66.31 | 70.18 | 61.49 | 79 | 0 | 0 | 170.43 | 6.60 | 0.13 | 20.20 | 177 | 0.1 | 64.12 |
| 12-Feb-13 | 69.78 | 57.83 | 84.25 | 70.38 | 59.11 | 83.48 | 70.45 | 61.74 | 81.43 | 68.79 | 66.72 | 70.90 | 64.75 | 84 | 0 | 0 | 179.29 | 7.26 | 1.60 | 21.00 | 189 | 0.11 | 66.63 |
| 13-Feb-13 | 71.90 | 61.18 | 82.96 | 72.22 | 61.63 | 82.53 | 71.63 | 61.27 | 80.98 | 70.51 | 69.30 | 72.10 | 67.62 | 86 | 0.06 | 0.05 | 149.03 | 11.13 | 0.07 | 38.60 | 222 | 0.1 | 69.07 |
| 14-Feb-13 | 60.76 | 58.50 | 64.29 | 61.00 | 59.00 | 64.17 | 60.83 | 58.57 | 63.72 | 68.90 | 67.60 | 70.90 | 58.69 | 92 | 0.35 | 0.08 | 36.33 | 4.78 | 0.00 | 22.83 | 25 | 0.05 | 59.57 |
| 15-Feb-13 | 59.49 | 54.90 | 69.26 | 59.41 | 55.44 | 68.36 | 59.19 | 55.44 | 67.50 | 67.41 | 66.52 | 68.83 | 56.29 | 90 | 0.11 | 0.02 | 113.61 | 4.41 | 0.20 | 11.37 | 357 | 0.07 | 57.53 |
| 16-Feb-13 | 56.03 | 45.81 | 66.94 | 56.11 | 47.52 | 66.13 | 55.80 | 48.11 | 64.72 | 65.98 | 64.78 | 67.08 | 46.92 | 73 | 0.01 | 0.01 | 161.89 | 9.44 | 0.17 | 28.70 | 329 | 0.08 | 51.14 |
| 17-Feb-13 | 45.66 | 35.02 | 56.80 | 45.69 | 35.87 | 55.09 | 45.34 | 36.08 | 54.34 | 63.58 | 61.83 | 65.07 | 23.36 | 43 | 0 | 0 | 225.20 | 7.82 | 0.53 | 23.50 | 0 | 0.07 | 37.12 |
| 18-Feb-13 | 50.70 | 32.18 | 69.98 | 51.23 | 33.29 | 69.24 | 51.30 | 34.44 | 67.44 | 62.33 | 59.92 | 64.76 | 37.50 | 62 | 0 | 0 | 220.59 | 7.94 | 2.63 | 22.87 | 88 | 0.09 | 44.70 |
| 19-Feb-13 | 61.20 | 45.63 | 76.93 | 62.06 | 47.07 | 76.42 | 62.97 | 50.72 | 75.25 | 63.98 | 61.61 | 66.61 | 52.72 | 74 | 0 | 0 | 189.81 | 6.14 | 0.67 | 21.37 | 186 | 0.1 | 56.58 |
| 20-Feb-13 | 64.72 | 52.97 | 80.60 | 65.11 | 54.32 | 78.89 | 65.39 | 57.83 | 77.38 | 65.81 | 63.75 | 68.47 | 59.96 | 85 | 0 | 0 | 158.21 | 4.38 | 0.17 | 16.97 | 345 | 0.1 | 61.85 |
| 21-Feb-13 | 66.90 | 54.46 | 83.82 | 67.25 | 55.08 | 82.69 | 67.43 | 55.92 | 81.01 | 67.34 | 65.23 | 69.66 | 60.53 | 81 | 0 | 0 | 171.15 | 5.28 | 0.13 | 15.47 | 101 | 0.1 | 62.95 |
| 22-Feb-13 | 70.54 | 59.04 | 86.83 | 71.07 | 60.69 | 85.78 | 71.29 | 62.40 | 84.06 | 68.41 | 66.36 | 70.68 | 64.55 | 82 | 0 | 0 | 166.91 | 6.47 | 0.40 | 22.37 | 160 | 0.11 | 66.72 |
| 23-Feb-13 | 73.54 | 64.98 | 85.15 | 73.72 | 65.79 | 84.09 | 73.25 | 66.60 | 82.06 | 70.14 | 68.50 | 72.37 | 68.19 | 84 | 0 | 0 | 184.69 | 9.11 | 1.10 | 25.07 | 200 | 0.12 | 69.91 |
| 24-Feb-13 | 72.31 | 62.91 | 83.62 | 72.59 | 64.49 | 82.71 | 72.33 | 66.94 | 81.36 | 71.51 | 70.18 | 73.11 | 67.87 | 86 | 0 | 0 | 150.78 | 6.39 | 0.80 | 43.20 | 246 | 0.1 | 69.35 |
| 25-Feb-13 | 72.95 | 65.57 | 85.21 | 73.26 | 65.80 | 84.67 | 73.10 | 65.88 | 83.48 | 71.63 | 70.32 | 73.22 | 66.69 | 82 | 0 | 0 | 139.54 | 7.56 | 0.43 | 24.33 | 158 | 0.1 | 68.79 |
| 26-Feb-13 | 70.02 | 61.45 | 77.27 | 70.51 | 62.38 | 77.36 | 70.33 | 63.05 | 76.77 | 71.41 | 70.47 | 72.07 | 67.48 | 90 | 0.45 | 0.21 | 71.74 | 9.21 | 1.37 | 28.67 | 213 | 0.07 | 68.44 |
| 27-Feb-13 | 63.14 | 54.00 | 73.40 | 63.39 | 56.23 | 72.01 | 63.50 | 56.46 | 70.68 | 69.67 | 67.82 | 71.47 | 57.15 | 81 | 0 | 0 | 190.20 | 4.90 | 0.07 | 15.27 | 298 | 0.1 | 59.55 |
| 28-Feb-13 | 60.30 | 47.57 | 72.50 | 60.61 | 49.82 | 71.58 | 60.74 | 50.92 | 70.05 | 68.77 | 66.79 | 70.75 | 51.68 | 75 | 0 | 0 | 204.15 | 5.83 | 0.00 | 23.67 | 309 | 0.1 | 55.45 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Mar-13 | 54.63 | 47.12 | 61.18 | 54.77 | 47.73 | 60.58 | 54.73 | 48.13 | 59.67 | 67.06 | 66.06 | 68.85 | 43.07 | 66 | 0 | 0 | 101.89 | 6.68 | 0.63 | 19.83 | 329 | 0.07 | 48.74 |
| 2-Mar-13 | 51.05 | 39.82 | 59.47 | 51.15 | 42.32 | 58.08 | 51.17 | 44.65 | 56.43 | 65.58 | 64.44 | 66.52 | 38.59 | 63 | 0 | 0 | 153.99 | 7.72 | 0.00 | 31.87 | 343 | 0.07 | 45.10 |
| 3-Mar-13 | 45.31 | 36.94 | 54.75 | 45.35 | 37.64 | 53.85 | 45.12 | 38.09 | 52.34 | 63.71 | 62.53 | 64.81 | 34.48 | 66 | 0 | 0 | 143.86 | 7.87 | 0.17 | 30.37 | 348 | 0.07 | 40.52 |
| 4-Mar-13 | 49.01 | 31.65 | 69.31 | 49.37 | 34.09 | 67.87 | 49.67 | 36.51 | 67.06 | 63.31 | 60.66 | 66.36 | 34.60 | 62 | 0 | 0 | 242.34 | 4.07 | 0.10 | 16.33 | 23 | 0.09 | 42.66 |
| 5-Mar-13 | 57.22 | 36.04 | 75.20 | 57.63 | 38.64 | 74.35 | 58.03 | 43.24 | 72.73 | 64.32 | 61.38 | 67.46 | 48.05 | 73 | 0 | 0 | 239.19 | 6.34 | 0.10 | 22.00 | 207 | 0.1 | 52.35 |
| 6-Mar-13 | 57.74 | 44.09 | 64.08 | 57.76 | 47.03 | 64.33 | 57.37 | 48.09 | 64.35 | 65.84 | 64.94 | 67.17 | 46.64 | 69 | 0.04 | 0.03 | 239.38 | 10.27 | 0.87 | 25.33 | 299 | 0.1 | 51.72 |
| 7-Mar-13 | 50.58 | 36.52 | 68.07 | 50.77 | 38.31 | 66.31 | 50.52 | 39.28 | 65.05 | 64.16 | 61.66 | 66.81 | 36.70 | 61 | 0 | 0 | 247.76 | 6.07 | 0.37 | 22.07 | 346 | 0.09 | 44.16 |
| 8-Mar-13 | 56.50 | 39.27 | 77.34 | 56.73 | 41.36 | 75.90 | 56.80 | 41.77 | 75.09 | 64.61 | 61.79 | 67.71 | 40.67 | 62 | 0 | 0 | 246.25 | 5.20 | 0.20 | 15.57 | 5 | 0.11 | 48.61 |
| 9-Mar-13 | 60.38 | 45.03 | 75.38 | 60.85 | 46.45 | 74.73 | 61.15 | 47.97 | 73.29 | 65.39 | 62.94 | 67.75 | 46.50 | 63 | 0 | 0 | 195.73 | 6.37 | 0.47 | 17.07 | 76 | 0.1 | 53.00 |
| 10-Mar-13 | 65.37 | 50.13 | 79.32 | 65.54 | 52.27 | 78.62 | 65.31 | 54.72 | 77.23 | 66.78 | 64.65 | 69.28 | 54.00 | 69 | 0 | 0 | 214.59 | 8.78 | 1.43 | 26.57 | 105 | 0.12 | 58.63 |
| 11-Mar-13 | 66.47 | 53.96 | 79.34 | 66.82 | 55.08 | 78.49 | 66.70 | 56.32 | 76.89 | 67.51 | 65.80 | 69.22 | 57.35 | 74 | 0 | 0 | 152.10 | 8.98 | 2.17 | 24.80 | 156 | 0.1 | 60.94 |
| 12-Mar-13 | 62.57 | 53.51 | 68.13 | 62.86 | 54.14 | 68.54 | 62.73 | 54.28 | 68.14 | 67.58 | 66.40 | 68.23 | 59.57 | 89 | 0.36 | 0.05 | 71.29 | 8.67 | 1.17 | 24.10 | 245 | 0.07 | 60.80 |
| 13-Mar-13 | 59.92 | 48.20 | 75.40 | 59.99 | 48.97 | 74.32 | 59.54 | 49.30 | 72.84 | 65.82 | 63.72 | 68.05 | 43.07 | 60 | 0 | 0 | 257.92 | 8.02 | 0.97 | 23.97 | 339 | 0.12 | 51.10 |
| 14-Mar-13 | 56.08 | 43.08 | 69.82 | 56.15 | 45.99 | 68.77 | 55.78 | 47.80 | 67.96 | 65.47 | 63.19 | 67.82 | 35.26 | 51 | 0 | 0 | 262.22 | 8.01 | 1.00 | 20.03 | 355 | 0.11 | 46.27 |
| 15-Mar-13 | 53.73 | 34.64 | 73.08 | 54.68 | 37.44 | 72.23 | 55.50 | 40.47 | 71.78 | 65.06 | 62.15 | 68.04 | 38.74 | 62 | 0 | 0 | 254.55 | 4.59 | 0.00 | 38.67 | 18 | 0.1 | 46.87 |
| 16-Mar-13 | 57.32 | 37.05 | 77.86 | 58.23 | 40.09 | 76.59 | 59.23 | 43.58 | 74.84 | 65.62 | 62.51 | 68.85 | 45.32 | 68 | 0 | 0 | 251.91 | 4.22 | 0.00 | 16.90 | 208 | 0.11 | 51.31 |
| 17-Mar-13 | 61.32 | 42.74 | 77.47 | 62.08 | 44.73 | 76.91 | 62.85 | 49.46 | 74.95 | 66.02 | 63.73 | 68.14 | 53.54 | 76 | 0 | 0 | 158.26 | 4.88 | 0.07 | 17.57 | 153 | 0.1 | 57.03 |
| 18-Mar-13 | 66.87 | 56.62 | 76.93 | 67.39 | 58.51 | 76.98 | 67.41 | 60.17 | 75.90 | 66.93 | 65.66 | 67.91 | 62.62 | 85 | 0 | 0 | 85.81 | 7.59 | 0.27 | 27.37 | 170 | 0.08 | 64.28 |
| 19-Mar-13 | 69.99 | 58.98 | 85.66 | 70.13 | 60.62 | 84.25 | 69.80 | 61.63 | 82.89 | 68.72 | 66.29 | 71.94 | 62.85 | 80 | 0 | 0 | 221.13 | 4.67 | 0.10 | 16.53 | 342 | 0.13 | 65.36 |
| 20-Mar-13 | 65.29 | 58.46 | 73.06 | 65.58 | 58.64 | 72.95 | 65.38 | 58.60 | 71.96 | 69.06 | 68.31 | 70.14 | 61.32 | 87 | 0.06 | 0.02 | 81.11 | 5.48 | 0.07 | 21.10 | 316 | 0.07 | 62.85 |
| 21-Mar-13 | 58.55 | 42.56 | 71.11 | 58.62 | 46.94 | 69.66 | 58.37 | 48.40 | 68.11 | 67.82 | 65.80 | 70.03 | 40.96 | 59 | 0 | 0 | 269.79 | 6.05 | 0.27 | 16.93 | 336 | 0.11 | 49.60 |
| 22-Mar-13 | 60.01 | 38.47 | 78.24 | 60.40 | 40.02 | 76.69 | 60.49 | 43.60 | 74.71 | 66.51 | 63.86 | 68.95 | 52.63 | 78 | 0.56 | 0.14 | 181.79 | 6.85 | 0.13 | 21.77 | 82 | 0.11 | 55.87 |
| 23-Mar-13 | 72.27 | 63.18 | 83.71 | 72.46 | 63.39 | 83.28 | 71.96 | 63.41 | 81.77 | 69.23 | 67.21 | 71.65 | 68.05 | 87 | 0 | 0 | 186.35 | 8.87 | 1.87 | 28.13 | 181 | 0.13 | 69.43 |
| 24-Mar-13 | 73.63 | 67.44 | 81.16 | 74.03 | 68.23 | 81.09 | 73.66 | 68.23 | 79.86 | 70.64 | 69.64 | 71.60 | 70.70 | 90 | 0 | 0 | 97.29 | 12.32 | 1.07 | 35.30 | 225 | 0.09 | 71.69 |
| 25-Mar-13 | 62.73 | 50.94 | 70.34 | 62.62 | 52.18 | 68.94 | 61.99 | 52.38 | 68.00 | 70.21 | 68.68 | 71.83 | 46.53 | 60 | 0 | 0 | 265.57 | 9.57 | 0.60 | 24.57 | 318 | 0.12 | 53.76 |
| 26-Mar-13 | 51.70 | 41.82 | 58.80 | 51.52 | 43.20 | 57.16 | 50.88 | 43.53 | 55.67 | 67.91 | 66.18 | 69.49 | 35.09 | 54 | 0 | 0 | 252.32 | 10.86 | 1.87 | 29.13 | 335 | 0.1 | 43.93 |
| 27-Mar-13 | 47.87 | 33.21 | 62.53 | 48.00 | 36.25 | 60.87 | 47.62 | 36.44 | 58.91 | 66.24 | 63.57 | 68.94 | 33.39 | 61 | 0 | 0 | 276.33 | 6.24 | 0.67 | 23.03 | 348 | 0.1 | 41.51 |
| 28-Mar-13 | 53.47 | 34.13 | 72.52 | 53.86 | 36.67 | 71.47 | 53.88 | 38.61 | 70.03 | 66.03 | 63.03 | 69.33 | 34.58 | 56 | 0 | 0 | 274.63 | 5.65 | 0.37 | 16.77 | 18 | 0.11 | 44.91 |
| 29-Mar-13 | 58.88 | 40.81 | 75.49 | 59.68 | 43.16 | 74.55 | 60.32 | 45.30 | 73.29 | 66.78 | 63.86 | 69.96 | 39.75 | 54 | 0 | 0 | 267.63 | 5.81 | 0.00 | 19.83 | 55 | 0.12 | 49.59 |
| 30-Mar-13 | 61.26 | 43.31 | 79.02 | 61.93 | 45.91 | 77.47 | 62.69 | 50.68 | 75.54 | 67.85 | 64.90 | 71.08 | 48.28 | 65 | 0 | 0 | 263.00 | 5.34 | 0.00 | 20.07 | 114 | 0.13 | 54.29 |
| 31-Mar-13 | 66.16 | 49.48 | 81.54 | 66.41 | 51.01 | 80.28 | 66.62 | 54.19 | 78.87 | 68.90 | 66.34 | 71.58 | 54.71 | 70 | 0 | 0 | 229.26 | 6.29 | 0.30 | 22.60 | 187 | 0.13 | 59.34 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Apr-13 | 70.01 | 60.57 | 81.05 | 70.14 | 61.12 | 80.26 | 69.78 | 61.79 | 78.82 | 70.54 | 68.47 | 72.93 | 63.64 | 82 | 0 | 0 | 215.22 | 6.99 | 0.80 | 21.20 | 239 | 0.13 | 65.85 |
| 2-Apr-13 | 70.02 | 57.85 | 85.66 | 69.92 | 58.37 | 84.52 | 70.00 | 59.11 | 83.32 | 72.12 | 69.44 | 75.31 | 60.81 | 77 | 0 | 0 | 267.77 | 3.87 | 0.00 | 14.03 | 275 | 0.15 | 64.05 |
| 3-Apr-13 | 72.12 | 59.02 | 86.04 | 72.34 | 60.57 | 85.26 | 72.06 | 63.03 | 84.02 | 72.46 | 70.74 | 74.08 | 64.46 | 78 | 0.02 | 0.01 | 167.38 | 7.87 | 0.20 | 24.13 | 108 | 0.12 | 67.08 |
| 4-Apr-13 | 67.17 | 63.46 | 71.15 | 67.54 | 64.04 | 70.93 | 67.42 | 63.73 | 70.05 | 70.52 | 68.77 | 72.99 | 65.60 | 94 | 2.37 | 0.54 | 42.62 | 8.66 | 0.43 | 31.93 | 180 | 0.06 | 66.24 |
| 5-Apr-13 | 66.51 | 59.85 | 73.18 | 66.64 | 59.95 | 72.81 | 66.29 | 60.08 | 71.46 | 69.48 | 68.38 | 71.02 | 61.33 | 84 | 0.02 | 0.01 | 164.16 | 8.32 | 0.67 | 29.13 | 285 | 0.11 | 63.23 |
| 6-Apr-13 | 65.75 | 56.59 | 78.04 | 65.52 | 56.53 | 77.40 | 65.16 | 56.59 | 76.21 | 70.07 | 67.75 | 72.79 | 55.43 | 72 | 0 | 0 | 252.29 | 7.80 | 0.73 | 19.00 | 49 | 0.14 | 59.39 |
| 7-Apr-13 | 69.75 | 55.20 | 83.07 | 69.68 | 56.01 | 82.11 | 69.47 | 58.28 | 80.40 | 71.32 | 68.65 | 74.39 | 58.45 | 71 | 0 | 0 | 255.80 | 6.87 | 0.40 | 18.70 | 91 | 0.15 | 62.60 |
| 8-Apr-13 | 71.95 | 58.37 | 85.19 | 72.10 | 59.32 | 84.31 | 72.11 | 61.38 | 83.08 | 72.87 | 70.29 | 75.67 | 58.79 | 67 | 0 | 0 | 261.02 | 6.73 | 0.67 | 16.60 | 105 | 0.16 | 63.64 |
| 9-Apr-13 | 71.49 | 57.70 | 84.54 | 71.63 | 58.60 | 83.66 | 71.70 | 61.79 | 81.86 | 73.43 | 71.11 | 75.65 | 62.71 | 76 | 0 | 0 | 239.68 | 8.12 | 1.40 | 21.80 | 110 | 0.15 | 65.77 |
| 10-Apr-13 | 72.60 | 58.08 | 87.57 | 72.78 | 59.04 | 86.99 | 72.78 | 60.75 | 86.20 | 73.89 | 71.29 | 76.48 | 63.75 | 76 | 0.15 | 0.09 | 234.69 | 6.43 | 0.00 | 27.73 | 114 | 0.15 | 66.79 |
| 11-Apr-13 | 75.91 | 68.02 | 89.06 | 76.01 | 68.47 | 88.11 | 75.60 | 69.03 | 86.25 | 74.86 | 73.22 | 76.89 | 70.45 | 85 | 0.38 | 0.2 | 205.94 | 9.94 | 0.83 | 28.63 | 159 | 0.15 | 72.10 |
| 12-Apr-13 | 75.57 | 71.40 | 80.96 | 75.93 | 71.98 | 81.16 | 75.75 | 72.19 | 80.37 | 74.64 | 73.83 | 75.49 | 72.03 | 88 | 0 | 0 | 105.82 | 9.62 | 0.07 | 26.13 | 198 | 0.09 | 73.16 |
| 13-Apr-13 | 75.25 | 65.70 | 89.02 | 75.26 | 66.51 | 87.51 | 75.09 | 67.59 | 86.45 | 75.17 | 72.95 | 77.76 | 67.09 | 78 | 0 | 0 | 205.18 | 4.22 | 0.17 | 25.70 | 324 | 0.15 | 69.66 |
| 14-Apr-13 | 75.42 | 65.82 | 88.99 | 75.46 | 66.45 | 88.16 | 75.05 | 66.49 | 86.94 | 75.63 | 73.89 | 77.63 | 68.43 | 80 | 0.01 | 0.01 | 175.44 | 8.45 | 0.17 | 40.80 | 131 | 0.14 | 70.59 |
| 15-Apr-13 | 76.24 | 63.70 | 90.90 | 76.23 | 64.18 | 89.76 | 75.97 | 65.08 | 88.77 | 76.52 | 73.98 | 79.47 | 66.15 | 73 | 0 | 0 | 248.18 | 4.53 | 0.03 | 16.57 | 198 | 0.17 | 69.37 |
| 16-Apr-13 | 77.16 | 66.40 | 89.96 | 77.38 | 67.26 | 89.42 | 77.03 | 68.13 | 87.96 | 77.48 | 75.24 | 79.84 | 68.68 | 77 | 0 | 0 | 240.19 | 8.44 | 0.00 | 21.37 | 80 | 0.17 | 71.33 |
| 17-Apr-13 | 74.27 | 62.74 | 86.34 | 74.58 | 63.79 | 85.68 | 74.23 | 64.45 | 84.04 | 77.53 | 75.36 | 79.61 | 64.40 | 73 | 0 | 0 | 251.50 | 8.23 | 1.90 | 22.43 | 79 | 0.17 | 67.76 |
| 18-Apr-13 | 75.19 | 61.84 | 87.73 | 75.40 | 62.94 | 87.01 | 75.19 | 64.96 | 86.43 | 77.55 | 75.29 | 79.57 | 67.33 | 79 | 0.69 | 0.26 | 214.28 | 5.77 | 0.07 | 19.17 | 108 | 0.15 | 69.87 |
| 19-Apr-13 | 77.11 | 68.43 | 87.30 | 77.40 | 69.19 | 87.08 | 77.08 | 70.00 | 86.22 | 77.32 | 75.78 | 78.69 | 70.37 | 81 | 0.02 | 0.01 | 203.30 | 8.89 | 1.00 | 24.07 | 177 | 0.15 | 72.45 |
| 20-Apr-13 | 68.70 | 60.15 | 75.49 | 68.68 | 60.19 | 74.70 | 68.32 | 60.31 | 73.54 | 76.19 | 75.29 | 77.13 | 64.24 | 86 | 0 | 0 | 138.65 | 7.55 | 0.63 | 19.33 | 29 | 0.1 | 65.74 |
| 21-Apr-13 | 69.98 | 59.79 | 83.23 | 69.88 | 59.74 | 82.33 | 69.39 | 59.85 | 81.66 | 75.44 | 73.69 | 77.34 | 64.78 | 85 | 0.04 | 0.02 | 163.88 | 7.23 | 0.27 | 17.23 | 56 | 0.12 | 66.48 |
| 22-Apr-13 | 70.63 | 64.94 | 80.91 | 70.67 | 65.37 | 79.99 | 70.28 | 65.59 | 78.69 | 75.49 | 74.43 | 76.78 | 66.78 | 88 | 0.16 | 0.05 | 130.21 | 7.57 | 0.33 | 21.23 | 45 | 0.11 | 68.03 |
| 23-Apr-13 | 72.15 | 64.00 | 83.80 | 72.26 | 64.42 | 83.19 | 71.64 | 64.44 | 81.52 | 75.59 | 73.65 | 77.86 | 62.98 | 75 | 0 | 0 | 249.00 | 9.33 | 1.10 | 21.73 | 66 | 0.16 | 66.14 |
| 24-Apr-13 | 71.37 | 55.63 | 86.83 | 71.57 | 56.68 | 85.64 | 71.57 | 58.71 | 85.24 | 76.16 | 73.31 | 79.21 | 60.42 | 71 | 0 | 0 | 275.41 | 5.39 | 0.20 | 18.43 | 84 | 0.16 | 64.39 |
| 25-Apr-13 | 73.48 | 59.99 | 88.43 | 73.73 | 61.45 | 86.76 | 73.77 | 62.35 | 85.51 | 77.07 | 74.46 | 79.68 | 63.29 | 73 | 0 | 0 | 261.71 | 4.94 | 0.17 | 16.80 | 28 | 0.17 | 66.81 |
| 26-Apr-13 | 74.15 | 57.79 | 87.42 | 74.65 | 59.85 | 86.86 | 74.92 | 63.12 | 85.69 | 77.53 | 75.00 | 79.93 | 62.81 | 69 | 0 | 0 | 259.03 | 4.93 | 0.10 | 17.30 | 80 | 0.16 | 66.82 |
| 27-Apr-13 | 73.97 | 62.91 | 85.98 | 74.24 | 63.88 | 85.28 | 73.97 | 65.14 | 83.46 | 77.89 | 75.99 | 79.75 | 65.02 | 75 | 0 | 0 | 232.64 | 7.91 | 1.97 | 22.73 | 85 | 0.16 | 68.04 |
| 28-Apr-13 | 74.37 | 59.77 | 86.74 | 74.53 | 61.14 | 85.82 | 74.35 | 63.88 | 84.06 | 78.08 | 75.79 | 80.40 | 62.21 | 68 | 0 | 0 | 271.70 | 7.94 | 0.07 | 21.03 | 121 | 0.17 | 66.43 |
| 29-Apr-13 | 74.05 | 62.31 | 86.85 | 74.33 | 63.23 | 85.84 | 74.21 | 65.03 | 84.34 | 78.39 | 76.53 | 80.15 | 65.31 | 75 | 0 | 0 | 227.49 | 5.84 | 0.00 | 19.50 | 162 | 0.15 | 68.25 |
| 30-Apr-13 | 73.75 | 65.66 | 90.09 | 73.76 | 66.63 | 88.68 | 73.38 | 66.70 | 87.22 | 78.62 | 76.71 | 81.10 | 66.63 | 81 | 0.31 | 0.19 | 229.32 | 6.42 | 0.07 | 24.53 | 90 | 0.16 | 68.90 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-May-13 | 68.68 | 65.10 | 73.69 | 68.97 | 65.30 | 74.08 | 68.91 | 65.48 | 73.63 | 76.19 | 74.19 | 78.40 | 68.15 | 97 | 1.18 | 0.38 | 33.38 | 5.73 | 0.30 | 23.97 | 90 | 0.06 | 68.41 |
| 2-May-13 | 69.89 | 63.14 | 77.23 | 70.01 | 63.25 | 76.78 | 69.61 | 63.37 | 75.67 | 74.56 | 73.47 | 75.79 | 67.75 | 93 | 0.04 | 0.01 | 102.91 | 5.96 | 0.07 | 27.30 | 104 | 0.09 | 68.47 |
| 3-May-13 | 72.41 | 62.71 | 83.34 | 72.31 | 63.54 | 82.56 | 71.96 | 64.99 | 80.91 | 76.07 | 73.69 | 78.69 | 67.22 | 85 | 0 | 0 | 247.05 | 5.31 | 0.10 | 23.83 | 337 | 0.16 | 68.84 |
| 4-May-13 | 72.22 | 66.58 | 80.49 | 72.38 | 66.92 | 80.10 | 71.75 | 66.85 | 78.35 | 76.70 | 75.11 | 78.46 | 66.91 | 84 | 0 | 0 | 212.74 | 7.05 | 1.03 | 22.10 | 293 | 0.14 | 68.66 |
| 5-May-13 | 68.33 | 56.48 | 77.50 | 68.40 | 58.19 | 76.80 | 67.80 | 60.58 | 74.84 | 76.58 | 74.80 | 78.60 | 55.98 | 68 | 0 | 0 | 304.56 | 8.99 | 0.43 | 23.13 | 307 | 0.17 | 60.76 |
| 6-May-13 | 66.77 | 52.54 | 75.78 | 67.00 | 54.16 | 74.79 | 66.75 | 56.93 | 73.02 | 76.44 | 74.37 | 79.00 | 57.07 | 72 | 0 | 0 | 280.84 | 5.87 | 0.07 | 20.17 | 283 | 0.15 | 60.85 |
| 7-May-13 | 64.84 | 50.40 | 77.04 | 65.20 | 51.94 | 76.14 | 65.65 | 54.50 | 74.70 | 76.06 | 73.54 | 78.58 | 56.26 | 76 | 0 | 0 | 284.39 | 5.15 | 0.00 | 23.00 | 235 | 0.15 | 59.73 |
| 8-May-13 | 67.48 | 52.65 | 79.86 | 67.90 | 54.41 | 78.96 | 68.45 | 57.47 | 77.47 | 76.34 | 73.72 | 79.00 | 58.90 | 76 | 0 | 0 | 286.23 | 4.46 | 0.00 | 16.67 | 261 | 0.16 | 62.22 |
| 9-May-13 | 71.57 | 55.04 | 86.74 | 71.76 | 57.25 | 85.50 | 72.22 | 59.59 | 84.92 | 76.96 | 74.08 | 79.99 | 60.52 | 72 | 0 | 0 | 305.15 | 3.87 | 0.00 | 12.47 | 10 | 0.18 | 64.51 |
| 10-May-13 | 75.67 | 61.05 | 90.57 | 75.89 | 62.31 | 89.42 | 75.71 | 63.73 | 87.82 | 78.27 | 75.99 | 80.94 | 66.40 | 75 | 0 | 0 | 273.72 | 6.56 | 0.00 | 30.20 | 192 | 0.18 | 69.42 |
| 11-May-13 | 75.98 | 63.36 | 89.13 | 76.30 | 65.07 | 88.63 | 76.23 | 67.64 | 87.21 | 78.90 | 77.05 | 80.83 | 69.59 | 82 | 0 | 0 | 220.86 | 6.04 | 0.00 | 19.97 | 207 | 0.16 | 71.61 |
| 12-May-13 | 75.90 | 64.45 | 86.43 | 76.23 | 66.20 | 85.82 | 75.96 | 68.22 | 84.09 | 79.41 | 77.63 | 81.64 | 69.42 | 81 | 0 | 0 | 238.44 | 5.45 | 0.00 | 19.27 | 266 | 0.16 | 71.48 |
| 13-May-13 | 71.57 | 59.16 | 84.83 | 72.17 | 60.60 | 83.71 | 72.34 | 61.56 | 82.27 | 78.82 | 77.29 | 80.60 | 59.48 | 68 | 0 | 0 | 222.06 | 5.32 | 0.00 | 19.07 | 338 | 0.15 | 64.05 |
| 14-May-13 | 69.13 | 52.86 | 83.86 | 69.44 | 54.34 | 82.67 | 69.71 | 55.74 | 81.61 | 78.00 | 75.31 | 80.85 | 50.88 | 57 | 0 | 0 | 312.12 | 6.10 | 0.33 | 16.20 | 46 | 0.17 | 58.54 |
| 15-May-13 | 71.37 | 54.05 | 86.41 | 71.98 | 56.79 | 85.39 | 72.33 | 59.76 | 83.48 | 78.51 | 75.60 | 81.46 | 57.47 | 64 | 0 | 0 | 292.54 | 5.84 | 0.40 | 17.63 | 96 | 0.17 | 62.86 |
| 16-May-13 | 74.15 | 59.45 | 87.08 | 74.27 | 61.16 | 86.13 | 74.30 | 62.65 | 84.54 | 79.44 | 76.68 | 82.40 | 60.14 | 65 | 0 | 0 | 291.83 | 5.75 | 0.00 | 17.03 | 138 | 0.18 | 65.14 |
| 17-May-13 | 76.32 | 60.26 | 90.41 | 76.47 | 62.42 | 88.99 | 76.54 | 64.85 | 87.91 | 79.87 | 77.45 | 82.20 | 63.48 | 67 | 0 | 0 | 241.41 | 4.93 | 0.20 | 14.80 | 120 | 0.16 | 67.81 |
| 18-May-13 | 77.43 | 64.15 | 91.38 | 77.52 | 65.21 | 89.47 | 77.54 | 67.12 | 88.14 | 80.72 | 78.01 | 83.52 | 66.18 | 72 | 0 | 0 | 269.03 | 4.90 | 0.07 | 15.20 | 162 | 0.18 | 69.78 |
| 19-May-13 | 77.89 | 62.96 | 91.81 | 78.00 | 64.35 | 90.07 | 77.90 | 66.02 | 88.23 | 81.49 | 78.60 | 84.49 | 66.24 | 70 | 0 | 0 | 284.33 | 4.57 | 0.00 | 16.13 | 241 | 0.19 | 69.97 |
| 20-May-13 | 75.43 | 65.35 | 91.62 | 75.57 | 66.00 | 90.25 | 75.38 | 66.54 | 89.29 | 80.13 | 76.14 | 84.13 | 68.67 | 82 | 1.96 | 1 | 208.97 | 5.01 | 0.07 | 38.87 | 121 | 0.16 | 70.79 |
| 21-May-13 | 72.05 | 63.43 | 89.10 | 72.18 | 64.08 | 87.28 | 72.18 | 65.64 | 85.59 | 77.14 | 74.37 | 79.86 | 68.41 | 89 | 0.35 | 0.11 | 207.28 | 4.80 | 0.13 | 28.77 | 93 | 0.15 | 69.59 |
| 22-May-13 | 75.09 | 64.69 | 87.93 | 75.15 | 65.26 | 87.19 | 74.91 | 66.42 | 85.78 | 78.44 | 75.65 | 81.63 | 69.38 | 84 | 0 | 0 | 275.64 | 4.53 | 0.13 | 17.37 | 80 | 0.18 | 71.13 |
| 23-May-13 | 77.14 | 65.34 | 88.97 | 77.37 | 66.22 | 88.52 | 77.15 | 67.01 | 86.70 | 79.74 | 77.27 | 82.40 | 70.49 | 81 | 0 | 0 | 253.46 | 4.21 | 0.00 | 15.67 | 305 | 0.17 | 72.52 |
| 24-May-13 | 78.85 | 65.44 | 92.35 | 79.64 | 67.46 | 91.98 | 79.76 | 69.57 | 90.41 | 80.53 | 77.81 | 83.37 | 67.81 | 71 | 0 | 0 | 291.76 | 5.05 | 0.00 | 21.23 | 329 | 0.2 | 71.44 |
| 25-May-13 | 77.24 | 65.68 | 89.02 | 77.68 | 66.63 | 88.48 | 77.33 | 68.14 | 86.63 | 80.74 | 78.57 | 83.01 | 64.84 | 68 | 0 | 0 | 288.36 | 9.14 | 1.03 | 22.23 | 74 | 0.2 | 69.01 |
| 26-May-13 | 72.85 | 57.96 | 85.73 | 73.42 | 60.58 | 85.50 | 73.40 | 62.28 | 83.86 | 80.30 | 77.97 | 82.40 | 59.44 | 66 | 0 | 0 | 279.33 | 6.50 | 0.20 | 15.80 | 74 | 0.18 | 64.46 |
| 27-May-13 | 74.40 | 60.71 | 87.49 | 74.92 | 61.77 | 87.49 | 74.58 | 63.30 | 85.71 | 80.13 | 77.79 | 82.44 | 63.50 | 71 | 0 | 0 | 273.60 | 8.02 | 0.53 | 21.20 | 82 | 0.18 | 67.32 |
| 28-May-13 | 74.78 | 64.60 | 89.19 | 75.18 | 65.48 | 88.68 | 74.74 | 66.65 | 86.23 | 80.26 | 78.64 | 81.95 | 69.61 | 84 | 0 | 0 | 206.28 | 9.49 | 2.47 | 26.87 | 86 | 0.16 | 71.29 |
| 29-May-13 | 75.55 | 68.25 | 86.56 | 75.84 | 68.95 | 85.68 | 75.25 | 69.69 | 82.96 | 80.03 | 78.64 | 81.63 | 70.60 | 85 | 0.03 | 0.02 | 225.72 | 9.81 | 2.33 | 31.70 | 97 | 0.16 | 72.15 |
| 30-May-13 | 77.00 | 71.04 | 85.87 | 77.38 | 71.51 | 85.37 | 76.75 | 71.76 | 83.43 | 79.73 | 78.60 | 80.82 | 70.89 | 81 | 0 | 0 | 214.03 | 11.97 | 3.23 | 33.03 | 96 | 0.16 | 72.79 |
| 31-May-13 | 77.37 | 69.51 | 87.94 | 77.76 | 70.09 | 87.12 | 77.09 | 70.39 | 84.76 | 79.70 | 78.37 | 80.96 | 71.22 | 81 | 0.02 | 0.02 | 188.83 | 10.16 | 3.03 | 36.93 | 104 | 0.15 | 73.13 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in ) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Jun-13 | 76.47 | 70.75 | 86.67 | 76.85 | 71.60 | 86.14 | 76.26 | 72.16 | 84.83 | 79.63 | 78.64 | 80.78 | 73.06 | 89 | 0.16 | 0.1 | 143.29 | 7.78 | 0.13 | 21.77 | 106 | 0.12 | 74.13 |
| 2-Jun-13 | 76.97 | 69.12 | 91.36 | 77.32 | 70.45 | 89.78 | 76.96 | 70.84 | 88.39 | 79.50 | 78.04 | 82.51 | 73.72 | 90 | 1.6 | 0.8 | 198.98 | 3.91 | 0.00 | 31.30 | 167 | 0.15 | 74.73 |
| 3-Jun-13 | 74.85 | 69.89 | 84.74 | 75.41 | 70.92 | 83.80 | 75.10 | 72.05 | 82.56 | 78.42 | 77.49 | 80.26 | 73.59 | 94 | 2.16 | 0.89 | 127.56 | 4.32 | 0.00 | 19.80 | 174 | 0.11 | 74.11 |
| 4-Jun-13 | 76.10 | 72.50 | 83.89 | 76.51 | 73.15 | 83.34 | 75.81 | 72.84 | 81.30 | 78.51 | 77.27 | 79.99 | 73.06 | 90 | 0.07 | 0.07 | 143.86 | 5.73 | 0.37 | 26.03 | 156 | 0.12 | 74.04 |
| 5-Jun-13 | 76.61 | 71.40 | 83.82 | 77.33 | 72.25 | 84.11 | 76.70 | 71.89 | 82.67 | 78.58 | 77.67 | 79.41 | 73.04 | 87 | 0.1 | 0.03 | 118.20 | 8.34 | 2.40 | 20.37 | 124 | 0.11 | 74.25 |
| 6-Jun-13 | 74.46 | 72.39 | 77.95 | 75.27 | 73.24 | 78.71 | 74.81 | 72.91 | 77.85 | 76.63 | 75.60 | 78.35 | 73.33 | 94 | 3.2 | 0.46 | 58.39 | 13.64 | 1.77 | 32.13 | 178 | 0.07 | 73.88 |
| 7-Jun-13 | 77.26 | 69.10 | 85.26 | 77.95 | 70.32 | 85.32 | 77.31 | 70.70 | 83.71 | 77.65 | 75.42 | 80.01 | 73.16 | 86 | 0 | 0 | 209.45 | 5.85 | 0.20 | 47.33 | 230 | 0.15 | 74.51 |
| 8-Jun-13 | 74.80 | 70.07 | 88.99 | 75.41 | 71.08 | 88.32 | 75.02 | 71.04 | 86.47 | 77.71 | 76.35 | 80.46 | 73.00 | 93 | 3 | 0.54 | 127.34 | 4.80 | 0.00 | 26.17 | 180 | 0.12 | 73.68 |
| 9-Jun-13 | 76.64 | 69.30 | 89.60 | 77.14 | 70.20 | 89.02 | 76.45 | 70.27 | 87.06 | 78.02 | 75.87 | 80.80 | 73.97 | 91 | 0.05 | 0.02 | 197.83 | 5.99 | 0.20 | 17.30 | 97 | 0.15 | 74.85 |
| 10-Jun-13 | 77.57 | 68.99 | 91.33 | 78.26 | 71.06 | 90.59 | 77.79 | 71.02 | 89.42 | 79.01 | 77.29 | 82.35 | 73.22 | 86 | 1.91 | 0.92 | 213.60 | 5.38 | 0.00 | 30.43 | 115 | 0.17 | 74.64 |
| 11-Jun-13 | 78.53 | 71.49 | 88.47 | 79.05 | 72.55 | 88.25 | 78.70 | 73.02 | 87.39 | 78.91 | 77.11 | 80.74 | 74.22 | 86 | 0 | 0 | 191.13 | 4.56 | 0.00 | 18.60 | 83 | 0.15 | 75.55 |
| 12-Jun-13 | 79.52 | 69.19 | 93.38 | 79.84 | 70.39 | 92.80 | 79.47 | 70.63 | 91.74 | 80.40 | 77.68 | 83.48 | 72.54 | 81 | 0.07 | 0.05 | 272.20 | 3.83 | 0.00 | 24.80 | 62 | 0.2 | 74.60 |
| 13-Jun-13 | 80.15 | 69.69 | 90.57 | 80.54 | 70.70 | 90.54 | 79.85 | 70.93 | 88.92 | 81.64 | 79.00 | 84.47 | 73.24 | 80 | 0 | 0 | 280.81 | 4.93 | 0.07 | 15.87 | 253 | 0.2 | 75.28 |
| 14-Jun-13 | 79.91 | 72.82 | 88.00 | 80.50 | 73.90 | 87.96 | 79.81 | 73.92 | 86.45 | 82.03 | 80.19 | 83.95 | 73.23 | 80 | 0 | 0 | 245.90 | 5.88 | 0.30 | 18.13 | 254 | 0.18 | 75.26 |
| 15-Jun-13 | 79.17 | 70.95 | 90.28 | 79.61 | 72.28 | 89.71 | 79.13 | 73.33 | 88.32 | 81.83 | 80.28 | 83.68 | 74.90 | 87 | 0.11 | 0.07 | 171.49 | 4.37 | 0.03 | 20.00 | 250 | 0.14 | 76.18 |
| 16-Jun-13 | 80.21 | 73.27 | 93.47 | 80.53 | 74.46 | 93.09 | 79.82 | 74.82 | 91.35 | 82.68 | 80.40 | 85.75 | 75.22 | 85 | 0.02 | 0.01 | 245.14 | 5.56 | 0.20 | 21.20 | 113 | 0.19 | 76.65 |
| 17-Jun-13 | 81.25 | 72.37 | 93.36 | 81.65 | 73.20 | 92.61 | 81.29 | 73.51 | 91.38 | 83.19 | 80.83 | 85.71 | 74.68 | 81 | 0.04 | 0.02 | 252.69 | 3.80 | 0.00 | 22.53 | 222 | 0.19 | 76.57 |
| 18-Jun-13 | 81.39 | 72.19 | 92.08 | 81.94 | 73.33 | 91.33 | 81.51 | 74.30 | 89.82 | 83.45 | 81.23 | 85.60 | 74.82 | 81 | 0 | 0 | 254.97 | 4.26 | 0.00 | 19.03 | 210 | 0.19 | 76.74 |
| 19-Jun-13 | 79.79 | 72.01 | 89.49 | 80.21 | 72.93 | 88.39 | 79.83 | 73.26 | 86.83 | 83.33 | 81.61 | 84.90 | 75.06 | 85 | 0.16 | 0.16 | 220.38 | 4.21 | 0.13 | 27.07 | 154 | 0.17 | 76.45 |
| 20-Jun-13 | 78.38 | 69.76 | 91.51 | 78.83 | 69.57 | 90.97 | 78.36 | 70.68 | 89.46 | 82.41 | 80.38 | 85.60 | 72.80 | 83 | 1.56 | 0.83 | 249.51 | 4.94 | 0.07 | 51.10 | 162 | 0.18 | 74.50 |
| 21-Jun-13 | 76.23 | 68.09 | 91.17 | 76.53 | 68.83 | 90.19 | 76.12 | 70.20 | 89.01 | 81.16 | 78.91 | 83.61 | 71.84 | 87 | 0.02 | 0.01 | 230.78 | 4.18 | 0.00 | 26.83 | 102 | 0.17 | 73.20 |
| 22-Jun-13 | 78.69 | 69.04 | 92.25 | 79.02 | 70.05 | 91.04 | 78.48 | 71.04 | 89.94 | 82.06 | 79.59 | 84.85 | 71.69 | 81 | 0 | 0 | 258.19 | 4.75 | 0.17 | 17.30 | 97 | 0.19 | 73.80 |
| 23-Jun-13 | 78.26 | 70.07 | 91.89 | 78.70 | 71.17 | 91.40 | 78.32 | 72.25 | 90.01 | 82.56 | 80.60 | 84.85 | 73.32 | 85 | 0.01 | 0.01 | 210.39 | 4.75 | 0.07 | 28.40 | 99 | 0.16 | 74.83 |
| 24-Jun-13 | 81.02 | 70.54 | 91.72 | 81.44 | 71.82 | 91.83 | 80.89 | 72.72 | 90.43 | 83.00 | 80.73 | 85.42 | 73.08 | 78 | 0 | 0 | 276.35 | 6.29 | 0.53 | 18.67 | 103 | 0.2 | 75.41 |
| 25-Jun-13 | 81.33 | 70.50 | 91.80 | 81.89 | 71.76 | 91.74 | 81.38 | 72.36 | 90.21 | 83.56 | 81.64 | 85.57 | 73.26 | 77 | 0 | 0 | 245.01 | 5.36 | 0.00 | 19.83 | 101 | 0.18 | 75.66 |
| 26-Jun-13 | 77.63 | 70.68 | 92.75 | 78.14 | 71.64 | 92.01 | 77.78 | 71.22 | 90.63 | 83.32 | 81.97 | 85.10 | 73.24 | 86 | 0.17 | 0.07 | 178.83 | 4.85 | 0.00 | 21.23 | 132 | 0.15 | 74.61 |
| 27-Jun-13 | 78.73 | 68.68 | 91.33 | 79.19 | 69.84 | 90.43 | 78.77 | 70.36 | 89.31 | 82.27 | 80.24 | 84.51 | 72.69 | 82 | 0.83 | 0.44 | 250.81 | 3.79 | 0.00 | 27.50 | 196 | 0.18 | 74.53 |
| 28-Jun-13 | 80.06 | 71.11 | 89.46 | 80.71 | 72.37 | 89.40 | 79.98 | 72.52 | 87.66 | 82.83 | 80.65 | 85.15 | 74.65 | 83 | 0 | 0 | 260.23 | 5.71 | 0.13 | 18.20 | 220 | 0.19 | 76.30 |
| 29-Jun-13 | 77.02 | 72.48 | 86.94 | 77.86 | 73.78 | 86.81 | 77.24 | 73.22 | 85.32 | 82.30 | 81.41 | 83.44 | 74.82 | 91 | 0.92 | 0.54 | 147.90 | 5.79 | 0.00 | 29.87 | 198 | 0.12 | 75.65 |
| 30-Jun-13 | 76.47 | 72.59 | 84.34 | 77.09 | 73.47 | 84.18 | 76.41 | 73.27 | 82.42 | 81.20 | 80.26 | 81.95 | 74.87 | 93 | 0.35 | 0.13 | 128.69 | 7.06 | 0.47 | 19.20 | 169 | 0.11 | 75.48 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Jul-13 | 73.81 | 71.62 | 80.02 | 74.50 | 71.98 | 80.19 | 74.02 | 72.00 | 78.78 | 79.98 | 79.14 | 80.91 | 73.26 | 96 | 0.64 | 0.06 | 66.32 | 8.92 | 0.90 | 22.73 | 176 | 0.07 | 73.61 |
| 2-Jul-13 | 75.53 | 70.74 | 88.92 | 76.02 | 71.35 | 88.70 | 75.38 | 71.06 | 86.56 | 79.49 | 78.44 | 82.63 | 73.39 | 92 | 1.74 | 0.81 | 156.21 | 6.60 | 0.83 | 37.03 | 142 | 0.13 | 74.13 |
| 3-Jul-13 | 76.11 | 71.78 | 89.20 | 76.69 | 72.55 | 89.01 | 75.99 | 72.34 | 86.85 | 79.89 | 78.42 | 82.02 | 73.81 | 92 | 0.11 | 0.09 | 162.81 | 7.33 | 0.27 | 40.40 | 125 | 0.14 | 74.61 |
| 4-Jul-13 | 75.76 | 69.03 | 89.51 | 76.40 | 69.96 | 89.51 | 75.79 | 70.38 | 87.53 | 80.13 | 78.64 | 82.18 | 72.33 | 88 | 0.25 | 0.07 | 198.08 | 7.92 | 0.00 | 42.60 | 117 | 0.16 | 73.50 |
| 5-Jul-13 | 77.79 | 70.48 | 89.35 | 78.29 | 71.24 | 89.19 | 77.61 | 71.08 | 87.40 | 80.47 | 78.69 | 82.31 | 74.73 | 89 | 0.01 | 0.01 | 216.79 | 8.13 | 0.53 | 43.63 | 113 | 0.17 | 75.70 |
| 6-Jul-13 | 80.72 | 71.87 | 90.12 | 81.36 | 72.91 | 90.21 | 80.68 | 73.18 | 88.59 | 81.71 | 79.54 | 84.13 | 74.10 | 80 | 0 | 0 | 277.10 | 8.04 | 1.73 | 20.87 | 114 | 0.2 | 76.08 |
| 7-Jul-13 | 80.27 | 71.17 | 89.33 | 81.02 | 72.59 | 89.44 | 80.67 | 72.95 | 87.98 | 82.39 | 80.46 | 84.38 | 74.12 | 81 | 0 | 0 | 264.99 | 8.82 | 0.70 | 47.97 | 90 | 0.19 | 76.01 |
| 8-Jul-13 | 80.51 | 71.15 | 91.08 | 81.03 | 72.41 | 90.50 | 80.67 | 73.42 | 89.20 | 82.90 | 80.87 | 85.08 | 74.15 | 81 | 0 | 0 | 264.01 | 5.85 | 0.27 | 33.10 | 97 | 0.19 | 76.03 |
| 9-Jul-13 | 79.19 | 69.22 | 90.68 | 79.92 | 70.45 | 90.46 | 79.74 | 71.26 | 88.99 | 82.93 | 81.00 | 84.81 | 72.77 | 80 | 0 | 0 | 260.62 | 5.48 | 0.13 | 21.63 | 78 | 0.19 | 74.78 |
| 10-Jul-13 | 78.97 | 69.17 | 91.65 | 79.24 | 70.41 | 90.39 | 79.13 | 71.82 | 88.93 | 82.76 | 80.94 | 84.65 | 72.99 | 83 | 0.03 | 0.02 | 238.99 | 4.08 | 0.00 | 48.00 | 74 | 0.17 | 74.74 |
| 11-Jul-13 | 77.56 | 71.35 | 88.00 | 77.96 | 72.36 | 86.43 | 77.56 | 72.64 | 84.85 | 82.59 | 81.30 | 83.68 | 73.72 | 87 | 0.07 | 0.05 | 183.91 | 4.98 | 0.50 | 17.27 | 176 | 0.14 | 74.90 |
| 12-Jul-13 | 75.07 | 69.13 | 85.82 | 75.73 | 70.52 | 84.97 | 75.81 | 72.03 | 84.16 | 80.33 | 78.28 | 82.35 | 73.16 | 92 | 2.33 | 1.25 | 129.40 | 3.87 | 0.00 | 27.20 | 165 | 0.11 | 73.89 |
| 13-Jul-13 | 75.75 | 69.48 | 86.85 | 76.08 | 70.77 | 85.86 | 75.82 | 71.31 | 84.38 | 78.97 | 77.65 | 80.04 | 73.33 | 92 | 0.27 | 0.17 | 150.24 | 5.01 | 0.27 | 22.03 | 136 | 0.12 | 74.11 |
| 14-Jul-13 | 75.13 | 71.06 | 86.41 | 75.45 | 71.80 | 84.78 | 75.05 | 71.58 | 84.04 | 79.65 | 78.51 | 80.76 | 73.23 | 93 | 0.41 | 0.29 | 131.99 | 6.08 | 0.20 | 18.13 | 138 | 0.11 | 73.86 |
| 15-Jul-13 | 78.58 | 71.10 | 90.57 | 78.73 | 71.94 | 89.53 | 78.15 | 71.71 | 88.11 | 80.35 | 78.64 | 82.42 | 73.29 | 85 | 0 | 0 | 244.58 | 6.33 | 0.43 | 18.53 | 86 | 0.18 | 74.81 |
| 16-Jul-13 | 75.34 | 70.88 | 88.03 | 75.73 | 71.65 | 86.97 | 75.40 | 71.06 | 86.25 | 80.40 | 79.57 | 81.91 | 72.76 | 91 | 0.57 | 0.48 | 165.79 | 7.79 | 2.00 | 36.80 | 78 | 0.13 | 73.61 |
| 17-Jul-13 | 75.98 | 70.97 | 87.49 | 76.41 | 71.78 | 86.56 | 75.95 | 71.89 | 85.24 | 79.96 | 78.75 | 81.48 | 73.52 | 91 | 0.01 | 0.01 | 164.38 | 6.75 | 1.43 | 27.20 | 77 | 0.13 | 74.33 |
| 18-Jul-13 | 74.71 | 69.75 | 86.81 | 75.07 | 70.48 | 86.07 | 74.71 | 70.50 | 84.70 | 79.84 | 78.73 | 81.28 | 72.36 | 92 | 0.39 | 0.15 | 145.57 | 5.46 | 0.33 | 22.50 | 105 | 0.12 | 73.14 |
| 19-Jul-13 | 75.76 | 69.33 | 88.61 | 76.02 | 70.12 | 87.51 | 75.44 | 70.05 | 86.29 | 80.05 | 78.46 | 82.02 | 72.94 | 91 | 0.01 | 0.01 | 168.56 | 5.81 | 0.20 | 26.77 | 134 | 0.13 | 73.82 |
| 20-Jul-13 | 76.41 | 69.49 | 92.32 | 76.66 | 70.59 | 90.55 | 76.23 | 71.04 | 89.10 | 80.35 | 78.91 | 82.45 | 73.58 | 91 | 0.41 | 0.32 | 176.56 | 5.24 | 0.43 | 39.93 | 131 | 0.14 | 74.44 |
| 21-Jul-13 | 79.55 | 70.25 | 90.12 | 79.77 | 71.33 | 89.47 | 79.31 | 71.96 | 88.34 | 81.01 | 78.82 | 83.46 | 75.57 | 88 | 0 | 0 | 252.91 | 4.76 | 0.30 | 17.63 | 171 | 0.18 | 76.69 |
| 22-Jul-13 | 80.79 | 71.73 | 90.97 | 81.27 | 72.95 | 90.25 | 80.74 | 73.38 | 88.95 | 82.31 | 80.29 | 84.49 | 75.97 | 85 | 0 | 0 | 249.84 | 5.26 | 0.00 | 22.13 | 224 | 0.18 | 77.38 |
| 23-Jul-13 | 78.05 | 71.87 | 89.26 | 78.74 | 73.40 | 88.97 | 78.50 | 73.99 | 87.82 | 82.01 | 80.53 | 83.57 | 74.66 | 89 | 0.05 | 0.02 | 181.22 | 4.32 | 0.07 | 18.13 | 227 | 0.14 | 75.77 |
| 24-Jul-13 | 80.27 | 72.16 | 88.09 | 80.91 | 73.83 | 87.78 | 80.42 | 74.12 | 86.47 | 81.81 | 80.17 | 83.62 | 75.44 | 84 | 0 | 0 | 233.91 | 6.79 | 0.30 | 20.90 | 248 | 0.17 | 76.91 |
| 25-Jul-13 | 79.98 | 73.81 | 88.07 | 80.67 | 75.34 | 87.82 | 80.16 | 74.97 | 86.63 | 82.07 | 81.05 | 83.28 | 75.91 | 86 | 0.82 | 0.34 | 160.19 | 6.64 | 0.17 | 21.63 | 248 | 0.13 | 77.18 |
| 26-Jul-13 | 80.09 | 72.73 | 89.06 | 80.53 | 73.83 | 87.60 | 80.24 | 74.70 | 86.90 | 81.75 | 80.46 | 82.99 | 76.11 | 87 | 0 | 0 | 187.38 | 4.19 | 0.00 | 19.97 | 296 | 0.14 | 77.28 |
| 27-Jul-13 | 81.99 | 71.24 | 92.16 | 82.39 | 72.77 | 91.35 | 82.08 | 74.91 | 90.09 | 82.36 | 80.67 | 84.38 | 75.10 | 80 | 0 | 0 | 253.09 | 4.45 | 0.00 | 15.17 | 301 | 0.18 | 77.06 |
| 28-Jul-13 | 76.48 | 70.54 | 90.46 | 77.06 | 71.74 | 88.05 | 77.11 | 73.38 | 87.39 | 81.52 | 80.60 | 82.69 | 74.12 | 91 | 0.46 | 0.27 | 137.94 | 3.64 | 0.00 | 19.93 | 162 | 0.12 | 74.93 |
| 29-Jul-13 | 80.04 | 68.52 | 94.60 | 80.14 | 69.69 | 92.84 | 80.19 | 71.65 | 92.43 | 81.46 | 79.14 | 84.09 | 73.19 | 82 | 0 | 0 | 288.14 | 3.61 | 0.00 | 75.40 | 113 | 0.2 | 75.13 |
| 30-Jul-13 | 80.21 | 70.86 | 93.18 | 80.55 | 71.92 | 92.62 | 80.45 | 72.93 | 91.42 | 82.24 | 80.42 | 84.29 | 74.77 | 84 | 0.12 | 0.06 | 242.32 | 4.28 | 0.07 | 44.80 | 89 | 0.18 | 76.34 |
| 31-Jul-13 | 80.52 | 71.80 | 93.76 | 80.75 | 72.81 | 92.28 | 80.44 | 74.19 | 91.42 | 82.81 | 80.98 | 84.92 | 74.56 | 83 | 0 | 0 | 245.54 | 4.85 | 0.00 | 25.13 | 86 | 0.18 | 76.25 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Aug-13 | 80.34 | 70.90 | 92.62 | 80.56 | 72.34 | 91.24 | 80.27 | 73.11 | 90.41 | 83.07 | 81.18 | 84.96 | 73.98 | 82 | 0.04 | 0.02 | 237.19 | 6.60 | 0.10 | 46.37 | 131 | 0.18 | 75.79 |
| 2-Aug-13 | 79.60 | 71.10 | 92.82 | 79.77 | 71.96 | 91.42 | 79.48 | 72.75 | 89.78 | 82.76 | 81.12 | 84.29 | 74.03 | 84 | 0.02 | 0.01 | 228.38 | 4.79 | 0.13 | 65.10 | 135 | 0.17 | 75.61 |
| 3-Aug-13 | 78.25 | 71.80 | 92.79 | 78.64 | 73.27 | 91.87 | 78.46 | 74.16 | 90.45 | 82.24 | 81.07 | 83.26 | 75.27 | 90 | 0.01 | 0.01 | 154.96 | 4.39 | 0.00 | 22.00 | 161 | 0.13 | 76.18 |
| 4-Aug-13 | 79.04 | 71.83 | 90.21 | 79.65 | 73.47 | 88.72 | 79.43 | 74.28 | 87.53 | 81.71 | 80.60 | 82.62 | 76.16 | 90 | 0.06 | 0.05 | 139.66 | 4.59 | 0.13 | 37.00 | 223 | 0.12 | 77.09 |
| 5-Aug-13 | 82.15 | 72.32 | 91.71 | 82.58 | 73.80 | 91.17 | 82.48 | 75.40 | 89.82 | 82.11 | 80.24 | 84.11 | 76.87 | 84 | 0.01 | 0.01 | 230.82 | 4.45 | 0.00 | 31.70 | 258 | 0.17 | 78.35 |
| 6-Aug-13 | 79.88 | 72.23 | 93.94 | 80.29 | 73.26 | 92.32 | 80.13 | 74.10 | 91.27 | 83.14 | 81.27 | 86.07 | 75.64 | 87 | 0.78 | 0.45 | 195.04 | 3.90 | 0.10 | 22.93 | 92 | 0.15 | 76.88 |
| 7-Aug-13 | 80.83 | 72.59 | 94.37 | 81.08 | 73.51 | 93.49 | 80.76 | 74.05 | 92.37 | 83.56 | 80.91 | 86.83 | 75.69 | 85 | 0 | 0 | 243.34 | 4.89 | 0.13 | 21.60 | 92 | 0.18 | 77.13 |
| 8-Aug-13 | 79.70 | 72.77 | 91.87 | 80.11 | 73.72 | 91.06 | 79.68 | 74.12 | 89.69 | 84.17 | 82.18 | 86.85 | 75.66 | 87 | 0.47 | 0.2 | 227.58 | 6.70 | 0.20 | 24.43 | 106 | 0.17 | 76.85 |
| 9-Aug-13 | 78.50 | 71.65 | 92.10 | 78.86 | 72.57 | 91.40 | 78.54 | 72.90 | 89.94 | 83.72 | 81.48 | 86.63 | 74.37 | 88 | 0.1 | 0.05 | 215.58 | 5.75 | 0.33 | 37.30 | 106 | 0.16 | 75.60 |
| 10-Aug-13 | 80.44 | 69.82 | 91.67 | 81.08 | 70.66 | 91.72 | 81.10 | 71.29 | 90.77 | 83.80 | 81.09 | 86.79 | 74.48 | 82 | 0 | 0 | 269.03 | 6.31 | 0.90 | 18.13 | 111 | 0.19 | 76.28 |
| 11-Aug-13 | 81.72 | 71.24 | 93.16 | 82.41 | 72.63 | 92.43 | 82.38 | 73.67 | 91.42 | 84.70 | 81.99 | 87.64 | 75.51 | 81 | 0 | 0 | 263.60 | 5.27 | 0.17 | 36.07 | 112 | 0.19 | 77.35 |
| 12-Aug-13 | 81.25 | 71.04 | 92.50 | 82.08 | 72.23 | 92.37 | 82.39 | 73.81 | 91.40 | 85.03 | 82.71 | 87.42 | 74.52 | 80 | 0.02 | 0.02 | 257.80 | 4.92 | 0.00 | 16.53 | 87 | 0.19 | 76.57 |
| 13-Aug-13 | 82.75 | 70.61 | 94.98 | 83.02 | 71.87 | 94.01 | 82.85 | 73.35 | 93.29 | 85.22 | 82.81 | 87.66 | 74.73 | 78 | 0 | 0 | 249.31 | 3.91 | 0.00 | 14.20 | 136 | 0.18 | 76.96 |
| 14-Aug-13 | 80.62 | 72.28 | 92.28 | 81.05 | 73.35 | 90.90 | 80.68 | 75.02 | 89.65 | 85.32 | 83.71 | 86.68 | 75.83 | 85 | 0 | 0 | 196.36 | 4.75 | 0.00 | 16.63 | 194 | 0.15 | 77.22 |
| 15-Aug-13 | 78.97 | 70.14 | 90.57 | 79.45 | 71.47 | 89.51 | 79.00 | 72.18 | 87.91 | 84.41 | 82.69 | 86.05 | 74.69 | 86 | 0.01 | 0.01 | 177.25 | 5.24 | 0.07 | 18.63 | 166 | 0.14 | 75.99 |
| 16-Aug-13 | 81.94 | 74.12 | 92.66 | 82.31 | 75.13 | 91.92 | 81.87 | 75.61 | 91.02 | 84.74 | 82.92 | 86.74 | 75.65 | 82 | 0.01 | 0.01 | 199.82 | 4.12 | 0.00 | 17.40 | 171 | 0.16 | 77.42 |
| 17-Aug-13 | 78.86 | 71.44 | 93.02 | 79.37 | 72.12 | 92.16 | 79.10 | 73.24 | 90.55 | 84.34 | 83.07 | 85.69 | 75.08 | 88 | 0.04 | 0.03 | 151.78 | 5.45 | 0.00 | 30.70 | 107 | 0.13 | 76.24 |
| 18-Aug-13 | 78.48 | 72.81 | 91.35 | 78.85 | 73.51 | 90.48 | 78.39 | 73.29 | 88.95 | 83.38 | 81.28 | 85.84 | 75.47 | 90 | 2.08 | 0.58 | 201.77 | 6.41 | 0.20 | 25.87 | 96 | 0.15 | 76.38 |
| 19-Aug-13 | 78.95 | 71.82 | 92.80 | 79.23 | 72.61 | 91.65 | 78.73 | 73.08 | 90.43 | 82.47 | 80.17 | 85.33 | 74.95 | 88 | 0.03 | 0.01 | 237.37 | 5.25 | 0.00 | 24.20 | 100 | 0.17 | 76.11 |
| 20-Aug-13 | 79.00 | 71.01 | 93.24 | 79.36 | 71.80 | 92.57 | 78.88 | 72.45 | 91.40 | 83.15 | 81.16 | 85.57 | 74.56 | 87 | 0.19 | 0.09 | 222.24 | 5.95 | 0.50 | 32.50 | 84 | 0.17 | 75.87 |
| 21-Aug-13 | 79.28 | 73.36 | 91.51 | 79.67 | 74.08 | 91.26 | 79.11 | 74.08 | 89.85 | 83.39 | 81.59 | 85.57 | 75.27 | 87 | 0 | 0 | 220.81 | 7.43 | 1.63 | 33.53 | 81 | 0.17 | 76.46 |
| 22-Aug-13 | 76.98 | 72.30 | 88.79 | 77.32 | 73.15 | 87.89 | 76.98 | 73.36 | 85.98 | 82.56 | 81.90 | 84.54 | 75.25 | 94 | 0.01 | 0.01 | 136.86 | 5.10 | 0.00 | 16.77 | 88 | N/A | 75.81 |
| 23-Aug-13 | 79.56 | 70.75 | 92.62 | 79.63 | 71.35 | 91.35 | 79.27 | 71.38 | 90.55 | 82.85 | 81.05 | 85.41 | 74.64 | 87 | 0.45 | 0.25 | 216.97 | 5.06 | 0.10 | 30.07 | 82 | 0.16 | 76.00 |
| 24-Aug-13 | 78.80 | 71.20 | 93.87 | 78.85 | 71.73 | 92.43 | 78.78 | 72.77 | 91.38 | 82.16 | 80.40 | 85.64 | 74.50 | 88 | 2.2 | 1.04 | 228.05 | 4.99 | 0.03 | 31.73 | 102 | 0.17 | 75.69 |
| 25-Aug-13 | 77.52 | 72.34 | 88.95 | 77.81 | 73.09 | 88.11 | 77.41 | 73.35 | 86.36 | 81.14 | 79.92 | 82.80 | 74.68 | 91 | 0.01 | 0.01 | 150.86 | 5.43 | 0.07 | 24.77 | 52 | N/A | 75.54 |
| 26-Aug-13 | 78.17 | 71.80 | 89.92 | 78.34 | 72.34 | 88.72 | 77.83 | 71.98 | 87.40 | 81.90 | 80.33 | 83.64 | 74.12 | 88 | 0.23 | 0.1 | 177.53 | 5.55 | 0.43 | 24.07 | 42 | N/A | 75.29 |
| 27-Aug-13 | 78.64 | 70.81 | 89.55 | 79.08 | 71.62 | 89.01 | 78.90 | 72.32 | 87.75 | 81.91 | 80.08 | 83.93 | 73.03 | 84 | 0 | 0 | 226.21 | 6.88 | 0.10 | 21.00 | 75 | 0.16 | 74.73 |
| 28-Aug-13 | 77.75 | 68.07 | 91.09 | 78.09 | 69.30 | 90.23 | 78.09 | 70.21 | 89.10 | 82.35 | 80.10 | 84.74 | 71.61 | 82 | 0 | 0 | 239.88 | 4.76 | 0.07 | 20.57 | 74 | 0.17 | 73.48 |
| 29-Aug-13 | 79.54 | 69.40 | 92.61 | 79.77 | 70.54 | 91.18 | 79.64 | 71.76 | 89.85 | 82.98 | 80.83 | 85.46 | 72.70 | 81 | 0 | 0 | 238.27 | 3.48 | 0.00 | 16.03 | 16 | 0.17 | 74.69 |
| 30-Aug-13 | 78.05 | 70.56 | 89.51 | 78.63 | 72.05 | 88.83 | 78.63 | 73.17 | 88.18 | 82.83 | 81.45 | 83.86 | 74.68 | 88 | 0.19 | 0.08 | 156.05 | 3.27 | 0.00 | 18.40 | 228 | 0.12 | 75.76 |
| 31-Aug-13 | 78.26 | 71.98 | 88.97 | 78.62 | 72.66 | 87.98 | 78.47 | 72.95 | 86.77 | 82.57 | 80.92 | 84.13 | 74.34 | 88 | 0.02 | 0.01 | 182.78 | 4.16 | 0.03 | 21.47 | 200 | 0.14 | 75.52 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Sep-13 | 78.17 | 69.71 | 91.38 | 78.57 | 71.10 | 90.59 | 78.34 | 71.62 | 89.20 | 82.61 | 80.44 | 84.94 | 73.22 | 85 | 0 | 0 | 215.83 | 4.65 | 0.07 | 17.67 | 173 | N/A | 74.72 |
| 2-Sep-13 | 77.31 | 68.94 | 88.02 | 77.91 | 69.76 | 88.05 | 77.83 | 71.40 | 87.08 | 82.25 | 80.78 | 83.66 | 73.71 | 88 | 0 | 0 | 152.25 | 4.38 | 0.17 | 17.57 | 180 | N/A | 74.88 |
| 3-Sep-13 | 77.96 | 70.34 | 88.66 | 78.56 | 71.64 | 87.30 | 78.63 | 72.68 | 86.23 | 81.86 | 80.49 | 83.10 | 75.07 | 90 | 0.01 | 0.01 | 152.52 | 3.65 | 0.07 | 13.83 | 175 | 0.12 | 76.02 |
| 4-Sep-13 | 77.99 | 71.31 | 91.80 | 78.39 | 72.54 | 90.81 | 78.23 | 72.25 | 89.67 | 82.20 | 80.44 | 84.47 | 74.13 | 88 | 0.21 | 0.09 | 185.67 | 4.44 | 0.53 | 26.70 | 83 | 0.14 | 75.31 |
| 5-Sep-13 | 79.78 | 71.33 | 92.57 | 80.15 | 72.00 | 91.85 | 79.81 | 72.09 | 90.34 | 82.59 | 80.60 | 84.78 | 74.63 | 85 | 0 | 0 | 205.87 | 4.77 | 0.00 | 14.47 | 70 | 0.15 | 76.13 |
| 6-Sep-13 | 78.92 | 70.74 | 94.95 | 78.95 | 71.28 | 93.67 | 78.59 | 71.40 | 93.18 | 83.15 | 81.32 | 85.62 | 73.24 | 85 | 0.22 | 0.07 | 216.83 | 4.55 | 0.00 | 36.93 | 76 | N/A | 74.84 |
| 7-Sep-13 | 77.42 | 69.19 | 89.85 | 77.61 | 69.71 | 89.26 | 77.24 | 69.67 | 88.54 | 82.42 | 80.56 | 84.25 | 72.28 | 85 | 0 | 0 | 210.02 | 5.13 | 0.13 | 47.77 | 51 | N/A | 73.80 |
| 8-Sep-13 | 78.91 | 69.53 | 91.47 | 79.21 | 70.41 | 90.55 | 78.91 | 70.75 | 89.37 | 82.39 | 80.53 | 84.29 | 72.11 | 81 | 0 | 0 | 223.99 | 5.29 | 0.27 | 17.67 | 44 | 0.16 | 74.14 |
| 9-Sep-13 | 79.78 | 70.54 | 91.49 | 80.27 | 71.69 | 91.02 | 80.08 | 72.50 | 89.47 | 82.64 | 80.83 | 84.60 | 72.68 | 80 | 0 | 0 | 240.30 | 6.39 | 0.40 | 17.90 | 72 | 0.17 | 74.82 |
| 10-Sep-13 | 79.65 | 70.90 | 90.43 | 80.18 | 71.78 | 90.34 | 79.84 | 72.66 | 88.43 | 82.72 | 81.18 | 84.34 | 72.07 | 79 | 0 | 0 | 243.06 | 8.50 | 1.17 | 23.20 | 68 | 0.17 | 74.38 |
| 11-Sep-13 | 79.46 | 71.35 | 89.22 | 80.04 | 72.25 | 89.06 | 79.56 | 72.86 | 87.64 | 82.70 | 81.23 | 84.34 | 72.63 | 80 | 0 | 0 | 232.64 | 8.37 | 1.03 | 23.17 | 81 | 0.16 | 74.72 |
| 12-Sep-13 | 76.85 | 70.23 | 90.39 | 77.39 | 71.56 | 89.40 | 77.00 | 72.07 | 88.25 | 82.36 | 81.18 | 83.52 | 73.78 | 90 | 0.47 | 0.17 | 159.19 | 4.25 | 0.00 | 37.37 | 84 | 0.12 | 74.79 |
| 13-Sep-13 | 77.88 | 67.24 | 90.10 | 78.50 | 68.65 | 88.84 | 78.48 | 70.07 | 87.67 | 81.58 | 79.72 | 83.21 | 73.18 | 85 | 0.01 | 0.01 | 204.26 | 2.99 | 0.00 | 13.00 | 12 | 0.14 | 74.67 |
| 14-Sep-13 | 79.88 | 69.96 | 93.24 | 80.44 | 71.80 | 91.76 | 80.55 | 72.72 | 90.93 | 81.84 | 80.17 | 83.44 | 73.41 | 81 | 0.01 | 0.01 | 187.15 | 3.45 | 0.00 | 22.37 | 40 | 0.14 | 75.37 |
| 15-Sep-13 | 76.13 | 69.49 | 92.59 | 76.70 | 70.18 | 92.01 | 76.36 | 70.02 | 90.03 | 81.36 | 80.22 | 83.32 | 73.12 | 90 | 0.85 | 0.22 | 156.90 | 7.13 | 0.20 | 37.80 | 82 | 0.13 | 74.13 |
| 16-Sep-13 | 76.38 | 69.78 | 90.99 | 76.86 | 70.88 | 90.43 | 76.42 | 71.29 | 88.30 | 80.65 | 79.14 | 82.49 | 73.48 | 90 | 0 | 0 | 182.14 | 6.64 | 0.87 | 31.03 | 75 | 0.14 | 74.43 |
| 17-Sep-13 | 76.62 | 69.49 | 88.25 | 77.04 | 70.52 | 87.73 | 76.59 | 71.26 | 85.84 | 80.79 | 79.41 | 82.24 | 73.42 | 89 | 0.03 | 0.03 | 190.97 | 7.19 | 1.37 | 29.33 | 72 | 0.14 | 74.44 |
| 18-Sep-13 | 76.54 | 71.56 | 87.33 | 77.02 | 72.50 | 87.22 | 76.56 | 72.77 | 85.62 | 80.87 | 79.75 | 81.95 | 74.06 | 91 | 0.05 | 0.03 | 158.65 | 6.97 | 0.67 | 24.03 | 66 | 0.12 | 74.88 |
| 19-Sep-13 | 77.15 | 71.13 | 87.40 | 77.70 | 71.78 | 86.79 | 77.37 | 71.67 | 85.39 | 80.70 | 79.54 | 81.90 | 74.13 | 89 | 0.17 | 0.09 | 135.71 | 6.18 | 0.07 | 19.27 | 82 | 0.11 | 75.12 |
| 20-Sep-13 | 77.12 | 69.46 | 87.04 | 77.71 | 70.29 | 86.88 | 77.64 | 70.92 | 85.77 | 80.78 | 79.29 | 82.31 | 71.18 | 82 | 0 | 0 | 214.46 | 6.05 | 0.40 | 17.57 | 80 | 0.14 | 73.08 |
| 21-Sep-13 | 76.78 | 66.13 | 88.83 | 77.27 | 67.35 | 87.69 | 77.60 | 69.17 | 86.81 | 80.60 | 78.78 | 82.33 | 70.00 | 80 | 0 | 0 | 216.21 | 4.32 | 0.30 | 17.00 | 147 | 0.14 | 72.17 |
| 22-Sep-13 | 77.95 | 70.16 | 88.56 | 78.74 | 71.60 | 87.66 | 78.87 | 72.48 | 86.86 | 80.84 | 79.61 | 82.08 | 74.23 | 87 | 0 | 0 | 158.39 | 5.43 | 0.13 | 21.47 | 182 | 0.12 | 75.47 |
| 23-Sep-13 | 75.38 | 71.98 | 80.33 | 76.00 | 72.90 | 80.74 | 75.80 | 73.92 | 79.92 | 80.05 | 79.54 | 80.98 | 75.16 | 97 | 1.11 | 0.35 | 54.21 | 5.96 | 0.00 | 18.87 | 135 | 0.06 | 75.39 |
| 24-Sep-13 | 74.09 | 72.61 | 75.96 | 74.60 | 73.38 | 76.23 | 74.31 | 73.31 | 75.61 | 78.81 | 78.30 | 79.50 | 73.97 | 98 | 0.72 | 0.06 | 34.33 | 6.08 | 0.43 | 14.67 | 194 | 0.04 | 74.15 |
| 25-Sep-13 | 73.47 | 69.44 | 79.00 | 74.31 | 70.43 | 79.63 | 73.99 | 69.98 | 78.87 | 77.48 | 76.48 | 78.58 | 72.69 | 95 | 1.6 | 0.34 | 52.02 | 6.64 | 0.07 | 23.73 | 242 | 0.06 | 73.15 |
| 26-Sep-13 | 79.21 | 72.18 | 87.73 | 79.87 | 73.08 | 87.66 | 79.47 | 73.18 | 86.49 | 78.39 | 77.09 | 80.11 | 74.52 | 85 | 0.01 | 0.01 | 173.33 | 6.46 | 1.07 | 21.57 | 286 | 0.13 | 75.98 |
| 27-Sep-13 | 74.60 | 68.22 | 84.81 | 74.94 | 68.85 | 84.52 | 74.52 | 68.74 | 83.01 | 78.55 | 77.49 | 79.68 | 70.68 | 87 | 0 | 0 | 165.02 | 6.37 | 0.93 | 20.73 | 25 | 0.12 | 71.94 |
| 28-Sep-13 | 76.50 | 68.67 | 87.82 | 76.71 | 69.39 | 86.99 | 76.07 | 69.42 | 85.03 | 79.15 | 77.77 | 80.71 | 71.65 | 86 | 0 | 0 | 222.65 | 7.32 | 0.73 | 21.63 | 43 | 0.14 | 73.12 |
| 29-Sep-13 | 76.35 | 67.57 | 88.50 | 76.82 | 68.18 | 87.55 | 76.62 | 68.31 | 86.41 | 79.56 | 78.17 | 80.96 | 69.22 | 80 | 0 | 0 | 215.22 | 5.54 | 0.40 | 13.90 | 53 | 0.14 | 71.52 |
| 30-Sep-13 | 76.88 | 65.93 | 89.80 | 77.41 | 68.07 | 88.65 | 77.30 | 68.54 | 87.37 | 79.63 | 78.04 | 81.30 | 70.74 | 82 | 0 | 0 | 201.41 | 4.94 | 0.20 | 20.00 | 83 | 0.13 | 72.70 |

# Table B.1 (continued)
# Daily Recorded Meteorological Data
# Balm, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) | 2m WetBulb (F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Oct-13 | 78.02 | 68.02 | 89.11 | 78.46 | 69.04 | 88.99 | 78.32 | 70.47 | 87.76 | 80.05 | 78.58 | 81.46 | 71.52 | 81 | 0 | 0 | 209.65 | 6.48 | 1.60 | 17.47 | 89 | 0.14 | 73.53 |
| 2-Oct-13 | 77.19 | 69.19 | 87.89 | 77.71 | 69.87 | 87.58 | 77.47 | 70.11 | 86.00 | 80.06 | 78.85 | 81.27 | 71.53 | 83 | 0 | 0 | 199.31 | 7.87 | 2.30 | 42.83 | 78 | 0.13 | 73.32 |
| 3-Oct-13 | 77.53 | 68.11 | 88.14 | 78.03 | 69.31 | 87.76 | 77.92 | 70.29 | 86.85 | 80.16 | 78.75 | 81.59 | 71.66 | 82 | 0 | 0 | 207.04 | 5.60 | 0.87 | 17.00 | 93 | 0.13 | 73.50 |
| 4-Oct-13 | 78.14 | 70.43 | 88.95 | 78.79 | 71.31 | 88.30 | 78.84 | 71.92 | 86.88 | 80.60 | 79.34 | 81.91 | 72.03 | 81 | 0 | 0 | 195.89 | 4.93 | 0.00 | 15.17 | 94 | 0.13 | 73.97 |
| 5-Oct-13 | 77.31 | 67.17 | 89.31 | 77.92 | 68.27 | 88.93 | 78.23 | 70.30 | 87.76 | 80.34 | 79.02 | 81.55 | 71.12 | 81 | 0 | 0 | 197.01 | 5.89 | 1.10 | 17.67 | 78 | 0.13 | 73.11 |
| 6-Oct-13 | 77.60 | 67.73 | 88.84 | 77.98 | 68.63 | 88.11 | 78.17 | 70.92 | 86.79 | 80.13 | 78.71 | 81.48 | 72.32 | 84 | 0 | 0 | 194.95 | 4.17 | 0.00 | 29.43 | 145 | 0.13 | 73.93 |
| 7-Oct-13 | 75.69 | 68.68 | 84.88 | 76.36 | 70.43 | 84.97 | 76.31 | 72.19 | 83.95 | 79.68 | 79.07 | 80.53 | 73.98 | 93 | 0.81 | 0.3 | 125.55 | 7.09 | 0.20 | 26.27 | 207 | 0.1 | 74.64 |
| 8-Oct-13 | 78.61 | 71.71 | 86.32 | 78.97 | 72.30 | 85.78 | 78.62 | 72.41 | 84.38 | 79.68 | 78.53 | 80.98 | 73.84 | 85 | 0 | 0 | 204.18 | 6.67 | 0.20 | 18.57 | 270 | 0.13 | 75.26 |
| 9-Oct-13 | 72.54 | 65.28 | 80.73 | 72.79 | 66.00 | 79.88 | 72.52 | 66.07 | 78.98 | 78.93 | 78.24 | 79.75 | 68.86 | 88 | 0 | 0 | 95.71 | 6.14 | 0.57 | 16.03 | 25 | N/A | 70.07 |
| 10-Oct-13 | 72.18 | 63.01 | 85.08 | 72.80 | 63.63 | 84.42 | 73.08 | 63.88 | 83.44 | 77.87 | 76.62 | 79.14 | 66.66 | 83 | 0 | 0 | 188.64 | 4.80 | 0.57 | 13.97 | 49 | 0.11 | 68.63 |
| 11-Oct-13 | 73.56 | 60.26 | 87.75 | 74.23 | 61.88 | 86.32 | 74.52 | 64.74 | 86.00 | 77.51 | 75.94 | 78.96 | 66.16 | 78 | 0 | 0 | 186.58 | 3.61 | 0.10 | 13.00 | 27 | N/A | 68.76 |
| 12-Oct-13 | 72.75 | 59.54 | 86.05 | 73.80 | 62.20 | 85.41 | 74.39 | 64.99 | 84.61 | 77.28 | 75.72 | 78.78 | 63.77 | 74 | 0 | 0 | 215.44 | 3.43 | 0.00 | 16.13 | 4 | 0.12 | 67.13 |
| 13-Oct-13 | 72.51 | 60.98 | 85.06 | 73.59 | 63.27 | 84.40 | 74.37 | 64.99 | 83.41 | 76.79 | 75.38 | 78.03 | 63.20 | 73 | 0 | 0 | 180.50 | 4.46 | 0.27 | 14.83 | 47 | 0.11 | 66.71 |
| 14-Oct-13 | 72.98 | 63.57 | 84.79 | 73.58 | 64.36 | 84.06 | 73.42 | 64.63 | 82.94 | 76.73 | 75.42 | 78.06 | 65.64 | 78 | 0 | 0 | 199.34 | 5.80 | 1.20 | 14.57 | 27 | 0.11 | 68.22 |
| 15-Oct-13 | 70.80 | 63.84 | 82.44 | 71.03 | 64.47 | 81.50 | 70.66 | 64.53 | 80.13 | 76.82 | 75.67 | 78.15 | 67.81 | 90 | 0 | 0 | 169.31 | 4.96 | 0.20 | 31.03 | 18 | 0.1 | 68.83 |
| 16-Oct-13 | 74.82 | 67.03 | 86.74 | 74.99 | 68.04 | 85.21 | 74.62 | 68.83 | 83.41 | 77.45 | 76.32 | 78.75 | 69.31 | 84 | 0 | 0 | 158.85 | 3.43 | 0.13 | 10.87 | 358 | 0.1 | 71.04 |
| 17-Oct-13 | 75.65 | 64.74 | 88.66 | 76.16 | 66.11 | 87.28 | 76.19 | 67.95 | 85.84 | 77.62 | 76.19 | 79.12 | 69.63 | 82 | 0 | 0 | 186.51 | 3.68 | 0.10 | 13.17 | 354 | 0.11 | 71.59 |
| 18-Oct-13 | 76.97 | 65.62 | 89.37 | 77.51 | 67.57 | 88.47 | 77.78 | 69.78 | 87.49 | 78.07 | 76.62 | 79.50 | 70.74 | 82 | 0 | 0 | 195.79 | 4.57 | 0.13 | 15.87 | 134 | 0.12 | 72.73 |
| 19-Oct-13 | 76.85 | 68.52 | 90.28 | 77.48 | 69.91 | 89.29 | 77.74 | 71.94 | 87.93 | 78.40 | 77.23 | 79.66 | 72.56 | 86 | 0 | 0 | 140.23 | 4.14 | 0.00 | 14.27 | 165 | 0.1 | 73.96 |
| 20-Oct-13 | 78.72 | 70.09 | 88.59 | 78.92 | 71.29 | 87.76 | 78.77 | 72.46 | 86.97 | 78.79 | 77.67 | 79.97 | 73.61 | 85 | 0 | 0 | 155.20 | 3.50 | 0.00 | 12.63 | 280 | 0.11 | 75.09 |
| 21-Oct-13 | 77.70 | 70.61 | 89.01 | 78.06 | 72.32 | 87.73 | 77.78 | 72.45 | 86.14 | 79.21 | 78.31 | 80.40 | 72.93 | 85 | 0 | 0 | 153.46 | 3.70 | 0.17 | 14.03 | 333 | 0.11 | 74.38 |
| 22-Oct-13 | 75.08 | 65.75 | 88.36 | 75.57 | 67.44 | 87.87 | 75.59 | 68.67 | 86.70 | 78.69 | 77.58 | 80.04 | 71.86 | 89 | 0.97 | 0.19 | 162.81 | 5.12 | 0.00 | 18.93 | 244 | 0.11 | 72.93 |
| 23-Oct-13 | 72.14 | 64.87 | 81.09 | 72.44 | 65.68 | 80.24 | 72.07 | 65.97 | 78.80 | 77.61 | 76.57 | 78.15 | 64.08 | 77 | 0 | 0 | 149.25 | 6.58 | 0.63 | 19.23 | 337 | 0.09 | 66.88 |
| 24-Oct-13 | 63.65 | 58.68 | 70.92 | 64.11 | 59.05 | 70.74 | 64.16 | 59.32 | 69.93 | 75.03 | 74.19 | 76.53 | 54.84 | 72 | 0 | 0 | 97.16 | 6.76 | 1.80 | 16.07 | 26 | 0.07 | 58.53 |
| 25-Oct-13 | 65.79 | 54.93 | 80.33 | 66.37 | 55.58 | 79.88 | 66.54 | 55.78 | 78.66 | 73.88 | 72.81 | 75.00 | 55.93 | 73 | 0 | 0 | 185.64 | 5.49 | 0.53 | 17.17 | 18 | 0.09 | 59.99 |
| 26-Oct-13 | 65.34 | 55.00 | 80.08 | 65.78 | 55.69 | 79.00 | 65.76 | 56.26 | 78.06 | 73.47 | 72.32 | 74.75 | 56.16 | 74 | 0 | 0 | 170.70 | 4.77 | 0.23 | 13.87 | 23 | 0.09 | 59.89 |
| 27-Oct-13 | 64.27 | 53.67 | 79.72 | 65.02 | 54.68 | 78.94 | 65.68 | 55.18 | 77.81 | 73.02 | 71.80 | 74.28 | 56.03 | 76 | 0 | 0 | 180.78 | 5.61 | 0.30 | 16.43 | 45 | 0.09 | 59.53 |
| 28-Oct-13 | 68.04 | 54.46 | 83.62 | 68.65 | 55.92 | 82.85 | 69.05 | 57.54 | 81.95 | 72.91 | 71.44 | 74.43 | 59.07 | 74 | 0 | 0 | 175.96 | 5.27 | 0.17 | 17.67 | 49 | 0.09 | 62.59 |
| 29-Oct-13 | 70.86 | 60.26 | 83.98 | 71.43 | 61.14 | 84.13 | 71.26 | 61.47 | 83.01 | 73.46 | 72.30 | 74.61 | 63.41 | 78 | 0 | 0 | 164.52 | 7.29 | 1.97 | 19.50 | 51 | 0.1 | 66.13 |
| 30-Oct-13 | 71.32 | 63.19 | 84.51 | 71.90 | 63.66 | 84.11 | 71.97 | 64.06 | 82.58 | 74.03 | 72.93 | 75.24 | 65.66 | 82 | 0 | 0 | 145.81 | 6.70 | 1.93 | 21.83 | 63 | 0.09 | 67.70 |
| 31-Oct-13 | 72.89 | 60.24 | 86.99 | 73.50 | 61.47 | 86.02 | 73.84 | 64.09 | 84.34 | 74.17 | 72.81 | 75.45 | 65.94 | 80 | 0 | 0 | 165.73 | 5.39 | 0.00 | 19.83 | 117 | 0.1 | 68.38 |

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# Appendix C: Groundwater Elevations

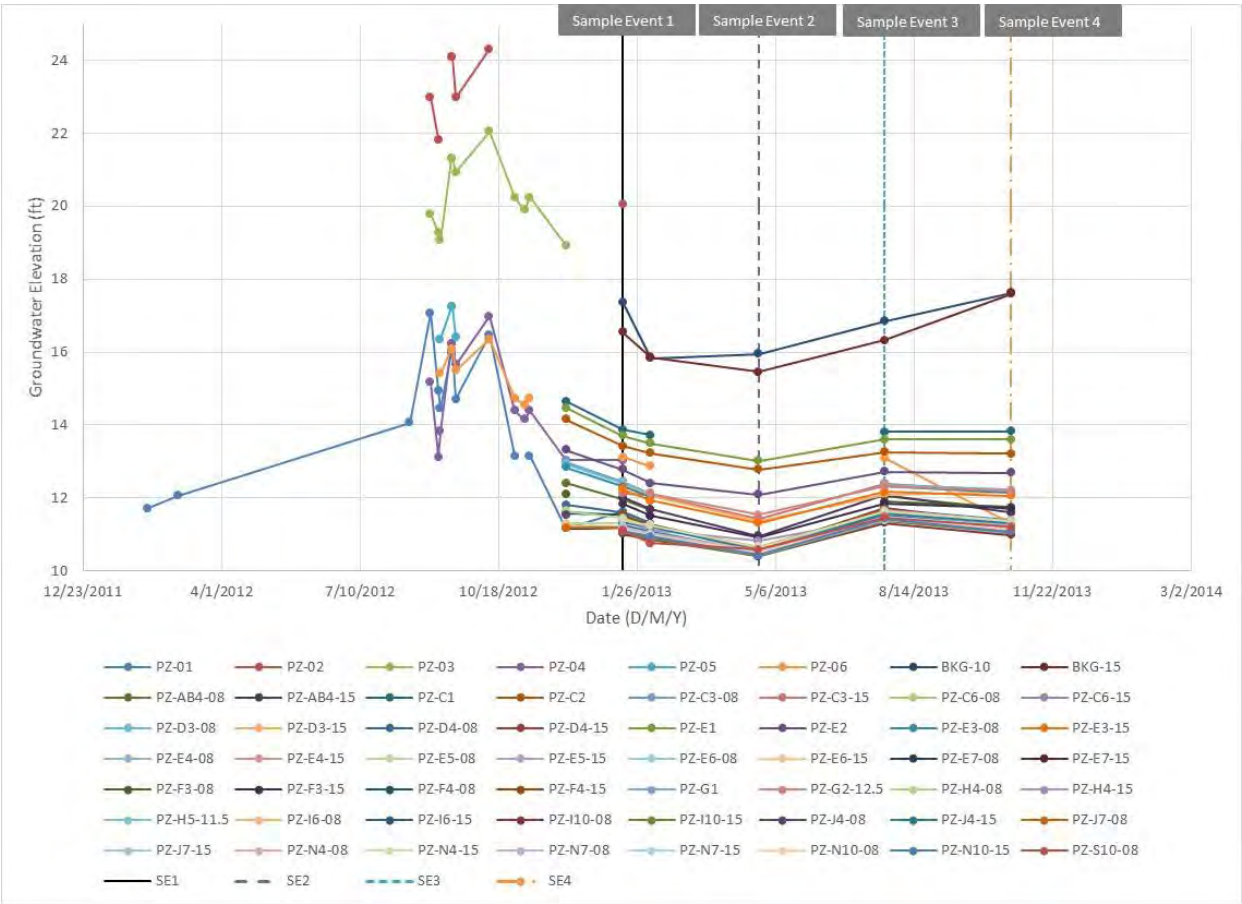


**Figure C.1**
**Groundwater Elevations**

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Table C.1
Groundwater Elevations

| | PZ-01 | PZ-02 | PZ-03 | PZ-04 | PZ-05 | PZ-06 | BKG-10 | BKG-15 | PZ-AB4-08 | PZ-AB4-15 | PZ-C1 | PZ-C2 | PZ-C3-08 | PZ-C3-15 | PZ-C6-08 | PZ-C6-15 | PZ-D3-08 | PZ-D3-15 | PZ-D4-08 | PZ-D4-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/8/2012 | 11.71 | | | | | | | | | | | | | | | | | | | |
| 2/29/2012 | 12.06 | | | | | | | | | | | | | | | | | | | |
| 8/15/2012 | 14.07 | | | | | | | | | | | | | | | | | | | |
| 8/30/2012 | 17.08 | 23.00 | 19.80 | 15.18 | | | | | | | | | | | | | | | | |
| 9/4/2012 | 14.93 | 21.84 | 19.27 | 13.12 | | | | | | | | | | | | | | | | |
| 9/6/2012 | 14.45 | | 19.06 | 13.83 | 16.35 | 15.41 | | | | | | | | | | | | | | |
| 9/14/2012 | 15.99 | 24.10 | 21.30 | 16.24 | 17.23 | 16.08 | | | | | | | | | | | | | | |
| 9/14/2012 | 15.99 | 24.10 | 21.30 | 16.24 | 17.23 | 16.08 | | | | | | | | | | | | | | |
| 9/17/2012 | 14.71 | 22.98 | 20.93 | 15.65 | 16.40 | 15.50 | | | | | | | | | | | | | | |
| 10/11/2012 | 16.47 | 24.32 | 22.06 | 16.99 | | 16.36 | | | | | | | | | | | | | | |
| 10/30/2012 | 13.16 | | 20.24 | 14.39 | | 14.74 | | | | | | | | | | | | | | |
| 11/6/2012 | | | 19.90 | 14.15 | | 14.55 | | | | | | | | | | | | | | |
| 11/9/2012 | 13.16 | | 20.24 | 14.39 | | 14.74 | | | | | | | | | | | | | | |
| 12/6/2012 | 11.16 | | 18.93 | 13.04 | | | | | 12.40 | | 14.65 | 14.15 | 12.98 | | 11.24 | | 12.93 | | 11.81 | |
| 1/16/2013 | 11.63 | 20.07 | | 13.04 | | 13.12 | 17.37 | 16.54 | 11.97 | 12.01 | 13.87 | 13.43 | 12.45 | 12.12 | 11.23 | 11.23 | 12.40 | 12.34 | 11.60 | 11.48 |
| 2/5/2013 | 11.30 | | | | | 12.87 | 15.83 | 15.86 | 11.68 | 11.69 | 13.72 | 13.23 | 12.11 | 12.07 | 10.98 | 10.96 | 12.08 | 12.06 | 11.30 | 11.26 |
| 4/24/2013 | | | | | | | 15.95 | 15.45 | | 10.96 | | 12.78 | | 11.42 | 10.43 | 10.43 | | 11.36 | | 10.58 |
| 7/24/2013 | 11.70 | | | | | 13.09 | 16.85 | 16.32 | 12.05 | 12.07 | 13.80 | 13.26 | 12.38 | 12.37 | 11.43 | 11.42 | 12.34 | 12.09 | 11.72 | 11.71 |
| 10/23/2013 | 11.39 | | | | | 11.29 | 17.62 | 17.59 | 11.71 | 11.60 | 13.82 | 13.21 | 12.19 | 12.16 | 11.13 | 11.11 | 12.23 | 12.17 | 11.29 | 11.30 |

Elevation above mean seal level based on NGVD 1929

Table C.1 (con't)
Groundwater Elevations

| | PZ-E1 | PZ-E2 | PZ-E3-08 | PZ-E3-15 | PZ-E4-08 | PZ-E4-15 | PZ-E5-08 | PZ-E5-15 | PZ-E6-08 | PZ-E6-15 | PZ-E7-08 | PZ-E7-15 | PZ-F3-08 | PZ-F3-15 | PZ-F4-08 | PZ-F4-15 | PZ-G2-12.5 | PZ-H4-08 | PZ-H4-15 | PZ-H5-11.5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/8/2012 | | | | | | | | | | | | | | | | | | | | |
| 2/29/2012 | | | | | | | | | | | | | | | | | | | | |
| 8/15/2012 | | | | | | | | | | | | | | | | | | | | |
| 8/30/2012 | | | | | | | | | | | | | | | | | | | | |
| 9/4/2012 | | | | | | | | | | | | | | | | | | | | |
| 9/6/2012 | | | | | | | | | | | | | | | | | | | | |
| 9/14/2012 | | | | | | | | | | | | | | | | | | | | |
| 9/14/2012 | | | | | | | | | | | | | | | | | | | | |
| 9/17/2012 | | | | | | | | | | | | | | | | | | | | |
| 10/11/2012 | | | | | | | | | | | | | | | | | | | | |
| 10/30/2012 | | | | | | | | | | | | | | | | | | | | |
| 11/6/2012 | | | | | | | | | | | | | | | | | | | | |
| 11/9/2012 | | | | | | | | | | | | | | | | | | | | |
| 12/6/2012 | 14.47 | 13.31 | 12.84 | | 11.63 | | 11.30 | | 11.19 | | 11.16 | | 12.09 | | 11.58 | | | 11.64 | | |
| 1/16/2013 | 13.71 | 12.78 | 12.31 | 12.24 | 11.52 | 11.45 | 11.30 | 11.28 | 11.21 | 11.23 | 11.15 | 11.19 | | 11.83 | 11.53 | 11.51 | | 11.44 | 11.37 | 11.23 |
| 2/5/2013 | 13.50 | 12.40 | 12.03 | 11.92 | 11.20 | 11.22 | 11.03 | 11.05 | 11.11 | 10.95 | 10.93 | 10.97 | | 11.50 | 11.20 | 11.23 | 12.11 | 11.19 | 11.13 | 10.98 |
| 4/24/2013 | 13.02 | 12.08 | | 11.31 | | 10.61 | | 10.48 | 10.45 | 10.50 | 10.40 | 10.45 | | 10.90 | | 10.63 | 11.53 | | 10.82 | 10.43 |
| 7/24/2013 | 13.60 | 12.72 | 12.31 | 12.16 | 11.65 | 11.65 | 11.50 | 11.51 | 11.48 | 11.40 | 11.43 | 11.45 | 11.89 | 11.85 | 11.62 | 11.67 | 12.33 | 11.61 | 11.44 | 11.43 |
| 10/23/2013 | 13.60 | 12.68 | 12.14 | 12.06 | 11.35 | 11.37 | 11.15 | 11.16 | 11.13 | 11.04 | 11.05 | 11.08 | 11.74 | 11.72 | 11.29 | 11.33 | 12.19 | 11.31 | 11.25 | 10.99 |

Elevation above mean seal level based on NGVD 1929

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Table C.1 (con't)
Groundwater Elevations

| | PZ-I6-08 | PZ-I6-15 | PZ-I10-08 | PZ-I10-15 | PZ-J4-08 | PZ-J4-15 | PZ-J7-08 | PZ-J7-15 | PZ-N4-08 | PZ-N4-15 | PZ-N7-08 | PZ-N7-15 | PZ-N10-08 | PZ-N10-15 | PZ-S10-08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/8/2012 | | | | | | | | | | | | | | | |
| 2/29/2012 | | | | | | | | | | | | | | | |
| 8/15/2012 | | | | | | | | | | | | | | | |
| 8/30/2012 | | | | | | | | | | | | | | | |
| 9/4/2012 | | | | | | | | | | | | | | | |
| 9/6/2012 | | | | | | | | | | | | | | | |
| 9/14/2012 | | | | | | | | | | | | | | | |
| 9/14/2012 | | | | | | | | | | | | | | | |
| 9/17/2012 | | | | | | | | | | | | | | | |
| 10/11/2012 | | | | | | | | | | | | | | | |
| 10/30/2012 | | | | | | | | | | | | | | | |
| 11/6/2012 | | | | | | | | | | | | | | | |
| 11/9/2012 | | | | | | | | | | | | | | | |
| 12/6/2012 | 11.22 | | | | 11.54 | | 11.18 | | | | | | | | |
| 1/16/2013 | 11.17 | 11.24 | 11.02 | 11.07 | | 11.35 | 11.18 | 11.15 | 11.40 | 11.40 | 11.21 | 11.18 | 11.12 | 11.08 | 11.09 |
| 2/5/2013 | 10.97 | 11.05 | 10.85 | 10.87 | | 11.22 | 10.96 | 10.97 | 11.23 | 11.25 | 11.03 | 10.98 | 10.97 | 10.93 | 10.75 |
| 4/24/2013 | 10.42 | 10.52 | 10.42 | 10.40 | | 10.55 | 10.46 | 10.42 | | 10.65 | 10.54 | 10.48 | 10.52 | 10.43 | 10.58 |
| 7/24/2013 | 11.47 | 11.51 | 11.32 | 11.37 | 11.64 | 11.57 | 11.41 | 11.39 | 11.66 | 11.63 | 11.46 | 11.48 | 11.47 | 11.43 | 11.45 |
| 10/23/2013 | 11.22 | 11.25 | 10.99 | 11.06 | 11.36 | 11.30 | 11.16 | 11.15 | 11.38 | 11.36 | 11.19 | 11.23 | 11.12 | 11.07 | 11.20 |

Elevation above mean seal level based on NGVD 1929

# Appendix D: Water Quality Analytical Results

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Table D.1
Water Quality Analytical Results
Sample Event No. 1 (January 14, through January 17, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Anions | | | | | | Cations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na |
| STE | 1/17/13 11:38 | 23.3 | 7.38 | | 0.4 | 1,361 | | 53.05 | 53 | 12.00 | 41 | 0.05 | 41.05 | | | | 0.05 | 0.01 | | | | | | | | | |
| STE-DUP | 1/17/13 11:43 | 23.3 | 7.38 | | 0.4 | 1,361 | | 56.04 | 56 | 16.00 | 40 | 0.04 | 40.04 | | | | 0.04 | 0.01 | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-01 | 1/17/13 11:27 | 21.3 | 5.65 | 23 | 3.8 | 491 | 51 | 1.53 | 1.2 | 1.15 | 0.048 | 0.33 | 0.38 | 0.086 | | | 0.33 | 0.01 | | | | | | | | | |
| BKG-10 | 1/14/13 10:06 | 21.6 | 4.76 | 2 | 6.6 | 334 | 75 | 1.92 | 1.9 | 1.74 | 0.16 | 0.02 | 0.18 | 1 | 0.21 | 33 | 0.01 | 0.01 | 0.082 | 52 | 0.07 | 7.3 | 0.72 | 2.1 | 0.002 | 0.42 | 17 |
| BKG-15 | 1/14/13 10:30 | 23.3 | 5.89 | 34 | 0.2 | 124 | 87 | 3.02 | 3 | 2.46 | 0.54 | 0.02 | 0.56 | 1.9 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-AB4-08 | 1/14/13 10:59 | 23.1 | 6.09 | 4.2 | 1.8 | 331 | 34 | 0.99 | 0.96 | 0.48 | 0.48 | 0.03 | 0.51 | 0.43 | | | 0.03 | 0.01 | | | | | | | | | |
| PA-AB4-08-DUP | 1/14/13 11:04 | 23.1 | 6.09 | 4.2 | 1.8 | 331 | 36 | 1.03 | 0.96 | 0.44 | 0.52 | 0.07 | 0.59 | 0.46 | | | 0.07 | 0.01 | | | | | | | | | |
| PZ-AB-4-15 | 1/14/13 11:20 | 23.5 | 7.24 | | 3.8 | 456 | | 0.85 | 0.79 | 0.29 | 0.5 | 0.06 | 0.56 | | | | 0.02 | 0.04 | | | | | | | | | |
| PZ-C1 | 1/17/13 10:16 | 22.6 | 5.69 | | 4.9 | 810 | | 1.91 | 0.98 | 0.97 | 0.009 | 0.93 | 0.94 | | | | 0.93 | 0.01 | | | | | | | | | |
| PZ-C2 | 1/17/13 10:46 | 23.0 | 5.89 | | 0.3 | 157 | | 1.02 | 1 | 0.57 | 0.43 | 0.02 | 0.45 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-C3-08 | 1/14/13 11:50 | 23.0 | 5.15 | | 1.1 | 438 | | 0.94 | 0.86 | 0.62 | 0.24 | 0.08 | 0.32 | | | | 0.08 | 0.01 | | | | | | | | | |
| PZ-C3-15 | 1/14/13 12:08 | 23.9 | 6.82 | | 1.4 | 489 | | 0.60 | 0.57 | 0.24 | 0.33 | 0.03 | 0.36 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-C6-08 | 1/15/13 11:37 | 22.5 | 4.23 | | 2.4 | 649 | | 0.95 | 0.93 | 0.76 | 0.17 | 0.02 | 0.19 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-C6-15 | 1/15/13 11:57 | 23.2 | 5.77 | | 2.0 | 391 | | 0.80 | 0.78 | 0.60 | 0.18 | 0.02 | 0.20 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-D3-08 | 1/14/13 12:24 | 23.0 | 5.33 | 11 | 0.8 | 385 | 42 | 1.39 | 0.88 | 0.78 | 0.1 | 0.51 | 0.61 | 0.46 | | | 0.51 | 0.01 | | | | | | | | | |
| PZ-D3-15 | 1/14/13 12:44 | 23.8 | 6.74 | 160 | 1.7 | 811 | 59 | 1.92 | 1.9 | 0.99 | 0.91 | 0.02 | 0.93 | 5.5 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-D4-08 | 1/15/13 10:22 | 21.9 | 5.25 | | 0.7 | 510 | | 0.72 | 0.69 | 0.55 | 0.14 | 0.03 | 0.17 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-D4-15 | 1/15/13 10:41 | 23.0 | 6.87 | | 1.1 | 950 | | 0.93 | 0.91 | 0.56 | 0.35 | 0.02 | 0.37 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-E1 | 1/17/13 9:49 | 22.6 | 5.70 | 18 | 3.6 | 177 | 42 | 1.02 | 1 | 0.55 | 0.45 | 0.02 | 0.47 | 1.7 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E2 | 1/17/13 11:08 | 21.7 | 5.90 | | 4.9 | 195 | | 1.00 | 0.98 | 0.55 | 0.43 | 0.02 | 0.45 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-E3-08 | 1/14/13 13:07 | 22.7 | 5.62 | 30 | 0.7 | 728 | 59 | 1.95 | 0.95 | 0.81 | 0.14 | 1 | 1.14 | 0.88 | | | 1 | 0.01 | | | | | | | | | |
| PZ-E3-08-DUP | 1/14/13 13:12 | 22.7 | 5.62 | 31 | 0.7 | 728 | 51 | 2.00 | 1 | 0.86 | 0.14 | 1 | 1.14 | 0.79 | | | 1 | 0.01 | | | | | | | | | |
| PZ-E3-15 | 1/14/13 13:30 | 24.6 | 6.57 | 83 | 4.2 | 331 | 63 | 1.23 | 1.2 | 0.85 | 0.35 | 0.03 | 0.38 | 3.7 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-E4-08 | 1/15/13 9:50 | 21.6 | 5.29 | 4.2 | 0.7 | 632 | 44 | 0.76 | 0.55 | 0.52 | 0.034 | 0.21 | 0.24 | 0.067 | 0.26 | 29 | 0.21 | 0.01 | 0.01 | 210 | 0.16 | 46 | 0.16 | 26 | 0.005 | 4 | 16 |
| PZ-E4-15 | 1/15/13 10:13 | 22.7 | 6.73 | | 1.6 | 517 | | 1.01 | 0.99 | 0.63 | 0.36 | 0.02 | 0.38 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-E5-08 | 1/15/13 10:56 | 22.6 | 5.01 | | 0.7 | 552 | | 1.02 | 1 | 0.81 | 0.19 | 0.02 | 0.21 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E5-15 | 1/15/13 11:17 | 23.4 | 6.73 | | 1.2 | 820 | | 1.12 | 1.1 | 0.88 | 0.22 | 0.02 | 0.24 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E6-08 | 1/15/13 12:15 | 22.5 | 4.99 | | 2.3 | 501 | | 1.05 | 1 | 0.84 | 0.16 | 0.05 | 0.21 | | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-E6-15 | 1/15/13 12:36 | 23.3 | 5.44 | | 3.1 | 380 | | 2.12 | 2.1 | 1.41 | 0.69 | 0.02 | 0.71 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E7-08 | 1/15/13 13:51 | 22.9 | 4.98 | 3.2 | 3.2 | 398 | 36 | 1.42 | 1 | 0.99 | 0.009 | 0.42 | 0.43 | 0.026 | 0.14 | 17 | 0.42 | 0.01 | 0.01 | 130 | 0.15 | 29 | 0.25 | 14 | 0.004 | 4.3 | 14 |
| PZ-E7-08-DUP | 1/15/13 13:56 | 22.9 | 4.98 | 3.2 | 3.2 | 398 | 36 | 1.50 | 1.1 | 1.09 | 0.009 | 0.4 | 0.41 | 0.032 | 0.1 | 17 | 0.4 | 0.01 | 0.01 | 130 | 0.16 | 29 | 0.25 | 13 | 0.004 | 4.2 | 14 |
| PZ-E7-15 | 1/15/13 13:16 | 23.5 | 7.14 | 250 | 3.9 | 1,740 | 71 | 1.32 | 1.3 | 0.84 | 0.46 | 0.02 | 0.48 | 0.16 | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-F3-15 | 1/15/13 8:50 | 22.1 | 6.84 | 93 | 4.2 | 353 | 49 | 0.84 | 0.82 | 0.50 | 0.32 | 0.02 | 0.34 | 1.5 | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-F4-08 | 1/15/13 9:05 | 20.4 | 5.55 | 8.4 | 5.5 | 813 | 53 | 6.20 | 2 | 1.99 | 0.014 | 4.2 | 4.21 | 0.047 | 0.06 | 35 | 4.2 | 0.08 | 0.01 | 280 | 0.34 | 66 | 0.12 | 33 | 0.007 | 6.1 | 30 |
| PZ-F4-15 | 1/15/13 9:32 | 22.2 | 7.14 | 200 | 5.1 | 1,287 | 61 | 1.33 | 1.3 | 0.86 | 0.44 | 0.03 | 0.47 | 0.36 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-G2-12.5 | 1/16/13 10:02 | 22.4 | 4.70 | | 1.4 | 570 | | 1.38 | 0.86 | 0.81 | 0.046 | 0.52 | 0.57 | | | | 0.52 | 0.01 | | | | | | | | | |

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Table D.1 (con't)
Water Quality Analytical Results
Sample Event No. 1 (January 14, through January 17, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Anions | | | | | | Cations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na |
| PZ-H4-08 | 1/15/13 13:33 | 23.0 | 5.21 | 2 | 4.2 | 559 | 36 | 1.45 | 0.15 | 0.14 | 0.01 | 1.3 | 1.31 | 0.22 | | | 1.3 | 0.01 | | | | | | | | | |
| PZ-H4-15 | 1/15/13 13:48 | 23.5 | 7.01 | 150 | 5.6 | 858 | 69 | 1.03 | 1 | 0.47 | 0.53 | 0.03 | 0.56 | 1.6 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-H4-15-DUP | 1/15/13 13:53 | 23.5 | 7.01 | 150 | 5.6 | 858 | 65 | 1.13 | 1.1 | 0.60 | 0.5 | 0.03 | 0.53 | 1.5 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-H5-11.5 | 1/16/13 10:48 | 22.2 | 4.55 | | 1.3 | 441 | | 2.20 | 1.1 | 0.73 | 0.37 | 1.1 | 1.47 | | | | 1.1 | 0.01 | | | | | | | | | |
| PZ-I6-08 | 1/16/13 11:10 | 22.5 | 5.04 | 3.2 | 0.2 | 385 | | 1.70 | 1.5 | 0.98 | 0.52 | 0.2 | 0.72 | | 0.22 | 21 | 0.2 | 0.01 | 0.01 | 110 | 0.13 | 29 | 1.1 | 15 | 0.015 | 2.6 | 14 |
| PZ-I6-15 | 1/16/13 11:33 | 23.4 | 6.90 | | 0.2 | 1,849 | | 1.12 | 1.1 | 0.72 | 0.38 | 0.02 | 0.40 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-I10-08 | 1/16/13 12:15 | 22.9 | 5.29 | 13 | 0.5 | 460 | 34 | 1.54 | 0.68 | 0.64 | 0.045 | 0.86 | 0.91 | 0.05 | | | 0.86 | 0.01 | | | | | | | | | |
| PZ-I10-08-DUP | 1/16/13 12:20 | 22.9 | 5.29 | 13 | 0.5 | 460 | 30 | 1.52 | 0.68 | 0.64 | 0.044 | 0.84 | 0.88 | 0.055 | | | 0.84 | 0.01 | | | | | | | | | |
| PZ-I10-15 | 1/16/13 12:30 | 23.1 | 6.83 | | 0.8 | 734 | | 0.95 | 0.93 | 0.38 | 0.55 | 0.02 | 0.57 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-J4-15 | 1/16/13 10:29 | 23.0 | 6.47 | 100 | 0.4 | 585 | 65 | 1.63 | 1.5 | 0.86 | 0.64 | 0.13 | 0.77 | 0.74 | | | 0.13 | 0.01 | | | | | | | | | |
| PZ-J7-08 | 1/16/13 11:48 | 22.8 | 5.07 | 7.4 | 0.8 | 299 | 38 | 1.09 | 1 | 0.82 | 0.18 | 0.09 | 0.27 | 0.065 | 0.11 | 19 | 0.09 | 0.01 | 0.01 | 84 | 0.11 | 22 | 0.35 | 11 | 0.003 | 2 | 11 |
| PZ-J7-15 | 1/16/13 12:00 | 23.5 | 5.30 | | 1.1 | 415 | | 4.92 | 4.9 | 4.05 | 0.85 | 0.02 | 0.87 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N4-08 | 1/16/13 13:58 | 22.9 | 5.67 | 17 | 4.3 | 280 | 34 | 0.51 | 0.49 | 0.30 | 0.19 | 0.02 | 0.21 | 0.096 | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-N4-15 | 1/16/13 14:22 | 23.1 | 6.69 | | 0.4 | 726 | | 1.52 | 1.5 | 1.01 | 0.49 | 0.02 | 0.51 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N7-08 | 1/16/13 13:35 | 24.4 | 5.96 | | 1.0 | 454 | | 3.82 | 3.8 | 0.80 | 3 | 0.02 | 3.02 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N7-15 | 1/16/13 13:45 | 23.9 | 5.73 | | 0.3 | 259 | | 1.86 | 1.6 | 1.10 | 0.5 | 0.26 | 0.76 | | | | 0.26 | 0.01 | | | | | | | | | |
| PZ-N10-08 | 1/16/13 13:06 | 23.5 | 6.40 | 62 | 0.3 | 502 | 34 | 2.52 | 2.5 | 1.30 | 1.2 | 0.02 | 1.22 | 0.33 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N10-08-DUP | 1/16/13 13:11 | 23.5 | 6.40 | 62 | 0.3 | 502 | 30 | 2.32 | 2.3 | 1.10 | 1.2 | 0.02 | 1.22 | 0.3 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N10-15 | 1/16/13 12:45 | 24.3 | 7.11 | | 0.8 | 1,573 | | 1.12 | 1.1 | 0.62 | 0.48 | 0.02 | 0.50 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-S10-08 | 1/16/13 13:21 | 24.0 | 5.31 | 6.3 | 0.7 | 303 | 30 | 0.66 | 0.63 | 0.51 | 0.12 | 0.03 | 0.15 | 0.051 | | | 0.03 | 0.01 | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 1/16/13 8:20 | 19.3 | 7.65 | 2 | 8.6 | 1 | 10 | 0.06 | 0.05 | 0.04 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 |
| FB-TAP | 1/16/13 8:15 | 21.6 | 7.54 | 160 | 4.4 | 846 | 14 | 0.32 | 0.16 | 0.13 | 0.027 | 0.16 | 0.19 | 0.038 | | | 0.16 | 0.01 | | | | | | | | | |
| EB | 1/16/13 8:25 | 19.3 | 7.65 | 2 | 8.6 | 1 | 10 | 0.06 | 0.05 | 0.04 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.032 | 0.13 |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

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Table D.2
Water Quality Analytical Results
Sample Event No. 2 (April 22 through April 24, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | 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 | 4/24/13 9:45 | 22.4 | 7.21 | | 0.08 | 1,341 | 120 | 58.05 | 58 | 17 | 41 | 0.05 | 41.05 | | | | 0.05 | 0.01 | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BKG-15 | 4/23/13 8:51 | 21.9 | 5.82 | 33 | 0.23 | 131 | | 1.83 | 1.8 | 1.16 | 0.64 | 0.03 | 0.67 | 3.2 | | | 0.03 | 0.01 | | | | | | | | | |
| BKG-15-DUP | 4/23/13 8:56 | 21.9 | 5.82 | 33 | 0.23 | 131 | | 1.83 | 1.8 | 1.11 | 0.69 | 0.03 | 0.72 | 3.1 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-AB4-15 | 4/23/13 9:14 | 21.5 | 6.55 | | 0.19 | 286 | | 1.99 | 1.9 | 1.57 | 0.33 | 0.09 | 0.42 | | | | 0.09 | 0.01 | | | | | | | | | |
| PZ-C2 | 4/24/13 8:53 | 5.5 | 21.70 | | 0.71 | 225 | | 1.02 | 1 | 0.56 | 0.44 | 0.02 | 0.46 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-C3-15 | 4/22/13 9:55 | 22.0 | 6.70 | | 0.94 | 516 | | 1.13 | 1.1 | 0.67 | 0.43 | 0.03 | 0.46 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-C6-08 | 4/22/13 11:51 | 21.8 | 4.40 | | 2.36 | 401 | | 0.82 | 0.77 | 0.65 | 0.12 | 0.05 | 0.17 | | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-C6-15 | 4/22/13 12:05 | 22.0 | 5.58 | | 4.45 | 351 | | 0.74 | 0.71 | 0.39 | 0.32 | 0.03 | 0.35 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-D3-15 | 4/22/13 10:12 | 22.0 | 6.74 | 160 | 3.97 | 427 | 77 | 1.04 | 1 | 0.59 | 0.41 | 0.04 | 0.45 | 1.8 | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-E1 | 4/24/13 9:07 | 21.1 | 5.35 | 22 | 4.33 | 361 | 24 | 0.90 | 0.85 | 0.49 | 0.36 | 0.05 | 0.41 | 0.14 | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-E2 | 4/24/13 9:30 | 21.1 | 5.86 | | 4.82 | 192 | | 1.14 | 1.1 | 0.73 | 0.37 | 0.04 | 0.41 | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-E4-15 | 4/22/13 11:05 | 21.9 | 6.57 | | 1.29 | 505 | | 0.93 | 0.88 | 0.52 | 0.36 | 0.05 | 0.41 | | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-E5-15 | 4/22/13 11:34 | 21.9 | 6.63 | | 4.60 | 625 | | 0.86 | 0.85 | 0.53 | 0.32 | 0.01 | 0.33 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E6-08 | 4/22/13 12:18 | 21.9 | 4.87 | | 91.67 | 704 | | 1.23 | 0.65 | 0.64 | 0.009 | 0.58 | 0.59 | | | | 0.58 | 0.01 | | | | | | | | | |
| PZ-E6-15 | 4/22/13 12:38 | 22.6 | 5.34 | | 6.65 | 330 | 42 | 4.63 | 4.6 | 2.70 | 1.9 | 0.03 | 1.93 | 0.34 | 0.09 | 0.05 | 0.03 | 0.01 | 0.01 | 80 | 0.088 | 28 | 1.5 | 11 | 0.007 | 1.6 | 11 |
| PZ-E7-08 | 4/22/13 13:20 | 22.1 | 4.64 | 22 | 2.83 | 333 | 34 | 0.68 | 0.65 | 0.53 | 0.12 | 0.03 | 0.15 | 0.081 | 0.1 | 20 | 0.03 | 0.01 | 0.031 | 110 | 0.064 | 27 | 0.41 | 13 | 0.004 | 1.7 | 12 |
| PZ-E7-15 | 4/22/13 13:37 | 22.3 | 6.81 | 310 | 5.62 | 1,385 | 93 | 1.03 | 1 | 0.60 | 0.4 | 0.03 | 0.43 | 0.21 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-F3-15 | 4/22/13 10:46 | 22.1 | 6.60 | 130 | 2.16 | 294 | 49 | 0.72 | 0.69 | 0.36 | 0.33 | 0.03 | 0.36 | 1 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-G2-12.5 | 4/23/13 9:28 | 21.8 | 4.40 | | 2.57 | 706 | | 5.00 | 1.4 | 1.39 | 0.009 | 3.6 | 3.61 | | | | 3.6 | 0.01 | | | | | | | | | |
| PZ-H4-15 | 4/23/13 9:42 | 21.6 | 6.61 | 200 | 0.30 | 638 | 97 | 1.14 | 1.1 | 0.60 | 0.5 | 0.04 | 0.54 | 3.4 | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-H5-11.5 | 4/23/13 9:56 | 21.1 | 4.57 | | 3.09 | 402 | | 2.61 | 2.3 | 2.18 | 0.12 | 0.31 | 0.43 | | 0.099 | 25 | 0.31 | 0.01 | 0.01 | 130 | 0.09 | 33 | 0.048 | 16 | 0.003 | 1.7 | 13 |
| PZ-I6-08 | 4/22/13 13:55 | 22.1 | 4.59 | | 2.54 | 329 | | 1.36 | 1.3 | 0.86 | 0.44 | 0.06 | 0.50 | | | | 0.06 | 0.01 | | | | | | | | | |
| PZ-I6-15 | 4/22/13 14:10 | 22.9 | 6.71 | | 0.90 | 1,174 | | 1.43 | 1.4 | 0.89 | 0.51 | 0.03 | 0.54 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-I6-15-DUP | 4/22/13 14:15 | 22.9 | 6.71 | | 0.90 | 1,174 | | 1.34 | 1.3 | 0.74 | 0.56 | 0.04 | 0.60 | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-I10-08 | 4/23/13 10:34 | 21.5 | 4.81 | 11 | 0.37 | 391 | 42 | 2.23 | 2.2 | 2.06 | 0.14 | 0.03 | 0.17 | 0.048 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-I10-15 | 4/23/13 10:45 | 21.7 | 6.12 | | 0.15 | 491 | | 1.63 | 1.6 | 0.40 | 1.2 | 0.03 | 1.23 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-J4-15 | 4/23/13 12:39 | 22.0 | 6.19 | 76 | 0.24 | 462 | 60 | 6.71 | 5.9 | 4.00 | 1.9 | 0.81 | 2.71 | 0.14 | | | 0.81 | 0.01 | | | | | | | | | |
| PZ-J7-08 | 4/23/13 10:05 | 21.2 | 4.46 | 11 | 0.17 | 369 | 53 | 3.30 | 2.9 | 2.37 | 0.53 | 0.4 | 0.93 | 0.055 | 0.058 | 37 | 0.4 | 0.01 | 0.01 | 94 | 0.11 | 30 | 0.15 | 14 | 0.002 | 1.8 | 11 |
| PZ-J7-15 | 4/23/13 10:21 | 21.4 | 5.03 | | 0.41 | 430 | | 4.96 | 4.5 | 3.83 | 0.67 | 0.46 | 1.13 | 0.23 | 0.061 | 46 | 0.46 | 0.01 | 0.01 | 120 | 0.13 | 42 | 0.42 | 18 | 0.004 | 1.4 | 11 |
| PZ-N4-15 | 4/23/13 12:23 | 21.8 | 6.21 | | 0.19 | 390 | | 3.04 | 3 | 2.55 | 0.45 | 0.04 | 0.49 | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-N7-08 | 4/23/13 11:42 | 22.2 | 6.23 | | 5.41 | 497 | | 3.53 | 3 | 0.20 | 2.8 | 0.53 | 3.33 | | 0.13 | 58 | 0.53 | 0.01 | 0.01 | 86 | 0.17 | 58 | 2.4 | 18 | 0.059 | 1.8 | 12 |
| PZ-N7-15 | 4/23/13 12:04 | 22.1 | 5.57 | | 0.36 | 309 | | 1.53 | 1.5 | 0.83 | 0.67 | 0.03 | 0.70 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-N7-15-DUP | 4/23/13 12:09 | 22.1 | 5.57 | | 0.36 | 309 | | 1.43 | 1.4 | 0.72 | 0.68 | 0.03 | 0.71 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-N10-08 | 4/23/13 10:56 | 21.7 | 5.70 | 44 | 0.34 | 298 | 40 | 2.01 | 2 | 1.04 | 0.96 | 0.01 | 0.97 | 0.056 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N10-08-DUP | 4/23/13 11:01 | 21.7 | 5.70 | 44 | 0.34 | 298 | 40 | 1.73 | 1.7 | 0.70 | 1 | 0.03 | 1.03 | 0.057 | | | 0.03 | 0.01 | | | | | | | | | |

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Table D.2 (con't)
Water Quality Analytical Results
Sample Event No. 2 (April 22 through April 24, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Anions | | | | | | Cations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na |
| PZ-N10-15 | 4/23/13 11:15 | 22.2 | 6.78 | 11 | 0.12 | 798 | | 0.88 | 0.83 | | 0.38 | 0.05 | 0.43 | | | | | 0.01 | | | | | | | | | |
| PZ-S10-08 | 4/23/13 11:30 | 22.2 | 4.75 | | 0.17 | 375 | 22 | 0.56 | 0.55 | | 0.2 | 0.01 | 0.21 | 0.048 | | | 0.01 | 0.01 | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 4/22/13 14:25 | 23.8 | 7.32 | 2 | 7.92 | 3 | 10 | 0.06 | 0.05 | 0.041 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 |
| EB | 4/22/13 14:23 | 23.8 | 7.32 | 2 | 7.92 | 3 | 10 | 0.06 | 0.05 | 0.041 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$

[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$

[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$

D.O. - Dissolved oxygen

G - Grab sample

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

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Table D.3
Water Quality Analytical Results
Sample Event No. 3 (July 24 through July 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| **STE Sample** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STE | 7/25/13 11:32 | 24.1 | 6.96 | 460 | 0.06 | 1327 | | 36 | 130 | | 55.05 | 55 | 8 | 47 | 0.05 | 47.05 | 16 | | | 2.4 | 44 | 0.05 | 0.01 | 4.4 | 220 | 0.69 | 130 | 0.11 | 43 | 0.03 | 22 | 42 | 36 | 780 | 24000 |
| STE DUP | 7/26/13 11:37 | 24.1 | 6.96 | 460 | 0.06 | 1327 | | 27 | 130 | | 55.05 | 55 | 10 | 45 | 0.05 | 45.05 | 15 | | | 2.5 | 45 | 0.05 | 0.01 | 4.4 | 230 | 0.69 | 120 | 0.11 | 41 | 0.029 | 20 | 41 | 27 | 770 | 24000 |
| **Treated Effluent from PNRS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BHS2-ST2 | 8/7/13 8:04 | 26.1 | 6.88 | 400 | 0.15 | 1303 | | 3 | 92 | 10 | 1.4 | 1.4 | 1.0 | 0.41 | 0.02 | 0.4 | 11 | | | | | | | 1.9 | 180 | 21 | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ01 | 7/24/13 11:34 | 25.6 | 5.30 | 16 | 4.02 | 844 | | | | 180 | 2.30 | 1.1 | 0.97 | 0.13 | 1.2 | 1.33 | 2.8 | | | | 31 | 1.2 | 0.01 | | 320 | | | | | | | | | | |
| PZ01-DUP | 7/24/13 11:37 | 25.6 | 5.30 | 16 | 4.02 | 844 | | | | 88 | 2.20 | 1 | 0.97 | 0.033 | 1.2 | 1.23 | 0.18 | | | | 31 | 1.2 | 0.01 | | 320 | | | | | | | | | | |
| BKG-10 | 7/25/13 10:52 | 26.1 | 3.90 | 3.8 | 4.74 | 132 | | 99 | 2 | 45 | 0.66 | 0.59 | 0.54 | 0.054 | 0.07 | 0.12 | 0.1 | 22 | 27 | 0.011 | 12 | 0.06 | 0.02 | 0.01 | 16 | 0.05 | 3.5 | 2.5 | 0.73 | 0.003 | 0.64 | 8.7 | 99 | 20 | |
| BKG-15 | 7/25/13 11:23 | 24.5 | 5.15 | 38 | 0.11 | 151 | | | | 130 | 2.03 | 1.9 | 1.34 | 0.56 | 0.13 | 0.69 | 0.65 | | | | 12 | 0.06 | 0.07 | | 13 | | | | | | | | | | |
| PZ-AB4-08 | 7/25/13 11:29 | 24.8 | 4.09 | 2 | 2.37 | 407 | | | | 10 | 0.20 | 0.08 | 0.02 | 0.064 | 0.12 | 0.18 | 0.032 | | | | 16 | 0.12 | 0.01 | | 130 | | | | | | | | | | |
| PZ-AB4-15 | 7/25/13 11:44 | 24.7 | 5.94 | 120 | 6.13 | 260 | | | | | 4.40 | 4.3 | 4.04 | 0.26 | 0.1 | 0.36 | | | | | 8 | 0.06 | 0.05 | | 6.2 | | | | | | | | | | |
| PZ-C1 | 7/25/13 10:24 | 27.0 | 6.18 | 130 | 5.65 | 1,076 | | | | | 4.00 | 1.3 | 1.29 | 0.012 | 2.7 | 2.71 | | | | | 42 | 2.7 | 0.01 | | 310 | | | | | | | | | | |
| PZ-C2 | 7/25/13 10:07 | 24.8 | 5.07 | 22 | 0.55 | 377 | | | | | 0.59 | 0.53 | 0.16 | 0.37 | 0.06 | 0.43 | | | | | 20 | 0.06 | 0.01 | | 100 | | | | | | | | | | |
| PZ-C3-08 | 7/25/13 9:27 | 25.2 | 4.69 | 5.1 | 5.49 | 932 | | | | | 2.12 | 0.42 | 0.37 | 0.051 | 1.7 | 1.75 | | | | | 38 | 1.7 | 0.01 | | 330 | | | | | | | | | | |
| PZ-C3-15 | 7/25/13 9:45 | 24.3 | 6.48 | 150 | 2.12 | 443 | | | | | 0.79 | 0.62 | 0.33 | 0.29 | 0.17 | 0.46 | | | | | 11 | 0.09 | 0.08 | | 48 | | | | | | | | | | |
| PZ-C6-08 | 7/25/2013 9:42 | 24.3 | 3.75 | 2 | 0.26 | 491 | | | | | 0.40 | 0.26 | 0.19 | 0.074 | 0.14 | 0.21 | | | | | 20 | 0.14 | 0.01 | | 180 | | | | | | | | | | |
| PZ-C6-15 | 7/25/13 9:55 | 23.4 | 5.13 | 24 | 0.08 | 369 | | | | | 3.67 | 3.6 | 1.80 | 1.8 | 0.07 | 1.87 | | | | | 37 | 0.07 | 0.01 | | 74 | | | | | | | | | | |
| PZ-D3-08 | 7/25/13 8:47 | 25.0 | 4.69 | 3.6 | 3.86 | 902 | | | | 32 | 0.84 | 0.16 | 0.15 | 0.01 | 0.68 | 0.69 | 0.11 | | | | 36 | 0.68 | 0.01 | | 330 | | | | | | | | | | |
| PZ-D3-15 | 7/25/13 9:07 | 24.8 | 6.53 | 120 | 6.31 | 352 | | | | 56 | 0.64 | 0.54 | 0.26 | 0.28 | 0.1 | 0.38 | 1.3 | | | | 10 | 0.05 | 0.05 | | 17 | | | | | | | | | | |
| PZ-D4-08 | 7/24/13 13:29 | 25.0 | 4.27 | 2 | 2.11 | 721 | | | | | 0.79 | 0.43 | 0.40 | 0.028 | 0.36 | 0.39 | | | | | 29 | 0.36 | 0.01 | | 270 | | | | | | | | | | |
| PZ-D4-15 | 7/24/13 13:45 | 25.2 | 6.67 | 180 | 5.84 | 559 | | | | | 0.75 | 0.51 | 0.26 | 0.25 | 0.24 | 0.49 | | | | | 11 | 0.14 | 0.1 | | 73 | | | | | | | | | | |
| PZ-E1 | 7/25/13 10:45 | 25.8 | 5.25 | 17 | 5.05 | 530 | | | | 32 | 0.80 | 0.67 | 0.45 | 0.22 | 0.13 | 0.35 | 0.069 | | | | 28 | 0.13 | 0.01 | | 170 | | | | | | | | | | |
| PZ-E2 | 7/25/13 11:09 | 26.6 | 6.11 | 37 | 7.63 | 156 | | | | | 0.72 | 0.66 | 0.36 | 0.3 | 0.06 | 0.36 | | | | | 13 | 0.06 | 0.01 | | 42 | | | | | | | | | | |
| PZ-E3-08 | 7/25/13 8:08 | 25.1 | 5.33 | 18 | 2.11 | 886 | | | | 71 | 1.25 | 0.92 | 0.88 | 0.039 | 0.33 | 0.37 | 0.14 | 36 | 36 | 0.01 | 30 | 0.33 | 0.01 | 0.01 | 330 | 0.37 | 86 | 1.1 | 38 | 0.003 | 14 | 33 | | | |
| PZ-E3-15 | 7/25/13 8:35 | 24.1 | 6.07 | 67 | 2.75 | 225 | | | | 170 | 2.53 | 2.3 | 2.05 | 0.25 | 0.23 | 0.48 | 14 | | | | 11 | 0.11 | 0.12 | | 22 | | | | | | | | | | |
| PZ-E4-08 | 7/24/13 12:45 | 25.9 | 4.03 | 2 | 2.95 | 762 | | | | 54 | 0.86 | 0.54 | 0.53 | 0.014 | 0.32 | 0.33 | 0.19 | | | | 29 | 0.32 | 0.01 | | 0.2 | | | | | | | | | | |
| PZ-E4-15 | 7/24/13 13:09 | 24.8 | 6.17 | 120 | 0.71 | 438 | | | | | 1.01 | 0.8 | 0.34 | 0.46 | 0.21 | 0.67 | | | | | 12 | 0.11 | 0.1 | | 59 | | | | | | | | | | |
| PZ-E5-08 | 7/25/13 10:13 | 24.5 | 3.96 | 2 | 0.48 | 733 | | | | | 0.96 | 0.64 | 0.58 | 0.059 | 0.32 | 0.38 | | | | | 30 | 0.32 | 0.01 | | 290 | | | | | | | | | | |
| PZ-E5-15 | 7/25/13 10:28 | 23.8 | 6.09 | 100 | 0.08 | 483 | | | | | 0.65 | 0.56 | 0.34 | 0.22 | 0.09 | 0.31 | | | | | 17 | 0.09 | 0.01 | | 82 | | | | | | | | | | |
| PZ-E6-08 | 7/24/13 13:50 | 25.0 | 3.73 | 2 | 1.67 | 780 | | | | | 0.49 | 0.43 | 0.40 | 0.03 | 0.06 | 0.09 | | | | | 32 | 0.06 | 0.01 | | 0.2 | | | | | | | | | | |
| PZ-E6-15 | 7/24/13 14:04 | 23.8 | 4.81 | 12 | 0.74 | 326 | | | | | 2.79 | 2.7 | 1.60 | 1.1 | 0.09 | 1.19 | 0.34 | 18 | 17 | 0.01 | 25 | 0.09 | 0.01 | 0.01 | 82 | 0.088 | 31 | 1.5 | 11 | 0.005 | 1.4 | 11 | | | |
| PZ-E7-08 | 7/25/13 9:09 | 24.2 | 4.27 | 2 | 0.57 | 445 | | | | 35 | 4.60 | 2.8 | 2.66 | 0.14 | 1.8 | 1.94 | 0.038 | 19 | 18 | 0.46 | 31 | 1.8 | 0.01 | 0.01 | 130 | 0.14 | 44 | 0.2 | 16 | 0.009 | 1.8 | 12 | | | |
| PZ-E7-15 | 7/25/13 9:25 | 23.5 | 6.49 | 290 | 0.16 | 1,145 | | | | 54 | 0.95 | 0.89 | 0.48 | 0.41 | 0.06 | 0.47 | 0.28 | | | | 20 | 0.06 | 0.01 | | 270 | | | | | | | | | | |
| PZ-E7-15-DUP | 7/25/13 9:30 | 23.5 | 6.49 | 270 | 0.16 | 1,145 | | | | 58 | 1.02 | 0.96 | 0.56 | 0.4 | 0.06 | 0.46 | 0.31 | | | | 21 | 0.06 | 0.01 | | 260 | | | | | | | | | | |
| PZ-F3-15 | 7/24/13 10:56 | 28.0 | 6.93 | 120 | 7.49 | 272 | | | | 26 | 0.63 | 0.57 | 0.36 | 0.21 | 0.06 | 0.27 | 0.59 | | | | 8.3 | 0.05 | 0.01 | | 0.73 | | | | | | | | | | |
| PZ-F4-08 | 7/24/13 11:54 | 25.8 | 4.06 | 2 | 1.43 | 888 | | | | 54 | 1.36 | 0.86 | 0.84 | 0.018 | 0.5 | 0.52 | 0.068 | 26 | 26 | 1.3 | 36 | 0.5 | 0.01 | 0.01 | 310 | 0.49 | 69 | 0.43 | 27 | 0.014 | 7.1 | 49 | | | |
| PZ-F4-08 DUP | 7/24/13 12:04 | 25.8 | 4.06 | 2 | 1.43 | 888 | | | | 51 | 1.29 | 0.79 | 0.78 | 0.012 | 0.5 | 0.51 | 0.073 | 28 | 27 | 1.1 | 36 | 0.5 | 0.01 | 0.01 | 320 | 0.5 | 67 | 0.38 | 27 | 0.012 | 7.9 | 45 | | | |
| PZ-F4-15 | 7/24/13 12:29 | 25.4 | 6.44 | 180 | 0.80 | 588 | | | | 32 | 0.91 | 0.75 | 0.46 | 0.29 | 0.16 | 0.45 | 0.26 | | | | 14 | 0.16 | 0.01 | | 78 | | | | | | | | | | |
| PZ-G2-12.5 | 7/24/13 10:02 | 25.1 | 4.11 | 2 | 2.09 | 809 | | | | | 2.74 | 0.74 | 0.73 | 0.009 | 2 | 2.01 | | | | | 38 | 2 | 0.01 | | 0.2 | | | | | | | | | | |
| PZ-H4-08 | 7/25/13 8:17 | 25.1 | 4.07 | 2 | 2.16 | 685 | | | | 35 | 2.62 | 0.72 | 0.69 | 0.028 | 1.9 | 1.93 | 0.079 | 15 | 14 | 0.01 | 32 | 1.9 | 0.01 | 0.01 | 240 | 0.39 | 56 | 0.41 | 27 | 0.005 | 8.1 | 32 | | | |
| PZ-H4-15 | 7/25/13 8:34 | 24.2 | 6.33 | 170 | 0.23 | 586 | | | | 13 | 2.48 | 2.2 | 1.90 | 0.3 | 0.28 | 0.58 | 11 | | | | 19 | 0.23 | 0.05 | | 140 | | | | | | | | | | |
| PZ-H5-11.5 | 7/25/13 8:51 | 24.3 | 4.01 | 2 | 2.80 | 535 | | | | | 0.86 | 0.53 | 0.52 | 0.009 | 0.33 | 0.34 | | 17 | 17 | 0.056 | 29 | 0.33 | 0.01 | 0.01 | 170 | 0.15 | 48 | 0.041 | 22 | 0.005 | 2 | 17 | | | |

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Table D.3 (cont'd)
Water Quality Analytical Results
Sample Event No. 3 (July 24 through July 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-I6-08 | 7/24/13 12:48 | 24.8 | 3.87 | 2 | 1.24 | 486 | | | | | 5.90 | 4.3 | 3.85 | 0.45 | 1.6 | 2.05 | | | | | 38 | 1.6 | 0.01 | | 140 | | | | | | | | | | |
| PZ-I6-15 | 7/24/13 13:01 | 23.8 | 6.45 | 160 | 0.95 | 800 | | | | | 1.10 | 1 | 0.75 | 0.25 | 0.1 | 0.35 | | | | | 20 | 0.1 | 0.01 | | 130 | | | | | | | | | | |
| PZ-I6-15-DUP | 7/24/13 13:06 | 23.8 | 6.45 | 130 | 0.95 | 800 | | | | | 1.10 | 1 | 0.74 | 0.26 | 0.1 | 0.36 | | | | | 20 | 0.1 | 0.01 | | 120 | | | | | | | | | | |
| PZ-I10-08 | 7/24/13 11:43 | 24.2 | 4.33 | 2 | 1.74 | 344 | | | | 23 | 1.48 | 1.4 | 0.82 | 0.58 | 0.08 | 0.66 | 0.03 | | | | 23 | 0.08 | 0.01 | | 96 | | | | | | | | | | |
| PZ-I10-15 | 7/24/13 11:55 | 23.5 | 5.84 | 59 | 1.51 | 406 | | | | | 1.22 | 1.2 | 0.58 | 0.62 | 0.02 | 0.64 | | | | | 22 | 0.01 | 0.01 | | 84 | | | | | | | | | | |
| PZ-J4-15 | 7/24/13 13:29 | 25.0 | 5.98 | 54 | 3.28 | 426 | | | | 26 | 2.36 | 2.3 | 0.90 | 1.4 | 0.06 | 1.46 | 0.1 | | | | 28 | 0.06 | 0.01 | | 91 | | | | | | | | | | |
| PZ-J7-08 | 7/24/13 12:07 | 24.5 | 4.32 | 2 | 1.24 | 287 | | | | 17 | 3.50 | 1.8 | 1.76 | 0.042 | 1.7 | 1.74 | 0.12 | 16 | 16 | 0.41 | 29 | 1.7 | 0.01 | 0.016 | 66 | 0.12 | 27 | 0.32 | 11 | 0.004 | 1.1 | 9.4 | | | |
| PZ-J7-15 | 7/24/13 12:24 | 23.7 | 4.80 | 4.9 | 2.29 | 331 | | | | | 1.11 | 1 | 0.57 | 0.43 | 0.11 | 0.54 | 0.31 | 21 | 20 | 0.01 | 19 | 0.11 | 0.01 | 0.01 | 110 | 0.057 | 32 | 1.5 | 12 | 0.004 | 1.1 | 11 | | | |
| PZ-J7-15 DUP | 7/24/13 12:29 | 23.7 | 4.80 | 7 | 2.29 | 331 | | | | | 1.05 | 0.94 | 0.57 | 0.37 | 0.11 | 0.48 | 0.31 | 20 | 20 | 0.01 | 19 | 0.11 | 0.01 | 0.01 | 110 | 0.06 | 34 | 1.5 | 13 | 0.004 | 1.2 | 12 | | | |
| PZ-N4-08 | 7/24/13 9:57 | 25.0 | 4.48 | 2 | 5.43 | 500 | | | | 23 | 0.49 | 0.47 | 0.40 | 0.068 | 0.02 | 0.09 | | | | | 22 | 0.01 | 0.01 | | 200 | | | | | | | | | | |
| PZ-N4-15 | 7/24/13 10:14 | 23.5 | 5.96 | 140 | 1.86 | 361 | | | | | 4.86 | 4.8 | 4.41 | 0.39 | 0.06 | 0.45 | | | | | 12 | 0.06 | 0.01 | | 66 | | | | | | | | | | |
| PZ-N7-08 | 7/24/13 10:29 | 24.1 | 4.75 | 3.4 | 1.62 | 428 | | | | | 1.47 | 1.3 | 0.85 | 0.45 | 0.17 | 0.62 | | 18 | 16 | 0.56 | 28 | 0.17 | 0.01 | 0.026 | 140 | 0.079 | 44 | 3.9 | 14 | 0.045 | 0.95 | 11 | | | |
| PZ-N7-15 | 7/24/13 10:46 | 23.4 | 5.26 | 17 | 1.78 | 237 | | | | | 0.88 | 0.83 | 0.59 | 0.24 | 0.05 | 0.29 | | | | | 13 | 0.05 | 0.01 | | 58 | | | | | | | | | | |
| PZ-N7-15-DUP | 7/24/13 10:51 | 23.4 | 5.26 | 17 | 1.78 | 237 | | | | | 0.94 | 0.89 | 0.65 | 0.24 | 0.05 | 0.29 | | | | | 13 | 0.05 | 0.01 | | 58 | | | | | | | | | | |
| PZ-N10-08 | 7/24/13 11:20 | 24.0 | 5.40 | 22 | 0.63 | 353 | | | | 35 | 0.68 | 0.62 | 0.48 | 0.14 | 0.06 | 0.20 | 0.19 | | | | 21 | 0.06 | 0.01 | | 87 | | | | | | | | | | |
| PZ-N10-15 | 7/24/13 11:32 | 23.4 | 6.41 | 130 | 1.40 | 582 | | | | | 0.77 | 0.72 | 0.45 | 0.27 | 0.05 | 0.32 | | | | | 17 | 0.05 | 0.01 | | 92 | | | | | | | | | | |
| PZ-S10-08 | 7/24/13 11:02 | 24.5 | 5.01 | 2.2 | 2.19 | 240 | | | | 32 | 0.79 | 0.74 | 0.45 | 0.29 | 0.05 | 0.34 | 0.07 | | | | 17 | 0.05 | 0.01 | | 62 | | | | | | | | | | |
| PZ-S10-08 DUP | 7/24/13 11:07 | 24.5 | 5.01 | 2 | 2.19 | 240 | | | | 32 | 0.85 | 0.79 | 0.48 | 0.31 | 0.06 | 0.37 | 0.064 | | | | 18 | 0.06 | 0.01 | | 62 | | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 7/25/13 11:50 | 24 | 7.45 | 2 | 7.25 | 1 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 | | | |
| EB | 7/25/13 11:55 | 24 | 7.45 | 2 | 7.58 | 1 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 | | | |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$

[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$.

[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_X$.

D.O. - Dissolved oxygen

G - Grab sample

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

Orange - shaded data points indicate too many colonies were present. The numeric value represents the dilution factor times the maximum reportable number of colonies.

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Table D.4
Water Quality Analytical Results
Sample Event No. 4 (October 23 through October 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | | |
| **STE Sample** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STE | 10/24/2013 1:40:00 PM | 26.3 | 7.07 | 570 | 0.04 | 1345 | | 12 | 120 | | 53.02 | 53 | 14 | 39 | 0.02 | 39.02 | 8.9 | | | 1.1 | 48 | 0.01 | 0.01 | 2.6 | 2.3 | 0.9 | 120 | 0.09 | 41 | 0.02 | 16 | 61 | 12 | 780 | 82,000 | 24,000 |
| STE-DUP | 10/24/2013 1:45:00 PM | 26.3 | 7.07 | 570 | 0.04 | 1345 | | 14 | 120 | | 56.02 | 56 | 15 | 41 | 0.02 | 41.02 | 9 | | | 1.1 | 47 | 0.01 | 0.01 | 2.1 | 2.9 | 0.86 | 110 | 0.092 | 40 | 0.019 | 16 | 59 | 14 | 780 | 72,000 | 17,000 |
| **Treated Effluent from PNRS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BHS2-ST2 | 10/7/13 10:15 | 25.8 | 7.05 | 350 | 0.07 | 1134 | | 1 | 110 | 130 | 1.52 | 1.5 | 0.94 | 0.56 | 0.02 | 0.58 | 6.5 | | | | | | | 2.1 | 190 | | | | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-01 | 10/23/2013 11:44:00 AM | 25.5 | 5.34 | 29 | 4.57 | 956 | | | | 54 | 3.9 | 1.4 | 1.388 | 0.012 | 2.5 | 2.512 | 0.029 | 38 | 37 | 0.017 | 38 | 2.5 | 0.01 | 0.01 | 340 | 0.49 | 82 | 0.1 | 39 | 0.007 | 16 | 38 | | | | |
| BKG-10 | 10/25/13 10:35 | 23.1 | 3.57 | 2 | 6.38 | 368 | | | | 74 | 1.32 | 1.3 | 1.282 | 0.018 | 0.02 | 0.038 | 0.15 | 70 | 69 | 0.67 | 44 | 0.01 | 0.01 | 0.085 | 53 | 0.073 | 7.1 | 0.26 | 0.58 | 0.001 | 0.12 | 27 | | | | |
| BKG-15 | 10/25/2013 10:55:00 AM | 24.1 | 5.54 | 40 | 0.29 | 168.4 | | | | | 1.82 | 1.8 | 1.41 | 0.39 | 0.02 | 0.41 | 0.5 | | | | 12 | 0.01 | 0.01 | | 13 | | | | | | | | | | | |
| PZ-AB4-08 | 10/25/2013 10:06:00 AM | 23.6 | 4.54 | 6.1 | 1.6 | 198 | | | | | 0.56 | 0.53 | 0.487 | 0.043 | 0.03 | 0.073 | 0.35 | | | | 13 | 0.01 | 0.03 | | 39 | | | | | | | | | | | |
| PZ-AB4-15 | 10/25/2013 10:20:00 AM | 23.6 | 6.39 | 110 | 0.76 | 269 | | | | | 2.15 | 2.1 | 1.66 | 0.44 | 0.05 | 0.49 | | | | | 8.2 | 0.01 | 0.05 | | 6 | | | | | | | | | | | |
| PZ-C1 | 10/23/2013 8:54:00 AM | 24.6 | 5.99 | 140 | 3.58 | 1015 | | | | | 4.8 | 1.9 | 1.76 | 0.14 | 2.9 | 3.04 | 1.3 | | | 0.011 | 44 | 2.9 | 0.01 | 0.01 | 300 | 0.63 | 100 | 0.4 | 40 | 0.012 | 23 | 40 | | | | |
| PZ-C2 | 10/23/2013 9:10:00 AM | 24.9 | 5.23 | 17 | 0.56 | 369 | | | | | 1.08 | 0.98 | 0.62 | 0.36 | 0.1 | 0.46 | | | | | 17 | 0.1 | 0.01 | | 92 | | | | | | | | | | | |
| PZ-C3-08 | 10/23/2013 9:54:00 AM | 24.7 | 5.27 | 22 | 0.81 | 754 | | | | | 2.25 | 0.95 | 0.912 | 0.038 | 1.3 | 1.338 | 0.24 | 33 | 32 | | 28 | 1.3 | 0.01 | | 230 | | | | | | | | | | | |
| PZ-C3-15 | 10/23/2013 10:10:00 AM | 24.6 | 6.48 | 150 | 0.56 | 394 | | | | | 1.12 | 1.1 | 0.85 | 0.25 | 0.02 | 0.27 | | | | | 11 | 0.01 | 0.01 | | 29 | | | | | | | | | | | |
| PZ-C6-08 | 10/24/2013 8:40:00 AM | 23.6 | 3.97 | 2 | 0.19 | 523 | | | | | 0.54 | 0.52 | 0.474 | 0.046 | 0.02 | 0.066 | | | | | 23 | 0.01 | 0.01 | | 180 | | | | | | | | | | | |
| PZ-C6-15 | 10/24/2013 8:52:00 AM | 23.6 | 5.4 | 24 | 0.32 | 356 | | | | | 2.72 | 2.7 | 1.2 | 1.5 | 0.02 | 1.52 | | | | | 22 | 0.01 | 0.01 | | 92 | | | | | | | | | | | |
| PZ-D3-08 | 10/23/2013 10:27:00 AM | 24.8 | 5.48 | 12 | 2.4 | 659 | | | | | 2.5 | 1 | 0.985 | 0.015 | 1.5 | 1.515 | 0.15 | | | | 26 | 1.5 | 0.01 | | 240 | | | | | | | | | | | |
| PZ-D3-15 | 10/23/2013 10:39:00 AM | 24.9 | 6.37 | 120 | 1.02 | 315 | | | | | 0.93 | 0.83 | 0.6 | 0.23 | 0.1 | 0.33 | 0.8 | | | | 8.3 | 0.02 | 0.08 | | 7.4 | | | | | | | | | | | |
| PZ-D4-08 | 10/23/2013 12:01:00 PM | 25 | 4.55 | 2 | 2.24 | 949 | | | | | 1.83 | 0.9 | 0.887 | 0.013 | 0.93 | 0.943 | | | | | 38 | 0.93 | 0.01 | | 350 | | | | | | | | | | | |
| PZ-D4-15 | 10/23/2013 12:15:00 PM | 24.7 | 6.47 | 130 | 0.24 | 567 | | | | | 0.84 | 0.82 | 0.6 | 0.22 | 0.02 | 0.24 | | | | | 15 | 0.01 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-E1 | 10/23/2013 8:40:00 AM | 25.4 | 5.01 | 31 | 1.39 | 555 | | | | | 1.08 | 0.94 | 0.7 | 0.24 | 0.14 | 0.38 | 0.13 | | | | 24 | 0.14 | 0.01 | | 160 | | | | | | | | | | | |
| PZ-E2 | 10/23/2013 9:23:00 AM | 24.9 | 5.69 | 37 | 3.91 | 321 | | | | | 0.93 | 0.91 | 0.63 | 0.28 | 0.02 | 0.3 | | | | | 16 | 0.01 | 0.01 | | 68 | | | | | | | | | | | |
| PZ-E3-08 | 10/23/2013 10:53:00 AM | 25.2 | 5.74 | 57 | 0.97 | 1011 | | | | 80 | 10.2 | 3.2 | 2.94 | 0.26 | 7 | 7.26 | 0.15 | 50 | 47 | 0.02 | 40 | 7 | 0.01 | 0.01 | 330 | 0.56 | 100 | 1.5 | 47 | 0.002 | 25 | 39 | | | | |
| PZ-E3-15 | 10/23/2013 11:11:00 AM | 25.1 | 6.04 | 57 | 0.31 | 208 | | | | 10 | 2.04 | 2 | 1.8 | 0.2 | 0.04 | 0.24 | 5.4 | | | | 9.5 | 0.04 | 0.01 | | 21 | | | | | | | | | | | |
| PZ-E4-08 | 10/23/2013 12:30:00 PM | 25.2 | 4.73 | 2 | 0.95 | 849 | | | | 43 | 2.6 | 1.1 | 1.091 | 0.009 | 1.5 | 1.509 | 0.13 | | | | 30 | 1.5 | 0.01 | | 320 | | | | | | | | | | | |
| PZ-E4-15 | 10/23/2013 12:43:00 PM | 24.9 | 6.42 | 130 | 0.16 | 422 | | | | | 0.84 | 0.82 | 0.56 | 0.26 | 0.02 | 0.28 | | | | | 12 | 0.02 | 0.01 | | 42 | | | | | | | | | | | |
| PZ-E5-08 | 10/24/2013 8:14:00 AM | 24 | 4.31 | 2 | 0.84 | 637 | | | | | 0.85 | 0.82 | 0.787 | 0.033 | 0.03 | 0.063 | | | | | 26 | 0.03 | 0.01 | | 230 | | | | | | | | | | | |
| PZ-E5-15 | 10/24/2013 8:27:00 AM | 24.1 | 6.19 | 90 | 0.18 | 595 | | | | | 0.66 | 0.64 | 0.42 | 0.22 | 0.02 | 0.24 | | | | | 19 | 0.01 | 0.01 | | 160 | | | | | | | | | | | |
| PZ-E6-08 | 10/24/2013 8:59:00 AM | 23.7 | 4.17 | 2 | 0.94 | 743 | | | | | 0.81 | 0.79 | 0.726 | 0.064 | 0.02 | 0.084 | | | | | 26 | 0.01 | 0.01 | | 270 | | | | | | | | | | | |
| PZ-E6-15 | 10/24/2013 9:13:00 AM | 23.7 | 4.84 | 6.9 | 0.29 | 518 | | | | | 1.82 | 1.8 | 0.87 | 0.93 | 0.02 | 0.95 | | | | | 29 | 0.01 | 0.01 | | 180 | | | | | | | | | | | |
| PZ-E7-08 | 10/24/2013 9:53:00 AM | 23.9 | 4.48 | 2 | 0.29 | 702 | | | | 10 | 0.52 | 0.49 | 0.475 | 0.015 | 0.03 | 0.045 | 0.077 | 24 | 22 | 0.15 | 28 | 0.03 | 0.01 | 0.01 | 250 | 0.36 | 56 | 0.69 | 26 | 0.009 | 9.2 | 33 | | | | |
| PZ-E7-15 | 10/24/2013 10:07:00 AM | 23.8 | 6.61 | 240 | 0.3 | 953 | | | | 24 | 0.86 | 0.84 | 0.51 | 0.33 | 0.02 | 0.35 | 0.29 | | | | 18 | 0.01 | 0.01 | | 190 | | | | | | | | | | | |
| PZ-E7-15-DUP | 10/24/2013 10:12:00 AM | 23.8 | 6.61 | 250 | 0.3 | 953 | | | | 43 | 0.86 | 0.84 | 0.52 | 0.32 | 0.02 | 0.34 | 0.29 | | | | 17 | 0.01 | 0.01 | | 190 | | | | | | | | | | | |
| PZ-F3-15 | 10/23/2013 11:39:00 AM | 25.1 | 6.31 | 110 | 1.52 | 281 | | | | 10 | 1.88 | 1.8 | 1.57 | 0.23 | 0.08 | 0.31 | 5.7 | | | | 8.6 | 0.01 | 0.08 | | 4.2 | | | | | | | | | | | |
| PZ-F4-08 | 10/23/2013 12:57:00 PM | 25.4 | 4.78 | 4.2 | 1.2 | 728 | | | | 65 | 2.4 | 1.2 | 1.191 | 0.009 | 1.2 | 1.209 | 0.17 | 43 | 42 | 0.14 | 25 | 1.2 | 0.01 | 0.027 | 270 | 0.28 | 66 | 0.31 | 30 | 0.004 | 6.9 | 30 | | | | |
| PZ-F4-15 | 10/23/2013 1:14:00 PM | 25 | 6.54 | 150 | 0.07 | 487 | | | | 28 | 0.82 | 0.76 | 0.54 | 0.22 | 0.06 | 0.28 | 0.19 | | | | 15 | 0.06 | 0.01 | | 62 | | | | | | | | | | | |
| PZ-G2-12.5 | 10/23/2013 9:40:00 AM | 25.6 | 4.29 | 2 | 0.56 | 884 | | | | 21 | 1.59 | 0.59 | 0.581 | 0.009 | 1 | 1.009 | | | | | 42 | 1 | 0.01 | | 320 | | | | | | | | | | | |
| PZ-H4-08 | 10/23/2013 1:29:00 PM | 25.3 | 4.52 | 2 | 1.39 | 840 | | | | 26 | 2.68 | 0.68 | 0.671 | 0.009 | 2 | 2.009 | 0.022 | 19 | 19 | 0.077 | 34 | 2 | 0.01 | 0.01 | 310 | 0.43 | 75 | 0.27 | 38 | 0.003 | 10 | 36 | | | | |
| PZ-H4-15 | 10/23/2013 1:48:00 PM | 25 | 6.52 | 150 | 0.41 | 637 | | | | 39 | 1.21 | 0.99 | 0.62 | 0.37 | 0.22 | 0.59 | 1.6 | | | | 19 | 0.22 | 0.01 | | 160 | | | | | | | | | | | |
| PZ-H5-11.5 | 10/24/2013 1:23:00 PM | 24.2 | 4.4 | 2 | 2.35 | 645 | | | | 35 | 0.67 | 0.52 | 0.511 | 0.009 | 0.15 | 0.159 | 0.052 | | | | 32 | 0.15 | 0.01 | | 220 | | | | | | | | | | | |

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Table D.4 (cont'd)
Water Quality Analytical Results
Sample Event No. 4 (October 23 through October 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | | |
| PZ-I6-08 | 10/24/2013 12:47:00 PM | 23.7 | 4.36 | 2 | 2.31 | 300 | | | | 37 | 0.68 | 0.66 | 0.59 | 0.07 | 0.02 | 0.09 | 0.56 | 31 | 31 | 0.42 | 19 | 0.01 | 0.01 | 0.24 | 80 | 0.12 | 28 | 1.8 | 12 | 0.008 | 1.4 | 13 | | | | |
| PZ-I6-15 | 10/24/2013 1:05:00 PM | 23.9 | 6.62 | 160 | 0.1 | 776 | | | | | 0.83 | 0.81 | 0.51 | 0.3 | 0.02 | 0.32 | | | | | 18 | 0.01 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-I6-15-DUP | 10/24/2013 1:10:00 PM | 23.9 | 6.62 | 180 | 0.1 | 776 | | | | | 0.92 | 0.9 | 0.61 | 0.29 | 0.02 | 0.31 | | | | | 18 | 0.01 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-I10-08 | 10/24/2013 10:23:00 AM | 23.8 | 4.87 | 6.4 | 0.46 | 353 | | | | 21 | 1.82 | 1.8 | 1.63 | 0.17 | 0.02 | 0.19 | 0.048 | | | | 27 | 0.02 | 0.01 | | 95 | | | | | | | | | | | |
| PZ-I10-15 | 10/24/2013 10:35:00 AM | 23.8 | 5.87 | 50 | 0.13 | 501 | | | | | 0.97 | 0.95 | 0.55 | 0.4 | 0.02 | 0.42 | | | | | 24 | 0.01 | 0.01 | | 140 | | | | | | | | | | | |
| PZ-J4-15 | 10/25/2013 9:52:00 AM | 24.1 | 6.12 | 51 | 0.69 | 437 | | | | 19 | 3.12 | 2.4 | 1.6 | 0.8 | 0.72 | 1.52 | 0.33 | | | | 29 | 0.72 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-J7-08 | 10/24/2013 12:10:00 PM | 23.3 | 4.61 | 2.7 | 3.25 | 258 | | | | 28 | 0.61 | 0.55 | 0.521 | 0.029 | 0.06 | 0.089 | 0.05 | 28 | 27 | 0.098 | 18 | 0.06 | 0.01 | 0.01 | 62 | 0.096 | 22 | 0.54 | 8.8 | 0.002 | 0.84 | 9.3 | | | | |
| PZ-J7-15 | 10/24/2013 12:25:00 PM | 23.9 | 5.03 | 9.1 | 0.16 | 437 | | | | 63 | 3.9 | 3.5 | 3.24 | 0.26 | 0.4 | 0.66 | 0.27 | 34 | 33 | 0.018 | 32 | 0.4 | 0.01 | 0.01 | 120 | 0.15 | 46 | 0.34 | 13 | 0.003 | 1.5 | 11 | | | | |
| PZ-J7-15-DUP | 10/24/2013 12:30:00 PM | 23.9 | 5.03 | 8.3 | 0.16 | 437 | | | | 10 | 3.9 | 3.5 | 3.25 | 0.25 | 0.4 | 0.65 | 0.26 | 34 | 33 | 0.014 | 33 | 0.4 | 0.01 | 0.01 | 120 | 0.16 | 46 | 0.26 | 13 | 0.003 | 1.6 | 11 | | | | |
| PZ-N4-15 | 10/25/2013 9:39:00 AM | 22.3 | 6.31 | 110 | 0.53 | 386 | | | | 91 | 2.62 | 2.6 | 2.1 | 0.5 | 0.02 | 0.52 | 7.3 | | | | 13 | 0.01 | 0.01 | | 64 | | | | | | | | | | | |
| PZ-N4-15-DUP | 10/25/2013 9:34:00 AM | 22.3 | 6.31 | 100 | 0.53 | 386 | | | | | 2.82 | 2.8 | 2.28 | 0.52 | 0.02 | 0.54 | | | | | 13 | 0.01 | 0.01 | | 62 | | | | | | | | | | | |
| PZ-N7-08 | 10/24/2013 11:41:00 AM | 23.4 | 5.63 | 37 | 1.98 | 390 | | | | | 1.05 | 0.98 | 0.67 | 0.31 | 0.07 | 0.38 | | | | | 25 | 0.07 | 0.01 | | 78 | | | | | | | | | | | |
| PZ-N7-15 | 10/24/2013 11:54:00 AM | 23.8 | 5.42 | 18 | 0.9 | 478 | | | | | 1.02 | 1 | 0.66 | 0.34 | 0.02 | 0.36 | | | | | 24 | 0.01 | 0.01 | | 150 | | | | | | | | | | | |
| PZ-N7-15-DUP | 10/24/2013 11:59:00 AM | 23.8 | 5.42 | 18 | 0.9 | 478 | | | | | 1.02 | 1 | 0.66 | 0.34 | 0.02 | 0.36 | | | | | 24 | 0.01 | 0.01 | | 150 | | | | | | | | | | | |
| PZ-N10-08 | 10/24/2013 10:58:00 AM | 23.7 | 5.52 | 26 | 1.03 | 289 | | | | 48 | 0.82 | 0.8 | 0.723 | 0.077 | 0.02 | 0.097 | 0.14 | 40 | 40 | 0.13 | 20 | 0.01 | 0.01 | 0.026 | 48 | 0.05 | 25 | 0.33 | 6.5 | 0.01 | 0.59 | 11 | | | | |
| PZ-N10-15 | 10/24/2013 11:12:00 AM | 23.6 | 6.55 | 150 | 0.11 | 568 | | | | | 0.91 | 0.89 | 0.55 | 0.34 | 0.02 | 0.36 | | | | | 16 | 0.01 | 0.01 | | 76 | | | | | | | | | | | |
| PZ-S10-08 | 10/24/2013 11:25:00 AM | 23.9 | 4.96 | 3.3 | 0.16 | 242 | | | | 21 | 1.01 | 0.99 | 0.58 | 0.41 | 0.02 | 0.43 | 0.023 | | | | 17 | 0.01 | 0.01 | | 59 | | | | | | | | | | | |
| PZ-S10-08-DUP | 10/24/2013 11:30:00 AM | 23.9 | 4.96 | 3.1 | 0.16 | 242 | | | | 19 | 1.02 | 1 | 0.6 | 0.4 | 0.02 | 0.42 | 0.025 | | | | 17 | 0.01 | 0.01 | | 60 | | | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 10/24/2013 1:35:00 PM | 20.1 | 5.73 | 2 | 8.37 | 86.2 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.02 | 0.024 | 0.2 | 0.05 | 0.042 | 0.02 | 0.022 | 0.001 | 0.27 | 0.51 | | | | |
| EB | 10/24/2013 1:25:00 PM | 20.1 | 5.73 | 2 | 8.37 | 86.2 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.067 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.25 | 0.28 | | | | |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.
Orange - shaded data points indicate too many colonies were present. The numeric value represents the dilution factor times the maximum reportable number of colonies.

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# Appendix E: Summary of Water Quality Data

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Table E.1
Summary of Water Quality Data

| Sample ID | Statistical Parameter | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| STE | n | 5 | 5 | 2 | 5 | 5 | 3 | 4 | 1 | 5 | 4 | 5 | 4 | 5 | 5 | 2 | 0 | 0 | 2 | 2 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 |
| | MEAN | 24.58 | 7.12 | 515.00 | 0.20 | 1367.40 | 35.33 | 97.75 | 120.00 | 57.44 | 54.75 | 12.80 | 42.00 | 0.04 | 44.64 | 12.45 | | | 1.75 | 46.00 | 0.04 | 0.01 | 3.50 | 111.15 | 0.80 | 125.00 | 0.10 | 42.00 | 0.03 | 19.00 | 51.50 | 780.00 | 82,000 | 24,000 |
| | STD. DEV. | 1.90 | | 77.78 | 0.19 | 54.80 | | 39.84 | | 6.27 | 2.36 | 3.27 | 3.46 | 0.01 | 6.54 | 5.02 | | | 0.92 | 2.83 | 0.02 | 0.00 | 1.27 | 153.94 | 0.15 | 7.07 | 0.01 | 1.41 | 0.01 | 4.24 | 13.44 | 0.00 | | |
| | MIN | 22.40 | 6.96 | 460.00 | 0.04 | 1327.00 | 12.00 | 41.00 | 120.00 | 53.02 | 53.00 | 8.00 | 39.00 | 0.02 | 39.02 | 8.90 | | | 1.10 | 44.00 | 0.01 | 0.01 | 2.60 | 2.30 | 0.69 | 120.00 | 0.09 | 41.00 | 0.02 | 16.00 | 42.00 | 780.00 | 82,000 | 24,000 |
| | MAX | 26.80 | 7.38 | 570.00 | 0.40 | 1463.00 | 58.00 | 130.00 | 120.00 | 68.03 | 58.00 | 17.00 | 47.00 | 0.05 | 55.03 | 16.00 | | | 2.40 | 48.00 | 0.05 | 0.01 | 4.40 | 220.00 | 0.90 | 130.00 | 0.11 | 43.00 | 0.03 | 22.00 | 61.00 | 780.00 | 82,000 | 24,000 |
| BHS2-ST2 (treated effluent) | n | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |
| | MEAN | 23.05 | 6.86 | 336.67 | 0.13 | 1207.33 | 5.83 | 74.67 | 163.33 | 3.14 | 3.12 | 1.22 | 1.89 | 0.02 | 1.91 | 5.18 | | | | | | | 2.41 | 191.67 | | | | | | | | | 112.50 | 29.00 |
| | STD. DEV. | 3.54 | | 68.90 | 0.06 | 68.75 | 5.19 | 33.70 | 92.45 | 2.30 | 2.30 | 0.25 | 2.09 | 0.00 | 2.09 | 3.21 | | | | | | | 1.14 | 24.83 | | | | | | | | | | |
| | MIN | 16.50 | 6.51 | 220.00 | 0.07 | 1134.00 | 1.00 | 32.00 | 10.00 | 1.42 | 1.40 | 0.94 | 0.37 | 0.02 | 0.39 | 2.40 | | | | | | | 0.85 | 170.00 | | | | | | | | | 10.00 | 29.00 |
| | MAX | 26.10 | 7.05 | 410.00 | 0.24 | 1303.00 | 15.00 | 110.00 | 260.00 | 6.52 | 6.50 | 1.50 | 5.00 | 0.02 | 5.02 | 11.00 | | | | | | | 4.10 | 240.00 | | | | | | | | | 200.00 | 29.00 |
| PZ-01 | n | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 1 | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 24.80 | 5.12 | 17.50 | 3.31 | 740.00 | | | 81.25 | 5.28 | 2.00 | 1.95 | 0.05 | 3.28 | 3.33 | 8.23 | 38.00 | 37.00 | 0.02 | 33.00 | 1.34 | 0.01 | 0.01 | 330.00 | 0.49 | 82.00 | 0.10 | 39.00 | 0.01 | 16.00 | 38.00 | | | |
| | STD. DEV. | 2.41 | | 11.62 | 1.67 | 203.73 | | | 66.11 | 5.50 | 1.54 | 1.57 | 0.05 | 3.98 | 3.95 | 14.57 | | | | 4.36 | 1.09 | 0.00 | | 14.14 | | | | | | | | | | |
| | MIN | 21.30 | 4.30 | 2.00 | 0.86 | 491.00 | | | 40.00 | 1.53 | 1.10 | 0.97 | 0.01 | 0.33 | 0.38 | 0.03 | 38.00 | 37.00 | 0.02 | 30.00 | 0.33 | 0.01 | 0.01 | 320.00 | 0.49 | 82.00 | 0.10 | 39.00 | 0.01 | 16.00 | 38.00 | | | |
| | MAX | 26.80 | 5.65 | 29.00 | 4.57 | 956.00 | | | 180.00 | 13.40 | 4.30 | 4.28 | 0.13 | 9.10 | 9.12 | 30.00 | 38.00 | 37.00 | 0.02 | 38.00 | 2.50 | 0.01 | 0.01 | 340.00 | 0.49 | 82.00 | 0.10 | 39.00 | 0.01 | 16.00 | 38.00 | | | |
| PZ-02 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-03 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| | MAX | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| PZ-04 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| | MAX | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| PZ-06 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |
| | MAX | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| BKG-10 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 23.60 | 4.05 | 2.60 | 5.92 | 278.00 | 99.00 | 2.00 | 64.67 | 1.30 | 1.26 | 1.19 | 0.08 | 0.04 | 0.11 | 0.42 | 46.00 | 48.00 | 0.30 | 29.67 | 0.03 | 0.01 | 0.06 | 40.33 | 0.06 | 5.97 | 1.16 | 1.14 | 0.002 | 0.39 | 17.57 | | | |
| | STD. DEV. | 2.29 | | 1.04 | 1.03 | 127.58 | | | 17.04 | 0.63 | 0.66 | 0.61 | 0.07 | 0.03 | 0.07 | 0.51 | 33.94 | 29.70 | 0.34 | 16.26 | 0.03 | 0.01 | 0.04 | 21.08 | 0.01 | 2.14 | 1.18 | 0.84 | 0.00 | 0.26 | 9.16 | | | |
| | MIN | 21.60 | 3.57 | 2.00 | 4.74 | 132.00 | 99.00 | 2.00 | 45.00 | 0.66 | 0.59 | 0.54 | 0.02 | 0.02 | 0.04 | 0.10 | 22.00 | 27.00 | 0.01 | 12.00 | 0.01 | 0.01 | 0.01 | 16.00 | 0.05 | 3.50 | 0.26 | 0.58 | 0.001 | 0.12 | 8.70 | | | |
| | MAX | 26.10 | 4.76 | 3.80 | 6.63 | 368.00 | 99.00 | 2.00 | 75.00 | 1.92 | 1.90 | 1.74 | 0.16 | 0.07 | 0.18 | 1.00 | 70.00 | 69.00 | 0.67 | 44.00 | 0.06 | 0.02 | 0.09 | 53.00 | 0.07 | 7.30 | 2.50 | 2.10 | 0.003 | 0.64 | 27.00 | | | |
| BKG-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 2 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.45 | 5.59 | 36.25 | 0.21 | 143.70 | 1.80 | 0.64 | 108.50 | 2.29 | 2.13 | 1.74 | 0.53 | 0.05 | 0.55 | 1.56 | | | | 12.00 | 0.03 | 0.03 | | 13.00 | | | | | | | | | | |
| | STD. DEV. | 1.15 | | 3.30 | 0.07 | 20.02 | | | 30.41 | 0.64 | 0.59 | 0.63 | 0.10 | 0.05 | 0.14 | 1.26 | | | | 0.00 | 0.02 | 0.03 | | 0.00 | | | | | | | | | | |
| | MIN | 21.90 | 5.15 | 33.00 | 0.11 | 124.00 | 1.80 | 0.64 | 87.00 | 1.82 | 1.80 | 1.34 | 0.39 | 0.02 | 0.41 | 0.50 | | | | 12.00 | 0.01 | 0.01 | | 13.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.89 | 40.00 | 0.29 | 168.40 | 1.80 | 0.64 | 130.00 | 3.02 | 3.00 | 2.46 | 0.64 | 0.13 | 0.69 | 3.20 | | | | 12.00 | 0.06 | 0.07 | | 13.00 | | | | | | | | | | |
| PZ-AB4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.83 | 4.84 | 4.10 | 1.92 | 312.00 | | | 22.00 | 0.58 | 0.52 | 0.33 | 0.20 | 0.06 | 0.26 | 0.27 | | | | 14.50 | 0.05 | 0.02 | | 84.50 | | | | | | | | | | |
| | STD. DEV. | 0.87 | | 2.05 | 0.40 | 105.79 | | | 16.97 | 0.40 | 0.44 | 0.27 | 0.25 | 0.05 | 0.23 | 0.21 | | | | 2.12 | 0.06 | 0.01 | | 64.35 | | | | | | | | | | |
| | MIN | 23.10 | 4.09 | 2.00 | 1.60 | 198.00 | | | 10.00 | 0.20 | 0.08 | 0.02 | 0.04 | 0.03 | 0.07 | 0.03 | | | | 13.00 | 0.01 | 0.01 | | 39.00 | | | | | | | | | | |
| | MAX | 24.80 | 6.09 | 6.10 | 2.37 | 407.00 | | | 34.00 | 0.99 | 0.96 | 0.49 | 0.48 | 0.12 | 0.51 | 0.43 | | | | 16.00 | 0.12 | 0.03 | | 130.00 | | | | | | | | | | |
| PZ-AB4-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.33 | 6.51 | 115.00 | 2.73 | 317.75 | 1.90 | 0.33 | | 2.47 | 2.27 | 2.00 | 0.38 | 0.08 | 0.47 | | | | | 8.10 | 0.05 | 0.04 | | 6.10 | | | | | | | | | | |
| | STD. DEV. | 1.33 | | 7.07 | 2.78 | 92.80 | | | | 1.80 | 1.47 | 1.90 | 0.11 | 0.02 | 0.10 | | | | | 0.14 | 0.04 | 0.02 | | 0.14 | | | | | | | | | | |
| | MIN | 21.50 | 5.94 | 110.00 | 0.19 | 260.00 | 1.90 | 0.33 | | 0.85 | 0.79 | 0.29 | 0.26 | 0.05 | 0.36 | | | | | 8.00 | 0.01 | 0.01 | | 6.00 | | | | | | | | | | |
| | MAX | 24.70 | 7.24 | 120.00 | 6.13 | 456.00 | 1.90 | 0.33 | | 4.40 | 4.30 | 4.04 | 0.50 | 0.10 | 0.56 | | | | | 8.20 | 0.09 | 0.05 | | 6.20 | | | | | | | | | | |
| PZ-C1 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 0 | 0 | 1 | 2 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 24.73 | 5.95 | 135.00 | 4.71 | 967.00 | | | | 3.57 | 1.39 | 1.34 | 0.05 | 2.18 | 2.23 | 1.30 | | | 0.01 | 43.00 | 2.18 | 0.01 | 0.01 | 305.00 | 0.63 | 100.00 | 0.40 | 40.00 | 0.01 | 23.00 | 40.00 | | | |
| | STD. DEV. | 2.20 | | 7.07 | 1.05 | 139.34 | | | | 1.49 | 0.47 | 0.40 | 0.07 | 1.08 | 1.13 | | | | | 1.41 | 1.08 | 0.00 | | 7.07 | | | | | | | | | | |
| | MIN | 22.60 | 5.69 | 130.00 | 3.58 | 810.00 | | | | 1.91 | 0.98 | 0.97 | 0.01 | 0.93 | 0.94 | 1.30 | | | 0.01 | 42.00 | 0.93 | 0.01 | 0.01 | 300.00 | 0.63 | 100.00 | 0.40 | 40.00 | 0.01 | 23.00 | 40.00 | | | |
| | MAX | 27.00 | 6.18 | 140.00 | 5.65 | 1076.00 | | | | 4.80 | 1.90 | 1.76 | 0.14 | 2.90 | 3.04 | 1.30 | | | 0.01 | 44.00 | 2.90 | 0.01 | 0.01 | 310.00 | 0.63 | 100.00 | 0.40 | 40.00 | 0.01 | 23.00 | 40.00 | | | |
| PZ-C2 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 19.56 | 7.63 | 19.50 | 0.53 | 282.08 | 1.00 | 0.44 | | 0.90 | 0.88 | 0.45 | 0.40 | 0.05 | 0.45 | | | | | 18.50 | 0.05 | 0.01 | | 96.00 | | | | | | | | | | |
| | STD. DEV. | 9.40 | | 3.54 | 0.17 | 108.62 | | | | 0.27 | 0.23 | 0.25 | 0.04 | 0.04 | 0.02 | | | | | 2.12 | 0.04 | 0.00 | | 5.66 | | | | | | | | | | |
| | MIN | 5.52 | 5.07 | 17.00 | 0.30 | 157.30 | 1.00 | 0.44 | | 0.59 | 0.53 | 0.16 | 0.36 | 0.02 | 0.43 | | | | | 17.00 | 0.01 | 0.01 | | 92.00 | | | | | | | | | | |
| | MAX | 24.90 | 21.70 | 22.00 | 0.71 | 377.00 | 1.00 | 0.44 | | 1.08 | 1.00 | 0.62 | 0.44 | 0.10 | 0.46 | | | | | 20.00 | 0.10 | 0.01 | | 100.00 | | | | | | | | | | |
| PZ-C3-08 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.30 | 5.03 | 13.55 | 2.45 | 708.00 | | | | 1.77 | 0.74 | 0.63 | 0.11 | 1.03 | 1.14 | 0.24 | 33.00 | 32.00 | | 33.00 | 1.03 | 0.01 | | 280.00 | | | | | | | | | | |
| | STD. DEV. | 1.15 | | 11.95 | 2.64 | 250.19 | | | | 0.72 | 0.28 | 0.27 | 0.11 | 0.84 | 0.74 | | | | | 7.07 | 0.84 | 0.00 | | 70.71 | | | | | | | | | | |
| | MIN | 23.00 | 4.69 | 5.10 | 0.81 | 438.00 | | | | 0.94 | 0.42 | 0.37 | 0.04 | 0.08 | 0.32 | 0.24 | 33.00 | 32.00 | | 28.00 | 0.08 | 0.01 | | 230.00 | | | | | | | | | | |
| | MAX | 25.20 | 5.27 | 22.00 | 5.49 | 932.00 | | | | 2.25 | 0.95 | 0.91 | 0.24 | 1.70 | 1.75 | 0.24 | 33.00 | 32.00 | | 38.00 | 1.70 | 0.01 | | 330.00 | | | | | | | | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-C3-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.70 | 6.62 | 150.00 | 1.25 | 460.50 | 1.10 | 0.43 | | 0.84 | 0.85 | 0.47 | 0.33 | 0.06 | 0.36 | | | | | 11.00 | 0.04 | 0.03 | | 38.50 | | | | | | | | | | |
| | STD. DEV. | 1.17 | | 0.00 | 0.67 | 53.61 | | | | 0.26 | 0.29 | 0.33 | 0.08 | 0.07 | 0.10 | | | | | | 0.03 | 0.04 | | 13.44 | | | | | | | | | | |
| | MIN | 22.00 | 6.48 | 150.00 | 0.56 | 394.00 | 1.10 | 0.43 | | 0.60 | 0.57 | 0.24 | 0.25 | 0.02 | 0.27 | | | | | 11.00 | 0.01 | 0.01 | | 29.00 | | | | | | | | | | |
| | MAX | 24.60 | 6.82 | 150.00 | 2.12 | 516.00 | 1.10 | 0.43 | | 1.12 | 1.10 | 0.85 | 0.43 | 0.17 | 0.46 | | | | | 11.00 | 0.09 | 0.08 | | 48.00 | | | | | | | | | | |
| PZ-C6-08 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.05 | 4.08 | 2.00 | 1.29 | 516.00 | 0.77 | 0.12 | | 0.63 | 0.62 | 0.47 | 0.10 | 0.06 | 0.16 | | | | | 21.50 | 0.05 | 0.01 | | 180.00 | | | | | | | | | | |
| | STD. DEV. | 1.12 | | 0.00 | 1.23 | 102.61 | | | | 0.29 | 0.29 | 0.29 | 0.05 | 0.06 | 0.08 | | | | | 2.12 | 0.06 | 0.00 | | 0.00 | | | | | | | | | | |
| | MIN | 21.80 | 3.75 | 2.00 | 0.19 | 401.00 | 0.77 | 0.12 | | 0.40 | 0.26 | 0.19 | 0.05 | 0.02 | 0.07 | | | | | 20.00 | 0.01 | 0.01 | | 180.00 | | | | | | | | | | |
| | MAX | 24.30 | 4.40 | 2.00 | 2.36 | 649.00 | 0.77 | 0.12 | | 0.95 | 0.93 | 0.76 | 0.17 | 0.14 | 0.21 | | | | | 23.00 | 0.14 | 0.01 | | 180.00 | | | | | | | | | | |
| PZ-C6-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.05 | 5.46 | 24.00 | 1.71 | 366.75 | 0.71 | 0.32 | | 2.40 | 1.95 | 1.20 | 0.95 | 0.04 | 1.20 | | | | | 29.50 | 0.03 | 0.01 | | 83.00 | | | | | | | | | | |
| | STD. DEV. | 0.72 | | 0.00 | 2.01 | 17.86 | | | | 1.46 | 1.44 | 0.60 | 0.82 | 0.02 | 0.88 | | | | | 10.61 | 0.03 | 0.00 | | 12.73 | | | | | | | | | | |
| | MIN | 22.00 | 5.13 | 24.00 | 0.08 | 351.00 | 0.71 | 0.32 | | 0.80 | 0.71 | 0.60 | 0.18 | 0.02 | 0.20 | | | | | 22.00 | 0.01 | 0.01 | | 74.00 | | | | | | | | | | |
| | MAX | 23.60 | 5.77 | 24.00 | 4.45 | 391.00 | 0.71 | 0.32 | | 3.67 | 3.60 | 1.80 | 1.80 | 0.07 | 1.87 | | | | | 37.00 | 0.07 | 0.01 | | 92.00 | | | | | | | | | | |
| PZ-D3-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.27 | 5.15 | 8.87 | 2.35 | 648.67 | | | 37.00 | 1.58 | 0.68 | 0.64 | 0.04 | 0.90 | 0.94 | 0.24 | | | | 31.00 | 0.90 | 0.01 | | 285.00 | | | | | | | | | | |
| | STD. DEV. | 1.10 | | 4.59 | 1.54 | 258.65 | | | 7.07 | 0.85 | 0.45 | 0.44 | 0.05 | 0.53 | 0.50 | 0.19 | | | | 7.07 | 0.53 | 0.00 | | 63.64 | | | | | | | | | | |
| | MIN | 23.00 | 4.69 | 3.60 | 0.78 | 385.00 | | | 32.00 | 0.84 | 0.16 | 0.15 | 0.01 | 0.51 | 0.61 | 0.11 | | | | 26.00 | 0.51 | 0.01 | | 240.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.48 | 12.00 | 3.86 | 902.00 | | | 42.00 | 2.50 | 1.00 | 0.99 | 0.10 | 1.50 | 1.52 | 0.46 | | | | 36.00 | 1.50 | 0.01 | | 330.00 | | | | | | | | | | |
| PZ-D3-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 3 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.88 | 6.59 | 140.00 | 3.25 | 476.25 | 1.00 | 0.41 | 64.00 | 1.16 | 1.07 | 0.62 | 0.46 | 0.07 | 0.55 | 2.35 | | | | 9.15 | 0.03 | 0.05 | | 12.20 | | | | | | | | | | |
| | STD. DEV. | 1.35 | | 23.09 | 2.40 | 227.98 | | | 11.36 | 0.67 | 0.59 | 0.37 | 0.31 | 0.04 | 0.33 | 2.14 | | | | 1.20 | 0.02 | 0.04 | | 6.79 | | | | | | | | | | |
| | MIN | 22.00 | 6.37 | 120.00 | 1.02 | 315.00 | 1.00 | 0.41 | 56.00 | 0.64 | 0.54 | 0.26 | 0.23 | 0.02 | 0.33 | 0.80 | | | | 8.30 | 0.01 | 0.01 | | 7.40 | | | | | | | | | | |
| | MAX | 24.90 | 6.74 | 160.00 | 6.31 | 811.00 | 1.00 | 0.41 | 77.00 | 1.92 | 1.90 | 0.99 | 0.91 | 0.10 | 0.93 | 5.50 | | | | 10.00 | 0.05 | 0.08 | | 17.00 | | | | | | | | | | |
| PZ-D4-08 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.97 | 4.67 | 2.00 | 1.68 | 726.67 | | | | 1.11 | 0.67 | 0.61 | 0.06 | 0.44 | 0.50 | | | | | 33.50 | 0.44 | 0.01 | | 310.00 | | | | | | | | | | |
| | STD. DEV. | 1.79 | | 0.00 | 0.85 | 219.55 | | | | 0.62 | 0.24 | 0.25 | 0.07 | 0.46 | 0.40 | | | | | 6.36 | 0.46 | 0.00 | | 56.57 | | | | | | | | | | |
| | MIN | 21.90 | 4.27 | 2.00 | 0.70 | 510.00 | | | | 0.72 | 0.43 | 0.40 | 0.01 | 0.03 | 0.17 | | | | | 29.00 | 0.03 | 0.01 | | 270.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.25 | 2.00 | 2.24 | 949.00 | | | | 1.83 | 0.90 | 0.89 | 0.14 | 0.93 | 0.94 | | | | | 38.00 | 0.93 | 0.01 | | 350.00 | | | | | | | | | | |
| PZ-D4-15 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.30 | 6.67 | 155.00 | 2.38 | 692.00 | | | | 0.84 | 0.75 | 0.47 | 0.27 | 0.09 | 0.37 | | | | | 13.00 | 0.06 | 0.04 | | 91.50 | | | | | | | | | | |
| | STD. DEV. | 1.15 | | 35.36 | 3.03 | 223.47 | | | | 0.09 | 0.21 | 0.19 | 0.07 | 0.13 | 0.13 | | | | | 2.83 | 0.07 | 0.05 | | 26.16 | | | | | | | | | | |
| | MIN | 23.00 | 6.47 | 130.00 | 0.24 | 559.00 | | | | 0.75 | 0.51 | 0.26 | 0.22 | 0.02 | 0.24 | | | | | 11.00 | 0.01 | 0.01 | | 73.00 | | | | | | | | | | |
| | MAX | 25.20 | 6.87 | 180.00 | 5.84 | 950.00 | | | | 0.93 | 0.91 | 0.60 | 0.35 | 0.24 | 0.49 | | | | | 15.00 | 0.14 | 0.10 | | 110.00 | | | | | | | | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-E1 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 3 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.73 | 5.32 | 22.00 | 3.59 | 405.65 | 0.85 | 0.36 | 32.67 | 0.97 | 0.87 | 0.57 | 0.32 | 0.09 | 0.40 | 0.51 | | | | 26.00 | 0.08 | 0.01 | | 165.00 | | | | | | | | | | |
| | STD. DEV. | 2.26 | | 6.38 | 1.58 | 175.33 | | | 9.02 | 0.15 | 0.14 | 0.13 | 0.11 | 0.06 | 0.06 | 0.79 | | | | 2.83 | 0.06 | 0.00 | | 7.07 | | | | | | | | | | |
| | MIN | 21.10 | 5.01 | 17.00 | 1.39 | 176.60 | 0.85 | 0.36 | 24.00 | 0.80 | 0.67 | 0.45 | 0.22 | 0.02 | 0.35 | 0.07 | | | | 24.00 | 0.01 | 0.01 | | 160.00 | | | | | | | | | | |
| | MAX | 25.80 | 5.70 | 31.00 | 5.05 | 555.00 | 0.85 | 0.36 | 42.00 | 1.08 | 1.00 | 0.70 | 0.45 | 0.14 | 0.47 | 1.70 | | | | 28.00 | 0.14 | 0.01 | | 170.00 | | | | | | | | | | |
| PZ-E2 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.58 | 5.89 | 37.00 | 5.32 | 215.90 | 1.10 | 0.37 | | 0.88 | 0.91 | 0.51 | 0.35 | 0.04 | 0.37 | | | | | 14.50 | 0.03 | 0.01 | | 55.00 | | | | | | | | | | |
| | STD. DEV. | 2.62 | | 0.00 | 1.61 | 72.25 | | | | 0.15 | 0.19 | 0.14 | 0.07 | 0.02 | 0.08 | | | | | 2.12 | 0.02 | 0.00 | | 18.38 | | | | | | | | | | |
| | MIN | 21.10 | 5.69 | 37.00 | 3.91 | 156.00 | 1.10 | 0.37 | | 0.72 | 0.66 | 0.36 | 0.28 | 0.02 | 0.30 | | | | | 13.00 | 0.01 | 0.01 | | 42.00 | | | | | | | | | | |
| | MAX | 26.60 | 6.11 | 37.00 | 7.63 | 321.00 | 1.10 | 0.37 | | 1.00 | 1.10 | 0.63 | 0.43 | 0.06 | 0.45 | | | | | 16.00 | 0.06 | 0.01 | | 68.00 | | | | | | | | | | |
| PZ-E3-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 24.33 | 5.56 | 35.00 | 1.27 | 875.00 | | | 70.00 | 4.47 | 1.69 | 1.54 | 0.15 | 2.78 | 2.92 | 0.39 | 43.00 | 41.50 | 0.02 | 35.00 | 2.78 | 0.01 | 0.01 | 330.00 | 0.47 | 93.00 | 1.30 | 42.50 | 0.00 | 19.50 | 36.00 | | | |
| | STD. DEV. | 1.42 | | 19.97 | 0.74 | 141.82 | | | 10.54 | 4.98 | 1.31 | 1.21 | 0.11 | 3.67 | 3.78 | 0.42 | 9.90 | 7.78 | 0.01 | 7.07 | 3.67 | 0.00 | 0.00 | 0.00 | 0.13 | 9.90 | 0.28 | 6.36 | 0.00 | 7.78 | 4.24 | | | |
| | MIN | 22.70 | 5.33 | 18.00 | 0.73 | 728.00 | | | 59.00 | 1.25 | 0.92 | 0.81 | 0.04 | 0.33 | 0.37 | 0.14 | 36.00 | 36.00 | 0.01 | 30.00 | 0.33 | 0.01 | 0.01 | 330.00 | 0.37 | 86.00 | 1.10 | 38.00 | 0.002 | 14.00 | 33.00 | | | |
| | MAX | 25.20 | 5.74 | 57.00 | 2.11 | 1011.00 | | | 80.00 | 10.20 | 3.20 | 2.94 | 0.26 | 7.00 | 7.26 | 0.88 | 50.00 | 47.00 | 0.02 | 40.00 | 7.00 | 0.01 | 0.01 | 330.00 | 0.56 | 100.00 | 1.50 | 47.00 | 0.003 | 25.00 | 39.00 | | | |
| PZ-E3-15 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.60 | 6.22 | 69.00 | 2.43 | 254.67 | | | 81.00 | 1.93 | 1.83 | 1.57 | 0.27 | 0.10 | 0.37 | 7.70 | | | | 10.25 | 0.06 | 0.05 | | 21.50 | | | | | | | | | | |
| | STD. DEV. | 0.50 | | 13.11 | 1.98 | 66.65 | | | 81.50 | 0.66 | 0.57 | 0.63 | 0.08 | 0.11 | 0.12 | 5.52 | | | | 1.06 | 0.04 | 0.06 | | 0.71 | | | | | | | | | | |
| | MIN | 24.10 | 6.04 | 57.00 | 0.31 | 208.00 | | | 10.00 | 1.23 | 1.20 | 0.85 | 0.20 | 0.03 | 0.24 | 3.70 | | | | 9.50 | 0.03 | 0.01 | | 21.00 | | | | | | | | | | |
| | MAX | 25.10 | 6.57 | 83.00 | 4.23 | 331.00 | | | 170.00 | 2.53 | 2.30 | 2.05 | 0.35 | 0.23 | 0.48 | 14.00 | | | | 11.00 | 0.11 | 0.12 | | 22.00 | | | | | | | | | | |
| PZ-E4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 1 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 24.23 | 4.65 | 2.73 | 1.55 | 747.67 | | | 47.00 | 1.41 | 0.73 | 0.71 | 0.02 | 0.68 | 0.70 | 0.13 | | | 0.26 | 29.33 | 0.68 | 0.01 | 0.01 | 176.73 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| | STD. DEV. | 2.31 | | 1.27 | 1.22 | 109.21 | | | 6.08 | 1.03 | 0.32 | 0.33 | 0.01 | 0.72 | 0.71 | 0.06 | | | | 0.58 | 0.72 | 0.00 | | 162.47 | | | | | | | | | | |
| | MIN | 21.60 | 4.03 | 2.00 | 0.74 | 632.00 | | | 43.00 | 0.76 | 0.54 | 0.52 | 0.01 | 0.21 | 0.24 | 0.07 | | | 0.26 | 29.00 | 0.21 | 0.01 | 0.01 | 0.20 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| | MAX | 25.90 | 5.29 | 4.20 | 2.95 | 849.00 | | | 54.00 | 2.60 | 1.10 | 1.09 | 0.03 | 1.50 | 1.51 | 0.19 | | | 0.26 | 30.00 | 1.50 | 0.01 | 0.01 | 320.00 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| PZ-E4-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.58 | 6.47 | 125.00 | 0.95 | 470.50 | 0.88 | 0.36 | | 0.95 | 0.87 | 0.51 | 0.36 | 0.08 | 0.44 | | | | | 12.00 | 0.05 | 0.04 | | 50.50 | | | | | | | | | | |
| | STD. DEV. | 1.51 | | 7.07 | 0.64 | 47.47 | | | | 0.10 | 0.09 | 0.15 | 0.08 | 0.09 | 0.20 | | | | | 0.00 | 0.04 | 0.05 | | 12.02 | | | | | | | | | | |
| | MIN | 21.90 | 6.17 | 120.00 | 0.16 | 422.00 | 0.88 | 0.36 | | 0.84 | 0.80 | 0.34 | 0.26 | 0.02 | 0.28 | | | | | 12.00 | 0.02 | 0.01 | | 42.00 | | | | | | | | | | |
| | MAX | 24.90 | 6.73 | 130.00 | 1.62 | 517.00 | 0.88 | 0.36 | | 1.01 | 0.99 | 0.63 | 0.46 | 0.21 | 0.67 | | | | | 12.00 | 0.11 | 0.10 | | 59.00 | | | | | | | | | | |
| PZ-E5-08 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.70 | 4.41 | 2.00 | 0.68 | 640.67 | | | | 0.94 | 0.82 | 0.73 | 0.09 | 0.12 | 0.22 | | | | | 28.00 | 0.12 | 0.01 | | 260.00 | | | | | | | | | | |
| | STD. DEV. | 0.98 | | 0.00 | 0.18 | 90.56 | | | | 0.09 | 0.18 | 0.13 | 0.08 | 0.17 | 0.16 | | | | | 2.83 | 0.17 | 0.00 | | 42.43 | | | | | | | | | | |
| | MIN | 22.60 | 3.96 | 2.00 | 0.48 | 552.00 | | | | 0.85 | 0.64 | 0.58 | 0.03 | 0.02 | 0.06 | | | | | 26.00 | 0.01 | 0.01 | | 230.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.01 | 2.00 | 0.84 | 733.00 | | | | 1.02 | 1.00 | 0.81 | 0.19 | 0.32 | 0.38 | | | | | 30.00 | 0.32 | 0.01 | | 290.00 | | | | | | | | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-E5-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.30 | 6.40 | 95.00 | 1.50 | 630.75 | 0.85 | 0.32 | | 0.81 | 0.79 | 0.55 | 0.25 | 0.04 | 0.26 | | | | | 18.00 | 0.03 | 0.01 | | 121.00 | | | | | | | | | | |
| | STD. DEV. | 0.98 | | 7.07 | 2.12 | 140.19 | | | | 0.27 | 0.24 | 0.29 | 0.05 | 0.04 | 0.04 | | | | | 1.41 | 0.04 | 0.00 | | 55.15 | | | | | | | | | | |
| | MIN | 21.90 | 6.09 | 90.00 | 0.08 | 483.00 | 0.85 | 0.32 | | 0.65 | 0.56 | 0.34 | 0.22 | 0.02 | 0.24 | | | | | 17.00 | 0.01 | 0.01 | | 82.00 | | | | | | | | | | |
| | MAX | 24.10 | 6.73 | 100.00 | 4.60 | 820.00 | 0.85 | 0.32 | | 1.12 | 1.10 | 0.88 | 0.32 | 0.09 | 0.31 | | | | | 19.00 | 0.09 | 0.01 | | 160.00 | | | | | | | | | | |
| PZ-E6-08 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.28 | 4.41 | 2.00 | 24.15 | 682.00 | 0.65 | 0.01 | | 0.78 | 0.72 | 0.66 | 0.07 | 0.18 | 0.13 | | | | | 29.00 | 0.18 | 0.01 | | 135.10 | | | | | | | | | | |
| | STD. DEV. | 1.37 | | 0.00 | 45.02 | 124.59 | | | | 0.28 | 0.24 | 0.23 | 0.07 | 0.27 | 0.07 | | | | | 4.24 | 0.27 | 0.00 | | 190.78 | | | | | | | | | | |
| | MIN | 21.90 | 3.73 | 2.00 | 0.94 | 501.00 | 0.65 | 0.01 | | 0.49 | 0.43 | 0.40 | 0.01 | 0.02 | 0.08 | | | | | 26.00 | 0.01 | 0.01 | | 0.20 | | | | | | | | | | |
| | MAX | 25.00 | 4.99 | 2.00 | 91.67 | 780.00 | 0.65 | 0.01 | | 1.05 | 1.00 | 0.84 | 0.16 | 0.58 | 0.21 | | | | | 32.00 | 0.58 | 0.01 | | 270.00 | | | | | | | | | | |
| PZ-E6-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 2 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.35 | 5.10 | 9.45 | 2.68 | 388.50 | 4.60 | 1.90 | 42.00 | 2.24 | 2.80 | 1.29 | 1.16 | 0.04 | 0.95 | 0.34 | 18.00 | 17.00 | 0.05 | 18.02 | 0.04 | 0.01 | 0.01 | 114.00 | 0.09 | 29.50 | 1.50 | 11.00 | 0.006 | 1.50 | 11.00 | | | |
| | STD. DEV. | 0.54 | | 3.61 | 2.91 | 89.76 | | | | 0.50 | 1.26 | 0.38 | 0.52 | 0.03 | 0.24 | 0.00 | | | 0.06 | 15.69 | 0.04 | 0.00 | 0.00 | 57.17 | 0.00 | 2.12 | 0.00 | 0.00 | 0.001 | 0.14 | 0.00 | | | |
| | MIN | 22.60 | 4.81 | 6.90 | 0.29 | 326.00 | 4.60 | 1.90 | 42.00 | 1.82 | 1.80 | 0.87 | 0.69 | 0.02 | 0.71 | 0.34 | 18.00 | 17.00 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 80.00 | 0.09 | 28.00 | 1.50 | 11.00 | 0.005 | 1.40 | 11.00 | | | |
| | MAX | 23.80 | 5.44 | 12.00 | 6.65 | 518.00 | 4.60 | 1.90 | 42.00 | 2.79 | 4.60 | 1.60 | 1.90 | 0.09 | 1.19 | 0.34 | 18.00 | 17.00 | 0.09 | 29.00 | 0.09 | 0.01 | 0.01 | 180.00 | 0.09 | 31.00 | 1.50 | 11.00 | 0.007 | 1.60 | 11.00 | | | |
| PZ-E7-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 23.28 | 4.59 | 7.30 | 1.72 | 469.50 | 0.65 | 0.12 | 28.75 | 2.18 | 1.24 | 1.38 | 0.07 | 0.57 | 0.80 | 0.06 | 21.50 | 20.00 | 0.21 | 24.00 | 0.57 | 0.01 | 0.02 | 155.00 | 0.18 | 39.00 | 0.39 | 17.25 | 0.006 | 4.25 | 17.75 | | | |
| | STD. DEV. | 0.96 | | 9.82 | 1.50 | 161.66 | | | 12.53 | 2.14 | 1.06 | 1.14 | 0.07 | 0.84 | 1.00 | 0.03 | 3.54 | 2.83 | 0.17 | 6.58 | 0.84 | 0.00 | 0.01 | 64.03 | 0.13 | 13.64 | 0.22 | 5.97 | 0.003 | 3.51 | 10.21 | | | |
| | MIN | 22.10 | 4.27 | 2.00 | 0.29 | 333.00 | 0.65 | 0.12 | 10.00 | 0.52 | 0.49 | 0.48 | 0.01 | 0.03 | 0.05 | 0.03 | 19.00 | 18.00 | 0.10 | 17.00 | 0.03 | 0.01 | 0.01 | 110.00 | 0.06 | 27.00 | 0.20 | 13.00 | 0.004 | 1.70 | 12.00 | | | |
| | MAX | 24.20 | 4.98 | 22.00 | 3.18 | 702.00 | 0.65 | 0.12 | 36.00 | 4.60 | 2.80 | 2.66 | 0.14 | 1.80 | 1.94 | 0.08 | 24.00 | 22.00 | 0.46 | 31.00 | 1.80 | 0.01 | 0.03 | 250.00 | 0.36 | 56.00 | 0.69 | 26.00 | 0.009 | 9.20 | 33.00 | | | |
| PZ-E7-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.28 | 6.76 | 272.50 | 2.50 | 1305.75 | 1.00 | 0.40 | 60.50 | 1.04 | 1.01 | 0.61 | 0.40 | 0.03 | 0.43 | 0.24 | | | | 19.00 | 0.03 | 0.01 | | 230.00 | | | | | | | | | | |
| | STD. DEV. | 0.67 | | 33.04 | 2.71 | 339.18 | | | 29.10 | 0.24 | 0.21 | 0.20 | 0.05 | 0.02 | 0.07 | 0.06 | | | | 1.41 | 0.02 | 0.00 | | 56.57 | | | | | | | | | | |
| | MIN | 22.30 | 6.49 | 240.00 | 0.16 | 953.00 | 1.00 | 0.40 | 24.00 | 0.86 | 0.84 | 0.48 | 0.33 | 0.02 | 0.35 | 0.16 | | | | 18.00 | 0.01 | 0.01 | | 190.00 | | | | | | | | | | |
| | MAX | 23.80 | 7.14 | 310.00 | 5.62 | 1740.00 | 1.00 | 0.40 | 93.00 | 1.32 | 1.30 | 0.84 | 0.46 | 0.06 | 0.48 | 0.29 | | | | 20.00 | 0.06 | 0.01 | | 270.00 | | | | | | | | | | |
| PZ-F3-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-F3-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.33 | 6.67 | 113.25 | 3.83 | 300.00 | 0.69 | 0.33 | 33.50 | 1.12 | 0.97 | 0.81 | 0.27 | 0.05 | 0.31 | 2.20 | | | | 8.45 | 0.03 | 0.03 | | 2.47 | | | | | | | | | | |
| | STD. DEV. | 2.83 | | 15.78 | 2.68 | 36.47 | | | 19.05 | 0.67 | 0.56 | 0.66 | 0.06 | 0.03 | 0.04 | 2.36 | | | | 0.21 | 0.02 | 0.04 | | 2.45 | | | | | | | | | | |
| | MIN | 22.10 | 6.31 | 93.00 | 1.52 | 272.00 | 0.69 | 0.33 | 10.00 | 0.63 | 0.57 | 0.36 | 0.21 | 0.02 | 0.27 | 0.59 | | | | 8.30 | 0.01 | 0.01 | | 0.73 | | | | | | | | | | |
| | MAX | 28.00 | 6.93 | 130.00 | 7.49 | 353.00 | 0.69 | 0.33 | 49.00 | 1.88 | 1.80 | 1.57 | 0.33 | 0.08 | 0.34 | 5.70 | | | | 8.60 | 0.05 | 0.08 | | 4.20 | | | | | | | | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-F4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 23.87 | 4.76 | 4.87 | 2.71 | 809.67 | | | 57.33 | 3.35 | 1.35 | 1.34 | 0.01 | 2.00 | 2.01 | 0.10 | 34.50 | 34.00 | 0.50 | 32.00 | 1.97 | 0.03 | 0.02 | 286.67 | 0.37 | 67.00 | 0.29 | 30.00 | 0.01 | 6.70 | 36.33 | | | |
| | STD. DEV. | 3.01 | | 3.25 | 2.41 | 80.05 | | | 6.66 | 2.60 | 0.59 | 0.59 | 0.00 | 2.02 | 2.02 | 0.07 | 12.02 | 11.31 | 0.69 | 6.08 | 1.97 | 0.04 | 0.01 | 20.82 | 0.11 | 1.73 | 0.16 | 3.00 | 0.01 | 0.53 | 10.97 | | | |
| | MIN | 20.40 | 4.06 | 2.00 | 1.20 | 728.00 | | | 53.00 | 1.36 | 0.86 | 0.84 | 0.01 | 0.50 | 0.52 | 0.05 | 26.00 | 26.00 | 0.06 | 25.00 | 0.50 | 0.01 | 0.01 | 270.00 | 0.28 | 66.00 | 0.12 | 27.00 | 0.00 | 6.10 | 30.00 | | | |
| | MAX | 25.80 | 5.55 | 8.40 | 5.49 | 888.00 | | | 65.00 | 6.30 | 2.00 | 1.99 | 0.02 | 4.30 | 4.31 | 0.17 | 43.00 | 42.00 | 1.30 | 36.00 | 4.20 | 0.08 | 0.03 | 310.00 | 0.49 | 69.00 | 0.43 | 33.00 | 0.01 | 7.10 | 49.00 | | | |
| PZ-F4-15 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.20 | 6.70 | 176.67 | 1.98 | 787.33 | | | 40.33 | 1.02 | 0.94 | 0.62 | 0.32 | 0.08 | 0.40 | 0.27 | | | | 14.50 | 0.08 | 0.01 | | 70.00 | | | | | | | | | | |
| | STD. DEV. | 1.74 | | 25.17 | 2.71 | 435.66 | | | 18.01 | 0.27 | 0.31 | 0.21 | 0.11 | 0.07 | 0.10 | 0.09 | | | | 0.71 | 0.07 | 0.00 | | 11.31 | | | | | | | | | | |
| | MIN | 22.20 | 6.44 | 150.00 | 0.07 | 487.00 | | | 28.00 | 0.82 | 0.75 | 0.46 | 0.22 | 0.03 | 0.28 | 0.19 | | | | 14.00 | 0.03 | 0.01 | | 62.00 | | | | | | | | | | |
| | MAX | 25.40 | 7.14 | 200.00 | 5.08 | 1287.00 | | | 61.00 | 1.33 | 1.30 | 0.86 | 0.44 | 0.16 | 0.47 | 0.36 | | | | 15.00 | 0.16 | 0.01 | | 78.00 | | | | | | | | | | |
| PZ-G2-12.5 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.73 | 4.37 | 2.00 | 1.66 | 742.25 | 1.40 | 0.01 | 21.00 | 1.90 | 0.90 | 0.71 | 0.02 | 1.78 | 1.19 | | | | | 40.00 | 1.78 | 0.01 | | 160.10 | | | | | | | | | | |
| | STD. DEV. | 1.90 | | 0.00 | 0.87 | 136.05 | | | | 0.73 | 0.35 | 0.12 | 0.02 | 1.36 | 0.74 | | | | | 2.83 | 1.36 | 0.00 | | 226.13 | | | | | | | | | | |
| | MIN | 21.80 | 4.11 | 2.00 | 0.56 | 570.00 | 1.40 | 0.01 | 21.00 | 1.38 | 0.59 | 0.58 | 0.01 | 0.52 | 0.57 | | | | | 38.00 | 0.52 | 0.01 | | 0.20 | | | | | | | | | | |
| | MAX | 25.60 | 4.70 | 2.00 | 2.57 | 884.00 | 1.40 | 0.01 | 21.00 | 2.74 | 1.40 | 0.81 | 0.05 | 3.60 | 2.01 | | | | | 42.00 | 3.60 | 0.01 | | 320.00 | | | | | | | | | | |
| PZ-H4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 24.47 | 4.58 | 2.00 | 2.57 | 694.67 | | | 32.33 | 2.25 | 0.52 | 0.50 | 0.02 | 1.73 | 1.75 | 0.11 | 17.00 | 16.50 | 0.04 | 33.00 | 1.73 | 0.01 | 0.01 | 275.00 | 0.41 | 65.50 | 0.34 | 32.50 | 0.00 | 9.05 | 34.00 | | | |
| | STD. DEV. | 1.27 | | 0.00 | 1.44 | 140.75 | | | 5.51 | 0.69 | 0.32 | 0.31 | 0.01 | 0.38 | 0.38 | 0.10 | 2.83 | 3.54 | 0.05 | 1.41 | 0.38 | 0.00 | 0.00 | 49.50 | 0.03 | 13.44 | 0.10 | 7.78 | 0.00 | 1.34 | 2.83 | | | |
| | MIN | 23.00 | 4.07 | 2.00 | 1.39 | 559.00 | | | 26.00 | 1.45 | 0.15 | 0.14 | 0.01 | 1.30 | 1.31 | 0.02 | 15.00 | 14.00 | 0.01 | 32.00 | 1.30 | 0.01 | 0.01 | 240.00 | 0.39 | 56.00 | 0.27 | 27.00 | 0.00 | 8.10 | 32.00 | | | |
| | MAX | 25.30 | 5.21 | 2.00 | 4.17 | 840.00 | | | 36.00 | 2.68 | 0.72 | 0.69 | 0.03 | 2.00 | 2.01 | 0.22 | 19.00 | 19.00 | 0.08 | 34.00 | 2.00 | 0.01 | 0.01 | 310.00 | 0.43 | 75.00 | 0.41 | 38.00 | 0.01 | 10.00 | 36.00 | | | |
| PZ-H4-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.58 | 6.61 | 167.50 | 1.64 | 679.75 | 1.10 | 0.50 | 54.50 | 1.57 | 1.32 | 1.00 | 0.43 | 0.14 | 0.58 | 4.40 | | | | 19.00 | 0.13 | 0.02 | | 150.00 | | | | | | | | | | |
| | STD. DEV. | 1.45 | | 23.63 | 2.65 | 121.29 | | | 36.42 | 0.79 | 0.59 | 0.79 | 0.11 | 0.13 | 0.02 | 4.48 | | | | 0.00 | 0.11 | 0.02 | | 14.14 | | | | | | | | | | |
| | MIN | 21.60 | 6.33 | 150.00 | 0.23 | 586.00 | 1.10 | 0.50 | 13.00 | 1.03 | 0.99 | 0.47 | 0.30 | 0.03 | 0.56 | 1.60 | | | | 19.00 | 0.03 | 0.01 | | 140.00 | | | | | | | | | | |
| | MAX | 25.00 | 7.01 | 200.00 | 5.61 | 858.00 | 1.10 | 0.50 | 97.00 | 2.48 | 2.20 | 1.90 | 0.53 | 0.28 | 0.59 | 11.00 | | | | 19.00 | 0.23 | 0.05 | | 160.00 | | | | | | | | | | |
| PZ-H5-11.5 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 1 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 22.95 | 4.38 | 2.00 | 2.38 | 505.75 | 2.30 | 0.12 | 35.00 | 1.24 | 1.11 | 0.59 | 0.13 | 0.47 | 0.66 | 0.05 | 17.00 | 17.00 | 0.08 | 28.67 | 0.47 | 0.01 | 0.01 | 173.33 | 0.12 | 40.50 | 0.04 | 19.00 | 0.004 | 1.85 | 15.00 | | | |
| | STD. DEV. | 1.57 | | 0.00 | 0.80 | 108.32 | | | | 0.83 | 0.84 | 0.12 | 0.17 | 0.43 | 0.71 | | | | 0.03 | 3.51 | 0.43 | 0.00 | 0.00 | 45.09 | 0.04 | 10.61 | 0.00 | 4.24 | 0.002 | 0.21 | 2.83 | | | |
| | MIN | 21.10 | 4.01 | 2.00 | 1.27 | 402.00 | 2.30 | 0.12 | 35.00 | 0.67 | 0.52 | 0.51 | 0.01 | 0.15 | 0.16 | 0.05 | 17.00 | 17.00 | 0.06 | 25.00 | 0.15 | 0.01 | 0.01 | 130.00 | 0.09 | 33.00 | 0.04 | 16.00 | 0.003 | 1.70 | 13.00 | | | |
| | MAX | 24.30 | 4.57 | 2.00 | 3.09 | 645.00 | 2.30 | 0.12 | 35.00 | 2.20 | 2.30 | 0.73 | 0.37 | 1.10 | 1.47 | 0.05 | 17.00 | 17.00 | 0.10 | 32.00 | 1.10 | 0.01 | 0.01 | 220.00 | 0.15 | 48.00 | 0.05 | 22.00 | 0.005 | 2.00 | 17.00 | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-I6-08 | n | 4 | 4 | 3 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 1 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.28 | 4.44 | 2.40 | 1.57 | 375.00 | 1.30 | 0.44 | | 2.76 | 1.94 | 1.81 | 0.37 | 0.47 | 0.95 | 0.56 | 31.00 | 31.00 | 0.32 | 26.00 | 0.47 | 0.01 | 0.13 | 110.00 | 0.13 | 28.50 | 1.45 | 13.50 | 0.01 | 2.00 | 13.50 | | | |
| | STD. DEV. | 1.22 | | 0.69 | 1.08 | 81.98 | | | | 2.77 | 1.61 | 1.78 | 0.20 | 0.76 | 1.00 | | | | 0.14 | 10.44 | 0.76 | 0.00 | 0.16 | 30.00 | 0.01 | 0.71 | 0.49 | 2.12 | 0.01 | 0.85 | 0.71 | | | |
| | MIN | 22.10 | 3.87 | 2.00 | 0.20 | 300.00 | 1.30 | 0.44 | | 0.68 | 0.66 | 0.59 | 0.07 | 0.02 | 0.09 | 0.56 | 31.00 | 31.00 | 0.22 | 19.00 | 0.01 | 0.01 | 0.01 | 80.00 | 0.12 | 28.00 | 1.10 | 12.00 | 0.01 | 1.40 | 13.00 | | | |
| | MAX | 24.80 | 5.04 | 3.20 | 2.54 | 486.00 | 1.30 | 0.44 | | 5.90 | 4.30 | 3.85 | 0.52 | 1.60 | 2.05 | 0.56 | 31.00 | 31.00 | 0.42 | 38.00 | 1.60 | 0.01 | 0.24 | 140.00 | 0.13 | 29.00 | 1.80 | 15.00 | 0.02 | 2.60 | 14.00 | | | |
| PZ-I6-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.50 | 6.67 | 160.00 | 0.53 | 1149.75 | 1.40 | 0.51 | | 1.02 | 1.08 | 0.66 | 0.36 | 0.04 | 0.36 | | | | | 19.00 | 0.04 | 0.01 | | 120.00 | | | | | | | | | | |
| | STD. DEV. | 0.45 | | 0.00 | 0.45 | 500.52 | | | | 0.16 | 0.25 | 0.13 | 0.11 | 0.04 | 0.04 | | | | | 1.41 | 0.04 | 0.00 | | 14.14 | | | | | | | | | | |
| | MIN | 22.90 | 6.45 | 160.00 | 0.10 | 776.00 | 1.40 | 0.51 | | 0.83 | 0.81 | 0.51 | 0.25 | 0.02 | 0.32 | | | | | 18.00 | 0.01 | 0.01 | | 110.00 | | | | | | | | | | |
| | MAX | 23.90 | 6.90 | 160.00 | 0.95 | 1849.00 | 1.40 | 0.51 | | 1.12 | 1.40 | 0.75 | 0.51 | 0.10 | 0.40 | | | | | 20.00 | 0.10 | 0.01 | | 130.00 | | | | | | | | | | |
| PZ-I10-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.10 | 4.81 | 8.10 | 0.77 | 387.00 | 2.20 | 0.14 | 30.00 | 1.61 | 1.52 | 1.03 | 0.23 | 0.25 | 0.59 | 0.04 | | | | 25.00 | 0.25 | 0.01 | | 95.50 | | | | | | | | | | |
| | STD. DEV. | 1.20 | | 4.92 | 0.65 | 52.76 | | | 9.83 | 0.18 | 0.65 | 0.53 | 0.24 | 0.41 | 0.36 | 0.01 | | | | 2.83 | 0.41 | 0.00 | | 0.71 | | | | | | | | | | |
| | MIN | 21.50 | 4.33 | 2.00 | 0.37 | 344.00 | 2.20 | 0.14 | 21.00 | 1.48 | 0.68 | 0.64 | 0.05 | 0.02 | 0.19 | 0.03 | | | | 23.00 | 0.02 | 0.01 | | 95.00 | | | | | | | | | | |
| | MAX | 24.20 | 5.29 | 13.00 | 1.74 | 460.00 | 2.20 | 0.14 | 42.00 | 1.82 | 2.20 | 1.63 | 0.58 | 0.86 | 0.91 | 0.05 | | | | 27.00 | 0.86 | 0.01 | | 96.00 | | | | | | | | | | |
| PZ-I10-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.03 | 6.15 | 54.50 | 0.65 | 533.00 | 1.60 | 1.20 | | 1.05 | 1.17 | 0.50 | 0.69 | 0.02 | 0.54 | | | | | 23.00 | 0.02 | 0.01 | | 112.00 | | | | | | | | | | |
| | STD. DEV. | 0.93 | | 6.36 | 0.65 | 140.62 | | | | 0.15 | 0.31 | 0.11 | 0.35 | 0.00 | 0.11 | | | | | 1.41 | 0.01 | 0.00 | | 39.60 | | | | | | | | | | |
| | MIN | 21.70 | 5.84 | 50.00 | 0.13 | 406.00 | 1.60 | 1.20 | | 0.95 | 0.93 | 0.38 | 0.40 | 0.02 | 0.42 | | | | | 22.00 | 0.01 | 0.01 | | 84.00 | | | | | | | | | | |
| | MAX | 23.80 | 6.83 | 59.00 | 1.51 | 734.00 | 1.60 | 1.20 | | 1.22 | 1.60 | 0.58 | 1.20 | 0.03 | 0.64 | | | | | 24.00 | 0.03 | 0.01 | | 140.00 | | | | | | | | | | |
| PZ-J4-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-J4-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.53 | 6.19 | 70.25 | 1.14 | 477.50 | 5.90 | 1.90 | 42.50 | 2.37 | 3.03 | 1.12 | 1.19 | 0.43 | 1.25 | 0.33 | | | | 28.50 | 0.43 | 0.01 | | 100.50 | | | | | | | | | | |
| | STD. DEV. | 1.30 | | 22.75 | 1.44 | 73.23 | | | 23.36 | 0.75 | 1.96 | 0.42 | 0.58 | 0.39 | 0.42 | 0.29 | | | | | 0.39 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.00 | 5.98 | 51.00 | 0.24 | 426.00 | 5.90 | 1.90 | 19.00 | 1.63 | 1.50 | 0.86 | 0.64 | 0.06 | 0.77 | 0.10 | | | | 28.00 | 0.06 | 0.01 | | 91.00 | | | | | | | | | | |
| | MAX | 25.00 | 6.47 | 100.00 | 3.28 | 585.00 | 5.90 | 1.90 | 65.00 | 3.12 | 5.90 | 1.60 | 1.90 | 0.81 | 1.52 | 0.74 | | | | 29.00 | 0.81 | 0.01 | | 110.00 | | | | | | | | | | |
| PZ-J7-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 22.95 | 4.61 | 5.78 | 1.36 | 303.25 | 2.90 | 0.53 | 34.00 | 1.73 | 1.56 | 1.03 | 0.20 | 0.56 | 0.70 | 0.07 | 22.00 | 21.50 | 0.17 | 25.75 | 0.56 | 0.01 | 0.01 | 76.50 | 0.11 | 25.25 | 0.34 | 11.20 | 0.003 | 1.44 | 10.18 | | | |
| | STD. DEV. | 1.37 | | 4.23 | 1.33 | 47.09 | | | 15.30 | 1.55 | 1.03 | 0.65 | 0.23 | 0.77 | 0.91 | 0.03 | 8.49 | 7.78 | 0.16 | 9.00 | 0.77 | 0.00 | 0.00 | 15.09 | 0.01 | 3.95 | 0.16 | 2.14 | 0.001 | 0.55 | 0.95 | | | |
| | MIN | 21.20 | 4.32 | 2.00 | 0.17 | 258.00 | 2.90 | 0.53 | 17.00 | 0.61 | 0.55 | 0.52 | 0.03 | 0.06 | 0.09 | 0.05 | 16.00 | 16.00 | 0.06 | 18.00 | 0.06 | 0.01 | 0.01 | 62.00 | 0.10 | 22.00 | 0.15 | 8.80 | 0.002 | 0.84 | 9.30 | | | |
| | MAX | 24.50 | 5.07 | 11.00 | 3.25 | 369.00 | 2.90 | 0.53 | 53.00 | 3.50 | 2.90 | 1.76 | 0.53 | 1.70 | 1.74 | 0.12 | 28.00 | 27.00 | 0.41 | 37.00 | 1.70 | 0.01 | 0.02 | 94.00 | 0.12 | 30.00 | 0.54 | 14.00 | 0.004 | 2.00 | 11.00 | | | |
| PZ-J7-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 3 | 2 | 2 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 23.13 | 5.04 | 7.00 | 0.98 | 403.25 | 4.50 | 0.67 | 63.00 | 3.31 | 3.48 | 2.62 | 0.55 | 0.25 | 0.69 | 0.27 | 27.50 | 26.50 | 0.03 | 32.33 | 0.25 | 0.01 | 0.01 | 116.67 | 0.11 | 40.00 | 0.75 | 14.33 | 0.003 | 1.33 | 11.00 | | | |
| | STD. DEV. | 1.16 | | 2.97 | 0.95 | 49.03 | | | | 1.97 | 1.75 | 1.82 | 0.26 | 0.22 | 0.17 | 0.04 | 9.19 | 9.19 | 0.03 | 13.50 | 0.22 | 0.00 | 0.00 | 5.77 | 0.05 | 7.21 | 0.65 | 3.21 | 0.000 | 0.21 | 0.00 | | | |
| | MIN | 21.40 | 4.80 | 4.90 | 0.16 | 331.00 | 4.50 | 0.67 | 63.00 | 1.11 | 1.00 | 0.57 | 0.26 | 0.02 | 0.54 | 0.23 | 21.00 | 20.00 | 0.01 | 19.00 | 0.01 | 0.01 | 0.01 | 110.00 | 0.06 | 32.00 | 0.34 | 12.00 | 0.003 | 1.10 | 11.00 | | | |
| | MAX | 23.90 | 5.30 | 9.10 | 2.29 | 437.00 | 4.50 | 0.67 | 63.00 | 4.92 | 4.90 | 4.05 | 0.85 | 0.46 | 0.87 | 0.31 | 34.00 | 33.00 | 0.06 | 46.00 | 0.46 | 0.01 | 0.01 | 120.00 | 0.15 | 46.00 | 1.50 | 18.00 | 0.004 | 1.50 | 11.00 | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-N4-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.95 | 5.04 | 9.50 | 4.85 | 390.00 | | | 28.50 | 0.50 | 0.48 | 0.35 | 0.13 | 0.02 | 0.15 | 0.10 | | | | 22.00 | 0.02 | 0.01 | | 200.00 | | | | | | | | | | |
| | STD. DEV. | 1.48 | | 10.61 | 0.82 | 155.56 | | | 7.78 | 0.01 | 0.01 | 0.07 | 0.09 | 0.00 | 0.09 | | | | | | 0.01 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.90 | 4.48 | 2.00 | 4.27 | 280.00 | | | 23.00 | 0.49 | 0.47 | 0.30 | 0.07 | 0.02 | 0.09 | 0.10 | | | | 22.00 | 0.01 | 0.01 | | 200.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.67 | 17.00 | 5.43 | 500.00 | | | 34.00 | 0.51 | 0.49 | 0.40 | 0.19 | 0.02 | 0.21 | 0.10 | | | | 22.00 | 0.02 | 0.01 | | 200.00 | | | | | | | | | | |
| PZ-N4-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 1 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.68 | 6.29 | 125.00 | 0.74 | 465.75 | 3.00 | 0.45 | 91.00 | 3.00 | 2.98 | 2.51 | 0.46 | 0.04 | 0.49 | 7.30 | | | | 12.50 | 0.03 | 0.01 | | 65.00 | | | | | | | | | | |
| | STD. DEV. | 0.77 | | 21.21 | 0.76 | 173.97 | | | | 1.70 | 1.37 | 1.74 | 0.05 | 0.02 | 0.04 | | | | | 0.71 | 0.02 | 0.00 | | 1.41 | | | | | | | | | | |
| | MIN | 21.80 | 5.96 | 110.00 | 0.19 | 361.00 | 3.00 | 0.45 | 91.00 | 1.52 | 1.50 | 1.01 | 0.39 | 0.02 | 0.45 | 7.30 | | | | 12.00 | 0.01 | 0.01 | | 64.00 | | | | | | | | | | |
| | MAX | 23.50 | 6.69 | 140.00 | 1.86 | 726.00 | 3.00 | 0.45 | 91.00 | 4.86 | 4.80 | 4.41 | 0.50 | 0.06 | 0.52 | 7.30 | | | | 13.00 | 0.06 | 0.01 | | 66.00 | | | | | | | | | | |
| PZ-N7-08 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.53 | 5.61 | 20.20 | 2.51 | 442.25 | 3.00 | 2.80 | | 2.11 | 2.27 | 0.77 | 1.64 | 0.20 | 1.34 | | 18.00 | 16.00 | 0.35 | 37.00 | 0.20 | 0.01 | 0.02 | 101.33 | 0.12 | 51.00 | 3.15 | 16.00 | 0.05 | 1.38 | 11.50 | | | |
| | STD. DEV. | 0.98 | | 23.76 | 1.97 | 44.98 | | | | 1.49 | 1.35 | 0.09 | 1.46 | 0.23 | 1.46 | | | | 0.30 | 18.25 | 0.23 | 0.00 | 0.01 | 33.72 | 0.06 | 9.90 | 1.06 | 2.83 | 0.01 | 0.60 | 0.71 | | | |
| | MIN | 22.20 | 4.75 | 3.40 | 1.04 | 390.00 | 3.00 | 2.80 | | 1.05 | 0.98 | 0.67 | 0.31 | 0.02 | 0.38 | | 18.00 | 16.00 | 0.13 | 25.00 | 0.01 | 0.01 | 0.01 | 78.00 | 0.08 | 44.00 | 2.40 | 14.00 | 0.05 | 0.95 | 11.00 | | | |
| | MAX | 24.40 | 6.23 | 37.00 | 5.41 | 497.00 | 3.00 | 2.80 | | 3.82 | 3.80 | 0.85 | 3.00 | 0.53 | 3.02 | | 18.00 | 16.00 | 0.56 | 58.00 | 0.53 | 0.01 | 0.03 | 140.00 | 0.17 | 58.00 | 3.90 | 18.00 | 0.06 | 1.80 | 12.00 | | | |
| PZ-N7-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.30 | 5.49 | 17.50 | 0.84 | 320.75 | 1.50 | 0.67 | | 1.25 | 1.23 | 0.78 | 0.44 | 0.09 | 0.47 | | | | | 18.50 | 0.09 | 0.01 | | 104.00 | | | | | | | | | | |
| | STD. DEV. | 0.83 | | 0.71 | 0.68 | 109.08 | | | | 0.53 | 0.38 | 0.28 | 0.19 | 0.11 | 0.25 | | | | | 7.78 | 0.12 | 0.00 | | 65.05 | | | | | | | | | | |
| | MIN | 22.10 | 5.26 | 17.00 | 0.31 | 237.00 | 1.50 | 0.67 | | 0.88 | 0.83 | 0.59 | 0.24 | 0.02 | 0.29 | | | | | 13.00 | 0.01 | 0.01 | | 58.00 | | | | | | | | | | |
| | MAX | 23.90 | 5.73 | 18.00 | 1.78 | 478.00 | 1.50 | 0.67 | | 1.86 | 1.60 | 1.10 | 0.67 | 0.26 | 0.76 | | | | | 24.00 | 0.26 | 0.01 | | 150.00 | | | | | | | | | | |
| PZ-N10-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 1 | 1 | 1 | 2 | 4 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 23.23 | 5.74 | 38.50 | 0.58 | 360.50 | 2.00 | 0.96 | 39.25 | 1.34 | 1.48 | 0.83 | 0.59 | 0.03 | 0.51 | 0.18 | 40.00 | 40.00 | 0.13 | 20.50 | 0.02 | 0.01 | 0.03 | 67.50 | 0.05 | 25.00 | 0.33 | 6.50 | 0.01 | 0.59 | 11.00 | | | |
| | STD. DEV. | 1.04 | | 18.36 | 0.33 | 98.48 | | | 6.40 | 1.02 | 0.92 | 0.42 | 0.57 | 0.02 | 0.62 | 0.11 | | | | 0.71 | 0.03 | 0.00 | | 27.58 | | | | | | | | | | |
| | MIN | 21.70 | 5.40 | 22.00 | 0.33 | 289.00 | 2.00 | 0.96 | 34.00 | 0.68 | 0.62 | 0.48 | 0.08 | 0.02 | 0.10 | 0.06 | 40.00 | 40.00 | 0.13 | 20.00 | 0.01 | 0.01 | 0.03 | 48.00 | 0.05 | 25.00 | 0.33 | 6.50 | 0.01 | 0.59 | 11.00 | | | |
| | MAX | 24.00 | 6.40 | 62.00 | 1.03 | 502.00 | 2.00 | 0.96 | 48.00 | 2.52 | 2.50 | 1.30 | 1.20 | 0.06 | 1.22 | 0.33 | 40.00 | 40.00 | 0.13 | 21.00 | 0.06 | 0.01 | 0.03 | 87.00 | 0.05 | 25.00 | 0.33 | 6.50 | 0.01 | 0.59 | 11.00 | | | |
| PZ-N10-15 | n | 4 | 4 | 3 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.38 | 6.71 | 97.00 | 0.61 | 880.25 | 0.55 | 0.20 | | 0.93 | 0.89 | 0.54 | 0.37 | 0.04 | 0.39 | | | | | | 0.03 | 0.01 | | 84.00 | | | | | | | | | | |
| | STD. DEV. | 0.87 | | 75.15 | 0.62 | 473.68 | | | | 0.18 | 0.16 | 0.09 | 0.09 | 0.02 | 0.09 | | | | | 0.71 | 0.02 | 0.00 | | 11.31 | | | | | | | | | | |
| | MIN | 22.20 | 6.41 | 11.00 | 0.11 | 568.00 | 0.55 | 0.20 | | 0.77 | 0.72 | 0.45 | 0.27 | 0.02 | 0.32 | | | | | | 0.01 | 0.01 | | 76.00 | | | | | | | | | | |
| | MAX | 24.30 | 7.11 | 150.00 | 1.40 | 1573.00 | 0.55 | 0.20 | | 1.12 | 1.10 | 0.62 | 0.48 | 0.05 | 0.50 | | | | | | 0.05 | 0.01 | | 92.00 | | | | | | | | | | |
| PZ-S10-08 | n | 4 | 4 | 3 | 4 | 4 | 0 | 0 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.65 | 5.00 | 3.93 | 0.81 | 290.00 | | | 26.25 | 0.82 | 0.73 | 0.51 | 0.26 | 0.03 | 0.31 | 0.05 | | | | 17.00 | 0.03 | 0.01 | | 60.50 | | | | | | | | | | |
| | STD. DEV. | 1.00 | | 2.12 | 0.96 | 63.77 | | | 5.56 | 0.18 | 0.19 | 0.07 | 0.12 | 0.01 | 0.14 | 0.02 | | | | 0.00 | 0.02 | 0.00 | | 2.12 | | | | | | | | | | |
| | MIN | 22.20 | 4.75 | 2.20 | 0.16 | 240.00 | | | 21.00 | 0.66 | 0.55 | 0.45 | 0.12 | 0.02 | 0.15 | 0.02 | | | | 17.00 | 0.01 | 0.01 | | 59.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.31 | 6.30 | 2.19 | 375.00 | | | 32.00 | 1.01 | 0.99 | 0.58 | 0.41 | 0.05 | 0.43 | 0.07 | | | | 17.00 | 0.05 | 0.01 | | 62.00 | | | | | | | | | | |

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

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| FB-DI | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 21.80 | 6.99 | 2.00 | 8.04 | 23.02 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.08 | 0.23 | | | |
| | STD. DEV. | 2.45 | | 0.00 | 0.59 | 42.13 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.19 | | | |
| | MIN | 19.30 | 5.73 | 2.00 | 7.25 | 1.20 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| | MAX | 24.00 | 7.65 | 2.00 | 8.60 | 86.20 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.02 | 0.02 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.27 | 0.51 | | | |
| FB-TAP | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| | MAX | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| EB | n | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 21.80 | 6.99 | 2.00 | 8.12 | 23.02 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.08 | 0.17 | | | |
| | STD. DEV. | 2.45 | | 0.00 | 0.46 | 42.13 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.08 | | | |
| | MIN | 19.30 | 5.73 | 2.00 | 7.58 | 1.20 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| | MAX | 24.00 | 7.65 | 2.00 | 8.60 | 86.20 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.07 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.25 | 0.28 | | | |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

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# Appendix F: Soil Sample Descriptions

**Table F.1**
**Site C-HS4 Soil Sample Descriptions**

| ID # | Location | Depth (ft bgs) | Munsell Soil Color |
|---|---|---|---|
| 1 | BKG | 5.0-7.4 | 10YR 2/1 |
| 2 | | 7.4-8.0 | 10YR 3/4 |
| 3 | | 8.0-11.3 | 10YR 3/3 |
| 4 | | 11.3-12.2 | 10YR 2/2 |
| 5 | | 12.2-13.0 | 10YR 3/2 |
| 6 | | 13.0-14.4 | 10YR 4/3 |
| 7 | | 14.4-15.0 | 10YR 5/2 |
| 8 | | 15.0-18.9 | 10YR 4/2 |
| 9 | DP04 | 5.0-6.2 | 10YR 3/2 |
| 10 | | 6.2-7.3 | 10YR 2/2 |
| 11 | | 7.3-8.3 | 10YR 2/2 |
| 12 | | 8.3-10.0 | 10YR 5/3 |
| 13 | | 10.0-12.5 | 10YR 5/2 |
| 14 | E7 | 5.0-7.1 | 10YR 3/2 |
| 15 | | 7.1-7.8 | 10YR 2/2 |
| 16 | | 7.8-9.8 | 10YR 2/1 |
| 17 | | 9.8-12.7 | 10YR 3/2 |
| 18 | | 12.7-13.8 | 10YR 4/2 |
| 19 | | 13.8-14.1 | 10YR 3/2 |
| 20 | | 14.1-15.0 | 10YR 2/2 |
| 21 | | 15.0-20.0 | 10YR 6/2 |
| 22 | | 20.0-21.0 | 10YR 8/1 |
| 23 | | 21.0-22.0 | 10YR 8/1 |
| 24 | | 22.0-25.0 | 10YR 8/1 |

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## Table F.2
## Site C-HS4 Soil Particle Size Distribution

| ID # | Location | Depth (ft) | Particle Size Ditribution (% <2mm) | | | | | | | | Texture Class |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sand Fractions (%) | | | | | Total (%) | | | |
| | | | Very Coarse | Coarse | Medium | Fine | Very Fine | Sand | Silt | Clay | |
| | | | 2.0-1.0 mm | 1.0-0.5 mm | 0.5-0.25 mm | 0.25-0.10 mm | 0.10-0.05 mm | 2.0-0.05 | 0.05-0.002 | <0.002 | |
| 1 | BKG | 5.0-7.4 | 0.1 | 5.8 | 47.4 | 37.3 | 6.3 | 94.4 | 3.3 | 2.3 | sand |
| 2 | | 7.4-8.0 | 0.0 | 0.6 | 4.3 | 50.6 | 27.7 | 87.5 | 4.6 | 7.8 | fine sand |
| 3 | | 8.0-11.3 | 0.0 | 0.3 | 2.5 | 55.6 | 29.2 | 86.8 | 4.9 | 8.3 | loamy sand |
| 4 | | 11.3-12.2 | 0.1 | 0.6 | 2.8 | 51.2 | 17.2 | 69.2 | 15.7 | 15.1 | sandy loam |
| 5 | | 12.2-13.0 | 0.0 | 0.1 | 2.8 | 76.4 | 15.9 | 94.3 | 3.5 | 2.2 | fine sand |
| 6 | | 13.0-14.4 | 0.0 | 0.7 | 6.0 | 77.4 | 13.8 | 97.8 | BDL | 4.9 | fine sand |
| 7 | | 14.4-15.0 | 0.1 | 0.6 | 3.9 | 70.0 | 21.2 | 95.5 | 1.1 | 3.4 | fine sand |
| 8 | | 15.0-18.9 | 0.3 | 0.6 | 4.2 | 66.1 | 20.0 | 91.0 | 5.3 | 3.7 | fine sand |
| 9 | DP04 | 5.0-6.2 | 0.2 | 3.3 | 25.7 | 48.9 | 12.7 | 90.5 | 6.7 | 2.7 | sand |
| 10 | | 6.2-7.3 | 0.1 | 3.7 | 32.2 | 50.5 | 11.1 | 97.5 | BDL | 2.6 | fine sand |
| 11 | | 7.3-8.3 | 0.2 | 3.7 | 34.6 | 40.9 | 5.7 | 85.0 | 10.8 | 4.2 | loamy sand |
| 12 | | 8.3-10.0 | 0.2 | 4.4 | 30.2 | 59.9 | 2.7 | 96.9 | BDL | 4.1 | fine sand |
| 13 | | 10.0-12.5 | 0.1 | 1.1 | 8.6 | 65.8 | 15.3 | 91.3 | 4.1 | 4.6 | fine sand |
| 14 | E7 | 5.0-7.1 | 0.0 | 1.3 | 40.1 | 52.5 | 4.8 | 98.8 | BDL | 2.6 | fine sand |
| 15 | | 7.1-7.8 | 0.0 | 1.0 | 17.4 | 61.6 | 16.7 | 96.0 | 0.1 | 4.0 | fine sand |
| 16 | | 7.8-9.8 | 0.0 | 2.1 | 17.9 | 51.7 | 15.4 | 84.0 | 12.3 | 3.7 | loamy sand |
| 17 | | 9.8-12.7 | 0.0 | 0.7 | 20.8 | 64.2 | 11.0 | 95.8 | 1.1 | 3.2 | fine sand |
| 18 | | 12.7-13.8 | 0.4 | 8.3 | 53.4 | 29.9 | 2.7 | 94.9 | 3.9 | 1.3 | sand |
| 19 | | 13.8-14.1 | 3.4 | 30.7 | 33.4 | 22.4 | 2.9 | 92.2 | 3.4 | 4.4 | Coarse sand |
| 21 | | 15.0-20.0 | 14.3 | 13.6 | 16.6 | 20.6 | 2.7 | 68.5 | 16.6 | 15.0 | sandy loam |
| Duplicate 14 | | 5.0-7.1 | 0.0 | 1.2 | 38.1 | 53.9 | 4.8 | 98.3 | BDL | 2.0 | fine sand |
| Duplicate 18 | | 12.7-13.8 | 0.4 | 10.6 | 59.0 | 26.4 | 2.1 | 98.6 | BDL | 1.8 | sand |
| STD | | | 1.3 | 8.6 | 15.4 | 13.1 | 4.0 | 58.7 | 23.2 | 18.2 | sandy loam |
| STD | | | 3.6 | 14.5 | 22.8 | 14.9 | 4.0 | 60.2 | 17.6 | 22.2 | sandy clay loam |



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## Table F.3
## Site C-HS4 Soil Sample Parameters

| ID# | Location | Depth | TN | TKN | Org N | NH3-N | NOx-N | TIN | P | K | Ca | Mg | Na | Ec | Cl | pH | BufpH | OrgMt | CEC | %C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ft | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | ds/m | mg/kg | | | % | calc | calc - % |
| 1 | BKG | 5.0-7.4 | 398.6 | 398.0 | 396.6 | 1.41 | 0.60 | 2.0 | 173.2 | 22.24 | 180.7 | 4.43 | 18.09 | 0.04 | 17.31 | 4.70 | 7.26 | 3.58 | 8.22 | 2.40 |
| 2 | | 7.4-8.0 | 264.7 | 264.7 | 263.2 | 1.46 | 0.05 | 1.5 | 154.6 | 16.80 | 73.70 | 4.72 | 14.99 | 0.02 | 5.28 | 4.49 | 7.10 | 2.84 | 8.69 | 1.90 |
| 3 | | 8.0-11.3 | 165.8 | 165.8 | 164.5 | 1.23 | 0.06 | 1.3 | 122.5 | 15.63 | 105.0 | 12.95 | 25.20 | 0.04 | 3.16 | 4.55 | 7.35 | 1.62 | 7.33 | 1.09 |
| 4 | | 11.3-12.2 | 746.2 | 746.2 | 744.2 | 2.00 | 0.02 | 2.0 | 142.7 | 18.76 | 109.3 | 14.72 | 20.74 | 0.06 | 6.20 | 4.56 | 6.84 | 4.18 | 11.33 | 2.80 |
| 5 | | 12.2-13.0 | 190.1 | 190.1 | 188.5 | 1.65 | -0.02 | 1.6 | 35.87 | 9.50 | 81.29 | 4.83 | 15.30 | 0.04 | 3.94 | 4.94 | 7.63 | 1.30 | 4.32 | 0.87 |
| 6 | | 13.0-14.4 | 21.9 | 22.0 | 21.1 | 0.88 | -0.10 | 0.8 | 1.11 | 6.68 | 61.20 | 0.50 | 9.84 | 0.02 | 4.42 | 5.55 | 7.95 | 0.52 | 1.31 | 0.35 |
| 7 | | 14.4-15.0 | 47.1 | 47.1 | 45.2 | 1.89 | -0.06 | 1.8 | 0.75 | 8.33 | 141.1 | 19.30 | 11.69 | 0.04 | 5.96 | 5.69 | 7.95 | 0.28 | 1.99 | 0.19 |
| 8 | | 15.0-18.9 | 77.4 | 77.5 | 75.1 | 2.37 | -0.00 | 2.4 | 6.74 | 12.44 | 191.1 | 83.89 | 20.53 | 0.26 | 7.33 | 4.66 | 7.90 | 0.50 | 3.67 | 0.34 |
| 9 | DP04 | 5.0-6.2 | 100.8 | 99.7 | 98.0 | 1.74 | 1.08 | 2.8 | 11.52 | 5.34 | 95.33 | 23.29 | 10.83 | 0.10 | 13.69 | 5.10 | 7.82 | 0.62 | 2.72 | 0.42 |
| 10 | | 6.2-7.3 | 91.4 | 90.3 | 88.7 | 1.59 | 1.13 | 2.7 | 27.18 | 7.13 | 117.7 | 24.28 | 10.86 | 0.08 | 9.93 | 5.54 | 7.82 | 0.70 | 2.89 | 0.47 |
| 11 | | 7.3-8.3 | 176.7 | 176.4 | 175.1 | 1.25 | 0.32 | 1.6 | 60.44 | 9.63 | 211.0 | 49.17 | 11.71 | 0.06 | 10.54 | 5.66 | 7.70 | 1.23 | 4.62 | 0.82 |
| 12 | | 8.3-10.0 | 50.9 | 50.4 | 49.3 | 1.10 | 0.53 | 1.6 | 25.13 | 6.63 | 135.2 | 32.22 | 10.00 | 0.06 | 5.76 | 5.51 | 7.85 | 0.43 | 2.75 | 0.29 |
| 13 | | 10.0-12.5 | 62.5 | 62.1 | 60.5 | 1.60 | 0.36 | 2.0 | 8.72 | 10.72 | 174.3 | 77.32 | 14.44 | 0.28 | 5.46 | 4.59 | 7.89 | 0.60 | 3.30 | 0.40 |
| 14 | E7 | 5.0-7.1 | 27.2 | 26.8 | 26.0 | 0.76 | 0.44 | 1.2 | 10.39 | 4.44 | 51.02 | 9.43 | 8.78 | 0.06 | 5.06 | 5.75 | 7.95 | 0.21 | 1.23 | 0.14 |
| 15 | | 7.1-7.8 | 194.2 | 193.9 | 192.5 | 1.49 | 0.29 | 1.8 | 142.3 | 4.54 | 63.63 | 11.79 | 15.33 | 0.18 | 10.82 | 4.33 | 7.63 | 1.71 | 4.16 | 1.15 |
| 16 | | 7.8-9.8 | 897.8 | 897.8 | 896.3 | 1.46 | 0.02 | 1.5 | 221.1 | 6.79 | 110.1 | 38.65 | 28.15 | 0.12 | 18.93 | 4.25 | 6.91 | 6.48 | 10.99 | 4.34 |
| 17 | | 9.8-12.7 | 201.8 | 201.6 | 200.3 | 1.24 | 0.25 | 1.5 | 36.85 | 5.46 | 64.93 | 8.72 | 13.59 | 0.06 | 6.34 | 4.93 | 7.79 | 1.06 | 2.81 | 0.71 |
| 18 | | 12.7-13.8 | 50.2 | 50.1 | 49.2 | 0.93 | 0.06 | 1.0 | 14.92 | 4.48 | 40.46 | 3.03 | 10.92 | 0.06 | 4.59 | 5.05 | 7.94 | 0.21 | 1.30 | 0.14 |
| 19 | | 13.8-14.1 | 132.1 | 131.9 | 130.5 | 1.36 | 0.18 | 1.5 | 103.8 | 4.87 | 79.67 | 10.73 | 10.25 | 0.14 | 6.29 | 4.78 | 7.83 | 0.91 | 2.42 | 0.61 |
| 20 | | 14.1-15.0 | 202.4 | 201.8 | 198.8 | 3.05 | 0.61 | 3.7 | 254.6 | 10.50 | 562.0 | 102.7 | 16.55 | 0.68 | 18.20 | 3.99 | 7.74 | 3.96 | 6.73 | 2.65 |
| 21 | | 15.0-20.0 | 452.0 | 451.1 | 442.5 | 8.58 | 0.85 | 9.4 | 521.0 | 57.50 | 1880 | 368.4 | 69.78 | 1.00 | 48.19 | 6.23 | 7.55 | 4.57 | 20.58 | 3.06 |
| 22 | | 20.0-21.0 | 607.0 | 605.9 | 598.9 | 6.94 | 1.15 | 8.1 | 653.9 | 59.73 | 2479 | 678.6 | 73.98 | 1.62 | 452.9 | 7.63 | 7.74 | 5.82 | 24.88 | 3.90 |
| 23 | | 21.0-22.0 | 286.5 | 285.6 | 281.2 | 4.39 | 0.88 | 5.3 | 315.9 | 29.38 | 2546 | 1171 | 32.72 | 1.56 | 329.2 | 7.71 | 7.86 | 1.83 | 25.79 | 1.23 |
| 24 | | 22.0-25.0 | 354.1 | 353.3 | 348.1 | 5.20 | 0.84 | 6.0 | 295.5 | 34.94 | 3221 | 1552 | 34.16 | 2.70 | 594.2 | 7.16 | 7.81 | 2.82 | 32.94 | 1.89 |

Notes:

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_X$.

[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$.

[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_X$.

D.O. - Dissolved oxygen

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

# Appendix G: Data Summary Reports

PRELIMINARY

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FLORIDA DEPARTMENT OF HEALTH

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.25

## C-HS4 Monitoring Data Summary Report No. 1

## Progress Report

April 2013

4423-001


HAZEN AND SAWYER
Environmental Engineers & Scientists

In association with

SCHOOL OF MINES 1874 COLORADO

AET
Applied Environmental Technology

OTIS ENVIRONMENTAL CONSULTANTS, LLC

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

## TASK C.25
## PROGRESS REPORT

## C-HS4 Monitoring
## Data Summary Report No. 1

**Prepared for:**

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

FDOH Contract CORCL

**April 2013**

**Prepared by:**

HAZEN AND SAWYER
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In Association With:

SCHOOL OF MINES
1874
COLORADO

# C-HS4 Monitoring
# Data Summary Report No. 1

## 1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 instrumentation report for the C-HS4 OSTDS system and plume documents the test area design, number and location of monitoring points, and preliminary field parameters from monitoring points for this Hillsborough County, Florida field site, and also includes preliminary sample collection and analyses.

## 2.0 Purpose

This report documents data that was collected in the first C-HS4 monitoring and sampling event which was conducted January 14 through January 17, 2013. The corresponding sample event report was submitted as C-HS4 Sample Event Report No. 1, April 2013, as a deliverable under Task C.24. The monitoring event consisted of water use measurement from the household water meter, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of effluent and groundwater samples and their analyses in a NELAC certified laboratory.

## 3.0 Materials and Methods

### 3.1 Project Site

The C-HS4 field site is also the B-HS2 passive nitrogen reduction system site located in Hillsborough County, FL adjacent to Eagle Lake and [redacted] Creek in a rural area. The Task B.6 installation report for the B-HS2 system documents the experimental system design which was installed in September 2012. The existing onsite sewage treatment and disposal system (OSTDS) consisted of a 1,050 gallon concrete septic tank located adjacent to the soil treatment unit which is a mounded drainfield (P.T.I.™ bundles). The new passive treatment system consists of a replacement 1,050 gallon two chamber con-

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crete primary tank; 300 gallon concrete recirculation tank; 900 gallon concrete Stage 1 unsaturated media filter; 300 gallon concrete pump tank; and 1,500 gallon two chamber concrete Stage 2 saturated media biofilter.

## 3.2 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the soil treatment unit as depicted in Figure 1. A 10-foot by 5-foot grid spacing was staked. Transect lines A through S run east-west, roughly parallel to the groundwater flow direction and increase (higher letter identification) moving southward from the drainfield. Transect lines 0 through 10 run north-south, roughly perpendicular to the groundwater flow direction and increase moving from the west to east. Based on initial screening data, 29 monitoring locations were chosen within the grid for standpipe piezometer installation. Groundwater monitoring points were installed in September and December 2012. Two types of monitoring point were installed using either hand or drilling methods: stainless steel drivepoints and standpipe piezometers. Stainless steel drivepoints consist of 1-foot screens with polypropylene tubing extending to the ground surface. Standpipe piezometers consist of either ¾-inch or 1-inch diameter PVC with a 1-foot or 5-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS3 Instrumentation Report for additional detail).

Each monitoring location was assigned a unique identification indicating grid location (self explanatory), and depth below ground surface (bottom of the well screen in feet). For example E03-8 is a standpipe piezometer sampler located on the grid at E03 at 8 feet below ground surface. A schematic of the C-HS4 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers and sample identification is included in Appendix A. A total of 51 specific monitoring locations were sampled during this first C-HS4 sampling event.

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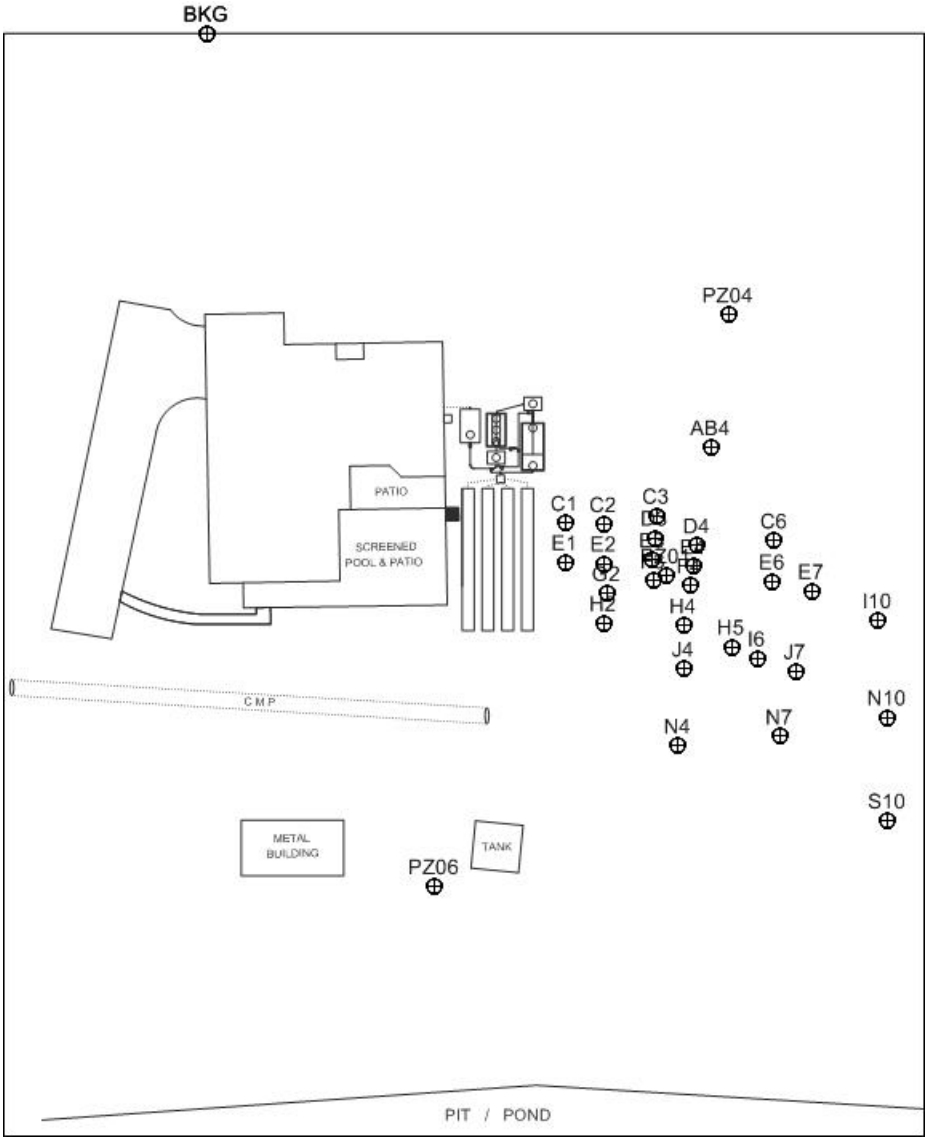


**Figure 1**
**C-HS4 Monitoring Network**

## 3.3 Operational Monitoring

A water meter for the home site was installed March 6, 2012. The water meter for the house site was read and recorded. A weather station (Balm in Wimauma, FL) is located approximately 10 miles from the site. Data from this weather station is available at the following website: http://fawn.ifas.ufl.edu/.

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## 3.4 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of groundwater flow. Groundwater levels were measured by inserting into monitoring wells a hand-cranked steel tape graduated in feet, to the nearest 0.01 ft. These measurements are then converted to groundwater surface elevations by using the surveyed elevation of the top of the monitoring well casing. The groundwater level within all the sampled standpipe piezometers was measured for this sampling event.

## 3.5 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected January 14 through January 17, 2013 for water quality analysis. A sample was collected from the septic tank to represent the effluent delivered to the drainfield. A peristaltic pump was used to collect STE directly into the analysis-specific containers. Groundwater samples were obtained using a peristaltic pump, which was attached directly to dedicated standpipe piezometer or drivepoint tubing. Samples were collected after sufficient purging (the sample was clear and pH and conductivity readings had stabilized) had occurred. Field parameters were then recorded.

The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms supplied by the laboratory. Chain of custody forms were used to document the transfer of samples from field personnel to the analytical laboratory.

In addition, field sample duplicates were collected immediately subsequent to the regular samples. The field duplicate samples taken include:

- STE
- PZ-AB4-08
- PZ-E3-08
- PZ-E7-08
- PZ-H4-15
- PZ-I10-08
- PZ-N10-08

Field parameters (pH, specific conductance, temperature (Temp), and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed in an overflowing plastic beaker as groundwater was being pumped. All samples were analyzed by the laboratory for: total alkalinity, total Kjeldahl nitrogen (TKN-N), ammonia nitrogen

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($NH_3$-N), nitrate/nitrite nitrogen ($NO_X$-N), and chloride (CL). At some of the locations, chemical oxygen demand (COD), total phosphorus (TP), anions, and cations were included. All analyses were performed by an independent and fully certified analytical laboratory (Southern Analytical Laboratory). Table 1 lists the analytical parameters, analytical methods, and detection limits for these analyses.

**Table 1**
**Analytical Parameters, Method of Analysis, and Detection Limits**

| Analytical Parameter | Method of Analysis | Method Detection Limit (mg/L) |
|---|---|---|
| Total Alkalinity as $CaCO_3$ | SM 2320B | 2 mg/L |
| Chemical Oxygen Demand (COD) | EPA 410.4 | 10 mg/L |
| 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 |
| Anions | | |
| Fluoride | EPA 300.0 | 0.01 mg/L |
| Chloride | EPA 300.0 | 0.05 mg/L |
| Nitrate-N | EPA 300.0 | 0.01 mg/L |
| Nitrite-N | EPA 300.0 | 0.01 mg/L |
| Orthophosphate-P | EPA 300.0 | 0.01 mg/L |
| Sulfate | EPA 300.0 | 0.20 mg/L |
| Cations | | |
| Boron | EPA 200.7 | 0.05 mg/L |
| Calcium | EPA 200.7 | 0.01 mg/L |
| Iron | EPA 200.7 | 0.02 mg/L |
| Magnesium | EPA 200.7 | 0.01 mg/L |
| Manganese | EPA 200.7 | 0.001 mg/L |
| Potassium | EPA 200.7 | 0.01 mg/L |
| Sodium | EPA 200.7 | 0.01 mg/L |

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### 3.6 Data Management

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

## 4.0 Results

### 4.1 Operational Data and Site Conditions

Table 2 summarizes the water meter readings and average daily water use for the residence at site C-HS4.

**Table 2**
**Water Meter Readings and Water Usage for C-HS4**

| Residence | Date Read | Meter Reading | Gallons/day |
|---|---|---|---|
| C-HS4 Residence | 3/6/2012 | 7,790 | Installed |
| | 1/1/2013 | 43,240 | 117.8 |
| | 2/5/2013 | 47,741 | 128.6 |

Daily recorded meteorological data is provided in Appendix B. Table 3 provides the daily averages leading up to and during the sample event.

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**Table 3**
**Meteorological Data Daily Averages Measured January 10 through January 17, 2013**

| Date | Temp Avg 60 cm (°F) | Temp Avg 2m (°F) | Temp Avg 10 m (°F) | Temp Soil Avg -10 cm (°F) | Dewpoint Avg 2m (°F) | Relative Humidity Avg 2m (%) | Rain Total 2m (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | ET (in/d) |
|---|---|---|---|---|---|---|---|---|---|---|
| 10-Jan-13 | 72.31 | 72.95 | 72.57 | 69.46 | 66.18 | 81 | 0 | 0 | 8.71 | 0.07 |
| 11-Jan-13 | 70.52 | 71.21 | 71.02 | 69.29 | 65.09 | 83 | 0 | 0 | 7.35 | 0.08 |
| 12-Jan-13 | 70.35 | 71.07 | 71.11 | 69.47 | 64.07 | 80 | 0 | 0 | 7.04 | 0.07 |
| 13-Jan-13 | 70.18 | 70.88 | 70.89 | 69.71 | 63.93 | 80 | 0 | 0 | 5.8 | 0.07 |
| 14-Jan-13 | 67.35 | 68.29 | 68.85 | 69.49 | 61.39 | 81 | 0 | 0 | 5.08 | N/A |
| 15-Jan-13 | 67.81 | 68.47 | 69.11 | 68.84 | 62.15 | 82 | 0 | 0 | 4.32 | 0.07 |
| 16-Jan-13 | 68.28 | 69.07 | 69.63 | 69.45 | 61.53 | 80 | 0 | 0 | 4.27 | 0.07 |
| 17-Jan-13 | 60.71 | 61.24 | 61.49 | 68.12 | 57.81 | 89 | 0.04 | 0.01 | 8.64 | 0.06 |

## 4.2 Groundwater Levels

Water levels were measured at all standpipe piezometers sampled January 14 through January 17, 2013 for this sampling event as summarized in Table 4. Figure 2 illustrates the surficial groundwater contours as measured within the standpipe piezometers.

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**Table 4**
**Standpipe Piezometer Groundwater Levels January 16, 2013**

| Identification | Water Table El[1] (ft) | Identification | Water Table El[1] (ft) |
|---|---|---|---|
| PZ01 | 11.63 | PZ-F3-08 | DRY |
| PZ02 | 20.07 | PZ-F3-15 | 11.83 |
| PZ03 | DRY | PZ-F4-08 | 11.53 |
| BKG-10 | 17.37 | PZ-F4-15 | 11.51 |
| BKG-15 | 16.54 | PZ-G1 | DRY |
| PZ04 | 13.04 | PZ-G2-12.5 | NR |
| PZ05 | NR | PZ-H4-08 | 11.44 |
| PZ06 | 13.12 | PZ-H4-15 | 11.37 |
| PZ-AB4-08 | 11.97 | PZ-H5-11.5 | 11.23 |
| PZ-AB4-15 | 12.01 | PZ-I6-08 | 11.17 |
| PZ-C1 | 13.87 | PZ-I6-15 | 11.24 |
| PZ-C2 | 13.43 | PZ-I10-08 | 11.02 |
| PZ-C3-08 | 12.45 | PZ-I10-15 | 11.07 |
| PZ-C3-15 | 12.12 | PZ-J4-08 | DRY |
| PZ-C6-08 | 11.23 | PZ-J4-15 | 11.35 |
| PZ-C6-15 | 11.23 | PZ-J7-08 | 11.18 |
| PZ-D3-08 | 12.40 | PZ-J7-15 | 11.15 |
| PZ-D3-15 | 12.34 | PZ-N4-08 | 11.40 |
| PZ-D4-08 | 11.60 | PZ-N4-15 | 11.40 |
| PZ-D4-15 | 11.48 | PZ-N7-08 | 11.21 |
| PZ-E1 | 13.71 | PZ-N7-15 | 11.18 |
| PZ-E2 | 12.78 | PZ-N10-08 | 11.12 |
| PZ-E3-08 | 12.31 | PZ-N10-15 | 11.08 |
| PZ-E3-15 | 12.24 | PZ-S10-08 | 11.09 |
| PZ-E4-08 | 11.52 | | |
| PZ-E4-15 | 11.45 | | |
| PZ-E5-08 | 11.30 | | |
| PZ-E5-15 | 11.28 | | |
| PZ-E6-08 | 11.21 | | |
| PZ-E6-15 | 11.23 | | |
| PZ-E7-08 | 11.15 | | |
| PZ-E7-15 | 11.19 | | |

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

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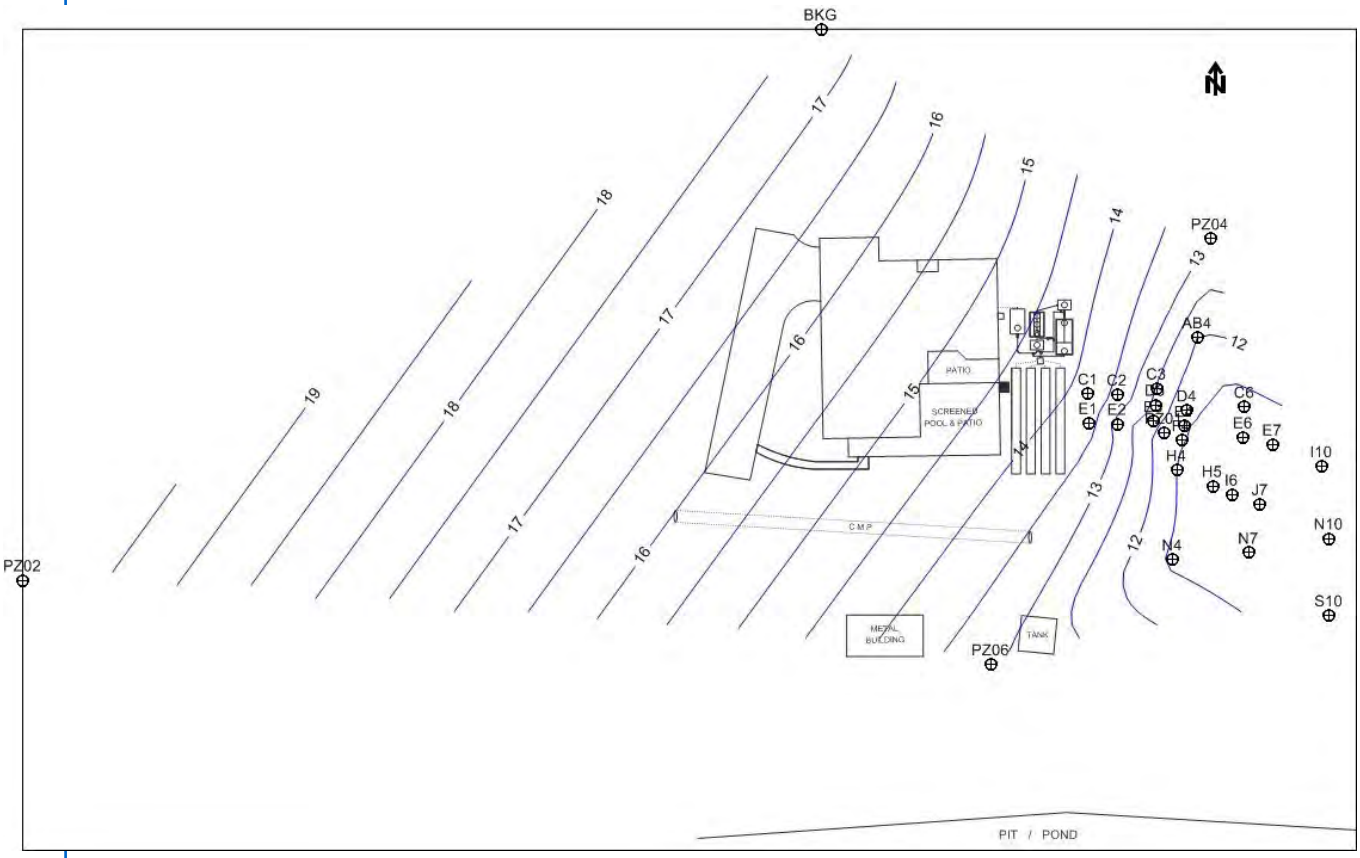


**Figure 2**
**Surficial Groundwater Contours January 16, 2013**

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## 4.3 Water Quality Analyses

### 4.3.1 Field Parameters

Field parameters (temperature, pH, dissolved oxygen (DO), and specific conductivity) were measured at all the sampling locations prior to sample collection and are provided in Appendix C. Variations in measured values between monitoring points were expected as the chemical composition of the groundwater varied due to the discharge of STE.

### 4.3.2 Correlations

Correlations between nitrogen parameters were investigated to determine if simple to measure field parameters could continue to be used to locate contaminant plumes. Figure 3 shows a scatter plot of nitrogen vs conductivity for groundwater samples. A strong linear correlation is not observed for conductivity (Figure 3).

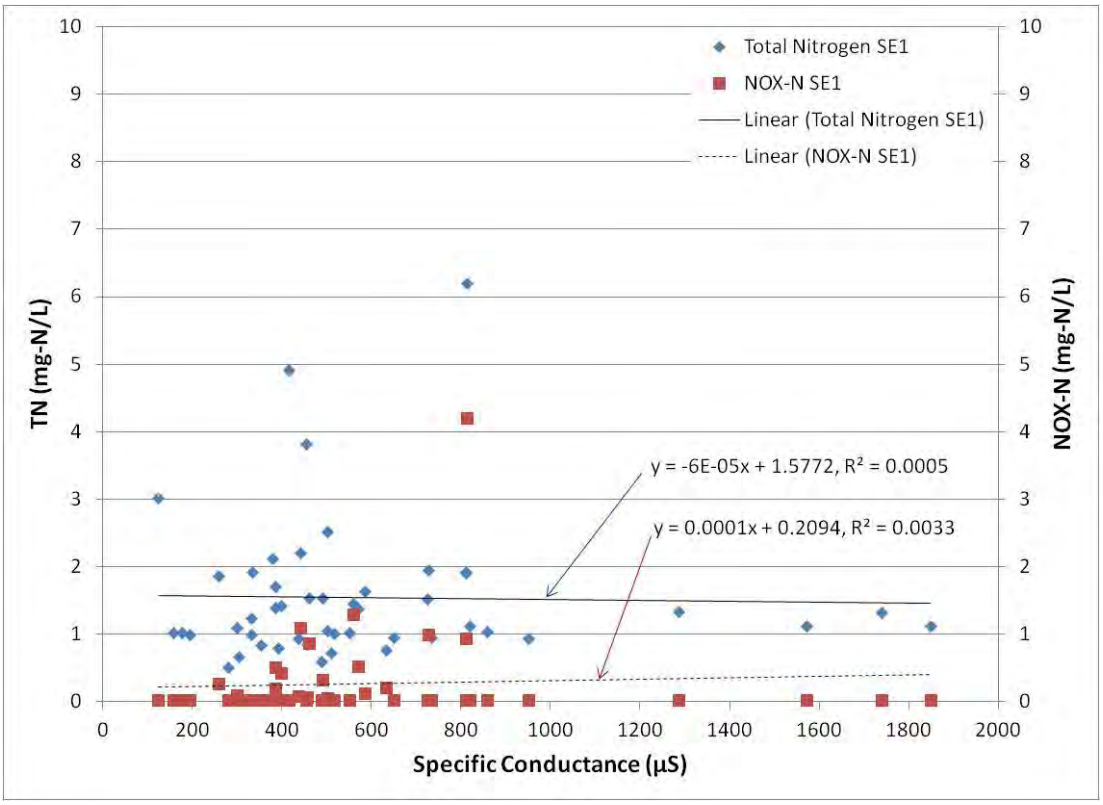


**Figure 3**
**Correlation Between the Specific Conductance (uS) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)**

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### 4.3.3 Analytical Parameters

In addition to measuring field parameters, all samples were analyzed for total alkalinity (as $CaCO_3$), total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH3-N), and nitrate/nitrite nitrogen (NOX-N). At some of the locations, total alkalinity, chemical oxygen demand (COD), total phosphorus (TP), anions, and cations were included. By analyzing for the different nitrogen species, a clearer picture is gained on the transformation of nitrogen within the plume. The complete water quality analytical results for Sample Event No. 1 are listed in Table C.1 of Appendix C. The laboratory report containing the raw analytical data is included in Appendix D which includes the chain of custody forms and groundwater sampling logs.

### 4.3.4 Nitrate/Nitrite Concentrations with Groundwater Depth

The general trend of the nitrogen plume at the site can be somewhat determined with the data collected to date. The piezometers installed at different locations and depths below the ground surface were mapped in **Surfer**. Although **Surfer** is an informative tool for mapping the information from the site, it cannot project a 3-dimensional view of concentrations with depth. Based on the distribution of points with depth, two "slices" were chosen for the groundwater data surrounding the system. A **Surfer** schematic illustrating the "slices" of NOX concentration with depth from January 2013 are presented in Figures 4 and 5. The two slices were separated by groundwater elevation above sea level (NGVD29 datum). Similar slices of TKN concentration with depth are presented in Figures 6 and 7. The maps show contours of the concentrations as estimated using the "natural neighbor" gridding method in **Surfer™**. This method was used because it did not extend results past data points, as was noted on previous project results.

The shallow piezometer NOX results near the system (Figure 4) appear to show the plume to be confined in a south-southeast direction from the drainfield. The deeper piezometers (Figure 5) indicate relatively low NOX concentrations at this point in time, similar to background levels. However, as evident in the comparison of the NOX and TKN plots of the deeper piezometers (Figures 5 and 7) there seems to be a background concentration of TKN. The specific conductance plots (Figure 8 and 9) are similar to the nitrogen plots.

In addition, the shallow piezometer plots can be compared to data collected prior to the installation of the passive nitrogen reduction system (Figures 10, 11 and 12). A table summarizing the water quality data and laboratory report are provided in Appendix E for the samples collected September 6, 2012. As expected, the plots indicate that the NOX concentration in the area near the drainfield has significantly decreased following the installation of the passive nitrogen reduction system.

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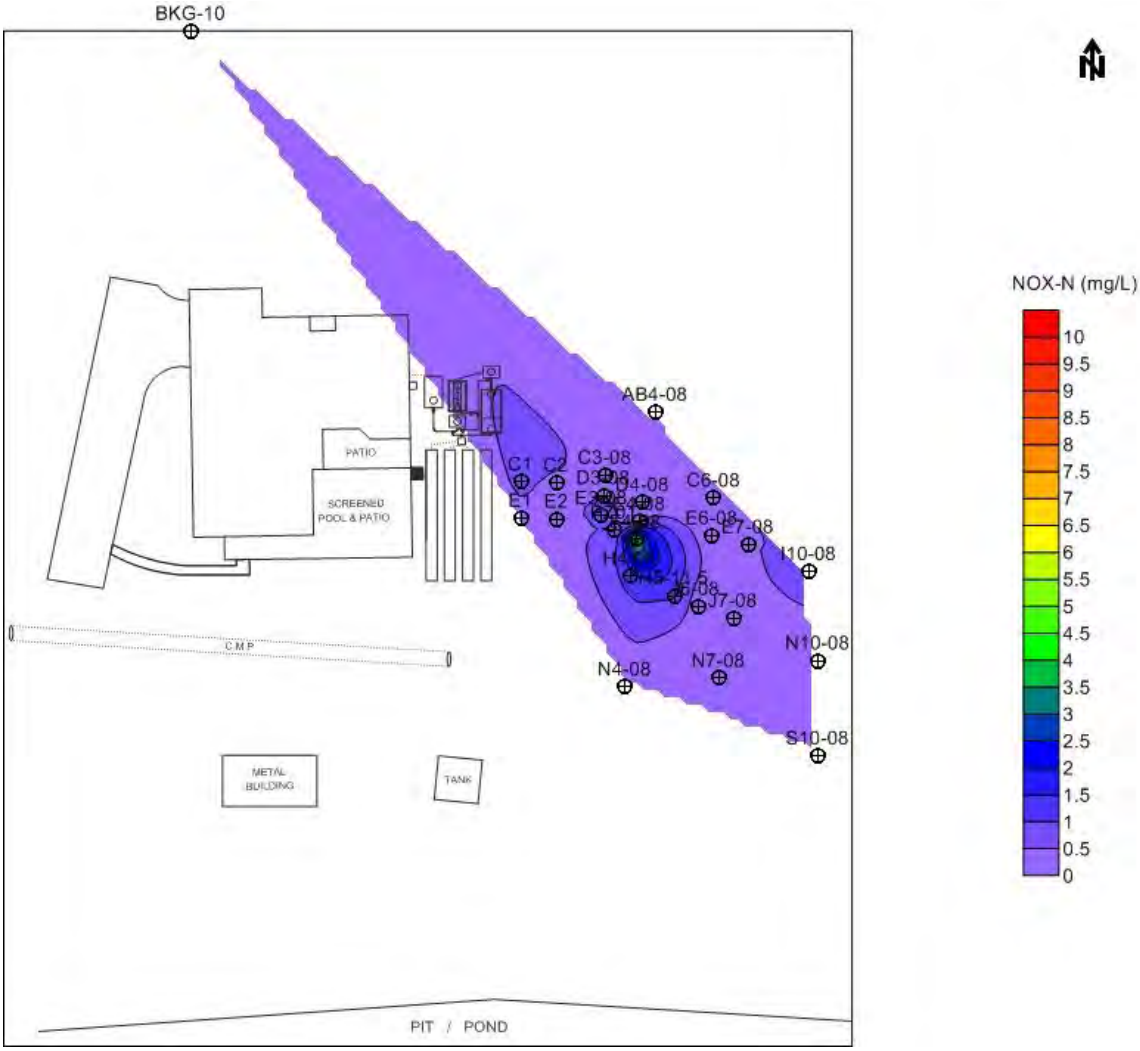


**Figure 4**
**Shallow GW Elev 7.9-17.4 ft above MSL (January 2013 Sample Event 1)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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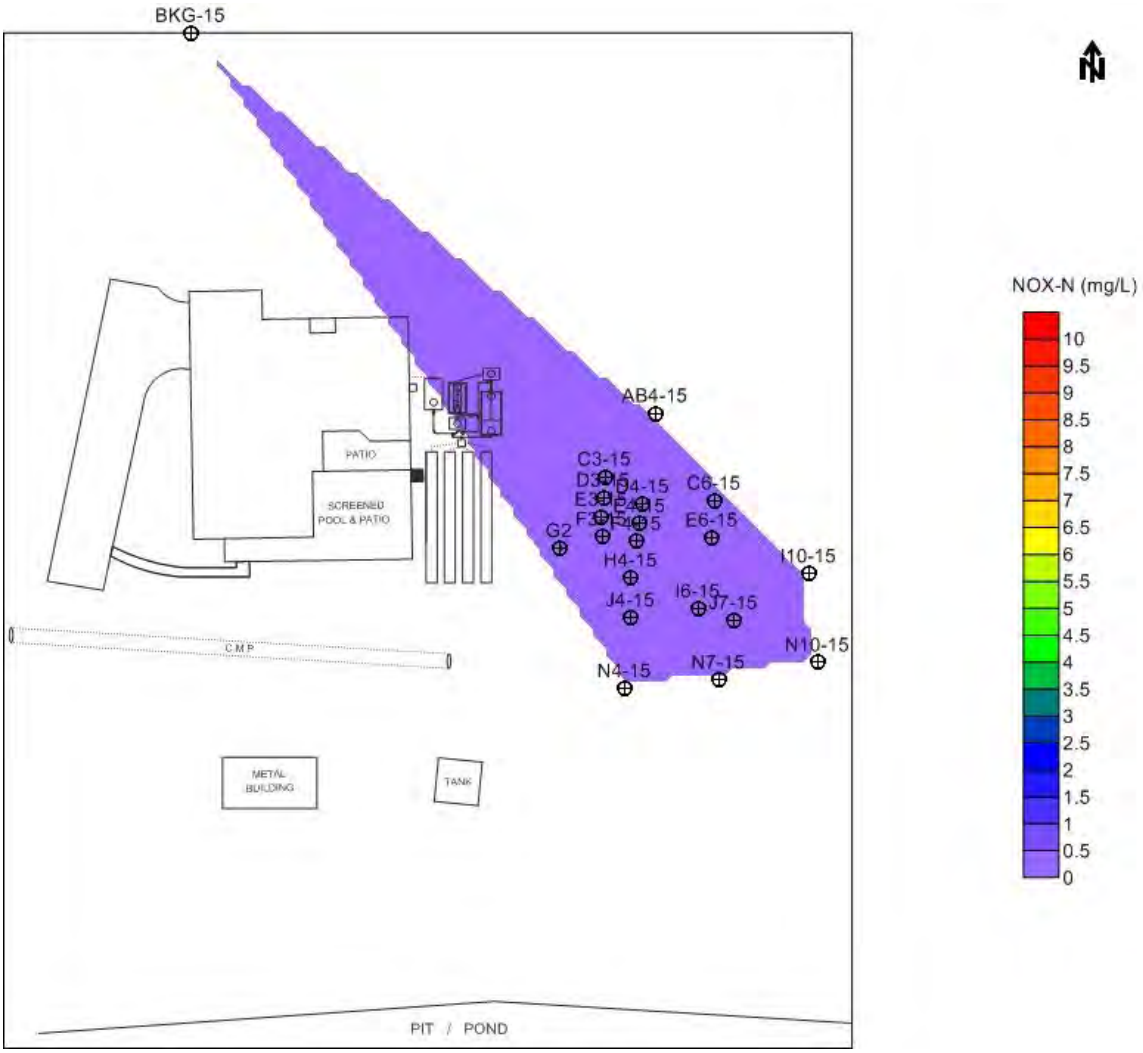


**Figure 5**
**Deep GW Elev 2.6-6.1 ft above MSL (January 2013 Sample Event 1)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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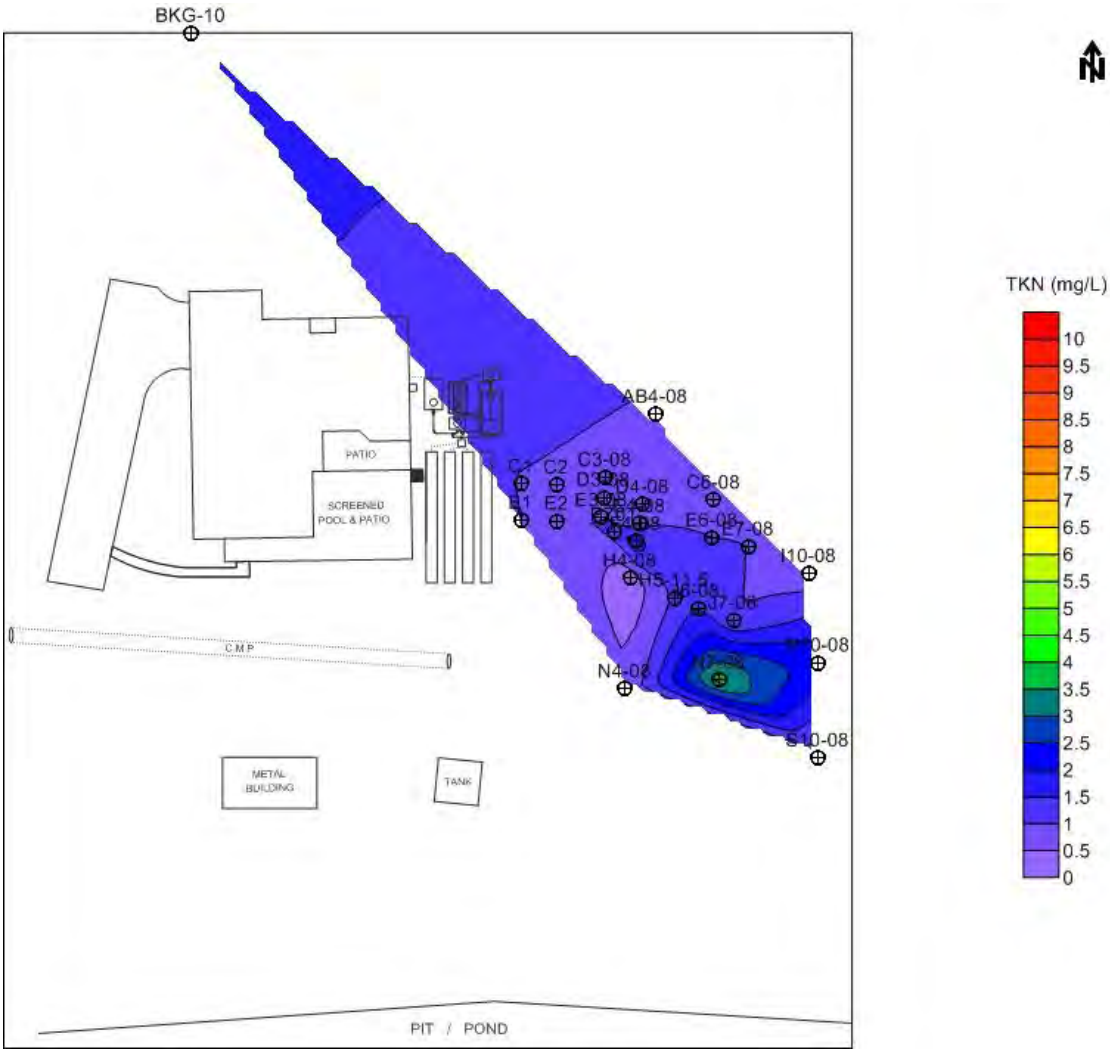


**Figure 6**
**Shallow GW Elev 7.9-17.4 ft above MSL (January 2013 Sample Event 1)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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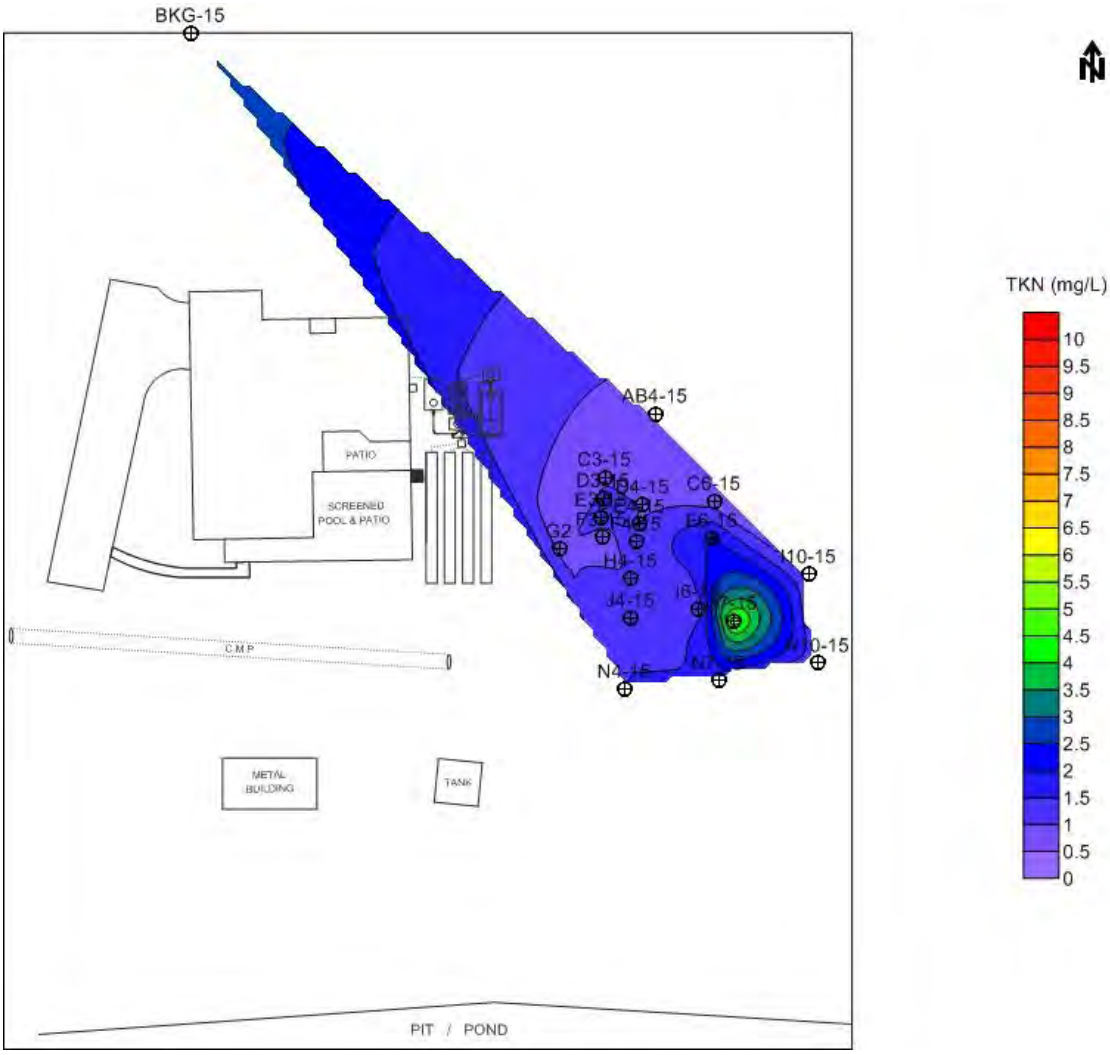


**Figure 7**
**Deep GW Elev 2.6-6.1 ft above MSL (January 2013 Sample Event 1)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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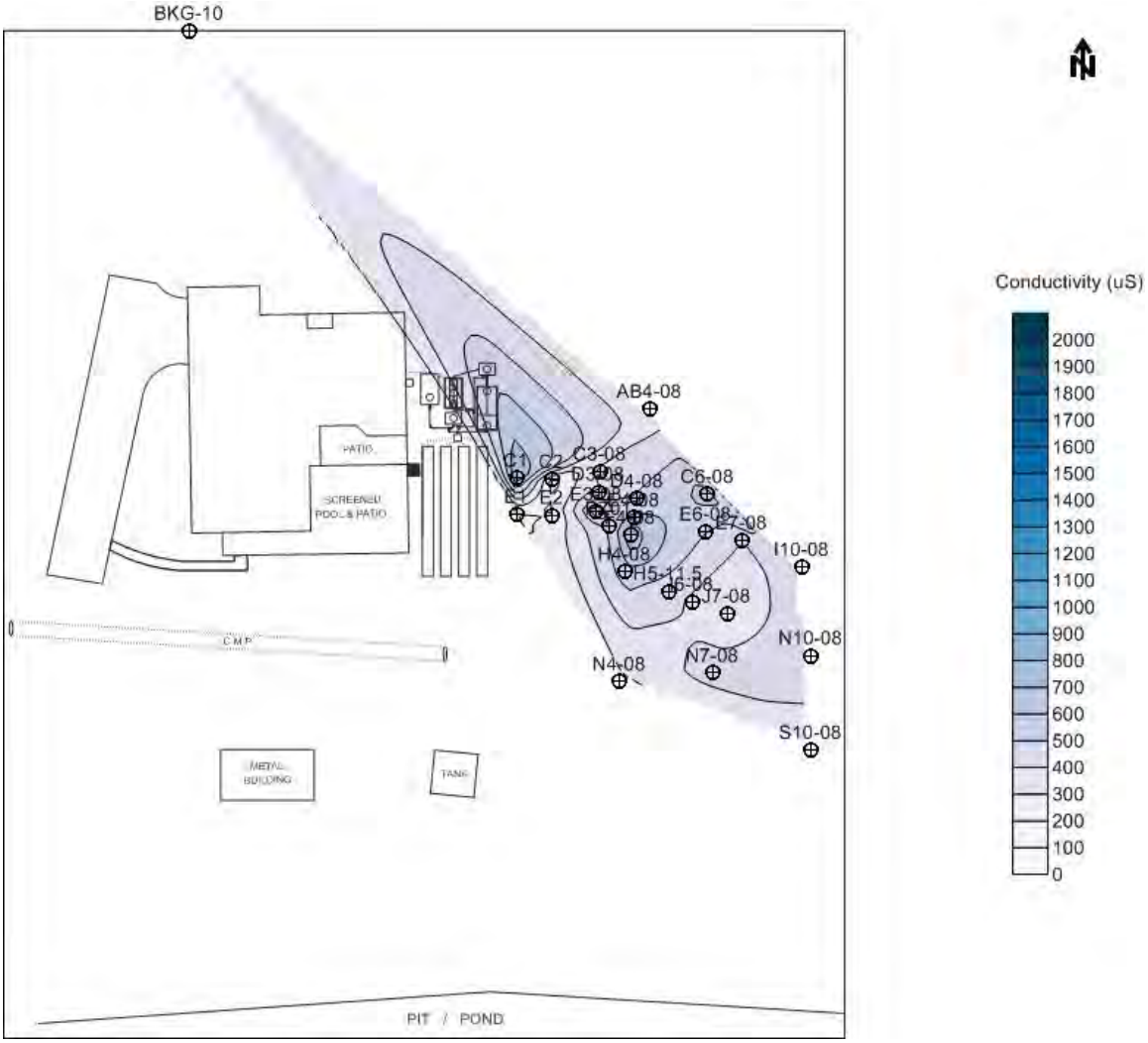


**Figure 8**
**Shallow GW Elev 7.9-17.4 ft above MSL (January 2013 Sample Event 1)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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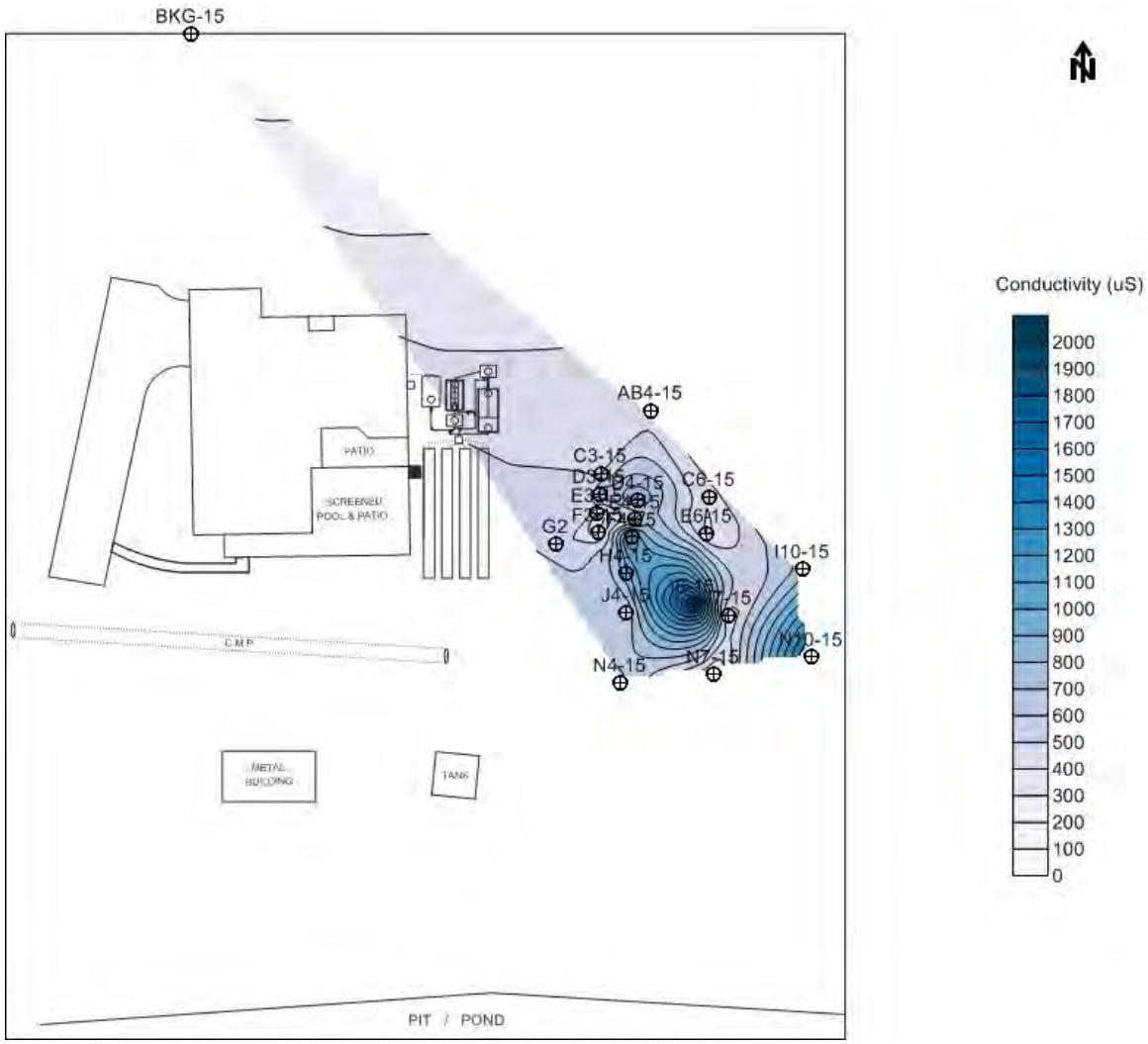


**Figure 9**
**Deep GW Elev 2.6-6.1 ft above MSL (January 2013 Sample Event 1)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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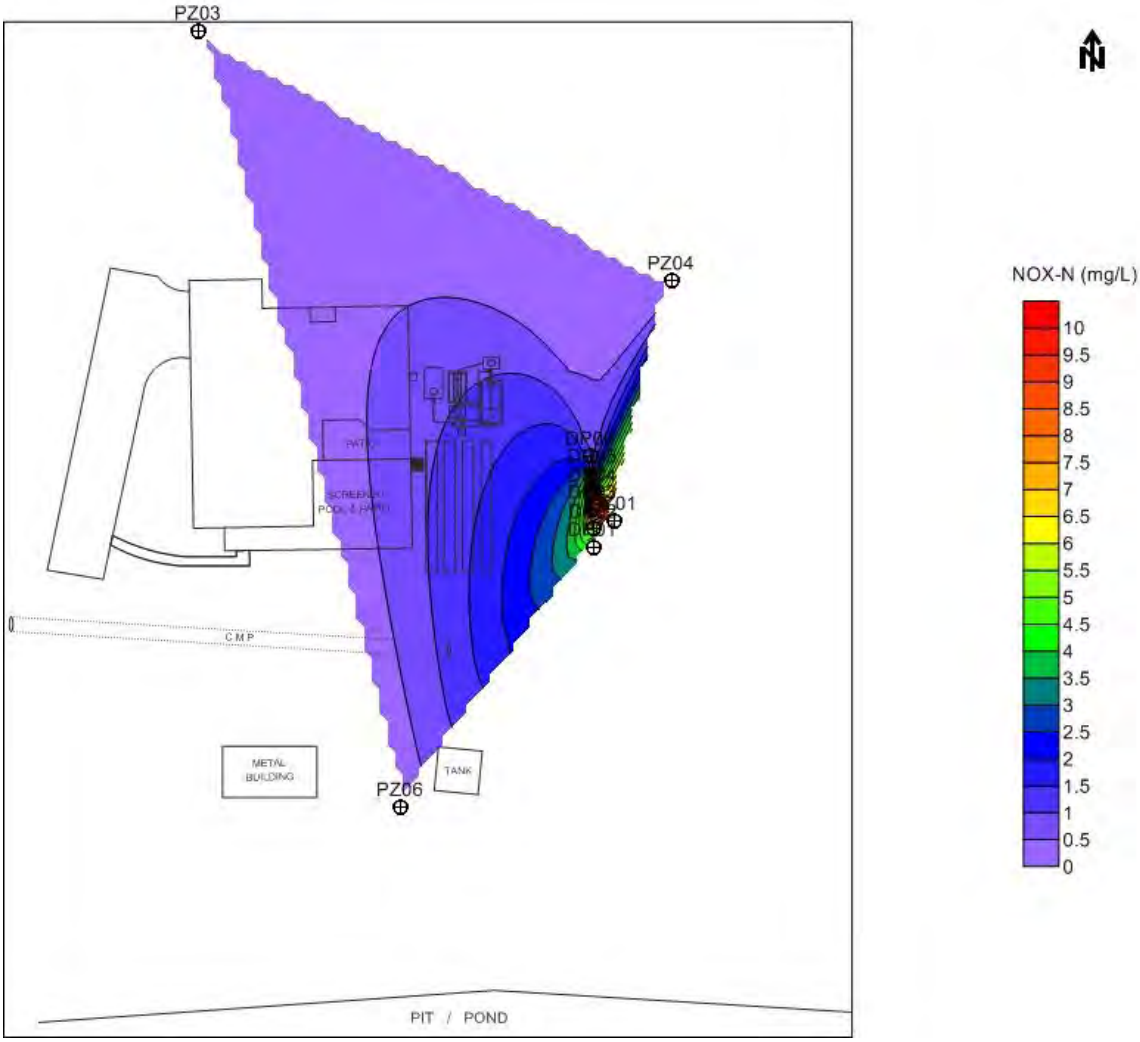


**Figure 10**
**Shallow GW (September 6, 2012)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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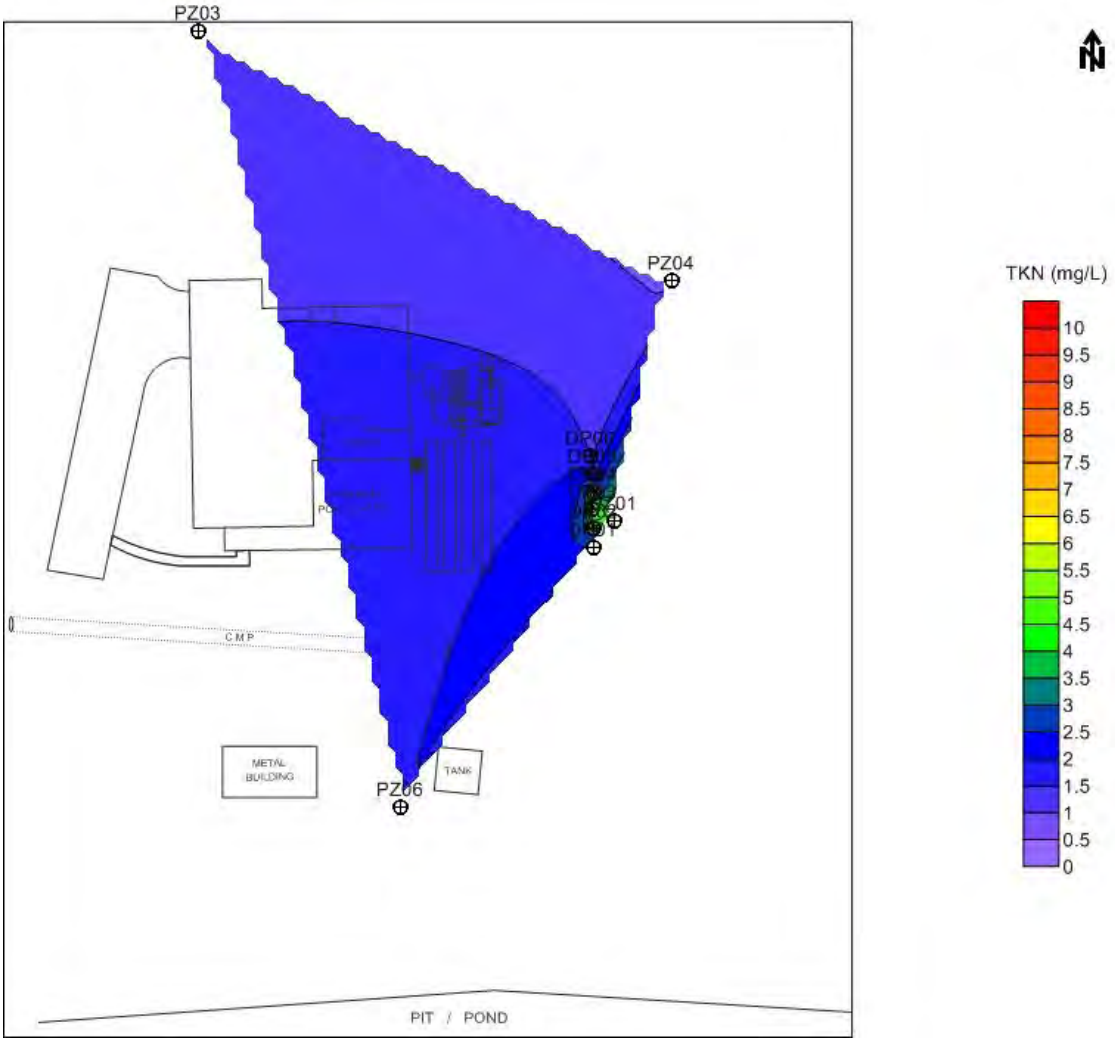


**Figure 11**
**Shallow GW (September 6, 2012)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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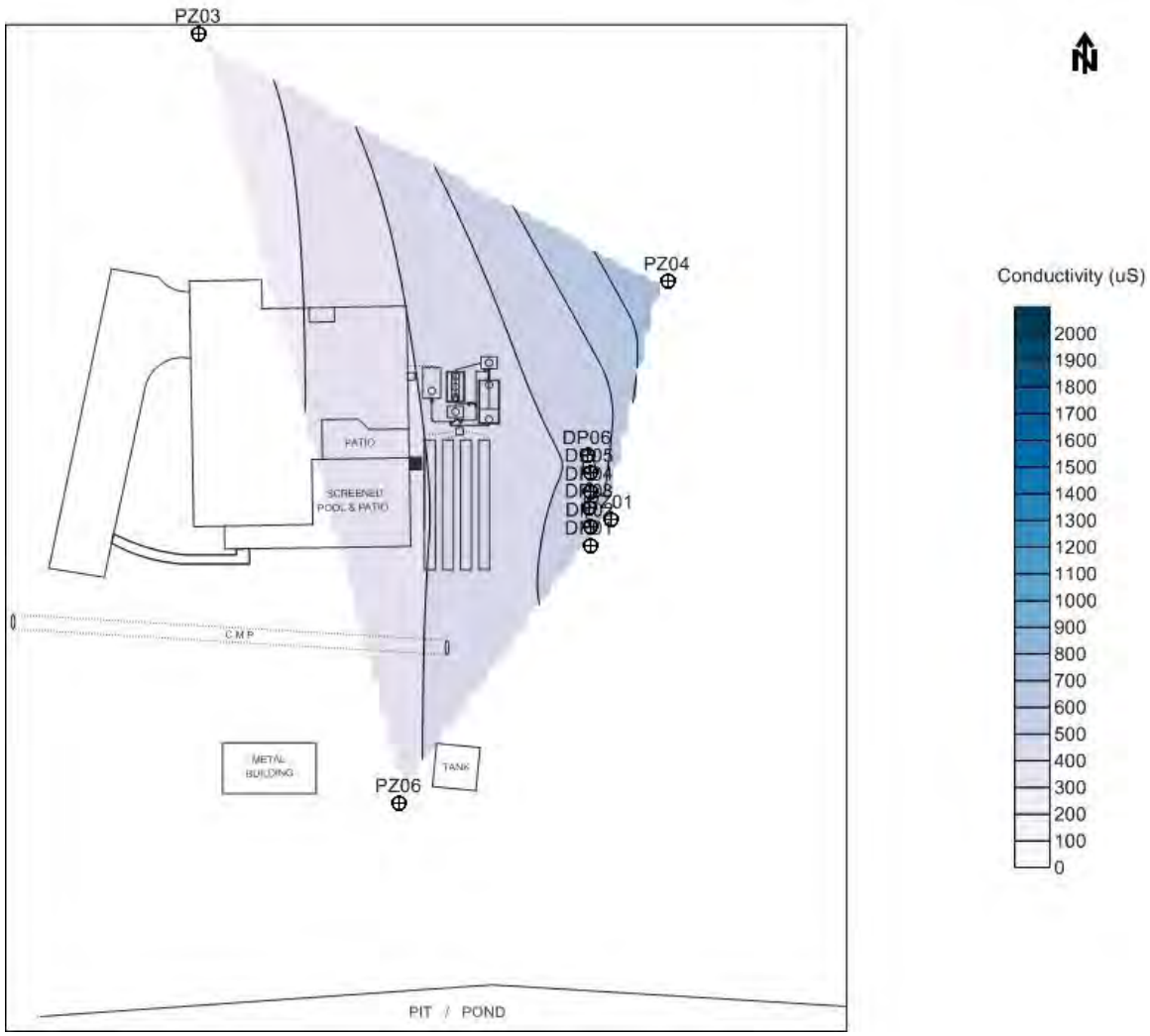


**Figure 12**
**Shallow GW (September 6, 2012)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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# 5.0 C-HS4 Data Summary Report No. 1: Summary and Recommendations

## 5.1 Summary

The results of this first sampling event served to identify the general trend of the NOX plume and provide the basis upon which to make adjustments and modifications to future monitoring locations. Results of Sample Event No. 1 indicate that:

- The nitrogen plume appears to be flowing in a south-southeast direction and similar to the groundwater contours.
- As expected, the plots indicate that the NOX concentration in the area near the drainfield has significantly decreased following the installation of the passive nitrogen reduction system.

## 5.2 Conclusions

The project team will continue to evaluate all results including those that result from implementation of the recommendations and make further adaptations as needed (observational method). Following is a list with select recommendations which the next sample event will address:

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

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# Appendix A: C-HS4 Sample Identification

**Table A.1**

**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 1 | C-HS3-STE | Wastewater | N/A | N/A |
| 2 | PZ01 | 1" Standpipe Piezometer, 5' screen | 19.08 | 9.48 |
| 3 | PZ02 | 1" Standpipe Piezometer, 5' screen | 28.72 | 16.54 |
| 4 | PZ03 | 1" Standpipe Piezometer, 5' screen | 24.85 | 19.00 |
| 5 | PZ04 | 1" Standpipe Piezometer, 5' screen | 18.82 | 13.02 |
| 6 | PZ05 | 1" Standpipe Piezometer, 5' screen | 20.79 | NR |
| 7 | PZ06 | 1" Standpipe Piezometer, 5' screen | 22.17 | 11.02 |
| 8 | BKG-10 | 1" Standpipe Piezometer, 5' screen | 24.60 | 15.22 |
| 9 | BKG-15 | 3/4" Standpipe Piezometer, 1' screen | 24.60 | 10.17 |
| 10 | PZ-AB4-08 | 1" Standpipe Piezometer, 5' screen | 18.65 | 10.27 |
| 11 | PZ-AB4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.59 | 4.09 |
| 12 | PZ-C1 | 1" Standpipe Piezometer, 5' screen | 22.85 | 12.70 |
| 13 | PZ-C2 | 1" Standpipe Piezometer, 5' screen | 21.23 | 9.73 |
| 14 | PZ-C3-08 | 1" Standpipe Piezometer, 5' screen | 19.63 | 11.83 |
| 15 | PZ-C3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.09 |
| 16 | PZ-C6-08 | 1" Standpipe Piezometer, 5' screen | 17.53 | 9.03 |
| 17 | PZ-C6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.53 | 3.13 |
| 18 | PZ-D3-08 | 1" Standpipe Piezometer, 5' screen | 19.62 | 11.63 |
| 19 | PZ-D3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.08 |
| 20 | PZ-D4-08 | 1" Standpipe Piezometer, 5' screen | 18.77 | 10.89 |
| 21 | PZ-D4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.76 | 4.21 |
| 22 | PZ-E1 | 1" Standpipe Piezometer, 5' screen | 22.92 | 11.42 |
| 23 | PZ-E2 | 1" Standpipe Piezometer, 5' screen | 21.03 | 9.33 |
| 24 | PZ-E3-08 | 1" Standpipe Piezometer, 5' screen | 19.66 | 11.41 |
| 25 | PZ-E3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 4.98 |
| 26 | PZ-E4-08 | 1" Standpipe Piezometer, 5' screen | 18.70 | 10.80 |
| 27 | PZ-E4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.69 | 4.31 |
| 28 | PZ-E5-08 | 1" Standpipe Piezometer, 5' screen | 18.15 | 10.25 |
| 29 | PZ-E5-15 | 3/4" Standpipe Piezometer, 1' screen | 18.13 | 3.56 |
| 30 | PZ-E6-08 | 1" Standpipe Piezometer, 5' screen | 17.83 | 9.95 |

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**Table A.1 (continued)**
**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 31 | PZ-E6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.85 | 3.45 |
| 32 | PZ-E7-08 | 1" Standpipe Piezometer, 5' screen | 17.55 | 8.87 |
| 33 | PZ-E7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.55 | 3.05 |
| 34 | PZ-F3-08 | 1" Standpipe Piezometer, 5' screen | 19.54 | 11.59 |
| 35 | PZ-F3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.55 | 5.05 |
| 36 | PZ-F4-08 | 1" Standpipe Piezometer, 5' screen | 18.83 | 11.13 |
| 37 | PZ-F4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.88 | 4.48 |
| 38 | PZ-G1 | 1" Standpipe Piezometer, 5' screen | 20.72 | 12.82 |
| 39 | PZ-G2-12.5 | 2" Standpipe Piezometer, 7.5' screen | 21.03 | 8.88 |
| 40 | PZ-H4-08 | 1" Standpipe Piezometer, 5' screen | 19.19 | 10.91 |
| 41 | PZ-H4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.22 | 4.45 |
| 42 | PZ-H5-11.5 | 2" Standpipe Piezometer, 7.5' screen | 18.58 | 7.86 |
| 43 | PZ-I6-08 | 1" Standpipe Piezometer,5' screen | 18.42 | 9.37 |
| 44 | PZ-I6-15 | 3/4" Standpipe Piezometer, 1' screen | 18.42 | 3.87 |
| 45 | PZ-I10-08 | 1" Standpipe Piezometer, 5' screen | 16.87 | 8.95 |
| 46 | PZ-I10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.92 | 4.42 |
| 47 | PZ-J4-08 | 1" Standpipe Piezometer, 5' screen | 19.26 | 11.32 |
| 48 | PZ-J4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.25 | 4.73 |
| 49 | PZ-J7-08 | 1" Standpipe Piezometer, 5' screen | 17.86 | 9.41 |
| 50 | PZ-J7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.87 | 3.45 |
| 51 | PZ-N4-08 | 1" Standpipe Piezometer, 5' screen | 19.28 | 11.00 |
| 52 | PZ-N4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.30 | 4.82 |
| 53 | PZ-N7-08 | 1" Standpipe Piezometer, 5' screen | 18.01 | 9.46 |
| 54 | PZ-N7-15 | 3/4" Standpipe Piezometer, 1' screen | 18.03 | 3.23 |
| 55 | PZ-N10-08 | 1" Standpipe Piezometer, 5' screen | 16.92 | 9.17 |
| 56 | PZ-N10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.83 | 2.59 |
| 57 | PZ-S10-08 | 1" Standpipe Piezometer, 5' screen | 17.03 | 8.78 |
| 58 | DP01 | SST Drivepoint | 19.25 | |
| 59 | DP02 | SST Drivepoint | 19.24 | |
| 60 | DP03 | SST Drivepoint | 19.49 | |
| 61 | DP04 | SST Drivepoint | 19.22 | |
| 62 | DP05 | SST Drivepoint | 19.25 | |
| 63 | DP06 | SST Drivepoint | 19.38 | |

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

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# Appendix B: Weather Station Data

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# Table B.1
# Daily Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm Temp avg (F) | 60cm Temp min (F) | 60cm Temp max (F) | 2m Temp avg (F) | 2m Temp min (F) | 2m Temp max (F) | 10m Temp avg (F) | 10m Temp min (F) | 10m Temp max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min (in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Dec-12 | 63.76 | 52.12 | 78.49 | 64.86 | 53.65 | 78.67 | 64.80 | 53.65 | 76.96 | 67.11 | 65.68 | 68.45 | 56.95 | 78 | 0 | 0 | 145.70 | 7.05 | 1.30 | 19.57 | 47 | 0.07 |
| 2-Dec-12 | 67.54 | 58.41 | 81.30 | 68.27 | 59.29 | 80.94 | 68.03 | 60.04 | 79.74 | 67.79 | 66.65 | 69.21 | 59.85 | 78 | 0 | 0 | 154.15 | 6.92 | 0.63 | 24.23 | 64 | 0.07 |
| 3-Dec-12 | 67.51 | 57.58 | 81.52 | 68.30 | 59.20 | 81.25 | 68.53 | 62.22 | 79.03 | 68.58 | 67.57 | 69.93 | 59.80 | 77 | 0 | 0 | 130.55 | 6.51 | 1.53 | 19.07 | 73 | 0.07 |
| 4-Dec-12 | 64.89 | 53.33 | 79.57 | 65.89 | 54.73 | 79.21 | 66.86 | 57.88 | 77.38 | 68.08 | 66.56 | 69.44 | 55.92 | 74 | 0 | 0 | 157.37 | 6.53 | 1.77 | 16.73 | 93 | 0.06 |
| 5-Dec-12 | 65.88 | 53.82 | 79.86 | 66.80 | 55.71 | 79.11 | 67.10 | 57.90 | 77.20 | 68.13 | 66.58 | 69.53 | 58.81 | 77 | 0 | 0 | 129.37 | 5.19 | 0.07 | 15.50 | 68 | 0.06 |
| 6-Dec-12 | 68.13 | 60.06 | 80.62 | 68.79 | 60.67 | 80.29 | 68.76 | 61.41 | 78.28 | 69.19 | 68.04 | 70.56 | 61.71 | 80 | 0 | 0 | 135.09 | 5.71 | 0.90 | 16.27 | 73 | 0.07 |
| 7-Dec-12 | 66.10 | 59.81 | 79.43 | 66.70 | 60.75 | 79.09 | 66.84 | 60.73 | 77.56 | 69.35 | 68.38 | 70.70 | 62.37 | 87 | 0 | 0 | 117.78 | 5.31 | 0.33 | 13.60 | 59 | 0.06 |
| 8-Dec-12 | 70.14 | 61.65 | 82.47 | 70.50 | 62.37 | 82.02 | 70.01 | 63.37 | 80.96 | 70.03 | 69.01 | 71.40 | 65.92 | 87 | 0.2 | 0.05 | 107.49 | 4.62 | 0.30 | 13.17 | 106 | 0.07 |
| 9-Dec-12 | 68.80 | 59.23 | 79.83 | 69.43 | 60.80 | 79.20 | 69.39 | 63.55 | 77.95 | 70.63 | 69.24 | 72.19 | 65.97 | 90 | 0.01 | 0.01 | 138.07 | 3.14 | 0.00 | 46.07 | 343 | 0.06 |
| 10-Dec-12 | 69.98 | 59.27 | 82.63 | 70.65 | 61.03 | 82.74 | 70.49 | 62.85 | 81.45 | 70.08 | 68.83 | 71.15 | 67.87 | 91 | 0.67 | 0.29 | 74.68 | 6.92 | 0.07 | 22.33 | 172 | 0.07 |
| 11-Dec-12 | 71.01 | 66.13 | 79.14 | 71.51 | 66.67 | 79.18 | 71.13 | 66.61 | 77.94 | 70.80 | 69.89 | 71.89 | 70.01 | 95 | 0.22 | 0.15 | 70.42 | 4.87 | 0.00 | 15.80 | 190 | 0.06 |
| 12-Dec-12 | 72.19 | 64.65 | 81.50 | 72.71 | 65.35 | 80.91 | 72.37 | 65.91 | 79.56 | 71.39 | 70.25 | 72.61 | 70.02 | 92 | 0.05 | 0.05 | 89.79 | 4.97 | 0.07 | 16.33 | 197 | 0.06 |
| 13-Dec-12 | 63.81 | 54.64 | 70.11 | 63.92 | 54.97 | 70.57 | 63.35 | 55.04 | 70.16 | 70.91 | 69.53 | 71.76 | 60.22 | 88 | 0 | 0 | 108.11 | 8.81 | 2.10 | 20.43 | 10 | 0.05 |
| 14-Dec-12 | 58.71 | 54.30 | 69.13 | 58.77 | 54.34 | 68.77 | 58.30 | 54.07 | 67.06 | 68.61 | 67.87 | 69.46 | 55.72 | 90 | 0 | 0 | 116.53 | 7.91 | 2.10 | 16.70 | 29 | 0.05 |
| 15-Dec-12 | 62.96 | 53.94 | 77.52 | 63.67 | 54.45 | 77.34 | 63.87 | 54.66 | 75.83 | 68.22 | 66.96 | 69.87 | 59.49 | 88 | 0 | 0 | 116.81 | 5.24 | 0.70 | 13.90 | 69 | 0.06 |
| 16-Dec-12 | 66.67 | 55.81 | 80.85 | 67.48 | 57.47 | 80.55 | 67.86 | 60.12 | 78.87 | 68.30 | 66.67 | 69.96 | 61.95 | 85 | 0 | 0 | 136.44 | 4.38 | 0.07 | 15.57 | 122 | 0.06 |
| 17-Dec-12 | 68.21 | 55.76 | 80.56 | 69.08 | 57.83 | 80.80 | 69.15 | 61.48 | 79.27 | 68.90 | 67.37 | 70.34 | 64.11 | 86 | 0 | 0 | 139.08 | 5.34 | 0.00 | 18.93 | 185 | 0.06 |
| 18-Dec-12 | 68.34 | 53.82 | 78.67 | 69.04 | 55.38 | 78.71 | 68.72 | 56.26 | 77.22 | 69.73 | 68.90 | 71.08 | 64.93 | 88 | 0 | 0 | 129.79 | 6.21 | 0.83 | 21.53 | 274 | 0.06 |
| 19-Dec-12 | 58.20 | 41.67 | 79.09 | 60.13 | 45.81 | 78.12 | 62.03 | 49.78 | 78.04 | 67.20 | 65.50 | 68.86 | 47.66 | 70 | 0 | 0 | 169.04 | 3.71 | 0.07 | 13.13 | 79 | 0.05 |
| 20-Dec-12 | 67.50 | 50.25 | 82.13 | 68.27 | 52.77 | 82.08 | 68.27 | 55.65 | 80.53 | 66.88 | 65.10 | 68.76 | 61.84 | 82 | 0.57 | 0.25 | 145.48 | 9.10 | 1.23 | 23.43 | 172 | N/A |
| 21-Dec-12 | 55.83 | 40.08 | 68.54 | 56.44 | 43.38 | 69.33 | 56.05 | 46.74 | 68.79 | 66.71 | 64.47 | 68.72 | 44.50 | 66 | 0.02 | 0.01 | 168.99 | 10.85 | 1.23 | 28.03 | 321 | 0.05 |
| 22-Dec-12 | 47.51 | 33.93 | 63.70 | 48.47 | 37.27 | 62.96 | 48.70 | 37.36 | 62.01 | 62.81 | 61.54 | 64.36 | 29.88 | 55 | 0 | 0 | 174.82 | 5.91 | 0.73 | 18.07 | 343 | 0.04 |
| 23-Dec-12 | 50.14 | 33.11 | 70.39 | 51.17 | 36.01 | 69.04 | 52.34 | 38.82 | 67.96 | 61.24 | 59.34 | 63.05 | 37.26 | 63 | 0 | 0 | 140.07 | 3.89 | 0.07 | 23.30 | 50 | 0.04 |
| 24-Dec-12 | 56.86 | 46.42 | 67.15 | 57.96 | 47.93 | 67.69 | 59.29 | 51.67 | 67.12 | 62.39 | 61.25 | 63.54 | 50.82 | 78 | 0 | 0 | 64.20 | 3.85 | 0.17 | 14.30 | 147 | 0.05 |
| 25-Dec-12 | 62.23 | 50.79 | 75.07 | 63.26 | 52.25 | 75.20 | 64.05 | 54.37 | 73.90 | 63.04 | 61.39 | 64.69 | 57.23 | 82 | 0 | 0 | 97.29 | 5.81 | 0.07 | 18.77 | 147 | 0.06 |
| 26-Dec-12 | 64.62 | 52.95 | 78.57 | 65.18 | 53.73 | 78.76 | 64.95 | 53.74 | 77.49 | 64.66 | 63.64 | 65.98 | 60.46 | 85 | 0.22 | 0.21 | 81.90 | 10.88 | 0.97 | 31.10 | 237 | 0.07 |
| 27-Dec-12 | 50.15 | 36.85 | 63.41 | 50.86 | 39.90 | 62.58 | 50.73 | 39.80 | 61.12 | 62.72 | 61.12 | 64.33 | 43.86 | 79 | 0 | 0 | 167.74 | 4.43 | 0.10 | 12.97 | 344 | 0.04 |
| 28-Dec-12 | 56.32 | 37.73 | 72.30 | 56.80 | 39.21 | 71.94 | 56.66 | 41.64 | 70.83 | 61.62 | 59.59 | 63.55 | 51.27 | 84 | 0.34 | 0.11 | 114.21 | 5.56 | 0.27 | 14.67 | 98 | 0.05 |
| 29-Dec-12 | 66.04 | 53.82 | 72.68 | 66.58 | 54.48 | 72.95 | 66.20 | 54.46 | 72.39 | 64.95 | 63.57 | 66.38 | 63.20 | 89 | 0.15 | 0.06 | 77.98 | 11.00 | 2.37 | 25.63 | 262 | 0.06 |
| 30-Dec-12 | 46.57 | 37.51 | 57.13 | 46.79 | 38.15 | 56.64 | 46.45 | 37.88 | 55.09 | 61.84 | 60.55 | 64.11 | 38.16 | 73 | 0 | 0 | 160.42 | 8.63 | 1.27 | 22.20 | 25 | 0.04 |
| 31-Dec-12 | 56.39 | 42.12 | 74.32 | 57.05 | 42.56 | 74.05 | 57.36 | 42.60 | 72.95 | 61.11 | 59.14 | 63.41 | 49.97 | 79 | 0 | 0 | 156.33 | 5.54 | 0.00 | 17.33 | 88 | 0.05 |

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## Table B.1 (continued)
## Monthly Recorded Meteorological Data
## Wimauma, FL

| Period | 60cm Temp avg (F) | 60cm Temp min (F) | 60cm Temp max (F) | 2m Temp avg (F) | 2m Temp min (F) | 2m Temp max (F) | 10m Temp avg (F) | 10m Temp min (F) | 10m Temp max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min (in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Jan-13 | 61.47 | 48.29 | 77.20 | 62.51 | 49.95 | 76.91 | 63.79 | 53.38 | 75.63 | 62.47 | 60.53 | 64.69 | 56.16 | 82 | 0 | 0 | 142.02 | 4.40 | 0.00 | 18.73 | 169 | 0.06 |
| 2-Jan-13 | 65.56 | 53.60 | 79.93 | 66.18 | 55.29 | 78.98 | 66.52 | 58.66 | 77.32 | 63.99 | 62.17 | 66.15 | 62.00 | 88 | 0 | 0 | 119.87 | 4.98 | 0.00 | 16.00 | 233 | 0.06 |
| 3-Jan-13 | 65.74 | 56.98 | 78.96 | 65.85 | 58.32 | 78.62 | 65.59 | 58.21 | 77.14 | 65.88 | 64.71 | 67.44 | 63.11 | 92 | 0.13 | 0.03 | 79.69 | 4.68 | 0.07 | 18.77 | 88 | 0.06 |
| 4-Jan-13 | 58.44 | 55.35 | 63.21 | 58.45 | 55.26 | 63.18 | 58.12 | 55.13 | 62.24 | 65.33 | 64.76 | 66.45 | 57.00 | 95 | 0.01 | 0.01 | 42.11 | 7.06 | 1.53 | 15.60 | 35 | 0.04 |
| 5-Jan-13 | 64.51 | 55.58 | 76.53 | 64.61 | 55.69 | 75.63 | 64.12 | 55.54 | 74.25 | 65.46 | 64.11 | 67.08 | 58.79 | 82 | 0 | 0 | 117.37 | 6.33 | 1.33 | 15.63 | 55 | 0.06 |
| 6-Jan-13 | 67.83 | 58.68 | 80.73 | 68.09 | 59.70 | 80.29 | 67.80 | 61.30 | 79.16 | 67.09 | 65.50 | 69.10 | 65.11 | 91 | 0.03 | 0.02 | 112.32 | 5.27 | 0.00 | 16.67 | 89 | 0.07 |
| 7-Jan-13 | 62.16 | 59.31 | 65.71 | 62.37 | 59.58 | 66.06 | 62.10 | 58.89 | 65.95 | 66.91 | 66.07 | 68.07 | 59.68 | 91 | 0 | 0 | 36.62 | 8.07 | 2.47 | 20.97 | 45 | 0.04 |
| 8-Jan-13 | 69.74 | 59.72 | 82.65 | 70.05 | 60.35 | 82.45 | 69.65 | 60.48 | 81.03 | 67.01 | 65.26 | 69.24 | 64.74 | 85 | 0.04 | 0.02 | 152.74 | 7.19 | 1.10 | 16.27 | 79 | 0.07 |
| 9-Jan-13 | 73.78 | 65.73 | 85.10 | 74.43 | 66.61 | 84.94 | 74.03 | 67.57 | 83.41 | 68.91 | 67.69 | 70.50 | 67.88 | 82 | 0 | 0 | 128.63 | 8.68 | 2.70 | 22.13 | 114 | 0.08 |
| 10-Jan-13 | 72.31 | 64.72 | 81.88 | 72.95 | 65.70 | 82.04 | 72.57 | 66.24 | 80.44 | 69.46 | 68.41 | 70.48 | 66.18 | 81 | 0 | 0 | 122.46 | 8.71 | 1.80 | 23.67 | 109 | 0.07 |
| 11-Jan-13 | 70.52 | 61.29 | 82.87 | 71.21 | 62.87 | 82.60 | 71.02 | 63.97 | 80.56 | 69.29 | 67.71 | 70.90 | 65.09 | 83 | 0 | 0 | 151.31 | 7.35 | 1.17 | 21.40 | 121 | 0.08 |
| 12-Jan-13 | 70.35 | 60.08 | 82.78 | 71.07 | 61.52 | 82.62 | 71.11 | 63.41 | 81.00 | 69.47 | 68.07 | 70.92 | 64.07 | 80 | 0 | 0 | 141.12 | 7.04 | 0.63 | 23.13 | 115 | 0.07 |
| 13-Jan-13 | 70.18 | 60.57 | 81.99 | 70.88 | 61.70 | 81.43 | 70.89 | 62.29 | 80.28 | 69.71 | 68.16 | 71.22 | 63.93 | 80 | 0 | 0 | 136.40 | 5.80 | 0.03 | 15.83 | 130 | 0.07 |
| 14-Jan-13 | 67.35 | 57.87 | 80.71 | 68.29 | 59.40 | 80.22 | 68.85 | 60.19 | 79.70 | 69.49 | 68.11 | 70.79 | 61.39 | 81 | 0 | 0 | 128.68 | 5.08 | 0.00 | 20.13 | 127 | N/A |
| 15-Jan-13 | 67.81 | 53.85 | 82.06 | 68.47 | 55.67 | 81.37 | 69.11 | 59.59 | 80.10 | 68.84 | 67.03 | 70.68 | 62.15 | 82 | 0 | 0 | 144.48 | 4.32 | 0.20 | 16.20 | 126 | 0.07 |
| 16-Jan-13 | 68.28 | 55.94 | 83.64 | 69.07 | 58.14 | 82.27 | 69.63 | 61.81 | 81.01 | 69.45 | 67.87 | 71.01 | 61.53 | 80 | 0 | 0 | 148.89 | 4.27 | 0.00 | 16.67 | 164 | 0.07 |
| 17-Jan-13 | 60.71 | 55.00 | 72.28 | 61.24 | 55.09 | 72.64 | 61.49 | 54.97 | 71.74 | 68.12 | 66.96 | 69.24 | 57.81 | 89 | 0.04 | 0.01 | 49.69 | 8.64 | 0.00 | 26.00 | 259 | 0.06 |
| 18-Jan-13 | 52.86 | 38.45 | 64.45 | 52.68 | 38.91 | 63.63 | 52.21 | 38.87 | 61.93 | 65.53 | 63.97 | 66.88 | 46.50 | 80 | 0.01 | 0.01 | 132.96 | 9.23 | 1.60 | 22.83 | 21 | 0.05 |
| 19-Jan-13 | 62.78 | 52.70 | 74.79 | 62.94 | 52.84 | 74.39 | 62.61 | 52.84 | 72.79 | 65.98 | 64.67 | 67.46 | 56.07 | 79 | 0 | 0 | 122.00 | 9.38 | 1.67 | 23.57 | 48 | 0.07 |
| 20-Jan-13 | 64.46 | 58.23 | 75.34 | 64.76 | 58.35 | 74.77 | 64.57 | 58.37 | 73.18 | 66.94 | 65.86 | 68.34 | 60.05 | 85 | 0 | 0 | 102.85 | 6.29 | 1.20 | 17.03 | 52 | 0.06 |
| 21-Jan-13 | 64.42 | 58.53 | 75.00 | 64.79 | 59.14 | 74.10 | 64.46 | 59.16 | 73.26 | 67.48 | 66.47 | 68.79 | 58.94 | 82 | 0 | 0 | 92.03 | 4.88 | 0.07 | 15.93 | 355 | 0.06 |
| 22-Jan-13 | 56.75 | 46.44 | 66.49 | 57.49 | 49.32 | 66.56 | 57.46 | 50.68 | 65.19 | 66.15 | 65.14 | 67.46 | 42.30 | 60 | 0 | 0 | 104.70 | 6.62 | 0.97 | 19.03 | 18 | 0.06 |
| 23-Jan-13 | 54.15 | 41.77 | 71.33 | 55.14 | 42.90 | 70.39 | 55.54 | 43.51 | 69.22 | 64.24 | 62.53 | 65.95 | 36.56 | 54 | 0 | 0 | 183.92 | 5.40 | 0.50 | 17.10 | 21 | 0.06 |
| 24-Jan-13 | 55.37 | 37.34 | 73.40 | 56.31 | 40.90 | 72.19 | 57.07 | 43.48 | 70.83 | 63.56 | 61.54 | 65.66 | 45.08 | 70 | 0 | 0 | 178.56 | 5.01 | 0.23 | 16.80 | 356 | 0.06 |
| 25-Jan-13 | 58.29 | 41.75 | 75.70 | 59.10 | 42.87 | 75.06 | 59.82 | 47.21 | 74.01 | 63.94 | 61.95 | 66.15 | 49.15 | 74 | 0 | 0 | 179.77 | 4.11 | 0.33 | 14.97 | 356 | 0.07 |
| 26-Jan-13 | 58.31 | 40.81 | 75.96 | 59.26 | 43.27 | 74.62 | 60.25 | 46.71 | 73.22 | 64.07 | 61.90 | 66.27 | 51.96 | 80 | 0 | 0 | 181.40 | 3.73 | 0.13 | 12.70 | 355 | 0.07 |
| 27-Jan-13 | 61.96 | 45.90 | 78.13 | 63.08 | 48.42 | 78.12 | 63.94 | 52.03 | 76.59 | 64.56 | 62.58 | 66.60 | 54.13 | 76 | 0 | 0 | 183.22 | 6.35 | 0.90 | 18.53 | 74 | 0.08 |
| 28-Jan-13 | 66.90 | 54.52 | 81.03 | 67.46 | 56.07 | 80.64 | 67.71 | 58.75 | 79.23 | 65.69 | 64.02 | 67.59 | 60.90 | 82 | 0 | 0 | 129.62 | 7.19 | 1.57 | 19.07 | 91 | 0.08 |
| 29-Jan-13 | 68.91 | 56.46 | 82.13 | 69.56 | 58.14 | 82.11 | 69.76 | 60.13 | 80.76 | 67.09 | 65.48 | 68.79 | 63.89 | 84 | 0 | 0 | 127.84 | 6.41 | 1.03 | 20.60 | 127 | 0.08 |
| 30-Jan-13 | 71.00 | 63.25 | 82.22 | 71.48 | 63.88 | 81.82 | 70.98 | 64.18 | 79.99 | 68.27 | 66.96 | 69.76 | 64.99 | 82 | 0 | 0 | 174.63 | 12.67 | 2.73 | 30.80 | 173 | 0.10 |
| 31-Jan-13 | 57.55 | 40.23 | 68.67 | 57.83 | 43.55 | 69.26 | 57.36 | 45.43 | 69.04 | 67.86 | 65.79 | 69.01 | 44.19 | 66 | 0.04 | 0.01 | 193.88 | 7.81 | 0.93 | 27.57 | 335 | 0.07 |

# Appendix C: Sample Event 1 Water Quality Analytical Results

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Table C.1
Water Quality Analytical Results
(January 14 through January 17, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Anions | | | | | | Cations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na |
| STE | 1/17/13 11:38 | 23.3 | 7.38 | | 0.4 | 1,361 | | 53.05 | 53 | 12.00 | 41 | 0.05 | 41.05 | | | | 0.05 | 0.01 | | | | | | | | | |
| STE-DUP | 1/17/13 11:43 | 23.3 | 7.38 | | 0.4 | 1,361 | | 56.04 | 56 | 16.00 | 40 | 0.04 | 40.04 | | | | 0.04 | 0.01 | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-01 | 1/17/13 11:27 | 21.3 | 5.65 | 23 | 3.8 | 491 | 51 | 1.53 | 1.2 | 1.15 | 0.048 | 0.33 | 0.38 | 0.086 | | | 0.33 | 0.01 | | | | | | | | | |
| BKG-10 | 1/14/13 10:06 | 21.6 | 4.76 | 2 | 6.6 | 334 | 75 | 1.92 | 1.9 | 1.74 | 0.16 | 0.02 | 0.18 | 1 | 0.21 | 33 | 0.01 | 0.01 | 0.082 | 52 | 0.07 | 7.3 | 0.72 | 2.1 | 0.002 | 0.42 | 17 |
| BKG-15 | 1/14/13 10:30 | 23.3 | 5.89 | 34 | 0.2 | 124 | 87 | 3.02 | 3 | 2.46 | 0.54 | 0.02 | 0.56 | 1.9 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-AB4-08 | 1/14/13 10:59 | 23.1 | 6.09 | 4.2 | 1.8 | 331 | 34 | 0.99 | 0.96 | 0.48 | 0.48 | 0.03 | 0.51 | 0.43 | | | 0.03 | 0.01 | | | | | | | | | |
| PA-AB4-08-DUP | 1/14/13 11:04 | 23.1 | 6.09 | 4.2 | 1.8 | 331 | 36 | 1.03 | 0.96 | 0.44 | 0.52 | 0.07 | 0.59 | 0.46 | | | 0.07 | 0.01 | | | | | | | | | |
| PZ-AB-4-15 | 1/14/13 11:20 | 23.5 | 7.24 | | 3.8 | 456 | | 0.85 | 0.79 | 0.29 | 0.5 | 0.06 | 0.56 | | | | 0.02 | 0.04 | | | | | | | | | |
| PZ-C1 | 1/17/13 10:16 | 22.6 | 5.69 | | 4.9 | 810 | | 1.91 | 0.98 | 0.97 | 0.009 | 0.93 | 0.94 | | | | 0.93 | 0.01 | | | | | | | | | |
| PZ-C2 | 1/17/13 10:46 | 23.0 | 5.89 | | 0.3 | 157 | | 1.02 | 1 | 0.57 | 0.43 | 0.02 | 0.45 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-C3-08 | 1/14/13 11:50 | 23.0 | 5.15 | | 1.1 | 438 | | 0.94 | 0.86 | 0.62 | 0.24 | 0.08 | 0.32 | | | | 0.08 | 0.01 | | | | | | | | | |
| PZ-C3-15 | 1/14/13 12:08 | 23.9 | 6.82 | | 1.4 | 489 | | 0.60 | 0.57 | 0.24 | 0.33 | 0.03 | 0.36 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-C6-08 | 1/15/13 11:37 | 22.5 | 4.23 | | 2.4 | 649 | | 0.95 | 0.93 | 0.76 | 0.17 | 0.02 | 0.19 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-C6-15 | 1/15/13 11:57 | 23.2 | 5.77 | | 2.0 | 391 | | 0.80 | 0.78 | 0.60 | 0.18 | 0.02 | 0.20 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-D3-08 | 1/14/13 12:24 | 23.0 | 5.33 | 11 | 0.8 | 385 | 42 | 1.39 | 0.88 | 0.78 | 0.1 | 0.51 | 0.61 | 0.46 | | | 0.51 | 0.01 | | | | | | | | | |
| PZ-D3-15 | 1/14/13 12:44 | 23.8 | 6.74 | 160 | 1.7 | 811 | 59 | 1.92 | 1.9 | 0.99 | 0.91 | 0.02 | 0.93 | 5.5 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-D4-08 | 1/15/13 10:22 | 21.9 | 5.25 | | 0.7 | 510 | | 0.72 | 0.69 | 0.55 | 0.14 | 0.03 | 0.17 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-D4-15 | 1/15/13 10:41 | 23.0 | 6.87 | | 1.1 | 950 | | 0.93 | 0.91 | 0.56 | 0.35 | 0.02 | 0.37 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-E1 | 1/17/13 9:49 | 22.6 | 5.70 | 18 | 3.6 | 177 | 42 | 1.02 | 1 | 0.55 | 0.45 | 0.02 | 0.47 | 1.7 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E2 | 1/17/13 11:08 | 21.7 | 5.90 | | 4.9 | 195 | | 1.00 | 0.98 | 0.55 | 0.43 | 0.02 | 0.45 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-E3-08 | 1/14/13 13:07 | 22.7 | 5.62 | 30 | 0.7 | 728 | 59 | 1.95 | 0.95 | 0.81 | 0.14 | 1 | 1.14 | 0.88 | | | 1 | 0.01 | | | | | | | | | |
| PZ-E3-08-DUP | 1/14/13 13:12 | 22.7 | 5.62 | 31 | 0.7 | 728 | 51 | 2.00 | 1 | 0.86 | 0.14 | 1 | 1.14 | 0.79 | | | 1 | 0.01 | | | | | | | | | |
| PZ-E3-15 | 1/14/13 13:30 | 24.6 | 6.57 | 83 | 4.2 | 331 | 63 | 1.23 | 1.2 | 0.85 | 0.35 | 0.03 | 0.38 | 3.7 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-E4-08 | 1/15/13 9:50 | 21.6 | 5.29 | 4.2 | 0.7 | 632 | 44 | 0.76 | 0.55 | 0.52 | 0.034 | 0.21 | 0.24 | 0.067 | 0.26 | 29 | 0.21 | 0.01 | 0.01 | 210 | 0.16 | 46 | 0.16 | 26 | 0.005 | 4 | 16 |
| PZ-E4-15 | 1/15/13 10:13 | 22.7 | 6.73 | | 1.6 | 517 | | 1.01 | 0.99 | 0.63 | 0.36 | 0.02 | 0.38 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-E5-08 | 1/15/13 10:56 | 22.6 | 5.01 | | 0.7 | 552 | | 1.02 | 1 | 0.81 | 0.19 | 0.02 | 0.21 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E5-15 | 1/15/13 11:17 | 23.4 | 6.73 | | 1.2 | 820 | | 1.12 | 1.1 | 0.88 | 0.22 | 0.02 | 0.24 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E6-08 | 1/15/13 12:15 | 22.5 | 4.99 | | 2.3 | 501 | | 1.05 | 1 | 0.84 | 0.16 | 0.05 | 0.21 | | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-E6-15 | 1/15/13 12:36 | 23.3 | 5.44 | | 3.1 | 380 | | 2.12 | 2.1 | 1.41 | 0.69 | 0.02 | 0.71 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E7-08 | 1/15/13 13:51 | 22.9 | 4.98 | 3.2 | 3.2 | 398 | 36 | 1.42 | 1 | 0.99 | 0.009 | 0.42 | 0.43 | 0.026 | 0.14 | 17 | 0.42 | 0.01 | 0.01 | 130 | 0.15 | 29 | 0.25 | 14 | 0.004 | 4.3 | 14 |
| PZ-E7-08-DUP | 1/15/13 13:56 | 22.9 | 4.98 | 3.2 | 3.2 | 398 | 36 | 1.50 | 1.1 | 1.09 | 0.009 | 0.4 | 0.41 | 0.032 | 0.1 | 17 | 0.4 | 0.01 | 0.01 | 130 | 0.16 | 29 | 0.25 | 13 | 0.004 | 4.2 | 14 |
| PZ-E7-15 | 1/15/13 13:16 | 23.5 | 7.14 | 250 | 3.9 | 1,740 | 71 | 1.32 | 1.3 | 0.84 | 0.46 | 0.02 | 0.48 | 0.16 | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-F3-15 | 1/15/13 8:50 | 22.1 | 6.84 | 93 | 4.2 | 353 | 49 | 0.84 | 0.82 | 0.50 | 0.32 | 0.02 | 0.34 | 1.5 | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-F4-08 | 1/15/13 9:05 | 20.4 | 5.55 | 8.4 | 5.5 | 813 | 53 | 6.20 | 2 | 1.99 | 0.014 | 4.2 | 4.21 | 0.047 | 0.06 | 35 | 4.2 | 0.08 | 0.01 | 280 | 0.34 | 66 | 0.12 | 33 | 0.007 | 6.1 | 30 |
| PZ-F4-15 | 1/15/13 9:32 | 22.2 | 7.14 | 200 | 5.1 | 1,287 | 61 | 1.33 | 1.3 | 0.86 | 0.44 | 0.03 | 0.47 | 0.36 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-G2-12.5 | 1/16/13 10:02 | 22.4 | 4.70 | | 1.4 | 570 | | 1.38 | 0.86 | 0.81 | 0.046 | 0.52 | 0.57 | | | | 0.52 | 0.01 | | | | | | | | | |

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Table C.1 (con't)
Water Quality Analytical Results
(January 14 through January 17, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Anions | | | | | | Cations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na |
| PZ-H4-08 | 1/15/13 13:33 | 23.0 | 5.21 | 2 | 4.2 | 559 | 36 | 1.45 | 0.15 | 0.14 | 0.01 | 1.3 | 1.31 | 0.22 | | | 1.3 | 0.01 | | | | | | | | | |
| PZ-H4-15 | 1/15/13 13:48 | 23.5 | 7.01 | 150 | 5.6 | 858 | 69 | 1.03 | 1 | 0.47 | 0.53 | 0.03 | 0.56 | 1.6 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-H4-15-DUP | 1/15/13 13:53 | 23.5 | 7.01 | 150 | 5.6 | 858 | 65 | 1.13 | 1.1 | 0.60 | 0.5 | 0.03 | 0.53 | 1.5 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-H5-11.5 | 1/16/13 10:48 | 22.2 | 4.55 | | 1.3 | 441 | | 2.20 | 1.1 | 0.73 | 0.37 | 1.1 | 1.47 | | | | 1.1 | 0.01 | | | | | | | | | |
| PZ-I6-08 | 1/16/13 11:10 | 22.5 | 5.04 | 3.2 | 0.2 | 385 | | 1.70 | 1.5 | 0.98 | 0.52 | 0.2 | 0.72 | | 0.22 | 21 | 0.2 | 0.01 | 0.01 | 110 | 0.13 | 29 | 1.1 | 15 | 0.015 | 2.6 | 14 |
| PZ-I6-15 | 1/16/13 11:33 | 23.4 | 6.90 | | 0.2 | 1,849 | | 1.12 | 1.1 | 0.72 | 0.38 | 0.02 | 0.40 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-I10-08 | 1/16/13 12:15 | 22.9 | 5.29 | 13 | 0.5 | 460 | 34 | 1.54 | 0.68 | 0.64 | 0.045 | 0.86 | 0.91 | 0.05 | | | 0.86 | 0.01 | | | | | | | | | |
| PZ-I10-08-DUP | 1/16/13 12:20 | 22.9 | 5.29 | 13 | 0.5 | 460 | 30 | 1.52 | 0.68 | 0.64 | 0.044 | 0.84 | 0.88 | 0.055 | | | 0.84 | 0.01 | | | | | | | | | |
| PZ-I10-15 | 1/16/13 12:30 | 23.1 | 6.83 | | 0.8 | 734 | | 0.95 | 0.93 | 0.38 | 0.55 | 0.02 | 0.57 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-J4-15 | 1/16/13 10:29 | 23.0 | 6.47 | 100 | 0.4 | 585 | 65 | 1.63 | 1.5 | 0.86 | 0.64 | 0.13 | 0.77 | 0.74 | | | 0.13 | 0.01 | | | | | | | | | |
| PZ-J7-08 | 1/16/13 11:48 | 22.8 | 5.07 | 7.4 | 0.8 | 299 | 38 | 1.09 | 1 | 0.82 | 0.18 | 0.09 | 0.27 | 0.065 | 0.11 | 19 | 0.09 | 0.01 | 0.01 | 84 | 0.11 | 22 | 0.35 | 11 | 0.003 | 2 | 11 |
| PZ-J7-15 | 1/16/13 12:00 | 23.5 | 5.30 | | 1.1 | 415 | | 4.92 | 4.9 | 4.05 | 0.85 | 0.02 | 0.87 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N4-08 | 1/16/13 13:58 | 22.9 | 5.67 | 17 | 4.3 | 280 | 34 | 0.51 | 0.49 | 0.30 | 0.19 | 0.02 | 0.21 | 0.096 | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-N4-15 | 1/16/13 14:22 | 23.1 | 6.69 | | 0.4 | 726 | | 1.52 | 1.5 | 1.01 | 0.49 | 0.02 | 0.51 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N7-08 | 1/16/13 13:35 | 24.4 | 5.96 | | 1.0 | 454 | | 3.82 | 3.8 | 0.80 | 3 | 0.02 | 3.02 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N7-15 | 1/16/13 13:45 | 23.9 | 5.73 | | 0.3 | 259 | | 1.86 | 1.6 | 1.10 | 0.5 | 0.26 | 0.76 | | | | 0.26 | 0.01 | | | | | | | | | |
| PZ-N10-08 | 1/16/13 13:06 | 23.5 | 6.40 | 62 | 0.3 | 502 | 34 | 2.52 | 2.5 | 1.30 | 1.2 | 0.02 | 1.22 | 0.33 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N10-08-DUP | 1/16/13 13:11 | 23.5 | 6.40 | 62 | 0.3 | 502 | 30 | 2.32 | 2.3 | 1.10 | 1.2 | 0.02 | 1.22 | 0.3 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N10-15 | 1/16/13 12:45 | 24.3 | 7.11 | | 0.8 | 1,573 | | 1.12 | 1.1 | 0.62 | 0.48 | 0.02 | 0.50 | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-S10-08 | 1/16/13 13:21 | 24.0 | 5.31 | 6.3 | 0.7 | 303 | 30 | 0.66 | 0.63 | 0.51 | 0.12 | 0.03 | 0.15 | 0.051 | | | 0.03 | 0.01 | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 1/16/13 8:20 | 19.3 | 7.65 | 2 | 8.6 | 1 | 10 | 0.06 | 0.05 | 0.04 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 |
| FB-TAP | 1/16/13 8:15 | 21.6 | 7.54 | 160 | 4.4 | 846 | 14 | 0.32 | 0.16 | 0.13 | 0.027 | 0.16 | 0.19 | 0.038 | | | 0.16 | 0.01 | | | | | | | | | |
| EB | 1/16/13 8:25 | 19.3 | 7.65 | 2 | 8.6 | 1 | 10 | 0.06 | 0.05 | 0.04 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.032 | 0.13 |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$

[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$

[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$

D.O. - Dissolved oxygen

G - Grab sample

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

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# Appendix D: Sample Event 1 Laboratory Report

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

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **STE** | | | | | | |
| Matrix | | **Wastewater** | | | | | | |
| SAL Sample Number | | **1214542-01** | | | | | | |
| Date/Time Collected | | **01/17/13 11:38** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.38 | | | | | | |
| Temperature | | 23.3 °C | | | | | | |
| Conductivity | | 1361 umhos | | | | | | |
| Dissolved Oxygen | | 0.40 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 41 | EPA 350.1 | 1.0 | 0.24 | | 01/28/13 10:47 | 25 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 53 | EPA 351.2 | 0.20 | 0.05 | 01/26/13 08:15 | 01/30/13 11:43 | 20.83 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 01/18/13 17:51 | 1 |
| Sample Description | | **STE-DUP** | | | | | | |
| Matrix | | **Wastewater** | | | | | | |
| SAL Sample Number | | **1214542-02** | | | | | | |
| Date/Time Collected | | **01/17/13 11:43** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.38 | | | | | | |
| Temperature | | 23.3 °C | | | | | | |
| Conductivity | | 1361 umhos | | | | | | |
| Residual Chlorine | | 0.40 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 40 | EPA 350.1 | 1.0 | 0.24 | | 01/28/13 10:47 | 25 |
| Nitrate (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 56 | EPA 351.2 | 0.20 | 0.05 | 01/26/13 08:15 | 01/30/13 11:44 | 20.83 |
| Nitrate+Nitrite (N) | mg/L | 0.04 I | EPA 300.0 | 0.08 | 0.02 | | 01/18/13 17:51 | 1 |
| Sample Description | | **PZ-01** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-03** | | | | | | |
| Date/Time Collected | | **01/17/13 11:27** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-01** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-03** | | | | | | |
| Date/Time Collected | | **01/17/13 11:27** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.65 | | | | | | |
| Temperature | | 21.3 °C | | | | | | |
| Conductivity | | 491 umhos | | | | | | |
| Dissolved Oxygen | | 3.80 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.048 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 51 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.33 | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Phosphorous - Total as P | mg/L | 0.086 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:06 | 1 |
| Total Alkalinity | mg/L | 23 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.2 | EPA 351.2 | 0.20 | 0.05 | 01/23/13 14:48 | 01/25/13 10:15 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.33 | EPA 300.0 | 0.08 | 0.02 | | 01/18/13 17:51 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **BKG-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-06** | | | | | | |
| Date/Time Collected | | **01/14/13 10:06** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.76 | | | | | | |
| Temperature | | 21.6 °C | | | | | | |
| Conductivity | | 334 umhos | | | | | | |
| Dissolved Oxygen | | 6.63 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.16 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:08 | 1 |
| Chemical Oxygen Demand | mg/L | 75 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Chloride | mg/L | 33 | EPA 300.0 | 0.20 | 0.050 | | 01/15/13 17:08 | 1 |
| Fluoride | mg/L | 0.21 | EPA 300.0 | 0.040 | 0.010 | | 01/15/13 17:08 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Orthophosphate as P | mg/L | 0.082 | EPA 300.0 | 0.040 | 0.010 | | 01/15/13 17:08 | 1 |
| Phosphorous - Total as P | mg/L | 1.0 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:52 | 1 |
| Sulfate | mg/L | 52 | EPA 300.0 | 0.60 | 0.20 | | 01/15/13 17:08 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **BKG-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-06** | | | | | | |
| Date/Time Collected | | **01/14/13 10:06** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.76 | | | | | | |
| Temperature | | 21.6 °C | | | | | | |
| Conductivity | | 334 umhos | | | | | | |
| Dissolved Oxygen | | 6.63 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 1.9 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 13:56 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/15/13 17:08 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.070 I | EPA 200.7** | 0.10 | 0.050 | 01/16/13 08:00 | 01/16/13 15:04 | 1 |
| Calcium | mg/L | 7.3 | EPA 200.7 | 0.50 | 0.042 | 01/16/13 08:00 | 01/16/13 15:04 | 1 |
| Iron | mg/L | 0.72 | EPA 200.7 | 0.10 | 0.020 | 01/16/13 08:00 | 01/16/13 15:04 | 1 |
| Magnesium | mg/L | 2.1 | EPA 200.7 | 0.50 | 0.020 | 01/16/13 08:00 | 01/16/13 15:04 | 1 |
| Manganese | mg/L | 0.0017 I | EPA 200.7 | 0.010 | 0.0010 | 01/16/13 08:00 | 01/16/13 15:04 | 1 |
| Potassium | mg/L | 0.42 | EPA 200.7 | 0.050 | 0.010 | 01/16/13 08:00 | 01/16/13 15:04 | 1 |
| Sodium | mg/L | 17 | EPA 200.7 | 0.50 | 0.13 | 01/16/13 08:00 | 01/16/13 15:04 | 1 |
| Sample Description | | **BKG-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-07** | | | | | | |
| Date/Time Collected | | **01/14/13 10:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.89 | | | | | | |
| Temperature | | 23.3 °C | | | | | | |
| Conductivity | | 124 umhos | | | | | | |
| Dissolved Oxygen | | 0.22 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.54 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:10 | 1 |
| Chemical Oxygen Demand | mg/L | 87 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Phosphorous - Total as P | mg/L | 1.9 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:53 | 1 |
| Total Alkalinity | mg/L | 34 | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.0 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 13:58 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/15/13 17:08 | 1 |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-AB4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-11** | | | | | | |
| Date/Time Collected | | **01/14/13 10:59** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.09 | | | | | | |
| Temperature | | 23.1 °C | | | | | | |
| Conductivity | | 331 umhos | | | | | | |
| Dissolved Oxygen | | 1.80 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.48 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:12 | 1 |
| Chemical Oxygen Demand | mg/L | 34 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Phosphorous - Total as P | mg/L | 0.43 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:36 | 01/23/13 13:25 | 1 |
| Total Alkalinity | mg/L | 4.2 I | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.96 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:00 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/15/13 17:08 | 1 |
| Sample Description | | **PA-AB4-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-12** | | | | | | |
| Date/Time Collected | | **01/14/13 11:04** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.09 | | | | | | |
| Temperature | | 23.1 °C | | | | | | |
| Conductivity | | 331 umhos | | | | | | |
| Dissolved Oxygen | | 1.80 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.52 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 12:28 | 1 |
| Chemical Oxygen Demand | mg/L | 36 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.07 | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Phosphorous - Total as P | mg/L | 0.46 | SM 4500P-E | 0.040 | 0.010 | 02/01/13 11:09 | 02/05/13 13:56 | 1 |
| Total Alkalinity | mg/L | 4.2 I | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.96 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.07 I | EPA 300.0 | 0.08 | 0.02 | | 01/15/13 17:08 | 1 |

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**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-AB-4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-13** | | | | | | |
| Date/Time Collected | | **01/14/13 11:20** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.24 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 456 umhos | | | | | | |
| Dissolved Oxygen | | 3.84 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.50 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:16 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Nitrite (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.79 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:03 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 01/15/13 17:08 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C1** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-14** | | | | | | |
| Date/Time Collected | | **01/17/13 10:16** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.69 | | | | | | |
| Temperature | | 22.6 °C | | | | | | |
| Conductivity | | 810 umhos | | | | | | |
| Dissolved Oxygen | | 4.91 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 13:26 | 1 |
| Nitrate (as N) | mg/L | 0.93 | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.98 | EPA 351.2 | 0.20 | 0.05 | 01/23/13 14:48 | 01/25/13 10:16 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.93 | EPA 300.0 | 0.08 | 0.02 | | 01/18/13 17:51 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C2** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-15** | | | | | | |
| Date/Time Collected | | **01/17/13 10:46** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C2** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-15** | | | | | | |
| Date/Time Collected | | **01/17/13 10:46** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.89 | | | | | | |
| Temperature | | 23.0 °C | | | | | | |
| Conductivity | | 157.3 umhos | | | | | | |
| Dissolved Oxygen | | 0.30 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.43 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 13:28 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/23/13 14:48 | 01/25/13 10:18 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/18/13 17:51 | 1 |
| Sample Description | | **PZ-C3-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-16** | | | | | | |
| Date/Time Collected | | **01/14/13 11:50** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.15 | | | | | | |
| Temperature | | 23.0 °C | | | | | | |
| Conductivity | | 438 umhos | | | | | | |
| Dissolved Oxygen | | 1.05 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.24 | EPA 350.1 | 0.040 | 0.009 | | 01/23/13 14:19 | 1 |
| Nitrate (as N) | mg/L | 0.08 | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/15/13 17:08 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.86 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:05 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.08 | EPA 300.0 | 0.08 | 0.02 | | 01/15/13 17:08 | 1 |
| Sample Description | | **PZ-C3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-17** | | | | | | |
| Date/Time Collected | | **01/14/13 12:08** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-17** | | | | | | |
| Date/Time Collected | | **01/14/13 12:08** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.82 | | | | | | |
| Temperature | | 23.9 °C | | | | | | |
| Conductivity | | 489 umhos | | | | | | |
| Dissolved Oxygen | | 1.36 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.33 | EPA 350.1 | 0.040 | 0.009 | | 01/23/13 14:21 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.57 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:06 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 01:55 | 1 |
| Sample Description | | **PZ-C6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-18** | | | | | | |
| Date/Time Collected | | **01/15/13 11:37** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.23 | | | | | | |
| Temperature | | 22.5 °C | | | | | | |
| Conductivity | | 649 umhos | | | | | | |
| Dissolved Oxygen | | 2.35 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.17 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:18 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.93 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 15:53 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |
| Sample Description | | **PZ-C6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-19** | | | | | | |
| Date/Time Collected | | **01/15/13 11:57** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-19** | | | | | | |
| Date/Time Collected | | **01/15/13 11:57** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.77 | | | | | | |
| Temperature | | 23.2 °C | | | | | | |
| Conductivity | | 391 umhos | | | | | | |
| Dissolved Oxygen | | 1.99 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.18 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:20 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.78 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 15:55 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-D3-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-20** | | | | | | |
| Date/Time Collected | | **01/14/13 12:24** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.33 | | | | | | |
| Temperature | | 23.0 °C | | | | | | |
| Conductivity | | 385 umhos | | | | | | |
| Dissolved Oxygen | | 0.78 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.10 | EPA 350.1 | 0.040 | 0.009 | | 01/23/13 14:23 | 1 |
| Chemical Oxygen Demand | mg/L | 42 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.51 | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Phosphorous - Total as P | mg/L | 0.46 | SM 4500P-E | 0.040 | 0.010 | 01/16/13 11:09 | 01/23/13 13:57 | 1 |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.88 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:08 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.51 | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 01:55 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-D3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-21** | | | | | | |
| Date/Time Collected | | **01/14/13 12:44** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.14 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 811 umhos | | | | | | |
| Dissolved Oxygen | | 1.70 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.91 | EPA 350.1 | 0.040 | 0.009 | | 01/23/13 13:14 | 1 |
| Chemical Oxygen Demand | mg/L | 59 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Phosphorous - Total as P | mg/L | 5.5 | SM 4500P-E | 0.40 | 0.10 | 01/16/13 11:09 | 01/23/13 15:06 | 10 |
| Total Alkalinity | mg/L | 160 | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.9 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:10 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 01:55 | 1 |
| Sample Description | | **PZ-D4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-22** | | | | | | |
| Date/Time Collected | | **01/15/13 10:22** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.25 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 510 umhos | | | | | | |
| Dissolved Oxygen | | 0.70 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.14 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:30 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.69 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 15:56 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-D4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-23** | | | | | | |
| Date/Time Collected | | **01/15/13 10:41** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.87 | | | | | | |
| Temperature | | 23.0 °C | | | | | | |
| Conductivity | | 950 umhos | | | | | | |
| Dissolved Oxygen | | 1.05 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.35 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:32 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.91 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 15:58 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E1** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-24** | | | | | | |
| Date/Time Collected | | **01/17/13 09:49** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.70 | | | | | | |
| Temperature | | 22.6 °C | | | | | | |
| Conductivity | | 176.6 umhos | | | | | | |
| Dissolved Oxygen | | 3.57 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.45 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 13:30 | 1 |
| Chemical Oxygen Demand | mg/L | 42 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Phosphorous - Total as P | mg/L | 1.7 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:07 | 1 |
| Total Alkalinity | mg/L | 18 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/23/13 14:48 | 01/25/13 10:20 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/18/13 17:51 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E2** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-25** | | | | | | |
| Date/Time Collected | | **01/17/13 11:08** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/17/13 13:50** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.90 | | | | | | |
| Temperature | | 21.7 °C | | | | | | |
| Conductivity | | 1945 umhos | | | | | | |
| Dissolved Oxygen | | 4.90 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.43 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 13:32 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/18/13 17:51 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.98 | EPA 351.2 | 0.20 | 0.05 | 01/23/13 14:48 | 01/25/13 10:21 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/18/13 17:51 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E3-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-26** | | | | | | |
| Date/Time Collected | | **01/14/13 13:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.62 | | | | | | |
| Temperature | | 22.7 °C | | | | | | |
| Conductivity | | 728 umhos | | | | | | |
| Dissolved Oxygen | | 0.73 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.14 | EPA 350.1 | 0.040 | 0.009 | | 01/23/13 14:47 | 1 |
| Chemical Oxygen Demand | mg/L | 59 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 1.0 | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Phosphorous - Total as P | mg/L | 0.88 | SM 4500P-E | 0.040 | 0.010 | 01/16/13 11:09 | 01/23/13 13:59 | 1 |
| Total Alkalinity | mg/L | 30 | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.95 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:11 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.0 | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 01:55 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E3-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-27** | | | | | | |
| Date/Time Collected | | **01/14/13 13:12** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.62 | | | | | | |
| Temperature | | 22.7 °C | | | | | | |
| Conductivity | | 728 umhos | | | | | | |
| Dissolved Oxygen | | 0.73 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.14 | EPA 350.1 | 0.040 | 0.009 | | 01/23/13 14:48 | 1 |
| Chemical Oxygen Demand | mg/L | 51 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 1.0 | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Phosphorous - Total as P | mg/L | 0.79 | SM 4500P-E | 0.040 | 0.010 | 01/16/13 11:09 | 01/23/13 14:00 | 1 |
| Total Alkalinity | mg/L | 31 | SM 2320B | 8.0 | 2.0 | 01/17/13 14:00 | 01/17/13 16:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:20 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.0 | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 01:55 | 1 |
| Sample Description | | **PZ-E3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-28** | | | | | | |
| Date/Time Collected | | **01/14/13 13:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/14/13 15:25** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.57 | | | | | | |
| Temperature | | 24.6 °C | | | | | | |
| Conductivity | | 331 umhos | | | | | | |
| Dissolved Oxygen | | 4.23 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.35 | EPA 350.1 | 0.040 | 0.009 | | 01/23/13 13:20 | 1 |
| Chemical Oxygen Demand | mg/L | 63 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 01:55 | 1 |
| Phosphorous - Total as P | mg/L | 3.7 | SM 4500P-E | 0.080 | 0.020 | 01/16/13 11:09 | 01/23/13 14:44 | 2 |
| Total Alkalinity | mg/L | 83 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.2 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:21 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 01:55 | 1 |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-29** | | | | | | |
| Date/Time Collected | | **01/15/13 09:50** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.29 | | | | | | |
| Temperature | | 21.6 °C | | | | | | |
| Conductivity | | 632 umhos | | | | | | |
| Dissolved Oxygen | | 0.74 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.034 I | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:34 | 1 |
| Chemical Oxygen Demand | mg/L | 44 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 01/16/13 17:41 | 1 |
| Fluoride | mg/L | 0.26 | EPA 300.0 | 0.040 | 0.010 | | 01/16/13 17:41 | 1 |
| Nitrate (as N) | mg/L | 0.21 | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/16/13 17:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.067 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:35 | 01/25/13 11:51 | 1 |
| Sulfate | mg/L | 210 | EPA 300.0 | 0.60 | 0.20 | | 01/25/13 14:46 | 1 |
| Total Alkalinity | mg/L | 4.2 I | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.55 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:00 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.21 | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.16 | EPA 200.7** | 0.10 | 0.050 | 01/16/13 08:00 | 01/16/13 15:08 | 1 |
| Calcium | mg/L | 46 | EPA 200.7 | 0.50 | 0.042 | 01/16/13 08:00 | 01/16/13 15:08 | 1 |
| Iron | mg/L | 0.16 | EPA 200.7 | 0.10 | 0.020 | 01/16/13 08:00 | 01/16/13 15:08 | 1 |
| Magnesium | mg/L | 26 | EPA 200.7 | 0.50 | 0.020 | 01/16/13 08:00 | 01/16/13 15:08 | 1 |
| Manganese | mg/L | 0.0045 I | EPA 200.7 | 0.010 | 0.0010 | 01/16/13 08:00 | 01/16/13 15:08 | 1 |
| Potassium | mg/L | 4.0 | EPA 200.7 | 0.050 | 0.010 | 01/16/13 08:00 | 01/16/13 15:08 | 1 |
| Sodium | mg/L | 16 | EPA 200.7 | 0.50 | 0.13 | 01/16/13 08:00 | 01/16/13 15:08 | 1 |
| Sample Description | | **PZ-E4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-30** | | | | | | |
| Date/Time Collected | | **01/15/13 10:13** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.73 | | | | | | |
| Temperature | | 22.7 °C | | | | | | |
| Conductivity | | 517 umhos | | | | | | |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-30** | | | | | | |
| Date/Time Collected | | **01/15/13 10:13** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.73 | | | | | | |
| Temperature | | 22.7 °C | | | | | | |
| Conductivity | | 517 umhos | | | | | | |
| Dissolved Oxygen | | 1.02 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.36 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:36 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.99 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |
| Sample Description | | **PZ-E5-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-31** | | | | | | |
| Date/Time Collected | | **01/15/13 10:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.01 | | | | | | |
| Temperature | | 22.6 °C | | | | | | |
| Conductivity | | 552 umhos | | | | | | |
| Dissolved Oxygen | | 0.72 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.19 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:38 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:10 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |
| Sample Description | | **PZ-E5-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-32** | | | | | | |
| Date/Time Collected | | **01/15/13 11:17** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |

**Hazen and Sawyer**
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**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E5-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-32** | | | | | | |
| Date/Time Collected | | **01/15/13 11:17** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.73 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |
| Conductivity | | 820 umhos | | | | | | |
| Dissolved Oxygen | | 1.15 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:40 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/16/13 17:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:11 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/16/13 17:41 | 1 |
| Sample Description | | **PZ-E6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-33** | | | | | | |
| Date/Time Collected | | **01/15/13 12:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.99 | | | | | | |
| Temperature | | 22.5 °C | | | | | | |
| Conductivity | | 501 umhos | | | | | | |
| Dissolved Oxygen | | 2.32 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.16 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:42 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:13 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| Sample Description | | **PZ-E6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-34** | | | | | | |
| Date/Time Collected | | **01/15/13 12:36** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |

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**February 8, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-34** | | | | | | |
| Date/Time Collected | | **01/15/13 12:36** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.44 | | | | | | |
| Temperature | | 23.3 °C | | | | | | |
| Conductivity | | 380 umhos | | | | | | |
| Dissolved Oxygen | | 3.05 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.69 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:44 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.1 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:15 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-35** | | | | | | |
| Date/Time Collected | | **01/15/13 13:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.98 | | | | | | |
| Temperature | | 22.9 °C | | | | | | |
| Conductivity | | 398 umhos | | | | | | |
| Dissolved Oxygen | | 3.18 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:46 | 1 |
| Chemical Oxygen Demand | mg/L | 36 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Chloride | mg/L | 17 | EPA 300.0 | 0.20 | 0.050 | | 01/17/13 02:28 | 1 |
| Fluoride | mg/L | 0.14 | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Nitrate (as N) | mg/L | 0.42 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.026 I | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:35 | 01/25/13 11:51 | 1 |
| Sulfate | mg/L | 130 | EPA 300.0 | 0.60 | 0.20 | | 01/26/13 11:23 | 1 |
| Total Alkalinity | mg/L | 3.2 I | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:16 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.42 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| **Metals** | | | | | | | | |

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**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-35** | | | | | | |
| Date/Time Collected | | **01/15/13 13:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.98 | | | | | | |
| Temperature | | 22.9 °C | | | | | | |
| Conductivity | | 398 umhos | | | | | | |
| Dissolved Oxygen | | 3.18 mg/L | | | | | | |
| Boron | mg/L | 0.15 | EPA 200.7** | 0.10 | 0.050 | 01/16/13 08:00 | 01/16/13 15:11 | 1 |
| Calcium | mg/L | 29 | EPA 200.7 | 0.50 | 0.042 | 01/16/13 08:00 | 01/16/13 15:11 | 1 |
| Iron | mg/L | 0.25 | EPA 200.7 | 0.10 | 0.020 | 01/16/13 08:00 | 01/16/13 15:11 | 1 |
| Magnesium | mg/L | 14 | EPA 200.7 | 0.50 | 0.020 | 01/16/13 08:00 | 01/16/13 15:11 | 1 |
| Manganese | mg/L | 0.0041 I | EPA 200.7 | 0.010 | 0.0010 | 01/16/13 08:00 | 01/16/13 15:11 | 1 |
| Potassium | mg/L | 4.3 | EPA 200.7 | 0.050 | 0.010 | 01/16/13 08:00 | 01/16/13 15:11 | 1 |
| Sodium | mg/L | 14 | EPA 200.7 | 0.50 | 0.13 | 01/16/13 08:00 | 01/16/13 15:11 | 1 |
| Sample Description | | **PZ-E7-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-36** | | | | | | |
| Date/Time Collected | | **01/15/13 13:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.98 | | | | | | |
| Temperature | | 22.9 °C | | | | | | |
| Conductivity | | 398 umhos | | | | | | |
| Dissolved Oxygen | | 3.18 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:48 | 1 |
| Chemical Oxygen Demand | mg/L | 36 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Chloride | mg/L | 17 | EPA 300.0 | 0.20 | 0.050 | | 01/17/13 02:28 | 1 |
| Fluoride | mg/L | 0.10 | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Nitrate (as N) | mg/L | 0.40 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.032 I | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:54 | 1 |
| Sulfate | mg/L | 130 | EPA 300.0 | 0.60 | 0.20 | | 01/26/13 11:23 | 1 |
| Total Alkalinity | mg/L | 3.2 I | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:18 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.40 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

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February 8, 2013
Work Order: 1214542

## Laboratory Report

**Project Name** Hillsborough County C-HS4 SE#2

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-36** | | | | | | |
| Date/Time Collected | | **01/15/13 13:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.98 | | | | | | |
| Temperature | | 22.9 °C | | | | | | |
| Conductivity | | 398 umhos | | | | | | |
| Dissolved Oxygen | | 3.18 mg/L | | | | | | |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.16 | EPA 200.7** | 0.10 | 0.050 | 01/16/13 08:00 | 01/16/13 15:14 | 1 |
| Calcium | mg/L | 29 | EPA 200.7 | 0.50 | 0.042 | 01/16/13 08:00 | 01/16/13 15:14 | 1 |
| Iron | mg/L | 0.25 | EPA 200.7 | 0.10 | 0.020 | 01/16/13 08:00 | 01/16/13 15:14 | 1 |
| Magnesium | mg/L | 13 | EPA 200.7 | 0.50 | 0.020 | 01/16/13 08:00 | 01/16/13 15:14 | 1 |
| Manganese | mg/L | 0.0041 I | EPA 200.7 | 0.010 | 0.0010 | 01/16/13 08:00 | 01/16/13 15:14 | 1 |
| Potassium | mg/L | 4.2 | EPA 200.7 | 0.050 | 0.010 | 01/16/13 08:00 | 01/16/13 15:14 | 1 |
| Sodium | mg/L | 14 | EPA 200.7 | 0.50 | 0.13 | 01/16/13 08:00 | 01/16/13 15:14 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-37** | | | | | | |
| Date/Time Collected | | **01/15/13 13:16** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.14 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 1740 umhos | | | | | | |
| Dissolved Oxygen | | 3.93 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.46 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:53 | 1 |
| Chemical Oxygen Demand | mg/L | 71 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.16 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:54 | 1 |
| Total Alkalinity | mg/L | 250 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.3 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:20 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-F3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-39** | | | | | | |
| Date/Time Collected | | **01/15/13 08:50** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.84 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 353 umhos | | | | | | |
| Dissolved Oxygen | | 4.16 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.32 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 11:55 | 1 |
| Chemical Oxygen Demand | mg/L | 49 | EPA 410.4 | 25 | 10 | 01/17/13 10:30 | 01/17/13 13:00 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 1.5 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:55 | 1 |
| Total Alkalinity | mg/L | 93 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.82 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:46 | 01/17/13 16:46 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| Sample Description | | **PZ-F4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-40** | | | | | | |
| Date/Time Collected | | **01/15/13 09:05** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.53 | | | | | | |
| Temperature | | 20.4 °C | | | | | | |
| Conductivity | | 813 umhos | | | | | | |
| Dissolved Oxygen | | 5.49 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.014 I | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 13:55 | 1 |
| Chemical Oxygen Demand | mg/L | 53 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Chloride | mg/L | 35 | EPA 300.0 | 0.20 | 0.050 | | 01/26/13 11:23 | 1 |
| Fluoride | mg/L | 0.060 | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Nitrate (as N) | mg/L | 4.2 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.08 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.047 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:56 | 1 |
| Sulfate | mg/L | 280 | EPA 300.0 | 0.60 | 0.20 | | 01/26/13 11:23 | 1 |
| Total Alkalinity | mg/L | 8.4 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |

**Hazen and Sawyer**
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**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-F4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-40** | | | | | | |
| Date/Time Collected | | **01/15/13 09:05** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.53 | | | | | | |
| Temperature | | 20.4 °C | | | | | | |
| Conductivity | | 813 umhos | | | | | | |
| Dissolved Oxygen | | 5.49 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 2.0 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:46 | 01/17/13 16:48 | 1 |
| Nitrate+Nitrite (N) | mg/L | 4.3 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.34 | EPA 200.7** | 0.10 | 0.050 | 01/16/13 08:00 | 01/16/13 15:18 | 1 |
| Calcium | mg/L | 66 | EPA 200.7 | 0.50 | 0.042 | 01/16/13 08:00 | 01/16/13 15:18 | 1 |
| Iron | mg/L | 0.12 | EPA 200.7 | 0.10 | 0.020 | 01/16/13 08:00 | 01/16/13 15:18 | 1 |
| Magnesium | mg/L | 33 | EPA 200.7 | 0.50 | 0.020 | 01/16/13 08:00 | 01/16/13 15:18 | 1 |
| Manganese | mg/L | 0.0073 I | EPA 200.7 | 0.010 | 0.0010 | 01/16/13 08:00 | 01/16/13 15:18 | 1 |
| Potassium | mg/L | 6.1 | EPA 200.7 | 0.050 | 0.010 | 01/16/13 08:00 | 01/16/13 15:18 | 1 |
| Sodium | mg/L | 30 | EPA 200.7 | 0.50 | 0.13 | 01/16/13 08:00 | 01/16/13 15:18 | 1 |
| Sample Description | | **PZ-F4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-41** | | | | | | |
| Date/Time Collected | | **01/15/13 09:32** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.14 | | | | | | |
| Temperature | | 22.2 °C | | | | | | |
| Conductivity | | 1287 umhos | | | | | | |
| Dissolved Oxygen | | 5.08 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.44 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 13:57 | 1 |
| Chemical Oxygen Demand | mg/L | 61 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.36 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:57 | 1 |
| Total Alkalinity | mg/L | 200 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.3 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:21 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

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**February 8, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-G2-12.5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-43** | | | | | | |
| Date/Time Collected | | **01/16/13 10:02** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.70 | | | | | | |
| Temperature | | 22.4 °C | | | | | | |
| Conductivity | | 570 umhos | | | | | | |
| Dissolved Oxygen | | 1.40 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.046 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 13:59 | 1 |
| Nitrate (as N) | mg/L | 0.52 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.86 | EPA 351.2 | 0.20 | 0.05 | 01/23/13 14:48 | 01/25/13 10:23 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.52 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-44** | | | | | | |
| Date/Time Collected | | **01/15/13 13:33** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.21 | | | | | | |
| Temperature | | 23.0 °C | | | | | | |
| Conductivity | | 559 umhos | | | | | | |
| Dissolved Oxygen | | 4.17 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.010 I | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:01 | 1 |
| Chemical Oxygen Demand | mg/L | 36 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 1.3 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.22 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:58 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.15 I | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:39 | 01/17/13 16:23 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.3 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-45** | | | | | | |
| Date/Time Collected | | **01/15/13 13:48** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.01 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 858 umhos | | | | | | |
| Dissolved Oxygen | | 5.61 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.53 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:03 | 1 |
| Chemical Oxygen Demand | mg/L | 69 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 1.6 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 14:59 | 1 |
| Total Alkalinity | mg/L | 150 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:46 | 01/17/13 16:49 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H4-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-46** | | | | | | |
| Date/Time Collected | | **01/15/13 13:53** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/15/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.01 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 858 umhos | | | | | | |
| Dissolved Oxygen | | 5.61 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.50 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:05 | 1 |
| Chemical Oxygen Demand | mg/L | 65 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 1.5 | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:38 | 01/24/13 15:00 | 1 |
| Total Alkalinity | mg/L | 150 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 01/15/13 15:46 | 01/17/13 16:51 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

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**February 8, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H5-11.5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-47** | | | | | | |
| Date/Time Collected | | **01/16/13 10:48** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.55 | | | | | | |
| Temperature | | 22.2 °C | | | | | | |
| Conductivity | | 441 umhos | | | | | | |
| Dissolved Oxygen | | 1.27 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.37 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:07 | 1 |
| Nitrate (as N) | mg/L | 1.1 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 01/23/13 14:48 | 01/25/13 10:25 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.1 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-48** | | | | | | |
| Date/Time Collected | | **01/16/13 11:10** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.04 | | | | | | |
| Temperature | | 22.5 °C | | | | | | |
| Conductivity | | 385 umhos | | | | | | |
| Dissolved Oxygen | | 0.20 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.52 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:09 | 1 |
| Chloride | mg/L | 21 | EPA 300.0 | 0.20 | 0.050 | | 01/17/13 02:28 | 1 |
| Fluoride | mg/L | 0.22 | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Nitrate (as N) | mg/L | 0.20 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 0.60 | 0.20 | | 01/26/13 19:53 | 1 |
| Total Alkalinity | mg/L | 3.2 I | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:46 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.20 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.13 | EPA 200.7** | 0.10 | 0.050 | 01/17/13 09:02 | 01/17/13 16:15 | 1 |
| Calcium | mg/L | 29 | EPA 200.7 | 0.50 | 0.042 | 01/17/13 09:02 | 01/17/13 16:15 | 1 |

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**February 8, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-48** | | | | | | |
| Date/Time Collected | | **01/16/13 11:10** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.04 | | | | | | |
| Temperature | | 22.5 °C | | | | | | |
| Conductivity | | 385 umhos | | | | | | |
| Dissolved Oxygen | | 0.20 mg/L | | | | | | |
| Iron | mg/L | 1.1 | EPA 200.7 | 0.10 | 0.020 | 01/17/13 09:02 | 01/21/13 12:19 | 1 |
| Magnesium | mg/L | 15 | EPA 200.7 | 0.50 | 0.020 | 01/17/13 09:02 | 01/17/13 16:15 | 1 |
| Manganese | mg/L | 0.015 | EPA 200.7 | 0.010 | 0.0010 | 01/17/13 09:02 | 01/17/13 16:15 | 1 |
| Potassium | mg/L | 2.6 | EPA 200.7 | 0.050 | 0.010 | 01/17/13 09:02 | 01/17/13 16:15 | 1 |
| Sodium | mg/L | 14 | EPA 200.7 | 0.50 | 0.13 | 01/17/13 09:02 | 01/17/13 16:15 | 1 |
| Sample Description | | **PZ-I6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-49** | | | | | | |
| Date/Time Collected | | **01/16/13 11:33** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.90 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |
| Conductivity | | 1849 umhos | | | | | | |
| Dissolved Oxygen | | 0.18 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.38 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:12 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:48 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| Sample Description | | **PZ-I10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-50** | | | | | | |
| Date/Time Collected | | **01/16/13 12:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-50** | | | | | | |
| Date/Time Collected | | **01/16/13 12:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.29 | | | | | | |
| Temperature | | 22.9 °C | | | | | | |
| Conductivity | | 460 umhos | | | | | | |
| Dissolved Oxygen | | 0.51 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.045 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:14 | 1 |
| Chemical Oxygen Demand | mg/L | 34 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.86 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.050 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:08 | 1 |
| Total Alkalinity | mg/L | 13 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.68 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.86 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| Sample Description | | **PZ-I10-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-51** | | | | | | |
| Date/Time Collected | | **01/16/13 12:20** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.29 | | | | | | |
| Temperature | | 22.9 °C | | | | | | |
| Conductivity | | 460 umhos | | | | | | |
| Dissolved Oxygen | | 0.51 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.044 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:24 | 1 |
| Chemical Oxygen Demand | mg/L | 30 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.84 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.055 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:09 | 1 |
| Total Alkalinity | mg/L | 13 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.68 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:51 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.84 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

**Hazen and Sawyer**
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**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I10-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-52** | | | | | | |
| Date/Time Collected | | **01/16/13 12:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.85 | | | | | | |
| Temperature | | 23.1 °C | | | | | | |
| Conductivity | | 734 umhos | | | | | | |
| Dissolved Oxygen | | 0.79 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.55 | EPA 350.1 | 0.040 | 0.009 | | 01/25/13 14:26 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.93 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:53 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-54** | | | | | | |
| Date/Time Collected | | **01/16/13 10:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.47 | | | | | | |
| Temperature | | 23.0 °C | | | | | | |
| Conductivity | | 585 umhos | | | | | | |
| Dissolved Oxygen | | 0.36 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.64 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 65 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.13 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.74 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:10 | 1 |
| Total Alkalinity | mg/L | 100 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:55 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.13 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |

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**February 8, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-55** | | | | | | |
| Date/Time Collected | | **01/16/13 11:48** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.07 | | | | | | |
| Temperature | | 22.8 °C | | | | | | |
| Conductivity | | 299 umhos | | | | | | |
| Dissolved Oxygen | | 0.78 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.18 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 38 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 01/17/13 02:28 | 1 |
| Fluoride | mg/L | 0.11 | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Nitrate (as N) | mg/L | 0.09 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 02:28 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 02:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.065 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:11 | 1 |
| Sulfate | mg/L | 84 | EPA 300.0 | 0.60 | 0.20 | | 01/17/13 02:28 | 1 |
| Total Alkalinity | mg/L | 7.4 I | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:56 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.09 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 02:28 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.11 | EPA 200.7** | 0.10 | 0.050 | 01/17/13 09:02 | 01/17/13 16:57 | 1 |
| Calcium | mg/L | 22 | EPA 200.7 | 0.50 | 0.042 | 01/17/13 09:02 | 01/17/13 16:57 | 1 |
| Iron | mg/L | 0.35 | EPA 200.7 | 0.10 | 0.020 | 01/17/13 09:02 | 01/21/13 12:22 | 1 |
| Magnesium | mg/L | 11 | EPA 200.7 | 0.50 | 0.020 | 01/17/13 09:02 | 01/17/13 16:57 | 1 |
| Manganese | mg/L | 0.0033 I | EPA 200.7 | 0.010 | 0.0010 | 01/17/13 09:02 | 01/17/13 16:57 | 1 |
| Potassium | mg/L | 2.0 | EPA 200.7 | 0.050 | 0.010 | 01/17/13 09:02 | 01/17/13 16:57 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 01/17/13 09:02 | 01/17/13 16:57 | 1 |
| Sample Description | | **PZ-J7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-56** | | | | | | |
| Date/Time Collected | | **01/16/13 12:00** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.30 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 415 umhos | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-56** | | | | | | |
| Date/Time Collected | | **01/16/13 12:00** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.30 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 415 umhos | | | | | | |
| Dissolved Oxygen | | 1.06 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.85 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 4.9 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 14:58 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-57** | | | | | | |
| Date/Time Collected | | **01/16/13 13:58** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.67 | | | | | | |
| Temperature | | 22.9 °C | | | | | | |
| Conductivity | | 280 umhos | | | | | | |
| Dissolved Oxygen | | 4.27 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.19 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 34 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.096 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:12 | 1 |
| Total Alkalinity | mg/L | 17 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.49 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 15:00 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-58** | | | | | | |
| Date/Time Collected | | **01/16/13 14:22** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.69 | | | | | | |
| Temperature | | 23.1 °C | | | | | | |
| Conductivity | | 726 umhos | | | | | | |
| Dissolved Oxygen | | 0.38 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.49 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:27 | 01/23/13 15:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |
| Sample Description | | **PZ-N7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-59** | | | | | | |
| Date/Time Collected | | **01/16/13 13:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.96 | | | | | | |
| Temperature | | 24.4 °C | | | | | | |
| Conductivity | | 454 umhos | | | | | | |
| Dissolved Oxygen | | 1.04 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 3.0 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.8 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 15:46 | 20.83 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |
| Sample Description | | **PZ-N7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-60** | | | | | | |
| Date/Time Collected | | **01/16/13 13:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-60** | | | | | | |
| Date/Time Collected | | **01/16/13 13:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.73 | | | | | | |
| Temperature | | 23.9 °C | | | | | | |
| Conductivity | | 259 umhos | | | | | | |
| Dissolved Oxygen | | 0.31 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.50 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Nitrate (as N) | mg/L | 0.26 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.6 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:25 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.26 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-61** | | | | | | |
| Date/Time Collected | | **01/16/13 13:06** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.40 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 502 umhos | | | | | | |
| Dissolved Oxygen | | 0.33 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.2 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 34 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.33 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:57 | 1 |
| Total Alkalinity | mg/L | 62 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.5 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:26 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |

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**February 8, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-62** | | | | | | |
| Date/Time Collected | | **01/16/13 13:11** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.40 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 502 umhos | | | | | | |
| Dissolved Oxygen | | 0.33 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.2 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 30 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.30 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:58 | 1 |
| Total Alkalinity | mg/L | 62 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.3 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:28 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-63** | | | | | | |
| Date/Time Collected | | **01/16/13 12:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.11 | | | | | | |
| Temperature | | 24.3 °C | | | | | | |
| Conductivity | | 1573 umhos | | | | | | |
| Dissolved Oxygen | | 0.82 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.48 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:30 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-S10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1214542-64** | | | | | | |
| Date/Time Collected | | **01/16/13 13:21** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.31 | | | | | | |
| Temperature | | 24.0 °C | | | | | | |
| Conductivity | | 303 umhos | | | | | | |
| Dissolved Oxygen | | 0.71 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.12 | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 30 | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.051 | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:14 | 1 |
| Total Alkalinity | mg/L | 6.3 I | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.63 | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:31 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |
| Sample Description | | **FB-DI** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1214542-72** | | | | | | |
| Date/Time Collected | | **01/16/13 08:20** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.65 | | | | | | |
| Temperature | | 19.3 °C | | | | | | |
| Conductivity | | 1.43 umhos | | | | | | |
| Dissolved Oxygen | | 8.60 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 01/18/13 14:00 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 01/17/13 10:41 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 10:41 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 10:41 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 10:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 01/19/13 09:36 | 01/23/13 13:26 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 01/17/13 10:41 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |

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

**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **FB-DI** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1214542-72** | | | | | | |
| Date/Time Collected | | **01/16/13 08:20** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.65 | | | | | | |
| Temperature | | 19.3 °C | | | | | | |
| Conductivity | | 1.43 umhos | | | | | | |
| Dissolved Oxygen | | 8.60 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 01/18/13 08:48 | 01/22/13 12:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 10:41 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7** | 0.10 | 0.050 | 01/18/13 12:17 | 01/18/13 12:42 | 1 |
| Calcium | mg/L | 0.042 U | EPA 200.7 | 0.50 | 0.042 | 01/18/13 12:17 | 01/18/13 12:42 | 1 |
| Iron | mg/L | 0.020 U | EPA 200.7 | 0.10 | 0.020 | 01/18/13 12:17 | 01/18/13 12:42 | 1 |
| Magnesium | mg/L | 0.020 U | EPA 200.7 | 0.50 | 0.020 | 01/18/13 12:17 | 01/22/13 10:19 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 01/18/13 12:17 | 01/18/13 12:42 | 1 |
| Potassium | mg/L | 0.010 U | EPA 200.7 | 0.050 | 0.010 | 01/18/13 12:17 | 01/18/13 12:42 | 1 |
| Sodium | mg/L | 0.13 U | EPA 200.7 | 0.50 | 0.13 | 01/18/13 12:17 | 01/18/13 12:42 | 1 |
| Sample Description | | **FB-TAP** | | | | | | |
| Matrix | | **Drinking Water** | | | | | | |
| SAL Sample Number | | **1214542-73** | | | | | | |
| Date/Time Collected | | **01/16/13 08:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.54 | | | | | | |
| Temperature | | 21.6 °C | | | | | | |
| Conductivity | | 846 umhos | | | | | | |
| Dissolved Oxygen | | 4.41 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.027 I | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 14 I | EPA 410.4 | 25 | 10 | 01/21/13 13:20 | 01/22/13 15:45 | 1 |
| Nitrate (as N) | mg/L | 0.16 | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 17:38 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 17:38 | 1 |
| Phosphorous - Total as P | mg/L | 0.038 I | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:19 | 1 |
| Total Alkalinity | mg/L | 160 | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.16 I | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:33 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.16 | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 17:38 | 1 |

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**February 8, 2013**
**Work Order: 1214542**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **EB** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1214542-74** | | | | | | |
| Date/Time Collected | | **01/16/13 08:25** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **01/16/13 15:35** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.65 | | | | | | |
| Temperature | | 18.3 °C | | | | | | |
| Conductivity | | 1.43 umhos | | | | | | |
| Dissolved Oxygen | | 8.60 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 01/28/13 10:47 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 01/18/13 09:45 | 01/18/13 11:45 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 01/17/13 17:38 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 17:38 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 17:38 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 01/17/13 17:38 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 01/17/13 17:38 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 01/23/13 14:40 | 01/24/13 15:20 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 01/17/13 17:38 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 01/18/13 12:45 | 01/18/13 15:13 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 01/19/13 09:15 | 01/23/13 14:35 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 01/17/13 17:38 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7** | 0.10 | 0.050 | 01/18/13 12:17 | 01/18/13 12:46 | 1 |
| Calcium | mg/L | 0.042 U | EPA 200.7 | 0.50 | 0.042 | 01/18/13 12:17 | 01/18/13 12:46 | 1 |
| Iron | mg/L | 0.020 U | EPA 200.7 | 0.10 | 0.020 | 01/18/13 12:17 | 01/18/13 12:46 | 1 |
| Magnesium | mg/L | 0.020 U | EPA 200.7 | 0.50 | 0.020 | 01/18/13 12:17 | 01/21/13 12:15 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 01/18/13 12:17 | 01/18/13 12:46 | 1 |
| Potassium | mg/L | 0.032 I | EPA 200.7 | 0.050 | 0.010 | 01/18/13 12:17 | 01/23/13 15:41 | 1 |
| Sodium | mg/L | 0.13 U | EPA 200.7 | 0.50 | 0.13 | 01/18/13 12:17 | 01/18/13 12:46 | 1 |

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**February 8, 2013**
**Work Order: 1214542**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31514 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31514-BLK1)** | | | | | Prepared & Analyzed: 01/15/13 | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **LCS (BA31514-BS1)** | | | | | Prepared & Analyzed: 01/15/13 | | | | | |
| Chloride | 3.10 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | | |
| Orthophosphate as P | 0.914 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | | |
| Sulfate | 8.94 | 0.60 | 0.20 | mg/L | 9.0 | | 99 | 85-115 | | |
| Fluoride | 0.898 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | | |
| Nitrate (as N) | 1.69 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | | |
| Nitrite (as N) | 1.41 | 0.04 | 0.01 | mg/L | 1.4 | | 101 | 85-115 | | |
| **LCS Dup (BA31514-BSD1)** | | | | | Prepared & Analyzed: 01/15/13 | | | | | |
| Nitrate (as N) | 1.67 | 0.04 | 0.01 | mg/L | 1.7 | | 98 | 85-115 | 1 | 200 |
| Sulfate | 8.86 | 0.60 | 0.20 | mg/L | 9.0 | | 98 | 85-115 | 0.9 | 200 |
| Nitrite (as N) | 1.41 | 0.04 | 0.01 | mg/L | 1.4 | | 101 | 85-115 | 0 | 200 |
| Fluoride | 0.883 | 0.040 | 0.010 | mg/L | 0.90 | | 98 | 85-115 | 2 | 200 |
| Orthophosphate as P | 0.928 | 0.040 | 0.010 | mg/L | 0.90 | | 103 | 85-115 | 2 | 200 |
| Chloride | 3.08 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | 0.6 | 200 |
| **Matrix Spike (BA31514-MS1)** | | **Source: 1300509-01** | | | Prepared & Analyzed: 01/15/13 | | | | | |
| Nitrite (as N) | 1.42 | 0.04 | 0.01 | mg/L | 1.4 | ND | 101 | 85-115 | | |
| Sulfate | 136 +O | 0.60 | 0.20 | mg/L | 9.0 | 237 | NR | 85-115 | | |
| Chloride | 44.6 +O | 0.20 | 0.050 | mg/L | 3.0 | 356 | NR | 80-120 | | |
| Nitrate (as N) | 1.82 | 0.04 | 0.01 | mg/L | 1.7 | 0.0976 | 101 | 85-115 | | |
| Orthophosphate as P | 0.972 | 0.040 | 0.010 | mg/L | 0.90 | 0.0714 | 100 | 85-115 | | |
| Fluoride | 1.32 | 0.040 | 0.010 | mg/L | 0.90 | 0.464 | 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 BA31514 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BA31514-MS2)** | | **Source: 1214542-16** | | | Prepared & Analyzed: 01/15/13 | | | | | |
| Nitrite (as N) | 1.43 | 0.04 | 0.01 | mg/L | 1.4 | ND | 102 | 85-115 | | |
| Orthophosphate as P | 0.830 | 0.040 | 0.010 | mg/L | 0.90 | ND | 92 | 85-115 | | |
| Sulfate | 117 +O | 0.60 | 0.20 | mg/L | 9.0 | 115 | 22 | 85-115 | | |
| Nitrate (as N) | 1.77 | 0.04 | 0.01 | mg/L | 1.7 | 0.0849 | 99 | 85-115 | | |
| Fluoride | 0.915 | 0.040 | 0.010 | mg/L | 0.90 | 0.0418 | 97 | 85-115 | | |
| Chloride | 19.0 | 0.20 | 0.050 | mg/L | 3.0 | 16.0 | 100 | 80-120 | | |
| **Batch BA31515 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31515-BLK1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| 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 (BA31515-BS1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Nitrite (as N) | 1.43 | 0.04 | 0.01 | mg/L | 1.4 | | 102 | 85-115 | | |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | | |
| **LCS Dup (BA31515-BSD1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Nitrite (as N) | 1.43 | 0.04 | 0.01 | mg/L | 1.4 | | 102 | 85-115 | 0 | 200 |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | 0 | 200 |
| **Matrix Spike (BA31515-MS1)** | | **Source: 1300254-06** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Nitrite (as N) | 141 | 0.04 | 0.01 | mg/L | 140 | ND | 101 | 85-115 | | |
| Nitrate (as N) | 170 | 0.04 | 0.01 | mg/L | 170 | ND | 100 | 85-115 | | |
| **Matrix Spike (BA31515-MS2)** | | **Source: 1300286-04** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Nitrite (as N) | 28.7 | 0.04 | 0.01 | mg/L | 28 | ND | 102 | 85-115 | | |
| Nitrate (as N) | 46.9 | 0.04 | 0.01 | mg/L | 34 | 12.1 | 102 | 85-115 | | |

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**February 8, 2013**
**Work Order: 1214542**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31530 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BA31530-BLK1)** | | | | | Prepared: 01/15/13 | Analyzed: 01/17/13 | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BA31530-BS1)** | | | | | Prepared: 01/15/13 | Analyzed: 01/17/13 | | | | |
| Total Kjeldahl Nitrogen | 2.67 | 0.20 | 0.05 | mg/L | 2.5 | | 105 | 90-110 | | |
| **Matrix Spike (BA31530-MS1)** | | **Source: 1214076-23** | | | Prepared: 01/15/13 | Analyzed: 01/17/13 | | | | |
| Total Kjeldahl Nitrogen | 3.35 | 0.20 | 0.05 | mg/L | 2.5 | 1.00 | 93 | 90-110 | | |
| **Matrix Spike (BA31530-MS2)** | | **Source: 1214542-31** | | | Prepared: 01/15/13 | Analyzed: 01/18/13 | | | | |
| Total Kjeldahl Nitrogen | 3.57 | 0.20 | 0.05 | mg/L | 2.5 | 1.03 | 100 | 90-110 | | |
| **Matrix Spike Dup (BA31530-MSD1)** | | **Source: 1214076-23** | | | Prepared: 01/15/13 | Analyzed: 01/18/13 | | | | |
| Total Kjeldahl Nitrogen | 3.65 | 0.20 | 0.05 | mg/L | 2.5 | 1.00 | 105 | 90-110 | 9 | 20 |
| **Matrix Spike Dup (BA31530-MSD2)** | | **Source: 1214542-31** | | | Prepared: 01/15/13 | Analyzed: 01/18/13 | | | | |
| Total Kjeldahl Nitrogen | 3.50 | 0.20 | 0.05 | mg/L | 2.5 | 1.03 | 98 | 90-110 | 2 | 20 |
| **Batch BA31532 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BA31532-BLK1)** | | | | | Prepared: 01/15/13 | Analyzed: 01/18/13 | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BA31532-BS1)** | | | | | Prepared: 01/15/13 | Analyzed: 01/17/13 | | | | |
| Total Kjeldahl Nitrogen | 2.56 | 0.20 | 0.05 | mg/L | 2.5 | | 101 | 90-110 | | |
| **Matrix Spike (BA31532-MS1)** | | **Source: 1214076-17** | | | Prepared: 01/15/13 | Analyzed: 01/18/13 | | | | |
| Total Kjeldahl Nitrogen | 3.10 | 0.20 | 0.05 | mg/L | 2.5 | 0.816 | 90 | 90-110 | | |

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**February 8, 2013**
**Work Order: 1214542**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31532 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike Dup (BA31532-MSD1)** | | **Source: 1214076-17** | | | Prepared: 01/15/13 Analyzed: 01/17/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.42 | 0.20 | 0.05 | mg/L | 2.5 | 0.816 | 103 | 90-110 | 10 | 20 |
| **Batch BA31614 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BA31614-BLK1)** | | | | | Prepared: 01/16/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BA31614-BS1)** | | | | | Prepared: 01/16/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 0.815 | 0.040 | 0.010 | mg/L | 0.80 | | 102 | 90-110 | | |
| **Matrix Spike (BA31614-MS1)** | | **Source: 1214067-07** | | | Prepared: 01/16/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 1.10 | 0.040 | 0.010 | mg/L | 1.0 | 0.0368 | 107 | 90-110 | | |
| **Matrix Spike Dup (BA31614-MSD1)** | | **Source: 1214067-07** | | | Prepared: 01/16/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 1.08 | 0.040 | 0.010 | mg/L | 1.0 | 0.0368 | 104 | 90-110 | 2 | 25 |
| **Batch BA31615 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31615-BLK1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BA31615-BS1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Nitrite (as N) | 1.48 | 0.04 | 0.01 | mg/L | 1.4 | | 106 | 85-115 | | |
| Chloride | 3.25 | 0.20 | 0.050 | mg/L | 3.0 | | 108 | 85-115 | | |
| Fluoride | 0.844 | 0.040 | 0.010 | mg/L | 0.90 | | 94 | 85-115 | | |
| Nitrate (as N) | 1.72 | 0.04 | 0.01 | mg/L | 1.7 | | 101 | 85-115 | | |
| Orthophosphate as P | 0.989 | 0.040 | 0.010 | mg/L | 0.90 | | 110 | 85-115 | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31615 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS Dup (BA31615-BSD1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Orthophosphate as P | 0.914 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | 8 | 200 |
| Chloride | 3.09 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | 5 | 200 |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | 2 | 200 |
| Nitrite (as N) | 1.41 | 0.04 | 0.01 | mg/L | 1.4 | | 101 | 85-115 | 5 | 200 |
| Fluoride | 0.824 | 0.040 | 0.010 | mg/L | 0.90 | | 92 | 85-115 | 2 | 200 |
| **Matrix Spike (BA31615-MS1)** | | **Source: 1300565-01** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Orthophosphate as P | 0.820 | 0.040 | 0.010 | mg/L | 0.90 | ND | 91 | 85-115 | | |
| Fluoride | 0.853 | 0.040 | 0.010 | mg/L | 0.90 | ND | 95 | 85-115 | | |
| Chloride | 0.050 U,+O | 0.20 | 0.050 | mg/L | 3.0 | 1220 | NR | 80-120 | | |
| Nitrate (as N) | 1.76 | 0.04 | 0.01 | mg/L | 1.7 | ND | 104 | 85-115 | | |
| Nitrite (as N) | 1.50 | 0.04 | 0.01 | mg/L | 1.4 | ND | 107 | 85-115 | | |
| **Matrix Spike (BA31615-MS2)** | | **Source: 1214542-32** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Nitrate (as N) | 1.66 | 0.04 | 0.01 | mg/L | 1.7 | ND | 98 | 85-115 | | |
| Chloride | 20.9 | 0.20 | 0.050 | mg/L | 3.0 | 17.8 | 103 | 80-120 | | |
| Fluoride | 0.932 | 0.040 | 0.010 | mg/L | 0.90 | 0.0746 | 95 | 85-115 | | |
| Nitrite (as N) | 1.38 | 0.04 | 0.01 | mg/L | 1.4 | ND | 99 | 85-115 | | |
| Orthophosphate as P | 0.869 | 0.040 | 0.010 | mg/L | 0.90 | ND | 97 | 85-115 | | |
| **Batch BA31616 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31616-BLK1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| 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 | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |

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**Work Order: 1214542**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31616 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BA31616-BS1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Sulfate | 8.91 | 0.60 | 0.20 | mg/L | 9.0 | | 99 | 85-115 | | |
| Chloride | 3.07 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | | |
| Fluoride | 0.815 | 0.040 | 0.010 | mg/L | 0.90 | | 91 | 85-115 | | |
| Nitrite (as N) | 1.39 | 0.04 | 0.01 | mg/L | 1.4 | | 99 | 85-115 | | |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | | |
| Orthophosphate as P | 0.897 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | | |
| **LCS Dup (BA31616-BSD1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Orthophosphate as P | 0.933 | 0.040 | 0.010 | mg/L | 0.90 | | 104 | 85-115 | 4 | 200 |
| Nitrite (as N) | 1.39 | 0.04 | 0.01 | mg/L | 1.4 | | 99 | 85-115 | 0 | 200 |
| Chloride | 3.09 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | 0.6 | 200 |
| Sulfate | 8.97 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | 0.7 | 200 |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | 0 | 200 |
| Fluoride | 0.838 | 0.040 | 0.010 | mg/L | 0.90 | | 93 | 85-115 | 3 | 200 |
| **Matrix Spike (BA31616-MS1)** | | **Source: 1214542-45** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Chloride | 20.0 | 0.20 | 0.050 | mg/L | 3.0 | 16.9 | 103 | 80-120 | | |
| Fluoride | 1.05 | 0.040 | 0.010 | mg/L | 0.90 | 0.101 | 105 | 85-115 | | |
| Nitrate (as N) | 1.66 | 0.04 | 0.01 | mg/L | 1.7 | 0.0336 | 96 | 85-115 | | |
| Nitrite (as N) | 1.41 | 0.04 | 0.01 | mg/L | 1.4 | ND | 101 | 85-115 | | |
| Orthophosphate as P | 0.844 | 0.040 | 0.010 | mg/L | 0.90 | ND | 94 | 85-115 | | |
| Sulfate | 132 +O | 0.60 | 0.20 | mg/L | 9.0 | 132 | 0 | 85-115 | | |
| **Matrix Spike (BA31616-MS2)** | | **Source: 1214542-55** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Nitrate (as N) | 1.90 | 0.04 | 0.01 | mg/L | 1.7 | 0.0885 | 107 | 85-115 | | |
| Sulfate | 94.2 | 0.60 | 0.20 | mg/L | 9.0 | 84.4 | 109 | 85-115 | | |
| Orthophosphate as P | 0.820 | 0.040 | 0.010 | mg/L | 0.90 | ND | 91 | 85-115 | | |
| Chloride | 23.0 | 0.20 | 0.050 | mg/L | 3.0 | 19.4 | 120 | 80-120 | | |
| Fluoride | 1.00 | 0.040 | 0.010 | mg/L | 0.90 | 0.113 | 99 | 85-115 | | |
| Nitrite (as N) | 1.49 | 0.04 | 0.01 | mg/L | 1.4 | ND | 106 | 85-115 | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31617 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31617-BLK1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| 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 | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BA31617-BS1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Nitrate (as N) | 1.72 | 0.04 | 0.01 | mg/L | 1.7 | | 101 | 85-115 | | |
| Fluoride | 0.895 | 0.040 | 0.010 | mg/L | 0.90 | | 99 | 85-115 | | |
| Chloride | 3.18 | 0.20 | 0.050 | mg/L | 3.0 | | 106 | 85-115 | | |
| Orthophosphate as P | 0.968 | 0.040 | 0.010 | mg/L | 0.90 | | 108 | 85-115 | | |
| Sulfate | 9.08 | 0.60 | 0.20 | mg/L | 9.0 | | 101 | 85-115 | | |
| Nitrite (as N) | 1.47 | 0.04 | 0.01 | mg/L | 1.4 | | 105 | 85-115 | | |
| **LCS Dup (BA31617-BSD1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | 1 | 200 |
| Sulfate | 8.99 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | 1 | 200 |
| Nitrite (as N) | 1.41 | 0.04 | 0.01 | mg/L | 1.4 | | 101 | 85-115 | 4 | 200 |
| Orthophosphate as P | 0.890 | 0.040 | 0.010 | mg/L | 0.90 | | 99 | 85-115 | 8 | 200 |
| Fluoride | 0.820 | 0.040 | 0.010 | mg/L | 0.90 | | 91 | 85-115 | 9 | 200 |
| Chloride | 3.14 | 0.20 | 0.050 | mg/L | 3.0 | | 105 | 85-115 | 1 | 200 |
| **Matrix Spike (BA31617-MS1)** | | **Source: 1214542-72** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Sulfate | 9.55 | 0.60 | 0.20 | mg/L | 9.0 | ND | 106 | 85-115 | | |
| Chloride | 3.24 | 0.20 | 0.050 | mg/L | 3.0 | ND | 108 | 80-120 | | |
| Orthophosphate as P | 0.909 | 0.040 | 0.010 | mg/L | 0.90 | ND | 101 | 85-115 | | |
| Fluoride | 0.861 | 0.040 | 0.010 | mg/L | 0.90 | ND | 96 | 85-115 | | |
| Nitrate (as N) | 1.78 | 0.04 | 0.01 | mg/L | 1.7 | ND | 105 | 85-115 | | |
| Nitrite (as N) | 1.42 | 0.04 | 0.01 | mg/L | 1.4 | ND | 101 | 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 BA31617 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BA31617-MS2)** | | **Source: 1300025-03** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Sulfate | 145 | 0.60 | 0.20 | mg/L | 90 | 53.7 | 101 | 85-115 | | |
| Orthophosphate as P | 8.69 | 0.040 | 0.010 | mg/L | 9.0 | 0.247 | 94 | 85-115 | | |
| Fluoride | 8.29 | 0.040 | 0.010 | mg/L | 9.0 | ND | 92 | 85-115 | | |
| Nitrate (as N) | 17.8 | 0.04 | 0.01 | mg/L | 17 | 0.700 | 101 | 85-115 | | |
| Chloride | 277 | 0.20 | 0.050 | mg/L | 30 | 253 | 80 | 80-120 | | |
| Nitrite (as N) | 14.2 | 0.04 | 0.01 | mg/L | 14 | ND | 101 | 85-115 | | |
| **Batch BA31705 - COD prep** | | | | | | | | | | |
| **Blank (BA31705-BLK1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BA31705-BS1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Chemical Oxygen Demand | 46 | 25 | 10 | mg/L | 50 | | 92 | 90-110 | | |
| **Matrix Spike (BA31705-MS1)** | | **Source: 1214072-20** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Chemical Oxygen Demand | 61 | 25 | 10 | mg/L | 50 | 12 | 98 | 85-115 | | |
| **Matrix Spike Dup (BA31705-MSD1)** | | **Source: 1214072-20** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Chemical Oxygen Demand | 61 | 25 | 10 | mg/L | 50 | 12 | 98 | 85-115 | 0 | 32 |
| **Batch BA31715 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31715-BLK1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| 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 BA31715 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BA31715-BS1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | | |
| Nitrite (as N) | 1.42 | 0.04 | 0.01 | mg/L | 1.4 | | 101 | 85-115 | | |
| **LCS Dup (BA31715-BSD1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Nitrite (as N) | 1.30 | 0.04 | 0.01 | mg/L | 1.4 | | 93 | 85-115 | 9 | 200 |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | 0 | 200 |
| **Matrix Spike (BA31715-MS1)** | | **Source: 1300004-10** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | ND | 99 | 85-115 | | |
| Nitrite (as N) | 1.36 | 0.04 | 0.01 | mg/L | 1.4 | ND | 97 | 85-115 | | |
| **Matrix Spike (BA31715-MS2)** | | **Source: 1300619-01** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Nitrite (as N) | 1.49 | 0.04 | 0.01 | mg/L | 1.4 | ND | 106 | 85-115 | | |
| Nitrate (as N) | 1.75 | 0.04 | 0.01 | mg/L | 1.7 | 0.0298 | 101 | 85-115 | | |
| **Batch BA31717 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31717-BLK1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| 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 (BA31717-BS1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Orthophosphate as P | 0.951 | 0.040 | 0.010 | mg/L | 0.90 | | 106 | 85-115 | | |
| Chloride | 3.17 | 0.20 | 0.050 | mg/L | 3.0 | | 106 | 85-115 | | |
| Sulfate | 8.94 | 0.60 | 0.20 | mg/L | 9.0 | | 99 | 85-115 | | |
| Nitrate (as N) | 1.71 | 0.04 | 0.01 | mg/L | 1.7 | | 101 | 85-115 | | |
| Fluoride | 0.949 | 0.040 | 0.010 | mg/L | 0.90 | | 105 | 85-115 | | |
| Nitrite (as N) | 1.47 | 0.04 | 0.01 | mg/L | 1.4 | | 105 | 85-115 | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31717 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS Dup (BA31717-BSD1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Sulfate | 8.93 | 0.60 | 0.20 | mg/L | 9.0 | | 99 | 85-115 | 0.1 | 200 |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | 2 | 200 |
| Fluoride | 0.878 | 0.040 | 0.010 | mg/L | 0.90 | | 98 | 85-115 | 8 | 200 |
| Orthophosphate as P | 0.931 | 0.040 | 0.010 | mg/L | 0.90 | | 103 | 85-115 | 2 | 200 |
| Nitrite (as N) | 1.40 | 0.04 | 0.01 | mg/L | 1.4 | | 100 | 85-115 | 5 | 200 |
| Chloride | 3.06 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | 4 | 200 |
| **Matrix Spike (BA31717-MS1)** | | **Source: 1214542-74** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Nitrate (as N) | 1.71 | 0.04 | 0.01 | mg/L | 1.7 | ND | 101 | 85-115 | | |
| Orthophosphate as P | 0.919 | 0.040 | 0.010 | mg/L | 0.90 | ND | 102 | 85-115 | | |
| Fluoride | 0.832 | 0.040 | 0.010 | mg/L | 0.90 | ND | 92 | 85-115 | | |
| Sulfate | 9.08 | 0.60 | 0.20 | mg/L | 9.0 | ND | 101 | 85-115 | | |
| Nitrite (as N) | 1.39 | 0.04 | 0.01 | mg/L | 1.4 | ND | 99 | 85-115 | | |
| Chloride | 3.09 | 0.20 | 0.050 | mg/L | 3.0 | ND | 103 | 80-120 | | |
| **Matrix Spike (BA31717-MS2)** | | **Source: 1300685-01** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Nitrate (as N) | 1.77 | 0.04 | 0.01 | mg/L | 1.7 | 0.0456 | 101 | 85-115 | | |
| Orthophosphate as P | 0.838 | 0.040 | 0.010 | mg/L | 0.90 | ND | 93 | 85-115 | | |
| Nitrite (as N) | 1.50 | 0.04 | 0.01 | mg/L | 1.4 | ND | 107 | 85-115 | | |
| Fluoride | 0.893 | 0.040 | 0.010 | mg/L | 0.90 | 0.0349 | 95 | 85-115 | | |
| Chloride | 39.0 +O | 0.20 | 0.050 | mg/L | 3.0 | 38.0 | 33 | 80-120 | | |
| Sulfate | 23.7 | 0.60 | 0.20 | mg/L | 9.0 | 14.4 | 103 | 85-115 | | |
| **Batch BA31735 - alkalinity** | | | | | | | | | | |
| **Blank (BA31735-BLK1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| 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 BA31735 - alkalinity** | | | | | | | | | | |
| **Blank (BA31735-BLK2)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BA31735-BS1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 100 | 90-110 | | |
| **LCS (BA31735-BS2)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 100 | 90-110 | | |
| **Matrix Spike (BA31735-MS1)** | | **Source: 1214078-06** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | 3.2 | 97 | 80-120 | | |
| **Matrix Spike (BA31735-MS2)** | | **Source: 1214542-27** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Total Alkalinity | 160 | 8.0 | 2.0 | mg/L | 120 | 31 | 100 | 80-120 | | |
| **Matrix Spike Dup (BA31735-MSD1)** | | **Source: 1214078-06** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | 3.2 | 97 | 80-120 | 0 | 26 |
| **Matrix Spike Dup (BA31735-MSD2)** | | **Source: 1214542-27** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Total Alkalinity | 160 | 8.0 | 2.0 | mg/L | 120 | 31 | 100 | 80-120 | 0 | 26 |
| **Batch BA31806 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BA31806-BLK1)** | | | | | Prepared: 01/18/13 Analyzed: 01/22/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BA31806-BS1)** | | | | | Prepared: 01/18/13 Analyzed: 01/22/13 | | | | | |
| Total Kjeldahl Nitrogen | es at 90.6% | 0.20 | 0.05 | mg/L | 2.5 | | 89 | 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 BA31806 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike (BA31806-MS1)** | | **Source: 1214074-26** | | | Prepared: 01/18/13 Analyzed: 01/22/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.48 | 0.20 | 0.05 | mg/L | 2.5 | 1.10 | 94 | 90-110 | | |
| **Matrix Spike (BA31806-MS2)** | | **Source: 1214078-15** | | | Prepared: 01/18/13 Analyzed: 01/22/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.41 | 0.20 | 0.05 | mg/L | 2.5 | 0.730 | 106 | 90-110 | | |
| **Matrix Spike Dup (BA31806-MSD1)** | | **Source: 1214074-26** | | | Prepared: 01/18/13 Analyzed: 01/22/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.71 | 0.20 | 0.05 | mg/L | 2.5 | 1.10 | 103 | 90-110 | 6 | 20 |
| **Matrix Spike Dup (BA31806-MSD2)** | | **Source: 1214078-15** | | | Prepared: 01/18/13 Analyzed: 01/22/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.40 | 0.20 | 0.05 | mg/L | 2.5 | 0.730 | 105 | 90-110 | 0.2 | 20 |
| **Batch BA31809 - COD prep** | | | | | | | | | | |
| **Blank (BA31809-BLK1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BA31809-BS1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Chemical Oxygen Demand | 51 | 25 | 10 | mg/L | 50 | | 102 | 90-110 | | |
| **Matrix Spike (BA31809-MS1)** | | **Source: 1214542-74** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Chemical Oxygen Demand | 51 | 25 | 10 | mg/L | 50 | ND | 102 | 85-115 | | |
| **Matrix Spike Dup (BA31809-MSD1)** | | **Source: 1214542-74** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Chemical Oxygen Demand | 51 | 25 | 10 | mg/L | 50 | ND | 102 | 85-115 | 0 | 32 |
| **Batch BA31816 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA31816-BLK1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| 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 BA31816 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BA31816-BS1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Nitrite (as N) | 1.37 | 0.04 | 0.01 | mg/L | 1.4 | | 98 | 85-115 | | |
| Nitrate (as N) | 1.66 | 0.04 | 0.01 | mg/L | 1.7 | | 98 | 85-115 | | |
| **LCS Dup (BA31816-BSD1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Nitrite (as N) | 1.38 | 0.04 | 0.01 | mg/L | 1.4 | | 99 | 85-115 | 0.7 | 200 |
| Nitrate (as N) | 1.66 | 0.04 | 0.01 | mg/L | 1.7 | | 98 | 85-115 | 0 | 200 |
| **Matrix Spike (BA31816-MS1)** | | **Source: 1300311-01** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Nitrite (as N) | 1.52 | 0.04 | 0.01 | mg/L | 1.4 | | 109 | 85-115 | | |
| Nitrate (as N) | 1.66 | 0.04 | 0.01 | mg/L | 1.7 | | 98 | 85-115 | | |
| **Matrix Spike (BA31816-MS2)** | | **Source: 1300025-09** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Nitrate (as N) | 16.2 | 0.04 | 0.01 | mg/L | 17 | 0.127 | 95 | 85-115 | | |
| Nitrite (as N) | 13.4 | 0.04 | 0.01 | mg/L | 14 | ND | 96 | 85-115 | | |
| **Batch BA31822 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BA31822-BLK1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BA31822-BS1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 103 | 90-110 | | |
| **Matrix Spike (BA31822-MS1)** | | **Source: 1300638-02** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | 0.046 | 92 | 90-110 | | |
| **Matrix Spike (BA31822-MS2)** | | **Source: 1300638-05** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | 0.046 | 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 BA31822 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike Dup (BA31822-MSD1)** | | **Source: 1300638-02** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.046 | 97 | 90-110 | 4 | 10 |
| **Matrix Spike Dup (BA31822-MSD2)** | | **Source: 1300638-05** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.046 | 91 | 90-110 | 2 | 10 |
| **Batch BA31834 - alkalinity** | | | | | | | | | | |
| **Blank (BA31834-BLK1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **Blank (BA31834-BLK2)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BA31834-BS1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 100 | 90-110 | | |
| **LCS (BA31834-BS2)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 100 | 90-110 | | |
| **Matrix Spike (BA31834-MS1)** | | **Source: 1214542-61** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 180 | 8.0 | 2.0 | mg/L | 120 | 62 | 91 | 80-120 | | |
| **Matrix Spike (BA31834-MS2)** | | **Source: 1300489-07** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 290 | 8.0 | 2.0 | mg/L | 120 | 170 | 100 | 80-120 | | |
| **Matrix Spike Dup (BA31834-MSD1)** | | **Source: 1214542-61** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 180 | 8.0 | 2.0 | mg/L | 120 | 62 | 91 | 80-120 | 0 | 26 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31834 - alkalinity** | | | | | | | | | | |
| **Matrix Spike Dup (BA31834-MSD2)** | | **Source: 1300489-07** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Total Alkalinity | 290 | 8.0 | 2.0 | mg/L | 120 | 170 | 100 | 80-120 | 0 | 26 |
| **Batch BA31904 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BA31904-BLK1)** | | | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BA31904-BS1)** | | | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.45 | 0.20 | 0.05 | mg/L | 2.5 | | 97 | 90-110 | | |
| **Matrix Spike (BA31904-MS1)** | | **Source: 1214542-06** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.41 | 0.20 | 0.05 | mg/L | 2.5 | 1.89 | 100 | 90-110 | | |
| **Matrix Spike (BA31904-MS2)** | | **Source: 1214542-28** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.50 | 0.20 | 0.05 | mg/L | 2.5 | 1.18 | 91 | 90-110 | | |
| **Matrix Spike Dup (BA31904-MSD1)** | | **Source: 1214542-06** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.40 | 0.20 | 0.05 | mg/L | 2.5 | 1.89 | 99 | 90-110 | 0.4 | 20 |
| **Matrix Spike Dup (BA31904-MSD2)** | | **Source: 1214542-28** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.49 | 0.20 | 0.05 | mg/L | 2.5 | 1.18 | 91 | 90-110 | 0.3 | 20 |
| **Batch BA31905 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BA31905-BLK1)** | | | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| 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 BA31905 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **LCS (BA31905-BS1)** | | | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.38 | 0.20 | 0.05 | mg/L | 2.5 | | 94 | 90-110 | | |
| **Matrix Spike (BA31905-MS1)** | | **Source: 1214542-48** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.82 | 0.20 | 0.05 | mg/L | 2.5 | 1.46 | 93 | 90-110 | | |
| **Matrix Spike Dup (BA31905-MSD1)** | | **Source: 1214542-48** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.84 | 0.20 | 0.05 | mg/L | 2.5 | 1.46 | 94 | 90-110 | 0.5 | 20 |
| **Batch BA31907 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BA31907-BLK1)** | | | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BA31907-BS1)** | | | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 0.759 | 0.040 | 0.010 | mg/L | | | | 90-110 | | |
| **Matrix Spike (BA31907-MS1)** | | **Source: 1300701-07** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 0.972 | 0.040 | 0.010 | mg/L | | 0.0557 | | 90-110 | | |
| **Matrix Spike (BA31907-MS2)** | | **Source: 1300758-07** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 1.13 | 0.040 | 0.010 | mg/L | | 0.0868 | | 90-110 | | |
| **Matrix Spike Dup (BA31907-MSD1)** | | **Source: 1300701-07** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 1.07 | 0.040 | 0.010 | mg/L | | 0.0557 | | 90-110 | 9 | 25 |
| **Matrix Spike Dup (BA31907-MSD2)** | | **Source: 1300758-07** | | | Prepared: 01/19/13 Analyzed: 01/23/13 | | | | | |
| Phosphorous - Total as P | 1.05 | 0.040 | 0.010 | mg/L | | 0.0868 | | 90-110 | 7 | 25 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31908 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BA31908-BLK1)** | | | | | Prepared: 01/19/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BA31908-BS1)** | | | | | Prepared: 01/19/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 0.850 | 0.040 | 0.010 | mg/L | 0.80 | | 106 | 90-110 | | |
| **Matrix Spike (BA31908-MS1)** | | **Source: 1214542-37** | | | Prepared: 01/19/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 1.15 | 0.040 | 0.010 | mg/L | 1.0 | 0.159 | 99 | 90-110 | | |
| **Matrix Spike Dup (BA31908-MSD1)** | | **Source: 1214542-37** | | | Prepared: 01/19/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 1.08 | 0.040 | 0.010 | mg/L | 1.0 | 0.159 | 92 | 90-110 | 7 | 25 |
| **Batch BA32101 - COD prep** | | | | | | | | | | |
| **Blank (BA32101-BLK1)** | | | | | Prepared: 01/21/13 Analyzed: 01/22/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BA32101-BS1)** | | | | | Prepared: 01/21/13 Analyzed: 01/22/13 | | | | | |
| Chemical Oxygen Demand | 53 | 25 | 10 | mg/L | 50 | | 106 | 90-110 | | |
| **Matrix Spike (BA32101-MS1)** | | **Source: 1214542-72** | | | Prepared: 01/21/13 Analyzed: 01/22/13 | | | | | |
| Chemical Oxygen Demand | 49 | 25 | 10 | mg/L | 50 | ND | 98 | 85-115 | | |
| **Matrix Spike Dup (BA32101-MSD1)** | | **Source: 1214542-72** | | | Prepared: 01/21/13 Analyzed: 01/22/13 | | | | | |
| Chemical Oxygen Demand | 51 | 25 | 10 | mg/L | 50 | ND | 102 | 85-115 | 4 | 32 |
| **Batch BA32113 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA32113-BLK1)** | | | | | Prepared & Analyzed: 01/21/13 | | | | | |
| Nitrate (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 BA32113 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BA32113-BS1)** | | | | | Prepared & Analyzed: 01/21/13 | | | | | |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | | |
| **LCS Dup (BA32113-BSD1)** | | | | | Prepared & Analyzed: 01/21/13 | | | | | |
| Nitrate (as N) | 1.69 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | 0.6 | 200 |
| **Matrix Spike (BA32113-MS1)** | | **Source: 1300537-01** | | | Prepared & Analyzed: 01/21/13 | | | | | |
| Nitrate (as N) | 19.2 | 0.04 | 0.01 | mg/L | 17 | 1.42 | 105 | 85-115 | | |
| **Matrix Spike (BA32113-MS2)** | | **Source: 1214074-14** | | | Prepared & Analyzed: 01/21/13 | | | | | |
| Nitrate (as N) | 28.6 | 0.04 | 0.01 | mg/L | 3.4 | 24.7 | 115 | 85-115 | | |
| **Batch BA32315 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BA32315-BLK1)** | | | | | Prepared & Analyzed: 01/23/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BA32315-BS1)** | | | | | Prepared & Analyzed: 01/23/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 101 | 90-110 | | |
| **Matrix Spike (BA32315-MS1)** | | **Source: 1300758-07** | | | Prepared & Analyzed: 01/23/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.038 | 96 | 90-110 | | |
| **Matrix Spike (BA32315-MS2)** | | **Source: 1300767-07** | | | Prepared & Analyzed: 01/23/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.023 | 95 | 90-110 | | |
| **Matrix Spike Dup (BA32315-MSD1)** | | **Source: 1300758-07** | | | Prepared & Analyzed: 01/23/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.038 | 96 | 90-110 | 0.2 | 10 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA32315 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike Dup (BA32315-MSD2)** | | **Source: 1300767-07** | | | Prepared & Analyzed: 01/23/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | 0.023 | 94 | 90-110 | 2 | 10 |
| **Batch BA32328 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BA32328-BLK1)** | | | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BA32328-BS1)** | | | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Phosphorous - Total as P | 0.732 | 0.040 | 0.010 | mg/L | 0.80 | | 91 | 90-110 | | |
| **Duplicate (BA32328-DUP1)** | | **Source: 1300516-05** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Phosphorous - Total as P | 2.06 | 0.080 | 0.020 | mg/L | | 2.13 | | | 3 | 25 |
| **Matrix Spike (BA32328-MS1)** | | **Source: 1300767-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Phosphorous - Total as P | 1.02 | 0.040 | 0.010 | mg/L | 1.0 | 0.0633 | 95 | 90-110 | | |
| **Matrix Spike (BA32328-MS2)** | | **Source: 1300808-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Phosphorous - Total as P | 1.09 | 0.040 | 0.010 | mg/L | 1.0 | 0.0469 | 104 | 90-110 | | |
| **Matrix Spike Dup (BA32328-MSD1)** | | **Source: 1300767-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Phosphorous - Total as P | 1.03 | 0.040 | 0.010 | mg/L | 1.0 | 0.0633 | 97 | 90-110 | 1 | 25 |
| **Matrix Spike Dup (BA32328-MSD2)** | | **Source: 1300808-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Phosphorous - Total as P | 0.986 | 0.040 | 0.010 | mg/L | 1.0 | 0.0469 | 94 | 90-110 | 10 | 25 |
| **Batch BA32329 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BA32329-BLK1)** | | | | | Prepared: 01/23/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |

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**10002 Princess Palm Ave, Suite 200**
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**February 8, 2013**
**Work Order: 1214542**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA32329 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **LCS (BA32329-BS1)** | | | | | Prepared: 01/23/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 0.833 | 0.040 | 0.010 | mg/L | 0.80 | | 104 | 90-110 | | |
| **Matrix Spike (BA32329-MS1)** | | **Source: 1214542-03** | | | Prepared: 01/23/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 1.04 | 0.040 | 0.010 | mg/L | 1.0 | 0.0858 | 95 | 90-110 | | |
| **Matrix Spike (BA32329-MS2)** | | **Source: 1300833-07** | | | Prepared: 01/23/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 0.965 | 0.040 | 0.010 | mg/L | 1.0 | 0.0532 | 91 | 90-110 | | |
| **Matrix Spike Dup (BA32329-MSD1)** | | **Source: 1214542-03** | | | Prepared: 01/23/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 1.15 | 0.040 | 0.010 | mg/L | 1.0 | 0.0858 | 106 | 90-110 | 10 | 25 |
| **Matrix Spike Dup (BA32329-MSD2)** | | **Source: 1300833-07** | | | Prepared: 01/23/13 Analyzed: 01/24/13 | | | | | |
| Phosphorous - Total as P | 1.08 | 0.040 | 0.010 | mg/L | 1.0 | 0.0532 | 103 | 90-110 | 11 | 25 |
| **Batch BA32331 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BA32331-BLK1)** | | | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BA32331-BS1)** | | | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.57 | 0.20 | 0.05 | mg/L | 2.5 | | 101 | 90-110 | | |
| **Matrix Spike (BA32331-MS1)** | | **Source: 1300808-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.13 | 0.20 | 0.05 | mg/L | 2.5 | 0.803 | 92 | 90-110 | | |
| **Matrix Spike (BA32331-MS2)** | | **Source: 1300833-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.13 | 0.20 | 0.05 | mg/L | 2.5 | 0.574 | 101 | 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 BA32331 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike Dup (BA32331-MSD1)** | | **Source: 1300808-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Total Kjeldahl Nitrogen | ses at 91% | 0.20 | 0.05 | mg/L | 2.5 | 0.803 | 90 | 90-110 | 2 | 20 |
| **Matrix Spike Dup (BA32331-MSD2)** | | **Source: 1300833-07** | | | Prepared: 01/23/13 Analyzed: 01/25/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.88 | 0.20 | 0.05 | mg/L | 2.5 | 0.574 | 91 | 90-110 | 8 | 20 |
| **Batch BA32405 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BA32405-BLK1)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BA32405-BS1)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 102 | 90-110 | | |
| **LCS (BA32405-BS2)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 100 | 90-110 | | |
| **LCS (BA32405-BS3)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 101 | 90-110 | | |
| **LCS (BA32405-BS4)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 102 | 90-110 | | |
| **LCS (BA32405-BS5)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 99 | 90-110 | | |
| **Duplicate (BA32405-DUP1)** | | **Source: 1300516-04** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 16.2 | 0.40 | 0.095 | mg/L | | 15.7 | | | 3 | 10 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA32405 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike (BA32405-MS1)** | | **Source: 1214542-06** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.63 | 0.040 | 0.009 | mg/L | 0.50 | 0.16 | 94 | 90-110 | | |
| **Matrix Spike (BA32405-MS2)** | | **Source: 1214542-30** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.83 | 0.040 | 0.009 | mg/L | 0.50 | 0.36 | 95 | 90-110 | | |
| **Matrix Spike Dup (BA32405-MSD1)** | | **Source: 1214542-06** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.61 | 0.040 | 0.009 | mg/L | 0.50 | 0.16 | 91 | 90-110 | 3 | 10 |
| **Matrix Spike Dup (BA32405-MSD2)** | | **Source: 1214542-30** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.83 | 0.040 | 0.009 | mg/L | 0.50 | 0.36 | 94 | 90-110 | 0.6 | 10 |
| **Batch BA32412 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA32412-BLK1)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| 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 | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| **LCS (BA32412-BS1)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Nitrite (as N) | 1.40 | 0.04 | 0.01 | mg/L | 1.4 | | 100 | 85-115 | | |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | | |
| Sulfate | 9.04 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | | |
| Chloride | 3.29 | 0.20 | 0.050 | mg/L | 3.0 | | 110 | 85-115 | | |
| **LCS Dup (BA32412-BSD1)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Chloride | 3.28 | 0.20 | 0.050 | mg/L | 3.0 | | 109 | 85-115 | 0.3 | 200 |
| Nitrite (as N) | 1.40 | 0.04 | 0.01 | mg/L | 1.4 | | 100 | 85-115 | 0 | 200 |
| Sulfate | 9.05 | 0.60 | 0.20 | mg/L | 9.0 | | 101 | 85-115 | 0.1 | 200 |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | 0 | 200 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA32412 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BA32412-MS1)** | | **Source: 1300564-01** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Sulfate | 91.6 | 0.60 | 0.20 | mg/L | 90 | 0.875 | 101 | 85-115 | | |
| Nitrite (as N) | 14.6 | 0.04 | 0.01 | mg/L | 14 | ND | 104 | 85-115 | | |
| Chloride | 128 | 0.20 | 0.050 | mg/L | 30 | 100 | 93 | 80-120 | | |
| Nitrate (as N) | 17.1 | 0.04 | 0.01 | mg/L | 17 | ND | 101 | 85-115 | | |
| **Matrix Spike (BA32412-MS2)** | | **Source: 1214542-29** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Chloride | 65.2 | 0.20 | 0.050 | mg/L | 30 | 33.2 | 107 | 80-120 | | |
| Nitrite (as N) | 14.5 | 0.04 | 0.01 | mg/L | 14 | ND | 104 | 85-115 | | |
| Sulfate | 311 | 0.60 | 0.20 | mg/L | 90 | 213 | 109 | 85-115 | | |
| Nitrate (as N) | 17.5 | 0.04 | 0.01 | mg/L | 17 | 0.424 | 100 | 85-115 | | |
| **Batch BA32511 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA32511-BLK1)** | | | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BA32511-BS1)** | | | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 8.96 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | | |
| Chloride | 2.93 | 0.20 | 0.050 | mg/L | 3.0 | | 98 | 85-115 | | |
| **LCS Dup (BA32511-BSD1)** | | | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Chloride | 3.03 | 0.20 | 0.050 | mg/L | 3.0 | | 101 | 85-115 | 3 | 200 |
| Sulfate | 9.04 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | 0.9 | 200 |
| **Matrix Spike (BA32511-MS1)** | | **Source: 1300948-02** | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 45.3 | 0.60 | 0.20 | mg/L | 9.0 | 36.5 | 98 | 85-115 | | |
| Chloride | 34.5 +O | 0.20 | 0.050 | mg/L | 3.0 | 32.6 | 63 | 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 BA32511 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BA32511-MS2)** | | **Source: 1300816-01** | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 184 | 0.60 | 0.20 | mg/L | 180 | 190 | NR | 85-115 | | |
| Chloride | 75.4 | 0.20 | 0.050 | mg/L | 60 | 322 | NR | 80-120 | | |
| **Batch BA32512 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BA32512-BLK1)** | | | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| **LCS (BA32512-BS1)** | | | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 9.04 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | | |
| **LCS Dup (BA32512-BSD1)** | | | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 9.09 | 0.60 | 0.20 | mg/L | 9.0 | | 101 | 85-115 | 0.6 | 200 |
| **Matrix Spike (BA32512-MS1)** | | **Source: 1300949-01** | | | Prepared & Analyzed: 01/26/13 | | | | | |
| Sulfate | 16.1 | 0.60 | 0.20 | mg/L | 9.0 | 6.78 | 104 | 85-115 | | |
| **Batch BA32515 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BA32515-BLK1)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BA32515-BS1)** | | | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 101 | 90-110 | | |
| **Matrix Spike (BA32515-MS1)** | | **Source: 1300808-07** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.022 | 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 BA32515 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike (BA32515-MS2)** | | **Source: 1300811-01** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | ND | 102 | 90-110 | | |
| **Matrix Spike Dup (BA32515-MSD1)** | | **Source: 1300808-07** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.022 | 96 | 90-110 | 4 | 10 |
| **Matrix Spike Dup (BA32515-MSD2)** | | **Source: 1300811-01** | | | Prepared & Analyzed: 01/25/13 | | | | | |
| Ammonia as N | 0.47 | 0.040 | 0.009 | mg/L | 0.50 | ND | 93 | 90-110 | 9 | 10 |
| **Batch BA32602 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BA32602-BLK1)** | | | | | Prepared: 01/26/13 Analyzed: 01/30/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BA32602-BS1)** | | | | | Prepared: 01/26/13 Analyzed: 01/30/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.71 | 0.20 | 0.05 | mg/L | 2.5 | | 107 | 90-110 | | |
| **Matrix Spike (BA32602-MS1)** | | **Source: 1300918-07** | | | Prepared: 01/26/13 Analyzed: 01/30/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.27 | 0.20 | 0.05 | mg/L | 2.5 | 0.691 | 102 | 90-110 | | |
| **Matrix Spike (BA32602-MS2)** | | **Source: 1300997-07** | | | Prepared: 01/26/13 Analyzed: 01/30/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.27 | 0.20 | 0.05 | mg/L | 2.5 | 0.553 | 107 | 90-110 | | |
| **Matrix Spike Dup (BA32602-MSD1)** | | **Source: 1300918-07** | | | Prepared: 01/26/13 Analyzed: 01/30/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.42 | 0.20 | 0.05 | mg/L | 2.5 | 0.691 | 108 | 90-110 | 4 | 20 |
| **Matrix Spike Dup (BA32602-MSD2)** | | **Source: 1300997-07** | | | Prepared: 01/26/13 Analyzed: 01/30/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.27 | 0.20 | 0.05 | mg/L | 2.5 | 0.553 | 107 | 90-110 | 0.3 | 20 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA32801 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BA32801-BLK1)** | | | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BA32801-BS1)** | | | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | | 105 | 90-110 | | |
| **Matrix Spike (BA32801-MS1)** | | **Source: 1300833-07** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.015 | 101 | 90-110 | | |
| **Matrix Spike (BA32801-MS2)** | | **Source: 1214542-74** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | ND | 100 | 90-110 | | |
| **Matrix Spike Dup (BA32801-MSD1)** | | **Source: 1300833-07** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.015 | 102 | 90-110 | 1 | 10 |
| **Matrix Spike Dup (BA32801-MSD2)** | | **Source: 1214542-74** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | ND | 107 | 90-110 | 7 | 10 |
| **Batch BA32819 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BA32819-BLK1)** | | | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BA32819-BS1)** | | | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | | 106 | 90-110 | | |
| **Matrix Spike (BA32819-MS1)** | | **Source: 1300918-07** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | 0.022 | 103 | 90-110 | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA32819 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike (BA32819-MS2)** | | **Source: 1300977-02** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | ND | 108 | 90-110 | | |
| **Matrix Spike Dup (BA32819-MSD1)** | | **Source: 1300918-07** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.022 | 102 | 90-110 | 0.7 | 10 |
| **Matrix Spike Dup (BA32819-MSD2)** | | **Source: 1300977-02** | | | Prepared & Analyzed: 01/28/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | ND | 104 | 90-110 | 3 | 10 |

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**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31507 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BA31507-BLK1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| **LCS (BA31507-BS1)** | | | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | | 96 | 85-115 | | |
| Sodium | 19 | 0.50 | 0.13 | mg/L | 20 | | 95 | 85-115 | | |
| Calcium | 19 | 0.50 | 0.042 | mg/L | 20 | | 96 | 85-115 | | |
| Potassium | 18 | 0.050 | 0.010 | mg/L | 20 | | 91 | 85-115 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | | 97 | 85-115 | | |
| Boron | 0.41 | 0.10 | 0.050 | mg/L | 0.40 | | 103 | 85-115 | | |
| Iron | 7.7 | 0.10 | 0.020 | mg/L | 8.0 | | 96 | 85-115 | | |
| **Matrix Spike (BA31507-MS1)** | | **Source: 1300022-01** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Boron | 0.41 | 0.10 | 0.050 | mg/L | 0.40 | ND | 103 | 70-130 | | |
| Manganese | 0.38 | 0.010 | 0.0010 | mg/L | 0.40 | 0.018 | 90 | 70-130 | | |
| Calcium | 51 | 0.50 | 0.042 | mg/L | 20 | 34 | 81 | 70-130 | | |
| Potassium | 18 | 0.050 | 0.010 | mg/L | 20 | 1.1 | 87 | 70-130 | | |
| Sodium | 29 | 0.50 | 0.13 | mg/L | 20 | 12 | 86 | 70-130 | | |
| Magnesium | 30 | 0.50 | 0.020 | mg/L | 20 | 13 | 85 | 70-130 | | |
| Iron | 7.8 | 0.10 | 0.020 | mg/L | 8.0 | 0.39 | 92 | 70-130 | | |
| **Matrix Spike (BA31507-MS2)** | | **Source: 1300473-01** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Boron | 0.43 | 0.10 | 0.050 | mg/L | 0.40 | ND | 108 | 70-130 | | |
| Sodium | 75 | 0.50 | 0.13 | mg/L | 20 | 52 | 112 | 70-130 | | |
| Calcium | 24 | 0.50 | 0.042 | mg/L | 20 | 5.1 | 93 | 70-130 | | |
| Manganese | 0.38 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0015 | 94 | 70-130 | | |
| Potassium | 38 | 0.050 | 0.010 | mg/L | 20 | 20 | 91 | 70-130 | | |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | 0.87 | 94 | 70-130 | | |
| Iron | 7.7 | 0.10 | 0.020 | mg/L | 8.0 | 0.044 | 96 | 70-130 | | |

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

**February 8, 2013**
**Work Order: 1214542**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31507 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BA31507-MSD1)** | | **Source: 1300022-01** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Potassium | 19 | 0.050 | 0.010 | mg/L | 20 | 1.1 | 89 | 70-130 | 2 | 30 |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | 0.018 | 95 | 70-130 | 6 | 30 |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | 0.39 | 96 | 70-130 | 4 | 30 |
| Sodium | 32 | 0.50 | 0.13 | mg/L | 20 | 12 | 97 | 70-130 | 8 | 30 |
| Calcium | 53 | 0.50 | 0.042 | mg/L | 20 | 34 | 94 | 70-130 | 5 | 30 |
| Magnesium | 32 | 0.50 | 0.020 | mg/L | 20 | 13 | 95 | 70-130 | 6 | 30 |
| Boron | 0.45 | 0.10 | 0.050 | mg/L | 0.40 | ND | 113 | 70-130 | 9 | 30 |
| **Matrix Spike Dup (BA31507-MSD2)** | | **Source: 1300473-01** | | | Prepared & Analyzed: 01/16/13 | | | | | |
| Calcium | 24 | 0.50 | 0.042 | mg/L | 20 | 5.1 | 94 | 70-130 | 0.8 | 30 |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | 0.87 | 96 | 70-130 | 2 | 30 |
| Sodium | 68 | 0.50 | 0.13 | mg/L | 20 | 52 | 79 | 70-130 | 9 | 30 |
| Boron | 0.42 | 0.10 | 0.050 | mg/L | 0.40 | ND | 105 | 70-130 | 2 | 30 |
| Iron | 7.7 | 0.10 | 0.020 | mg/L | 8.0 | 0.044 | 96 | 70-130 | 0.07 | 30 |
| Manganese | 0.37 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0015 | 93 | 70-130 | 2 | 30 |
| Potassium | 37 | 0.050 | 0.010 | mg/L | 20 | 20 | 88 | 70-130 | 2 | 30 |
| **Batch BA31706 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BA31706-BLK1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |

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

**February 8, 2013**
**Work Order: 1214542**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31706 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BA31706-BLK2)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Boron | 0.77 | 0.10 | 0.050 | mg/L | | | | | | |
| Potassium | 1.1 | 0.050 | 0.010 | mg/L | | | | | | |
| Calcium | 1.6 | 0.50 | 0.042 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Sodium | )00,000,000 | 0.50 | 0.13 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Magnesium | 0.45 I | 0.50 | 0.020 | mg/L | | | | | | |
| **LCS (BA31706-BS1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Iron | 8.0 | 0.10 | 0.020 | mg/L | 8.0 | | 99 | 85-115 | | |
| Sodium | 20 | 0.50 | 0.13 | mg/L | 20 | | 102 | 85-115 | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | | 105 | 85-115 | | |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | | 97 | 85-115 | | |
| Potassium | 18 | 0.050 | 0.010 | mg/L | 20 | | 88 | 85-115 | | |
| Calcium | 19 | 0.50 | 0.042 | mg/L | 20 | | 97 | 85-115 | | |
| Boron | 0.38 | 0.10 | 0.050 | mg/L | 0.40 | | 94 | 85-115 | | |
| **Matrix Spike (BA31706-MS1)** | | **Source: 1214542-48** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Iron | 9.1 | 0.10 | 0.020 | mg/L | 8.0 | 1.1 | 100 | 70-130 | | |
| Magnesium | 34 | 0.50 | 0.020 | mg/L | 20 | 15 | 95 | 70-130 | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 2.6 | 92 | 70-130 | | |
| Sodium | 32 | 0.50 | 0.13 | mg/L | 20 | 14 | 89 | 70-130 | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | 0.015 | 101 | 70-130 | | |
| Boron | 0.58 | 0.10 | 0.050 | mg/L | 0.40 | 0.13 | 112 | 70-130 | | |
| Calcium | 48 | 0.50 | 0.042 | mg/L | 20 | 29 | 95 | 70-130 | | |
| **Matrix Spike (BA31706-MS2)** | | **Source: 1300509-01** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0066 | 103 | 70-130 | | |
| Boron | 0.78 | 0.10 | 0.050 | mg/L | 0.40 | 0.30 | 121 | 70-130 | | |
| Iron | 8.0 | 0.10 | 0.020 | mg/L | 8.0 | 0.061 | 99 | 70-130 | | |
| Magnesium | 50 | 0.50 | 0.020 | mg/L | 20 | 30 | 99 | 70-130 | | |
| Sodium | 330 | 0.50 | 0.13 | mg/L | 20 | 300 | 117 | 70-130 | | |
| Calcium | 74 | 0.50 | 0.042 | mg/L | 20 | 52 | 108 | 70-130 | | |
| Potassium | 39 | 0.050 | 0.010 | mg/L | 20 | 19 | 100 | 70-130 | | |

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

**February 8, 2013**
**Work Order: 1214542**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31706 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BA31706-MSD1)** | | **Source: 1214542-48** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Iron | 9.2 | 0.10 | 0.020 | mg/L | 8.0 | 1.1 | 101 | 70-130 | 1 | 30 |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | 0.015 | 102 | 70-130 | 0.6 | 30 |
| Magnesium | 35 | 0.50 | 0.020 | mg/L | 20 | 15 | 98 | 70-130 | 2 | 30 |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 2.6 | 90 | 70-130 | 2 | 30 |
| Boron | 0.58 | 0.10 | 0.050 | mg/L | 0.40 | 0.13 | 113 | 70-130 | 0.2 | 30 |
| Calcium | 49 | 0.50 | 0.042 | mg/L | 20 | 29 | 99 | 70-130 | 2 | 30 |
| Sodium | 33 | 0.50 | 0.13 | mg/L | 20 | 14 | 94 | 70-130 | 3 | 30 |
| **Matrix Spike Dup (BA31706-MSD2)** | | **Source: 1300509-01** | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Calcium | 69 | 0.50 | 0.042 | mg/L | 20 | 52 | 80 | 70-130 | 8 | 30 |
| Potassium | 37 | 0.050 | 0.010 | mg/L | 20 | 19 | 90 | 70-130 | 5 | 30 |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0066 | 101 | 70-130 | 3 | 30 |
| Boron | 0.72 | 0.10 | 0.050 | mg/L | 0.40 | 0.30 | 105 | 70-130 | 9 | 30 |
| Sodium | 300 | 0.50 | 0.13 | mg/L | 20 | 300 | NR | 70-130 | 9 | 30 |
| Magnesium | 48 | 0.50 | 0.020 | mg/L | 20 | 30 | 88 | 70-130 | 4 | 30 |
| Iron | 7.9 | 0.10 | 0.020 | mg/L | 8.0 | 0.061 | 98 | 70-130 | 1 | 30 |
| **Reference (BA31706-SRM1)** | | | | | Prepared & Analyzed: 01/17/13 | | | | | |
| Iron | 1.5 | 0.10 | 0.020 | mg/L | 1.5 | | 98 | 80-120 | | |
| Manganese | 1.5 | 0.010 | 0.0010 | mg/L | 1.5 | | 102 | 80-120 | | |
| **Batch BA31823 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BA31823-BLK1)** | | | | | Prepared: 01/18/13 Analyzed: 01/22/13 | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Potassium | 0.037 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 | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |

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

**February 8, 2013**
**Work Order: 1214542**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31823 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **LCS (BA31823-BS1)** | | | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Iron | 8.2 | 0.10 | 0.020 | mg/L | 8.0 | | 103 | 85-115 | | |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | | 100 | 85-115 | | |
| Sodium | 22 | 0.50 | 0.13 | mg/L | 20 | | 110 | 85-115 | | |
| Boron | 0.42 | 0.10 | 0.050 | mg/L | 0.40 | | 105 | 85-115 | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | | 105 | 85-115 | | |
| Magnesium | 22 | 0.50 | 0.020 | mg/L | 20 | | 108 | 85-115 | | |
| Calcium | 21 | 0.50 | 0.042 | mg/L | 20 | | 106 | 85-115 | | |
| **Matrix Spike (BA31823-MS1)** | | **Source: 1300537-01** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Magnesium | 32 | 0.50 | 0.020 | mg/L | 20 | 15 | 88 | 70-130 | | |
| Potassium | 23 | 0.050 | 0.010 | mg/L | 20 | 4.5 | 95 | 70-130 | | |
| Manganese | 0.35 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 89 | 70-130 | | |
| Iron | 7.3 | 0.10 | 0.020 | mg/L | 8.0 | ND | 91 | 70-130 | | |
| Sodium | 260 | 5.0 | 1.3 | mg/L | 20 | 86 | 854 | 70-130 | | |
| Calcium | 78 | 0.50 | 0.042 | mg/L | 20 | 63 | 75 | 70-130 | | |
| Boron | 0.40 | 0.10 | 0.050 | mg/L | 0.40 | 0.058 | 86 | 70-130 | | |
| **Matrix Spike (BA31823-MS2)** | | **Source: 1300565-01** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | 0.036 | 93 | 70-130 | | |
| Sodium | 16,000 | 500 | 130 | mg/L | 20 | 690 | NR | 70-130 | | |
| Potassium | 50 | 0.050 | 0.010 | mg/L | 20 | | 251 | 70-130 | | |
| Calcium | 1,800 | 50 | 4.2 | mg/L | 20 | | NR | 70-130 | | |
| Boron | 0.70 | 0.10 | 0.050 | mg/L | 0.40 | | 176 | 70-130 | | |
| Magnesium | 1,800 | 50 | 2.0 | mg/L | 20 | | NR | 70-130 | | |
| Iron | 8.2 | 0.10 | 0.020 | mg/L | 8.0 | 0.56 | 95 | 70-130 | | |
| **Matrix Spike Dup (BA31823-MSD1)** | | **Source: 1300537-01** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Iron | 7.7 | 0.10 | 0.020 | mg/L | 8.0 | ND | 96 | 70-130 | 6 | 30 |
| Sodium | 240 | 5.0 | 1.3 | mg/L | 20 | 86 | 794 | 70-130 | 5 | 30 |
| Manganese | 0.37 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 93 | 70-130 | 5 | 30 |
| Boron | 0.41 | 0.10 | 0.050 | mg/L | 0.40 | 0.058 | 89 | 70-130 | 3 | 30 |
| Potassium | 24 | 0.050 | 0.010 | mg/L | 20 | 4.5 | 98 | 70-130 | 3 | 30 |
| Magnesium | 34 | 0.50 | 0.020 | mg/L | 20 | 15 | 95 | 70-130 | 4 | 30 |
| Calcium | 78 | 0.50 | 0.042 | mg/L | 20 | 63 | 78 | 70-130 | 0.6 | 30 |

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

**February 8, 2013**
**Work Order: 1214542**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BA31823 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BA31823-MSD2)** | | **Source: 1300565-01** | | | Prepared & Analyzed: 01/18/13 | | | | | |
| Boron | 0.69 | 0.10 | 0.050 | mg/L | 0.40 | | 172 | 70-130 | 2 | 30 |
| Sodium | 18,000 | 500 | 130 | mg/L | 20 | 690 | NR | 70-130 | 9 | 30 |
| Magnesium | 1,900 | 50 | 2.0 | mg/L | 20 | | NR | 70-130 | 6 | 30 |
| Potassium | 52 | 0.050 | 0.010 | mg/L | 20 | | 258 | 70-130 | 3 | 30 |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | 0.56 | 95 | 70-130 | 0.9 | 30 |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | 0.036 | 91 | 70-130 | 1 | 30 |
| Calcium | 1,900 | 50 | 4.2 | mg/L | 20 | | NR | 70-130 | 4 | 30 |

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

**February 8, 2013**
**Work Order: 1214542**

## * Qualifiers, Notes and Definitions

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

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

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

Test results in this report meet all the requirements of the NELAC standards. Any applicable qualifiers are shown below.

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

Questions regarding this report should be directed to :

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

Kathryn@southernanalyticallabs.com

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | | | WW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 02 | STE-DUP | | | WW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 03 | PZ-01 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 04 | PZ-02 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 05 | PZ-03 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 06 | BKG-10 | 1/14/13 | 1006 | GW | | X | | | | 1 | 1 | 1 | 21.6 | 4.76 | 337 | 6.63 | | | | | | |
| 07 | BKG-15 | | 1030 | GW | | X | | | 1 | 1 | | | 23.3 | 5.89 | 124 | 0.22 | | | | | | |
| 08 | PZ-04 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 09 | PZ-05 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 10 | PZ-06 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 11 | PZ-AB4-08 | 1/14/13 | 1059 | GW | | X | | | 1 | 1 | | | 23.1 | 6.09 | 331 | 1.80 | | | | | | |
| 12 | PZ-AB4-08 DUP | | 1104 | GW | | X | | | 1 | 1 | | | 23.1 | 6.09 | 331 | 1.80 | | | | | | |

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| Containers Prepared/ J. Chambers | 12-26-12 12:45 | Joseph Hin | 12-27-12 1:00pm |
| Relinquished: | Date/Time: 1410 1/14/13 | Received: | Date/Time: 1-14-13 |
| Relinquished: J. Chambers Courier | Date/Time: | Received: J. Chambers | Date/Time: 1-14-13 15:25 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 121454

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | 1/17/13 | 1138 | WW | | X | 1 | 1 | | | | | 23.3 | 7.38 | 1361 | 0.40 | | | | | | |
| 02 | STE-DUP | | 1143 | WW | | X | 1 | 1 | | | | | 23.3 | 7.38 | 1361 | 0.40 | | | | | | |
| 03 | PZ-01 | | 1127 | GW | | X | | | 1 | 1 | | | 21.3 | 5.65 | 491 | 3.80 | | | | | | |
| 04 | PZ-02 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 05 | PZ-03 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 06 | BKG-10 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |
| 07 | BKG-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 08 | PZ-04 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 09 | PZ-05 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 10 | PZ-06 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 11 | PZ-AB4-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 12 | PZ-AB4-08 DUP | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J. Chambers | 12-26-12 12:45 | Joseph Hin | 12-27-12 1:00pm |
| Relinquished: | Date/Time: 1350 1/17/13 | Received: K Neidmark | Date/Time: 1350 1/17/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB-4-15 | 1/14/13 | 1120 | GW | | X | 1 | 1 | | | | | 23.5 | 7.24 | 456 | 3.84 | | | | | | |
| 14 | PZ-C1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 15 | PZ-C2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 16 | PZ-C3-08 | 1/14/13 | 1150 | GW | | X | 1 | 1 | | | | | 23.0 | 5.15 | 438 | 1.05 | | | | | | |
| 17 | PZ-C3-15 | | 1205 | GW | | X | 1 | 1 | | | | | 23.9 | 6.82 | 489 | 1.36 | | | | | | |
| 18 | PZ-C6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 19 | PZ-C6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 20 | PZ-D3-08 | 1/14/13 | 1224 | GW | | X | | | 1 | 1 | | | 23.0 | 5.33 | 385 | 0.78 | | | | | | |
| 21 | PZ-D3-15 | | 1244 | GW | | X | | | 1 | 1 | | | 23.8 | 6.74 | 811 | 1.70 | | | | | | |
| 22 | PZ-D4-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 23 | PZ-D4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 24 | PZ-E1 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ J. Chambers | 12-26-12 13:00 | [illegible] | 12-27-12 1:00pm |
| [signature] | 1410 1/14/13 | [signature] | 1-14-13 |
| Courier | 1/14/13 | J. Chambers | 1-14-13 15:25 |
| | | | |
| | | | |

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB-4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 14 | PZ-C1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 15 | PZ-C2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 16 | PZ-C3-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 17 | PZ-C3-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 18 | PZ-C6-08 | 1/15/13 | 1137 | GW | | X | 1 | 1 | | | | | 22.5 | 4.23 | 649 | 2.35 | | | | | | |
| 19 | PZ-C6-15 | | 1157 | GW | | X | 1 | 1 | | | | | 23.2 | 5.77 | 391 | 1.99 | | | | | | |
| 20 | PZ-D3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 21 | PZ-D3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 22 | PZ-D4-08 | 1/15/13 | 1022 | GW | | X | 1 | 1 | | | | | 21.9 | 5.25 | 510 | 0.70 | | | | | | |
| 23 | PZ-D4-15 | | 1041 | GW | | X | 1 | 1 | | | | | 22.0 | 6.87 | 950 | 1.05 | | | | | | |
| 24 | PZ-E1 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| Containers Prepared/ Relinquished: J. Chambers | 12-26-12 13:00 | Joseph Hu | 12-27-12 1:00pm |
| Relinquished: | 1/15/13 1515 | Received: K Nordmeck | Date/Time: 1/15/13 1515 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB-4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 14 | PZ-C1 | 1/17/13 | 1016 | GW | | X | 1 | 1 | | | | | 22.6 | 5.69 | 810 | 4.91 | | | | | | |
| 15 | PZ-C2 | | 1046 | GW | | X | 1 | 1 | | | | | 23.0 | 5.89 | 157.3 | 0.30 | | | | | | |
| 16 | PZ-C3-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 17 | PZ-C3-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 18 | PZ-C6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 19 | PZ-C6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 20 | PZ-D3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 21 | PZ-D3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 22 | PZ-D4-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 23 | PZ-D4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 24 | PZ-E1 | 1/17/13 | 0949 | GW | | X | | | 1 | 1 | | | 22.6 | 5.70 | 116.6 | 3.57 | | | | | | |

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| Containers Prepared/ Relinquished: J. Chambers | Date/Time: 12-26-12 13:00 | Received: [illegible] | Date/Time: 12-27-12 1:00pm |
| Relinquished: [signature] | Date/Time: 1350 1/17/13 | Received: K Mudmach | Date/Time: 1352 1/17/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 26 | PZ-E3-08 | 1/14/13 | 1307 | GW | | X | | | 1 | 1 | | | 22.7 | 5.62 | 728 | 0.73 | | | | | | |
| 27 | PZ-E3-08-DUP | | 1312 | GW | | X | | | 1 | 1 | | | 22.7 | 5.62 | 728 | 0.73 | | | | | | |
| 28 | PZ-E3-15 | | 1330 | GW | | X | | | 1 | 1 | | | 24.6 | 6.57 | 331 | 4.23 | | | | | | |
| 29 | PZ-E4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |
| 30 | PZ-E4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 31 | PZ-E5-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 32 | PZ-E5-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 33 | PZ-E6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 34 | PZ-E6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 35 | PZ-E7-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |
| 36 | PZ-E7-08-DUP | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J. Chambers | 12-26-12 13:00 | [illegible] | 12-27-12 1:00pm |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| [illegible] | 1410 1/14/13 | [illegible] | 1-14-13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Courier | 1-14-13 | J. Chambers | 1-14-13 15:25 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| | | | |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| | | | |

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

Instructions / Remarks:

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

Chain of Custody

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 26 | PZ-E3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 27 | PZ-E3-08-DUP | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 28 | PZ-E3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 29 | PZ-E4-08 | 1/15/13 | 0950 | GW | | X | | | | 1 | 1 | 1 | 21.6 | 5.29 | 632 | 0.74 | | | | | | |
| 30 | PZ-E4-15 | | 1013 | GW | | X | 1 | 1 | | | | | 22.7 | 6.73 | 517 | 1.62 | | | | | | |
| 31 | PZ-E5-08 | | 1056 | GW | | X | 1 | 1 | | | | | 22.6 | 5.01 | 552 | 0.72 | | | | | | |
| 32 | PZ-E5-15 | | 1117 | GW | | X | 1 | 1 | | | | | 23.4 | 6.73 | 820 | 1.15 | | | | | | |
| 33 | PZ-E6-08 | | 1215 | GW | | X | 1 | 1 | | | | | 22.5 | 4.99 | 501 | 2.32 | | | | | | |
| 34 | PZ-E6-15 | | 1236 | GW | | X | 1 | 1 | | | | | 23.3 | 5.44 | 380 | 3.05 | | | | | | |
| 35 | PZ-E7-08 | | 1351 | GW | | X | | | | 1 | 1 | 1 | 22.9 | 4.98 | 398 | 3.18 | | | | | | |
| 36 | PZ-E7-08-DUP | | 1356 | GW | | X | | | | 1 | 1 | 1 | 22.9 | 4.98 | 398 | 3.18 | | | | | | |

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| Containers Prepared/ Relinquished: J. Chambers | 12-26-12 13:00 | [illegible] | 12-27-12 1:00pm |
| Relinquished: | 1515 1/15/13 | K Mulmark | 1/15/13 1575 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | 1/17/13 | 1108 | GW | | X | 1 | 1 | | | | | 21.7 | 5.90 | 1945 | 4.90 | | | | | | |
| 26 | PZ-E3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 27 | PZ-E3-08-DUP | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 28 | PZ-E3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 29 | PZ-E4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |
| 30 | PZ-E4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 31 | PZ-E5-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 32 | PZ-E5-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 33 | PZ-E6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 34 | PZ-E6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 35 | PZ-E7-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |
| 36 | PZ-E7-08-DUP | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J. Chambers | 12-26-12 13:00 | [illegible] | 12-27-12 1:00pm |
| Relinquished: | Date/Time: 1350 1/17/13 | Received: K Muhlmann | Date/Time: 1/17/13 1350 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

Seal intact? Y N (N/A)

Samples intact upon arrival? (Y) N N/A

Received on ice? Temp_____ (Y) N N/A

Proper preservatives indicated? (Y) N N/A

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

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

Proper containers used? (Y) N N/A

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214546

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-E7-15 | 1/15/12 | 1316 | GW | | X | | | 1 | 1 | | | 23.5 | 7.14 | 1740 | 3.93 | | | | | | |
| 38 | PZ-F3-08 | | DRY | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 39 | PZ-F3-15 | | 0850 | GW | | X | | | 1 | 1 | | | 22.1 | 6.84 | 353 | 4.16 | | | | | | |
| 40 | PZ-F4-08 | | 0905 | GW | | X | | | | 1 | 1 | 1 | 20.4 | [illegible] | 813 | 5.48 | | | | | | |
| 41 | PZ-F4-15 | | 0932 | GW | | X | | | 1 | 1 | | | 22.2 | 7.14 | 1287 | 5.08 | | | | | | |
| 42 | PZ-G1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 43 | PZ-G2-12.5 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 44 | PZ-H4-08 | 1/15/13 | 1333 | GW | | X | | | 1 | 1 | | | 23.0 | 5.21 | 559 | 4.17 | | | | | | |
| 45 | PZ-H4-15 | | 1346 | GW | | X | | | 1 | 1 | | | 23.5 | 7.01 | 858 | 5.61 | | | | | | |
| 46 | PZ-H4-15-DUP | | 1353 | GW | | X | | | 1 | 1 | | | 23.5 | 7.01 | 858 | 5.61 | | | | | | |
| 47 | PZ-H5-11.5 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 48 | PZ-I6-08 | | | GW | | X | 1 | | | | 1 | 1 | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J. Chambers | 12-26-12 12:00 | [illegible] | 12/27/12 1:00pm |
| Relinquished: | Date/Time: 1515 1/15/13 | Received: K Melsnard | Date/Time: 1/15/13 1515 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214540

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-E7-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 38 | PZ-F3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 39 | PZ-F3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 40 | PZ-F4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | | | |
| 41 | PZ-F4-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 42 | PZ-G1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | | | |
| 43 | PZ-G2-12.5 | 1/16/13 | 1002 | GW | | X | 1 | 1 | | | | | 22.4 | 4.70 | 570 | 1.40 | | | | | | |
| 44 | PZ-H4-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 45 | PZ-H4-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 46 | PZ-H4-15-DUP | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 47 | PZ-H5-11.5 | 1/16/13 | 1048 | GW | | X | 1 | 1 | | | | | 22.2 | 4.55 | 441 | 1.27 | | | | | | |
| 48 | PZ-I6-08 | | 1110 | GW | | X | 1 | | | | 1 | 1 | 22.5 | 5.04 | 395 | 0.20 | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J. Chambers | 12-26-12 12:00 | [illegible] | 12/27/12 1:00pm |
| Relinquished: | Date/Time: 1535 1/16/13 | Received: K Mudmark | Date/Time: 1/16/13 1535 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 121454c

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | PZ-I6-15 | 1/16/13 | 1133 | GW | | X | 1 | 1 | | | | | 23.4 | 6.90 | 1849 | 0.18 | | | | | | |
| 50 | PZ-I10-08 | | 1215 | GW | | X | | | 1 | 1 | | | 22.9 | 5.29 | 460 | 0.51 | | | | | | |
| 51 | PZ-I10-08-DUP | | 1220 | GW | | X | | | 1 | 1 | | | 22.9 | 5.29 | 460 | 0.51 | | | | | | |
| 52 | PZ-I10-15 | | 1230 | GW | | X | 1 | 1 | | | | | 23.1 | 6.83 | 734 | 0.79 | | | | | | |
| 53 | PZ-J4-08 | | 1020 | GW | | X | | | | 1 | 1 | 1 | DRY | | | | | | | | | |
| 54 | PZ-J4-15 | | 1029 | GW | | X | | | 1 | 1 | | | 23.0 | 6.47 | 535 | 0.36 | | | | | | |
| 55 | PZ-J7-08 | | 1148 | GW | | X | | | | 1 | 1 | 1 | 22.8 | 5.07 | 299 | 0.78 | | | | | | |
| 56 | PZ-J7-15 | | 1200 | GW | | X | 1 | 1 | | | | | 23.5 | 5.30 | 415 | 1.06 | | | | | | |
| 57 | PZ-N4-08 | | 1358 | GW | | X | | | 1 | 1 | | | 22.9 | 5.67 | 280 | 4.22 | | | | | | |
| 58 | PZ-N4-15 | | 1422 | GW | | X | 1 | 1 | | | | | 23.1 | 6.69 | 726 | 0.38 | | | | | | |
| 59 | PZ-N7-08 | | 1335 | GW | | X | 1 | 1 | | | | | 24.4 | 5.96 | 454 | 1.04 | | | | | | |
| 60 | PZ-N7-15 | | 1345 | GW | | X | 1 | 1 | | | | | 23.9 | 5.73 | 259 | 0.31 | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J. Chambers | 12-26-12 13:00 | [illegible] | 12/27/12 1:00pm |
| [signature] | 1/16/13 1535 | K Medmark | 1/16/13 1535 |
| | | | |
| | | | |
| | | | |
| | | | |

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

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | PZ-N10-08 | 1/16/13 | 1306 | GW | | X | | | 1 | 1 | | | 23.5 | 6.40 | 502 | 0.33 | | | | | | |
| 62 | PZ-N10-08-DUP | | 1311 | GW | | X | | | 1 | 1 | | | 23.5 | 6.40 | 502 | 0.33 | | | | | | |
| 63 | PZ-N10-15 | | 1245 | GW | | X | 1 | 1 | | | | | 24.3 | 7.11 | 1573 | 0.82 | | | | | | |
| 64 | PZ-S10-08 | | 1321 | GW | | X | | | 1 | 1 | | | 24.0 | 5.31 | 303 | 0.71 | | | | | | |
| 65 | DP-01 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 66 | DP-02 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 67 | DP-03 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 68 | DP-04-shallow | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 69 | DP-04-deep | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 70 | DP-05 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 71 | DP-06 | | | GW | | X | | | 1 | 1 | | | | | | | | | | | | |
| 72 | FB-DI | 1/16/13 | 0820 | R | | X | | | | 1 | 1 | 1 | 19.3 | 7.65 | 1.43 | 8.60 | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: [signature] | 12-26-12 1330 | [signature] | 12/27/12 1:00pm |
| Relinquished: [signature] | 1/16/13 1535 | K Nordmark | 1/16/13 1535 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1214542

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#2

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| SAL Use Only Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 250mL P, $H_2SO_4$ TKN, $NH_3$ | 1LP, Cool NOx | 1LP, Cool Total Alkalinity, NOx | 250mL P, $H_2SO_4$ COD, TKN, $NH_3$, TP | 1LP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73 | FB-TAP | 1/16/13 | 0815 | DW | | X | | | 1 | 1 | | | 21.6 | 7.54 | 846 | 4.41 | | | | | | |
| 74 | EB | | 0825 | R | | X | | | | 1 | 1 | 1 | 18.3 | 7.65 | 1.43 | 8.60 | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 12-26-12 13:15 | | |
| Relinquished: | 1535 1/16/13 | K Mudmark | 1/16/13 1535 |
| 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:

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

Chain of Custody

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-454 | SITE LOCATION: |
| WELL NO: PZ01 | SAMPLE ID: / DATE: 1/17/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.45 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 9.60 feet – 7.45 feet) X 0.02 gallons/foot = 0.043 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1120 | PURGING ENDED AT: 1126 | TOTAL VOLUME PURGED (gallons): 0.36 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR~~ (describe) CO2 P |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1126 | 0.36 | 0.36 | 0.06 | 7.80 | 5.65 | 21.3 | 491 | 3.80 | 19.4 | CLEAR | -57.0 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HIS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1127 | SAMPLING ENDED AT: 1128 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
| | | | | | | | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: C-HS4 | SITE LOCATION: | |
| WELL NO: PZG2 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 2" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 8.65 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 12.18 feet – 8.65 feet) X 0.1632 gallons/foot = 0.576 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0946 | PURGING ENDED AT: 1001 | TOTAL VOLUME PURGED (gallons): 3.75 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1001 | 3.75 | 3.75 | 0.25 | 9.85 | 4.70 | 22.4 | 570 | 1.40 | 58.8 | CLOUDY | 203.7 |
| | | | | | | | | | | | |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1002 | SAMPLING ENDED AT: 1003 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: GH54 | SITE LOCATION: | |
| WELL NO: BPZ03 | SAMPLE ID: | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.85 DRY | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ODOR (describe) |
|---|---|---|---|---|---|---|---|---|---|---|---|
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HHS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1035 | SAMPLING ENDED AT: |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: | FIELD-FILTERED: Y N Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y N | TUBING Y N (replaced) | DUPLICATE: Y N | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS: well dry

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: P204 | SAMPLE ID: / DATE: 1/14/13 |

## PURGING DATA

| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.78 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 5.80 feet – 5.78 feet) X .204 gallons/foot = 0.0008 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ODOR (describe) |
|---|---|---|---|---|---|---|---|---|---|---|---|
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1038 | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: | FIELD-FILTERED: Y N / Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y N | TUBING Y N (replaced) | DUPLICATE: Y N | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS: well doesn't have enough water to purge.

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-454 | | SITE LOCATION: | |
| WELL NO: PZ06 | SAMPLE ID: | | DATE: 1/17/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 9.05 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 11.15 feet – 9.05 feet) X 0.04 gallons/foot = 0.084 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0915 | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ODOR (describe) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.06 | | NO SAMPLE | | | | | | |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: | SAMPLING ENDED AT: |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS: well purged dry quickly and did not recover, pump at 0.01 gpm.

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: Cunningham C-145 | | SITE LOCATION: | |
| WELL NO: BKG-10 | SAMPLE ID: | | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.23 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 9.33 feet – 7.23 feet) X 0.04 gallons/foot = 0.084 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0942 | PURGING ENDED AT: 1005 | TOTAL VOLUME PURGED (gallons): 1.38 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1005 | 1.38 | 1.38 | 0.06 | 9.30 | 4.76 | 21.6 | 334 | 6.63 | 827 | BROWN | 375.7 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1006 | SAMPLING ENDED AT: 1007 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS: well purged almost dry in 10 min. water that purged after that was very turbid.

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: C-1454 | | SITE LOCATION: |
| WELL NO: BKG-15 | SAMPLE ID: | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 8.06 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.40 feet - 8.06 feet) X 0.02 gallons/foot = 0.126 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1014 | PURGING ENDED AT: 1029 | TOTAL VOLUME PURGED (gallons): 2.25 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1029 | 2.25 | 2.25 | 0.05 | 9.25 | 5.89 | 23.3 | 124.0 | 0.22 | 594 | BROWN | -199.3 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1030 | SAMPLING ENDED AT: 1031 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|---|
| SITE NAME: C-H54 | SITE LOCATION: | |
| WELL NO: PZAB408 | SAMPLE ID: | DATE: 1/14/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.68 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.42 feet – 6.68 feet) X 0.04 gallons/foot = 0.069 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1043 | PURGING ENDED AT: 1058 | TOTAL VOLUME PURGED (gallons): 0.90 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1058 | 0.90 | 0.90 | 0.06 | 8.00 | 6.09 | 23.1 | 331 | 1.80 | 65.3 | CLOUDY | -108.6 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HYS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1059 | SAMPLING ENDED AT: 1100 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-1454 | | SITE LOCATION: | |
| WELL NO: PZAB408 DUP | SAMPLE ID: | | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.68 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.42 feet – 6.68 feet) X 0.04 gallons/foot = 0.069 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1047 | PURGING ENDED AT: 1058 | TOTAL VOLUME PURGED (gallons): 0.80 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1058 | 0.80 | 0.90 | 0.06 | 8.00 | 6.09 | 23.1 | 331 | 1.80 | 65.3 | CLOUDY | -108.6 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/ H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1104 | SAMPLING ENDED AT: 1108 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZAB415 | SAMPLE ID: / DATE: 1/14/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.58 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.67 feet – 6.58 feet) X 0.02 gallons/foot = 0.161 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1110 | PURGING ENDED AT: 1118 | TOTAL VOLUME PURGED (gallons): 1.35 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1119 | 1.35 | 1.35 | 0.45 | 8.07 | 7.24 | 23.5 | 456 | 3.54 | 19.5 | CLEAR | -23.3 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1120 | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: AE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-HS4 | | SITE LOCATION: | |
| WELL NO: P2C1 | SAMPLE ID: | | DATE: 1/17/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 8.98 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 9.95 feet – 8.98 feet) X 0.04 gallons/foot = 0.038 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1000 | PURGING ENDED AT: 1015 | TOTAL VOLUME PURGED (gallons): 0.30 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1015 | 0.30 | 0.30 | 0.02 | 9.65 | 5.69 | 22.6 | 810 | 4.91 | 11.2 | CLEAR | 709 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1016 | SAMPLING ENDED AT: 1017 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-HS4 | | SITE LOCATION: | |
| WELL NO: PZC2 | SAMPLE ID: | | DATE: 1/17/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.80 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 11.15 feet – 7.80 feet) X 0.04 gallons/foot = 0.134 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1030 | PURGING ENDED AT: 1045 | TOTAL VOLUME PURGED (gallons): 0.90 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1045 | 0.90 | 0.90 | 0.06 | 8.90 | 5.89 | 23.0 | 159.3 | 0.30 | 417 | BROWN | -251.7 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1040 | SAMPLING ENDED AT: 1047 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: C-HS 4 | SITE LOCATION: | |
| WELL NO: PZC 3-08 | SAMPLE ID: | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.18 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.80 feet – 7.18 feet) X 0.04 gallons/foot = 0.024 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1134 | PURGING ENDED AT: 1149 | TOTAL VOLUME PURGED (gallons): 0.60 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1149 | 0.60 | 0.60 | 0.04 | 7.50 | 5.15 | 23.0 | 438 | 1.05 | 223 | cloudy | -60.8 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1150 | SAMPLING ENDED AT: 1151 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZC3-15 | SAMPLE ID: |
| DATE: 1/14/13 | |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.52 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.61 feet – 7.52 feet) X 0.02 gallons/foot = 0.141 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1156 | PURGING ENDED AT: 1207 | TOTAL VOLUME PURGED (gallons): 1.65 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1207 | 1.65 | 1.65 | 0.15 | 7.94 | 6.82 | 23.9 | 489 | 1.36 | 17.5 | CLEAR | -108.5 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1208 | SAMPLING ENDED AT: 1209 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-HS4 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PzCG-08 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.30 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.50 feet – 6.30 feet) X 0.04 gallons/foot = 0.088 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1124 | PURGING ENDED AT: 1136 | TOTAL VOLUME PURGED (gallons): 0.48 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1136 | 0.48 | 0.48 | 0.04 | 6.90 | 4.23 | 22.5 | 6.49 | 2.35 | 18.8 | CLEAR | -80.6 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1137 | SAMPLING ENDED AT: 1138 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: CHS4 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZC6-15 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.30 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.48 feet – 6.30 feet) X 0.02 gallons/foot = 0.163 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1148 | PURGING ENDED AT: 1156 | TOTAL VOLUME PURGED (gallons): 1.20 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1156 | 1.20 | 1.20 | 0.10 | 6.89 | 5.77 | 23.2 | 391 | 1.99 | 15.0 | CLEAR | 158.9 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1157 | SAMPLING ENDED AT: 1158 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: C-H54 | | SITE LOCATION: |
| WELL NO: PZD3-08 | SAMPLE ID: | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.22 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.00 feet - 7.22 feet) X 0.04 gallons/foot = 0.031 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1216 | PURGING ENDED AT: 1223 | TOTAL VOLUME PURGED (gallons): 0.28 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or (µS/cm) | DISSOLVED OXYGEN (circle units) (mg/L) or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.04 | 7.54 | 5.33 | 23.0 | 385 | 0.78 | 19.6 | CLEAR | -5.8 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Eran Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1224 | SAMPLING ENDED AT: 1225 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-1454 | | SITE LOCATION: | |
| WELL NO: PZD3-15 | SAMPLE ID: | | DATE: 1/14/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.30 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.66 feet – 7.30 feet) X 0.02 gallons/foot = 0.147 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1228 | PURGING ENDED AT: 1243 | TOTAL VOLUME PURGED (gallons): 1.50 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1243 | 1.50 | 1.50 | 0.10 | 7.81 | 6.74 | 23.8 | 811 | 1.70 | 345 | CLOUDY | -125.6 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1244 | SAMPLING ENDED AT: 1245 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: C-1454 | SITE LOCATION: | |
| WELL NO: PCD4-08 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.17 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.87 feet – 7.17 feet) X 0.04 gallons/foot = 0.028 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1016 | PURGING ENDED AT: 1021 | TOTAL VOLUME PURGED (gallons): 0.90 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1021 | 0.90 | 0.90 | 0.04 | 7.50 | 5.25 | 21.9 | 510 | 0.70 | 16.5 | CLEAR | -18.0 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1022 | SAMPLING ENDED AT: 1023 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZ D415 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.28 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.54 feet – 7.28 feet) X 0.02 gallons/foot = 0.145 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1027 | PURGING ENDED AT: 1040 | TOTAL VOLUME PURGED (gallons): 1.50 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1040 | 1.30 | 1.30 | 0.10 | 7.42 | 6.87 | 23.0 | 950 | 1.05 | 18.7 | CLEAR | -178.2 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1041 | SAMPLING ENDED AT: 1042 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|
| SITE NAME: C-454 | SITE LOCATION: |
| WELL NO: PZ E1 | SAMPLE ID: / DATE: 1/17/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 9.21 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 11.31 feet – 9.21 feet) X 0.04 gallons/foot = 0.084 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0833 | PURGING ENDED AT: 0948 | TOTAL VOLUME PURGED (gallons): 0.90 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0948 | 0.90 | 0.90 | 0.06 | 11.15 | 5.70 | 22.6 | 176.6 | 3.57 | 247 | cloudy | -205.6 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0849 | SAMPLING ENDED AT: 0850 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-454 | | SITE LOCATION: | |
| WELL NO: PZE2 | SAMPLE ID: | | DATE: 1/17/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 8.25 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 11.70 feet – 8.25 feet) X 0.04 gallons/foot = 0.138 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1052 | PURGING ENDED AT: 1107 | TOTAL VOLUME PURGED (gallons): 0.90 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or ~~µS/cm~~ | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1107 | 0.90 | 0.90 | 0.06 | 11.65 | 5.90 | 21.7 | 1945 | 4.90 | 193 | CLOUDY | -154.0 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / A+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1108 | SAMPLING ENDED AT: 1109 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-1454 | | SITE LOCATION: | |
| WELL NO: PZE3-08 | SAMPLE ID: | | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.35 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.25 feet – 7.35 feet) X 0.04 gallons/foot = 0.036 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1251 | PURGING ENDED AT: 1306 | TOTAL VOLUME PURGED (gallons): 0.60 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1306 | 0.60 | 0.60 | 0.04 | 7.78 | 5.62 | 22.7 | 788 | 0.73 | 95.2 | Cloudy | -98.2 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1307 | SAMPLING ENDED AT: |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZE3-08 DUP | SAMPLE ID: |
| | DATE: 1/14/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.35 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.25 feet – 7.35 feet) X 0.04 gallons/foot = 0.036 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1251 | PURGING ENDED AT: 1306 | TOTAL VOLUME PURGED (gallons): 0.60 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1306 | 0.60 | 0.60 | 0.04 | 7.78 | 5.62 | 22.7 | 728 | 0.73 | 95.2 | CLOUDY | -98.2 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1312 | SAMPLING ENDED AT: 1313 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZE3-15 | SAMPLE ID: / DATE: 1/14/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75* | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.40 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.62 feet – 7.40 feet) X 0.02 gallons/foot = 0.144 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1314 | PURGING ENDED AT: 1329 | TOTAL VOLUME PURGED (gallons): 0.60 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~OBOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1329 | 0.60 | 0.60 | 0.04 | 7.72 | 6.57 | 24.6 | 331 | 4.23 | 315 | CLOUDY | -107.5 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1330 | SAMPLING ENDED AT: 1331 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZE4-08 | SAMPLE ID: |
| DATE: 1/15/13 | |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.18 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.82 feet – 7.18 feet) X 0.04 gallons/foot = 0.025 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0944 | PURGING ENDED AT: 0949 | TOTAL VOLUME PURGED (gallons): 0.10 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0949 | 0.10 | 0.10 | 0.02 | 7.48 | 5.29 | 21.6 | 632 | 0.74 | 9.60 | CLEAR | 79.0 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0850 | SAMPLING ENDED AT: 0851 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZE415 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.24 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.60 feet – 7.24 feet) X 0.02 gallons/foot = 0.147 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0957 | PURGING ENDED AT: 1012 | TOTAL VOLUME PURGED (gallons): 1.50 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012 | 1.50 | 1.50 | 0.10 | 7.60 | 6.73 | 22.7 | 517 | 1.62 | 26.5 | cloudy | -183.7 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1013 | SAMPLING ENDED AT: 1014 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZE5-08 | SAMPLE ID: / DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.85 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.97 feet – 6.85 feet) X 0.04 gallons/foot = 0.044 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1048 | PURGING ENDED AT: 1055 | TOTAL VOLUME PURGED (gallons): 0.28 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1055 | 0.28 | 0.28 | 0.04 | 7.35 | 5.01 | 22.6 | 552 | 0.72 | 9.34 | CLEAR | 45.1 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1056 | SAMPLING ENDED AT: 1057 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZE5-15 | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.85 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.55 feet – 6.85 feet) X 0.02 gallons/foot = 0.154 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1101 | PURGING ENDED AT: 1116 | TOTAL VOLUME PURGED (gallons): 1.50 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1116 | 1.50 | ~~[illegible]~~ | 0.10 | 7.60 | 6.73 | 23.4 | 820 | 1.15 | 15.6 | CLEAR | -216.6 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1117 | SAMPLING ENDED AT: 1118 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZE6-08 | SAMPLE ID: / DATE: 1/8/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.62 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.90 feet – 6.62 feet) X 0.04 gallons/foot = 0.051 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1204 | PURGING ENDED AT: 1214 | TOTAL VOLUME PURGED (gallons): 0.60 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1214 | 0.60 | 0.60 | 0.06 | 6.88 | 4.99 | 22.5 | 501 | 2.32 | 9.07 | CLEAR | 34.7 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HYS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1215 | SAMPLING ENDED AT: 1216 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZE6-15 | SAMPLE ID: / DATE: 1/15/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.62 | PURGE PUMP TYPE OR BAILER: AP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.40 feet – 6.62 feet) X 0.02 gallons/foot = 0.155 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1220 | PURGING ENDED AT: 1235 | TOTAL VOLUME PURGED (gallons): 1.50 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1235 | 1.50 | 1.50 | 0.10 | 6.91 | 5.44 | 23.3 | 380 | 3.05 | 46.2 | CLOUDY | 97.0 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1236 | SAMPLING ENDED AT: 1237 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PCE7-08 | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.40 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.68 feet – 6.40 feet) X 0.04 gallons/foot = 0.091 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1243 | PURGING ENDED AT: 1250 | TOTAL VOLUME PURGED (gallons): 0.42 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1250 | 0.42 | 0.42 | 0.06 | 6.90 | 4.98 | 22.9 | 398 | 3.18 | 15.1 | CLEAR | 164.4 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1251 | SAMPLING ENDED AT: 1252 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-454 | | SITE LOCATION: | |
| WELL NO: PZET-08 DUP | SAMPLE ID: | | DATE: 1/15/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.40 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.68 feet – 6.40 feet) X 0.04 gallons/foot = 0.091 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1243 | PURGING ENDED AT: 1250 | TOTAL VOLUME PURGED (gallons): 0.42 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1250 | 0.42 | 0.42 | 0.06 | 6.90 | 4.88 | 22.9 | 398 | 3.18 | 15.1 | CLEAR | 164.4 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/AYS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1250 | SAMPLING ENDED AT: 1257 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING (Y) N (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZET-15 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches) 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.36 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.55 feet – 6.36 feet) X 0.02 gallons/foot = 0.163 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1306 | PURGING ENDED AT: 1315 | TOTAL VOLUME PURGED (gallons): 0.90 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1315 | 0.90 | 0.90 | 0.10 | 6.87 | 7.14 | 23.5 | 1740 | 3.93 | 18.9 | CLEAR | -170.1 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1316 | SAMPLING ENDED AT: 1317 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: P2F3-05 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches) 0.75 | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.72 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.54 feet – 7.72 feet) X 0.02 gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0837 | PURGING ENDED AT: 0849 | TOTAL VOLUME PURGED (gallons): 1.20 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0849 | 1.20 | 1.20 | 0.10 | 8.45 | 6.84 | 22.1 | 353 | 4.16 | 19.6 | CLEAR | -184.0 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HHS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0850 | SAMPLING ENDED AT: 0851 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | |
|---|---|
| SITE NAME: C-HS4 | SITE LOCATION: |
| WELL NO: P2F4-08 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.30 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.80 feet – 7.30 feet) X 0.04 gallons/foot = 0.02 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0858 | PURGING ENDED AT: 0905 | TOTAL VOLUME PURGED (gallons): 0.12 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0904 | 0.12 | 0.12 | 0.02 | 7.60 | 5.55 | 20.4 | 813 | 5.49 | 14.7 | CLEAR | 23.9 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HFS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0905 | SAMPLING ENDED AT: 0906 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|---|
| SITE NAME: C#54 | SITE LOCATION: | |
| WELL NO: P2P4-15 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.37 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.42 feet – 7.37 feet) X 0.02 gallons/foot = 0.141 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 0816 | PURGING ENDED AT: 0831 | TOTAL VOLUME PURGED (gallons): 1.50 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0831 | 1.50 | ~~1.50~~ | 0.10 | 7.82 | 7.14 | 22.2 | 1287 | 5.08 | 40.8 | CLOUDY | -96.0 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0832 | SAMPLING ENDED AT: 0833 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZ14-08 | SAMPLE ID: / DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.75 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.25 feet – 7.75 feet) X 0.04 gallons/foot = 0.02 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1325 | PURGING ENDED AT: 1332 | TOTAL VOLUME PURGED (gallons): 0.14 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1332 | 0.14 | 0.14 | 0.02 | 7.98 | 5.21 | 23.0 | 559 | 4.17 | 19.2 | CLEAR | 68.4 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1333 | SAMPLING ENDED AT: 1334 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: EPZ1415 | SAMPLE ID: | DATE: 1/15/13 |

## PURGING DATA

| WELL DIAMETER (inches) 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.85 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.80 feet – 7.85 feet) X 0.02 gallons/foot = 0.139 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1340 | PURGING ENDED AT: 1347 | TOTAL VOLUME PURGED (gallons): 0.70 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1341 | 0.70 | 0.70 | 0.10 | 8.40 | 7.01 | 23.5 | 858 | 5.61 | 17.8 | CLEAR | -84.1 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HYS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1348 | SAMPLING ENDED AT: 1349 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZ45 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): 2" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.35 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 10.70 feet – 7.35 feet) X 0.1632 gallons/foot = 0.546 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1035 | PURGING ENDED AT: 1047 | TOTAL VOLUME PURGED (gallons): 3.00 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1047 | 3.00 | 3.00 | 0.25 | 8.23 | 4.55 | 22.2 | 441 | 1.27 | 14.7 | CLEAR | 144.9 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1048 | SAMPLING ENDED AT: 1049 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: C-454 | SITE LOCATION: | |
| WELL NO: PZI608 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.25 | PURGE PUMP TYPE OR BAILER: PP |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.07 feet – 7.25 feet) X 0.04 gallons/foot = 0.072 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1054 | PURGING ENDED AT: 1109 | TOTAL VOLUME PURGED (gallons): 0.60 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR~~ (describe) ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1109 | 0.60 | 0.60 | 0.04 | 8.00 | 5.04 | 22.5 | 385 | 0.20 | 23.4 | CLOUDY | -83.9 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1110 | SAMPLING ENDED AT: 1111 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZI615 | SAMPLE ID: / DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.18 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.53 feet – 7.18 feet) X 0.02 gallons/foot = 0.147 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1117 | PURGING ENDED AT: 1132 | TOTAL VOLUME PURGED (gallons): 1.50 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1132 | 1.50 | 1.50 | 0.10 | 8.01 | 6.90 | 23.4 | 1849 | 0.18 | 116 | CLOUDY | -88.4 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1133 | SAMPLING ENDED AT: 1134 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-1454 | | SITE LOCATION: | |
| WELL NO: PZI1008 | SAMPLE ID: | | DATE: 1/16/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.85 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.85 feet – 5.85 feet) X 0.04 gallons/foot = 0.08 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1208 | PURGING ENDED AT: 1214 | TOTAL VOLUME PURGED (gallons): 0.36 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1214 | 0.36 | 0.36 | 0.06 | 6.45 | 5.29 | 22.9 | 460 | 0.51 | 19.6 | CLEAR | 57.3 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1215 | SAMPLING ENDED AT: 1216 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZI1008 DUP | SAMPLE ID: | DATE: 1/4/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.85 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.85 feet – 5.85 feet) X 0.04 gallons/foot = 0.08 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1208 | PURGING ENDED AT: 1214 | TOTAL VOLUME PURGED (gallons): 0.36 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/l or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR~~ (~~describe~~) ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1214 | 0.36 | 0.36 | 0.06 | 6.45 | 5.29 | 22.9 | 460 | 0.51 | 18.6 | CLEAR | 51.3 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1220 | SAMPLING ENDED AT: 1221 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-HS4 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZI10-15 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.85 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 12.65 feet – 5.85 feet) X 0.02 gallons/foot = 0.136 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1225 | PURGING ENDED AT: 1229 | TOTAL VOLUME PURGED (gallons): 0.40 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1229 | 0.40 | 0.40 | 0.10 | 6.40 | 6.83 | 23.1 | 734 | 0.79 | 3.09 | CLEAR | -139.4 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1230 | SAMPLING ENDED AT: 1231 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-HS4 | SITE LOCATION: |
|---|---|
| WELL NO: P25415 | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): 0.75 | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.90 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.55 feet – 7.90 feet) X 0.02 gallons/foot = 0.133 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1013 | PURGING ENDED AT: 1028 | TOTAL VOLUME PURGED (gallons): 0.90 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1028 | 0.90 | 0.90 | 0.06 | 8.65 | 6.47 | 23.0 | 585 | 0.36 | 114 | CLOUDY | -86.8 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1029 | SAMPLING ENDED AT: 1030 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZ57-08 | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.68 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.44 feet - 6.68 feet) X 0.04 gallons/foot = 0.0704 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1141 | PURGING ENDED AT: 1147 | TOTAL VOLUME PURGED (gallons): 0.36 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR~~ ~~(describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1147 | 0.36 | 0.36 | 0.06 | 7.40 | 5.07 | 22.8 | 299 | 0.78 | 15.6 | CLEAR | 1.9 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1148 | SAMPLING ENDED AT: 1149 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: CH54 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZ5715 | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): 0.75 | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.72 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.53 feet – 6.72 feet) X 0.02 gallons/foot = 0.156 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1154 | PURGING ENDED AT: 1159 | TOTAL VOLUME PURGED (gallons): 0.30 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1159 | 0.30 | 0.20 | 0.06 | 7.20 | 5.30 | 23.5 | 415 | 1.06 | 15.7 | CLEAR | 42.4 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1200 | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|
| SITE NAME: C-1454 | SITE LOCATION: |
| WELL NO: PZN408 | SAMPLE ID: / DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.88 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.28 feet – 7.88 feet) X 0.04 gallons/foot = 0.016 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1352 | PURGING ENDED AT: 1357 | TOTAL VOLUME PURGED (gallons): 0.10 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1357 | 0.10 | 0.10 | 0.02 | 8.25 | 5.67 | 22.9 | 280 | 4.27 | 15.1 | CLEAR | -75.8 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1358 | SAMPLING ENDED AT: 1359 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZN4015 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 7.90 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.50 feet – 7.90 feet) x 0.02 gallons/foot = 0.132 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1406 | PURGING ENDED AT: 1421 | TOTAL VOLUME PURGED (gallons): 1.50 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1421 | 1.50 | 1.50 | 0.10 | 8.30 | 6.69 | 23.1 | 726 | 0.38 | 62.3 | CLOUDY | -174.7 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1422 | SAMPLING ENDED AT: 1423 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

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|---|---|---|
| SITE NAME: C-454 | SITE LOCATION: | |
| WELL NO: PZN108 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.80 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.60 feet – 6.80 feet) X 0.04 gallons/foot = 0.072 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1330 | PURGING ENDED AT: 1334 | TOTAL VOLUME PURGED (gallons): 0.40 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1334 | 0.40 | 0.40 | 0.00 | 7.18 | 5.96 | 24.4 | 454 | 1.04 | 17.8 | CLEAR | -179.7 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1335 | SAMPLING ENDED AT: 1336 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | |
|---|---|---|
| SITE NAME: C-454 | SITE LOCATION: | |
| WELL NO: PZN715 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

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|---|---|---|---|---|
| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 6.85 | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.45 feet – 6.85 feet) X 0.02 gallons/foot = 0.152 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

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|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1339 | PURGING ENDED AT: 1344 | TOTAL VOLUME PURGED (gallons): 0.50 |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1344 | 0.50 | 0.50 | 0.10 | 7.25 | 5.73 | 23.9 | 259 | 0.31 | 13.1 | CLEAR | -163.3 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1345 | SAMPLING ENDED AT: 1346 |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-HS4 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZN1008 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.80 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.55 feet – 5.80 feet) X 0.04 gallons/foot = 0.07 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1250 | PURGING ENDED AT: 1305 | TOTAL VOLUME PURGED (gallons): 0.90 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/l or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1305 | 0.90 | 0.90 | 0.06 | 6.25 | 6.40 | 23.5 | 502 | 0.33 | 38.5 | CLOUDY | -97.2 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1306 | SAMPLING ENDED AT: 1307 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZ-1008 DUP | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.80 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 7.55 feet – 5.80 feet) X 0.04 gallons/foot = 0.07 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1250 | PURGING ENDED AT: 1305 | TOTAL VOLUME PURGED (gallons): 0.90 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1305 | 0.90 | 0.90 | 0.06 | 6.25 | 6.40 | 23.5 | 502 | 0.33 | 38.5 | CLEAR | -97.2 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1311 | SAMPLING ENDED AT: 1312 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-HS4 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZN10-15 | SAMPLE ID: | DATE: 11/6/13 |

## PURGING DATA

| WELL DIAMETER (inches): 0.75" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.75 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.25 feet – 5.75 feet) X 0.02 gallons/foot = 0.17 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1240 | PURGING ENDED AT: 1247 | TOTAL VOLUME PURGED (gallons): 0.40 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1247 | 0.40 | 0.40 | 0.10 | 6.08 | 7.11 | 24.3 | 1573 | 0.82 | 3.14 | CLEAR | -163.1 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1245 | SAMPLING ENDED AT: 1246 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-HS4 | SITE LOCATION: | |
|---|---|---|
| WELL NO: PZS1008 | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): 1" | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): 5.94 | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 8.25 feet – 5.94 feet) X 0.04 gallons/foot = 0.092 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: 1315 | PURGING ENDED AT: 1320 | TOTAL VOLUME PURGED (gallons): 0.30 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1320 | 0.30 | 0.30 | 0.06 | 6.55 | 5.31 | 24.0 | 303 | 0.71 | 19.5 | CLEAR | -59.6 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HHS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1321 | SAMPLING ENDED AT: 1322 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-H54 | | SITE LOCATION: | |
| WELL NO: STE | SAMPLE ID: | | DATE: 1/17/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1138 | — | — | — | — | 7.28 | 23.3 | 1361 | 0.40 | | | -366.5 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HIS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1138 | SAMPLING ENDED AT: |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-HS4 | | SITE LOCATION: | |
| WELL NO: STE DUP | SAMPLE ID: | | DATE: 1/17/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1193 | — | — | — | — | 7.38 | 23.3 | 1361 | 0.40 | | | -366.5 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1143 | SAMPLING ENDED AT: |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: | FIELD-FILTERED: Y N Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y N | TUBING Y N (replaced) | DUPLICATE: Y N | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: DP-01 | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ODOR (describe) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0915 | — | — | — | — | Drive Point dry | | | | | | |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HTS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y N (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS: Totally dry, forced DI water down into drive point and could not recover any water, not even the DI.

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-HS4 | | SITE LOCATION: | |
| WELL NO: DP-02 | SAMPLE ID: | | DATE: 1/16/13 |

## PURGING DATA

| | | | | |
|---|---|---|---|---|
| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| | | | | |
|---|---|---|---|---|
| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ODOR (describe) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0922 | — | — | — | — | DRY | | | | | | |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| | | | |
|---|---|---|---|
| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: | SAMPLING ENDED AT: |
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS: DP dry, Same as DP-01

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-HS4 | SITE LOCATION: | |
|---|---|---|
| WELL NO: DP-03 | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ODOR (describe) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0828 | — | — | — | — | DRY | | | | | | |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y N Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y N | TUBING Y N (replaced) | DUPLICATE: Y N | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS: DP Dry, Same as DP01 and DP02

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| | | | |
|---|---|---|---|
| SITE NAME: C-1454 | | SITE LOCATION: | |
| WELL NO: FB-TAP | SAMPLE ID: | | DATE: 1/10/13 |

## PURGING DATA

| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0815 | — | — | — | — | 7.54 | 21.6 | 846 | 4.41 | 0.35 | CLEAR | 100.7 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt / HIS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-1454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: FB-DI | SAMPLE ID: | DATE: 1/16/13 |

## PURGING DATA

| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or mS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0820 | — | — | — | — | 7.65 | 19.3 | 1.43 | 8.60 | 0.23 | CLEAR | 821 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/HTS | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N replaced) DUPLICATE: Y (N)

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: C-454 | SITE LOCATION: | |
|---|---|---|
| WELL NO: EB | SAMPLE ID: | DATE: |

## PURGING DATA

| WELL DIAMETER (inches): | TUBING DIAMETER (inches): | WELL SCREEN INTERVAL DEPTH: feet to feet | STATIC DEPTH TO WATER (feet): | PURGE PUMP TYPE OR BAILER: |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( feet – feet) X gallons/foot = gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): | FINAL PUMP OR TUBING DEPTH IN WELL (feet): | PURGING INITIATED AT: | PURGING ENDED AT: | TOTAL VOLUME PURGED (gallons): |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ~~ODOR (describe)~~ ORP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0825 | — | — | — | — | 7.65 | 19.3 | 1.43 | 8.60 | 0.23 | CLEAR | 88.1 |
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**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: Sean Schmidt/H+S | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: | SAMPLING ENDED AT: |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y N (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
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REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; T = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

# Appendix E: September 6, 2012 Water Quality and Laboratory Report

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

Table E.1
Water Quality Data Preliminary Sample Event September 6, 2012

| Sample IDs | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Chloride (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHS4-STE | 9/10/12 9:00 | 26.8 | 7.0 | 610 | 0.4 | 1463 | | 68.0 | 68 | 13.0 | 55 | 0.03 | 55.0 | 7.1 | |
| CHS4-DP01-7 | 9/6/12 9:15 | 26.8 | 4.0 | 2 | 0.51 | 540 | 47 | 5.0 | 1.8 | 1.8 | 0.021 | 3.2 | 3.2 | 0.05 | 25 |
| CHS4-DP02-7 | 9/6/12 9:45 | 26.7 | 5.5 | 4.2 | 0.2 | 596 | 31 | 8.4 | 3.7 | 3.7 | 0.014 | 4.7 | 4.7 | 0.057 | 24 |
| CHS4-DP03-7 | 9/6/12 10:30 | 26.9 | 4.8 | 12 | 1.86 | 639 | 67 | 14.4 | 5.4 | 5.4 | 0.009 | 9 | 9.0 | 0.35 | 31 |
| CHS4-DP-04 | 9/6/12 13:20 | 26.0 | 5.5 | 39 | 1.4 | 747 | 72 | 19.3 | 4.3 | 4.3 | 0.01 | 15 | 15.0 | 0.075 | 28 |
| CHS4-DP-05 | 9/6/12 13:45 | 26.0 | 4.8 | 8.4 | 1.4 | 350 | 47 | 1.5 | 1.2 | 1.1 | 0.09 | 0.27 | 0.4 | 0.064 | 12 |
| CHS4-DP-06 | 9/6/12 14:05 | 26.1 | 5.1 | 15 | 0.6 | 488 | 49 | 2.2 | 1.4 | 1.3 | 0.068 | 0.75 | 0.8 | 0.064 | 16 |
| CHS4-PZ01-10 | 9/6/12 11:00 | 26.8 | 4.3 | 2 | 0.86 | 669 | 40 | 13.4 | 4.3 | 4.3 | 0.018 | 9.1 | 9.1 | 0.044 | 30 |
| CHS4-PZ01-10 Dup | 9/6/12 11:05 | 26.8 | 4.3 | 2 | 0.86 | 669 | 40 | 12.2 | 4.2 | 4.2 | 0.014 | 8 | 8.0 | 0.044 | 29 |
| CHS4-PZ03 | 9/6/12 12:00 | 26.6 | 3.5 | 2 | 1.2 | 210 | 56 | 1.2 | 1.2 | 1.2 | 0.046 | 0.02 | 0.1 | 0.13 | 11 |
| CHS4-PZ04 | 9/6/12 11:45 | 27.8 | 3.9 | 2 | 7.07 | 801 | 44 | 1.0 | 0.95 | 0.9 | 0.009 | 0.05 | 0.1 | 0.069 | 25 |
| CHS4-PZ05 | 9/6/12 14:30 | 26.1 | 5.0 | 9.4 | 2.4 | 687 | 40 | 11.3 | 3.3 | 3.1 | 0.19 | 8 | 8.2 | 0.062 | 30 |
| CHS4-PZ06 | 9/6/12 15:00 | 26.1 | 4.8 | 8.4 | 4 | 380 | 67 | 2.1 | 2 | 1.8 | 0.16 | 0.11 | 0.3 | 3.1 | 14 |

Notes:

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$

[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$

[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$

D.O. - Dissolved oxygen

G - Grab sample

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical



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

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

September 28, 2012
Work Order: 1210253

# Laboratory Report

**Project Name** Hillsborough County C-HS4 SE#1

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-DP01-7'** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-01** | | | | | | |
| Date/Time Collected | | **09/06/12 09:15** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.0 | | | | | | |
| Temperature | | 26.8 °C | | | | | | |
| Conductivity | | 540 umhos | | | | | | |
| Dissolved Oxygen | | 0.51 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.021 I | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 14:33 | MMF |
| Chemical Oxygen Demand | mg/L | 47 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 25 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 3.2 | EPA 353.2 | 0.20 | 0.05 | | 09/12/12 11:22 | MMF |
| Phosphorous - Total as P | mg/L | 0.050 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 12:59 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 09/11/12 09:21 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:35 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-DP02-7'** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-02** | | | | | | |
| Date/Time Collected | | **09/06/12 09:45** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.5 | | | | | | |
| Temperature | | 26.7 °C | | | | | | |
| Conductivity | | 596 umhos | | | | | | |
| Dissolved Oxygen | | 0.20 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.014 I | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 14:35 | MMF |
| Chemical Oxygen Demand | mg/L | 31 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 24 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 4.7 | EPA 353.2 | 0.20 | 0.05 | | 09/12/12 11:25 | MMF |
| Phosphorous - Total as P | mg/L | 0.057 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:00 | MMF |
| Total Alkalinity | mg/L | 4.2 I | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 3.7 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:37 | MMF |

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

**September 28, 2012**
**Work Order: 1210253**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#1**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-DP03-7'** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-03** | | | | | | |
| Date/Time Collected | | **09/06/12 10:30** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.8 | | | | | | |
| Temperature | | 26.9 °C | | | | | | |
| Conductivity | | 639 umhos | | | | | | |
| Dissolved Oxygen | | 1.86 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 14:52 | MMF |
| Chemical Oxygen Demand | mg/L | 67 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 9.0 | EPA 353.2 | 0.20 | 0.05 | | 09/12/12 11:27 | MMF |
| Phosphorous - Total as P | mg/L | 0.35 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:03 | MMF |
| Total Alkalinity | mg/L | 12 | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 5.4 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 12:15 | MMF |
| Sample Description | | **CHS4-PZ01-10'** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-04** | | | | | | |
| Date/Time Collected | | **09/06/12 11:00** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.3 | | | | | | |
| Temperature | | 26.8 °C | | | | | | |
| Conductivity | | 669 umhos | | | | | | |
| Dissolved Oxygen | | 0.86 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.018 I | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 14:54 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 30 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 9.1 | EPA 353.2 | 0.20 | 0.05 | | 09/12/12 11:29 | MMF |
| Phosphorous - Total as P | mg/L | 0.044 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:05 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 4.3 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:39 | MMF |

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

**September 28, 2012**
**Work Order: 1210253**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#1**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-PZ01-10' Dup** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-05** | | | | | | |
| Date/Time Collected | | **09/06/12 11:05** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.3 | | | | | | |
| Temperature | | 26.8 °C | | | | | | |
| Conductivity | | 669 umhos | | | | | | |
| Dissolved Oxygen | | 0.86 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.014 I | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 14:56 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 8.0 | EPA 353.2 | 0.20 | 0.05 | | 09/12/12 11:31 | MMF |
| Phosphorous - Total as P | mg/L | 0.044 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:06 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 4.2 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:41 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-PZ04** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-06** | | | | | | |
| Date/Time Collected | | **09/06/12 11:45** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.9 | | | | | | |
| Temperature | | 27.8 °C | | | | | | |
| Conductivity | | 801 umhos | | | | | | |
| Dissolved Oxygen | | 7.07 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 14:58 | MMF |
| Chemical Oxygen Demand | mg/L | 44 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 25 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 09/12/12 10:53 | MMF |
| Phosphorous - Total as P | mg/L | 0.069 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:07 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 0.95 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:42 | MMF |

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

**September 28, 2012**
**Work Order: 1210253**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#1**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-PZ03** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-07** | | | | | | |
| Date/Time Collected | | **09/06/12 12:00** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.5 | | | | | | |
| Temperature | | 26.6 °C | | | | | | |
| Conductivity | | 210 umhos | | | | | | |
| Dissolved Oxygen | | 1.2 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.046 | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 15:00 | MMF |
| Chemical Oxygen Demand | mg/L | 56 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 11 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 09/12/12 10:56 | MMF |
| Phosphorous - Total as P | mg/L | 0.13 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:08 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 1.2 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:43 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-DP-06** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-08** | | | | | | |
| Date/Time Collected | | **09/06/12 14:05** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.1 | | | | | | |
| Temperature | | 26.1 °C | | | | | | |
| Conductivity | | 488 umhos | | | | | | |
| Dissolved Oxygen | | 0.6 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.068 | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 15:02 | MMF |
| Chemical Oxygen Demand | mg/L | 49 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 16 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 0.75 | EPA 353.2 | 0.04 | 0.01 | | 09/12/12 10:58 | MMF |
| Phosphorous - Total as P | mg/L | 0.064 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:09 | MMF |
| Total Alkalinity | mg/L | 15 | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:44 | MMF |

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**September 28, 2012**
**Work Order: 1210253**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#1**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-DP-04** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-09** | | | | | | |
| Date/Time Collected | | **09/06/12 13:20** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.5 | | | | | | |
| Temperature | | 26.0 °C | | | | | | |
| Conductivity | | 747 umhos | | | | | | |
| Dissolved Oxygen | | 1.4 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.010 I | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 15:04 | MMF |
| Chemical Oxygen Demand | mg/L | 72 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 09/20/12 16:48 | JAG |
| Nitrate+Nitrite (N) | mg/L | 15 | EPA 353.2 | 1.0 | 0.25 | | 09/12/12 11:38 | MMF |
| Phosphorous - Total as P | mg/L | 0.075 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:11 | MMF |
| Total Alkalinity | mg/L | 39 | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 4.3 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:46 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-DP-05** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-10** | | | | | | |
| Date/Time Collected | | **09/06/12 13:45** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.8 | | | | | | |
| Temperature | | 26.0 °C | | | | | | |
| Conductivity | | 350 umhos | | | | | | |
| Dissolved Oxygen | | 1.4 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.090 | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 15:06 | MMF |
| Chemical Oxygen Demand | mg/L | 47 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 12 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 0.27 | EPA 353.2 | 0.04 | 0.01 | | 09/12/12 11:02 | MMF |
| Phosphorous - Total as P | mg/L | 0.064 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:12 | MMF |
| Total Alkalinity | mg/L | 8.4 | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 1.2 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:20 | 09/13/12 11:47 | MMF |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#1**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-PZ05** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-11** | | | | | | |
| Date/Time Collected | | **09/06/12 14:30** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.0 | | | | | | |
| Temperature | | 26.1 °C | | | | | | |
| Conductivity | | 687 umhos | | | | | | |
| Dissolved Oxygen | | 2.4 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.19 | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 15:08 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 30 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 8.0 | EPA 353.2 | 0.20 | 0.05 | | 09/12/12 11:33 | MMF |
| Phosphorous - Total as P | mg/L | 0.062 | SM 4500P-E | 0.040 | 0.010 | 09/12/12 09:55 | 09/14/12 13:13 | MMF |
| Total Alkalinity | mg/L | 9.4 | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 3.3 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:23 | 09/14/12 12:11 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **CHS4-PZ06** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1210253-12** | | | | | | |
| Date/Time Collected | | **09/06/12 15:00** | | | | | | |
| Collected by | | **Josephine Edeback-Hirst** | | | | | | |
| Date/Time Received | | **09/06/12 17:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.8 | | | | | | |
| Temperature | | 26.1 °C | | | | | | |
| Conductivity | | 380 umhos | | | | | | |
| Dissolved Oxygen | | 4.0 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.16 | EPA 350.1 | 0.040 | 0.009 | | 09/11/12 15:14 | MMF |
| Chemical Oxygen Demand | mg/L | 67 | EPA 410.4 | 25 | 10 | 09/11/12 09:00 | 09/11/12 11:10 | CDB |
| Chloride | mg/L | 14 | EPA 300.0 | 0.20 | 0.050 | | 09/18/12 16:55 | JAG |
| Nitrate+Nitrite (N) | mg/L | 0.11 | EPA 353.2 | 0.04 | 0.01 | | 09/12/12 11:07 | MMF |
| Phosphorous - Total as P | mg/L | 3.1 | SM 4500P-E | 0.20 | 0.050 | 09/12/12 09:55 | 09/14/12 13:59 | MMF |
| Total Alkalinity | mg/L | 8.4 | SM 2320B | 8.0 | 2.0 | | 09/10/12 10:47 | TJH |
| Total Kjeldahl Nitrogen | mg/L | 2.0 | EPA 351.2 | 0.20 | 0.05 | 09/10/12 16:23 | 09/14/12 12:13 | MMF |

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

**September 28, 2012**
**Work Order: 1210253**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BI21012 - COD prep** | | | | | | | | | | |
| **Blank (BI21012-BLK1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BI21012-BS1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Chemical Oxygen Demand | 47 | 25 | 10 | mg/L | 50 | | 94 | 90-110 | | |
| **Matrix Spike (BI21012-MS1)** | | **Source: 1210253-10** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Chemical Oxygen Demand | 90 | 25 | 10 | mg/L | 50 | 47 | 86 | 85-115 | | |
| **Matrix Spike Dup (BI21012-MSD1)** | | **Source: 1210253-10** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Chemical Oxygen Demand | 90 | 25 | 10 | mg/L | 50 | 47 | 86 | 85-115 | 0 | 32 |
| **Batch BI21057 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BI21057-BLK1)** | | | | | Prepared: 09/10/12 Analyzed: 09/13/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BI21057-BS1)** | | | | | Prepared: 09/10/12 Analyzed: 09/13/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.32 | 0.20 | 0.05 | mg/L | 2.5 | | 92 | 90-110 | | |
| **Matrix Spike (BI21057-MS1)** | | **Source: 1210131-07** | | | Prepared: 09/10/12 Analyzed: 09/13/12 | | | | | |
| Total Kjeldahl Nitrogen | 3.05 | 0.20 | 0.05 | mg/L | 2.5 | 0.697 | 93 | 80-120 | | |
| **Matrix Spike Dup (BI21057-MSD1)** | | **Source: 1210131-07** | | | Prepared: 09/10/12 Analyzed: 09/13/12 | | | | | |
| Total Kjeldahl Nitrogen | 3.14 | 0.20 | 0.05 | mg/L | 2.5 | 0.697 | 97 | 80-120 | 3 | 20 |
| **Batch BI21058 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BI21058-BLK1)** | | | | | Prepared: 09/10/12 Analyzed: 09/14/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |

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**September 28, 2012**
**Work Order: 1210253**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BI21058 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **LCS (BI21058-BS1)** | | | | | Prepared: 09/10/12 Analyzed: 09/14/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.54 | 0.20 | 0.05 | mg/L | 2.5 | | 100 | 90-110 | | |
| **Matrix Spike (BI21058-MS1)** | | **Source: 1210248-02** | | | Prepared: 09/10/12 Analyzed: 09/14/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.84 | 0.20 | 0.05 | mg/L | 2.5 | 0.781 | 81 | 80-120 | | |
| **Matrix Spike Dup (BI21058-MSD1)** | | **Source: 1210248-02** | | | Prepared: 09/10/12 Analyzed: 09/14/12 | | | | | |
| Total Kjeldahl Nitrogen | 3.03 | 0.20 | 0.05 | mg/L | 2.5 | 0.781 | 89 | 80-120 | 7 | 20 |
| **Batch BI21111 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BI21111-BLK1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BI21111-BS1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.47 | 0.040 | 0.009 | mg/L | 0.50 | | 94 | 90-110 | | |
| **Matrix Spike (BI21111-MS1)** | | **Source: 1210004-07** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | 0.027 | 97 | 90-110 | | |
| **Matrix Spike Dup (BI21111-MSD1)** | | **Source: 1210004-07** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | 0.027 | 93 | 90-110 | 4 | 10 |
| **Batch BI21112 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BI21112-BLK1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |

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**September 28, 2012**
**Work Order: 1210253**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BI21112 - Ammonia by SEAL** | | | | | | | | | | |
| **LCS (BI21112-BS1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.48 | 0.040 | 0.009 | mg/L | 0.50 | | 96 | 90-110 | | |
| **Matrix Spike (BI21112-MS1)** | | **Source: 1210353-01** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.47 | 0.040 | 0.009 | mg/L | 0.50 | ND | 95 | 90-110 | | |
| **Matrix Spike Dup (BI21112-MSD1)** | | **Source: 1210353-01** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Ammonia as N | 0.47 | 0.040 | 0.009 | mg/L | 0.50 | ND | 93 | 90-110 | 2 | 10 |
| **Batch BI21121 - alkalinity** | | | | | | | | | | |
| **Blank (BI21121-BLK1)** | | | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **Blank (BI21121-BLK2)** | | | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BI21121-BS1)** | | | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 95 | 90-110 | | |
| **LCS (BI21121-BS2)** | | | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 95 | 90-110 | | |
| **Matrix Spike (BI21121-MS1)** | | **Source: 1210037-01** | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 280 | 8.0 | 2.0 | mg/L | 120 | 170 | 86 | 80-120 | | |
| **Matrix Spike (BI21121-MS2)** | | **Source: 1210338-01** | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 280 | 8.0 | 2.0 | mg/L | 120 | 150 | 103 | 80-120 | | |

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**September 28, 2012**
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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BI21121 - alkalinity** | | | | | | | | | | |
| **Matrix Spike Dup (BI21121-MSD1)** | | **Source: 1210037-01** | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 290 | 8.0 | 2.0 | mg/L | 120 | 170 | 95 | 80-120 | 4 | 26 |
| **Matrix Spike Dup (BI21121-MSD2)** | | **Source: 1210338-01** | | | Prepared & Analyzed: 09/10/12 | | | | | |
| Total Alkalinity | 280 | 8.0 | 2.0 | mg/L | 120 | 150 | 103 | 80-120 | 0 | 26 |
| **Batch BI21201 - Nitrate 353.2 by seal** | | | | | | | | | | |
| **Blank (BI21201-BLK1)** | | | | | Prepared & Analyzed: 09/12/12 | | | | | |
| Nitrate+Nitrite (N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **LCS (BI21201-BS1)** | | | | | Prepared & Analyzed: 09/12/12 | | | | | |
| Nitrate+Nitrite (N) | 0.779 | 0.04 | 0.01 | mg/L | 0.80 | | 97 | 90-110 | | |
| **Matrix Spike (BI21201-MS1)** | | **Source: 1210051-01** | | | Prepared & Analyzed: 09/12/12 | | | | | |
| Nitrate+Nitrite (N) | 1.25 | 0.04 | 0.01 | mg/L | 1.0 | 0.315 | 93 | 77-119 | | |
| **Matrix Spike Dup (BI21201-MSD1)** | | **Source: 1210051-01** | | | Prepared & Analyzed: 09/12/12 | | | | | |
| Nitrate+Nitrite (N) | 1.27 | 0.04 | 0.01 | mg/L | 1.0 | 0.315 | 96 | 77-119 | 2 | 20 |
| **Batch BI21223 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BI21223-BLK1)** | | | | | Prepared: 09/12/12 Analyzed: 09/14/12 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BI21223-BS1)** | | | | | Prepared: 09/12/12 Analyzed: 09/14/12 | | | | | |
| Phosphorous - Total as P | 0.839 | 0.040 | 0.010 | mg/L | 0.80 | | 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 BI21223 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Matrix Spike (BI21223-MS1)** | | **Source: 1210183-05** | | | Prepared: 09/12/12 Analyzed: 09/14/12 | | | | | |
| Phosphorous - Total as P | 1.03 | 0.040 | 0.010 | mg/L | 1.0 | 0.0379 | 99 | 75-125 | | |
| **Matrix Spike Dup (BI21223-MSD1)** | | **Source: 1210183-05** | | | Prepared: 09/12/12 Analyzed: 09/14/12 | | | | | |
| Phosphorous - Total as P | 1.04 | 0.040 | 0.010 | mg/L | 1.0 | 0.0379 | 100 | 75-125 | 1 | 25 |
| **Batch BI21241 - alkalinity** | | | | | | | | | | |
| **Blank (BI21241-BLK1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BI21241-BS1)** | | | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 95 | 90-110 | | |
| **Matrix Spike (BI21241-MS1)** | | **Source: 1210165-01** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Total Alkalinity | 290 | 8.0 | 2.0 | mg/L | 120 | 170 | 95 | 80-120 | | |
| **Matrix Spike Dup (BI21241-MSD1)** | | **Source: 1210165-01** | | | Prepared & Analyzed: 09/11/12 | | | | | |
| Total Alkalinity | 290 | 8.0 | 2.0 | mg/L | 120 | 170 | 95 | 80-120 | 0 | 26 |
| **Batch BI21825 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BI21825-BLK1)** | | | | | Prepared & Analyzed: 09/18/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BI21825-BS1)** | | | | | Prepared & Analyzed: 09/18/12 | | | | | |
| Chloride | 2.75 | 0.20 | 0.050 | mg/L | 3.0 | | 92 | 85-115 | | |

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**September 28, 2012**
**Work Order: 1210253**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BI21825 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS Dup (BI21825-BSD1)** | | | | | Prepared & Analyzed: 09/18/12 | | | | | |
| Chloride | 2.77 | 0.20 | 0.050 | mg/L | 3.0 | | 92 | 85-115 | 0.7 | 200 |
| **Matrix Spike (BI21825-MS1)** | | **Source: 1210253-06** | | | Prepared & Analyzed: 09/18/12 | | | | | |
| Chloride | 29.0 | 0.20 | 0.050 | mg/L | 3.0 | 25.4 | 120 | 80-120 | | |
| **Matrix Spike (BI21825-MS2)** | | **Source: 1210337-02** | | | Prepared & Analyzed: 09/18/12 | | | | | |
| Chloride | 432 | 0.20 | 0.050 | mg/L | 3.0 | 10100 | NR | 80-120 | | |
| **Batch BI22019 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BI22019-BLK1)** | | | | | Prepared & Analyzed: 09/20/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BI22019-BS1)** | | | | | Prepared & Analyzed: 09/20/12 | | | | | |
| Chloride | 2.82 | 0.20 | 0.050 | mg/L | 3.0 | | 94 | 85-115 | | |
| **LCS Dup (BI22019-BSD1)** | | | | | Prepared & Analyzed: 09/20/12 | | | | | |
| Chloride | 2.81 | 0.20 | 0.050 | mg/L | 3.0 | | 94 | 85-115 | 0.4 | 200 |
| **Matrix Spike (BI22019-MS1)** | | **Source: 1211048-01** | | | Prepared & Analyzed: 09/20/12 | | | | | |
| Chloride | 22.2 | 0.20 | 0.050 | mg/L | 3.0 | 19.0 | 107 | 80-120 | | |
| **Matrix Spike (BI22019-MS2)** | | **Source: 1210337-02** | | | Prepared & Analyzed: 09/20/12 | | | | | |
| Chloride | 5,730 +O | 0.20 | 0.050 | mg/L | 300 | 10100 | NR | 80-120 | | |

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**September 28, 2012**
**Work Order: 1210253**

## * 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. 1210253

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#1

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

| | Sample Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Cl, Total Alkalinity | 250mL P, $H_2SO_4$ TKN, NOx, NH3, COD, TP | | | | | Field Temperature | Field pH | Field Conductivity | Field DO | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | CHS4 - DP01 - 7' | 08/28/12 | 9:15 | GW | | X | 1 | 1 | | | | | 26.8 | 4.0 | 540 | 0.51 | | | | | |
| 02 | CHS4 - DP02 - 7' | " | 9:45 | GW | | X | 1 | 1 | | | | | 26.7 | 4.5 | 596 | 0.20 | | | | | |
| 03 | CHS4 - DP03 - 7' | " | 10:30 | GW | | X | 1 | 1 | | | | | 26.9 | 4.8 | 639 | 1.86 | | | | | |
| 04 | CHS4 - PZ01 - 10' | " | 11:00 | GW | | X | 1 | 1 | | | | | 26.8 | 4.3 | 669 | 0.86 | | | | | |
| 05 | CHS4 - PZ01 - 10' - DUP | " | 11:05 | GW | | X | 1 | 1 | | | | | 26.8 | 4.3 | 669 | 0.86 | | | | | |
| 06 | CHS4 - PZ04 - | " | 11:45 | GW | | X | 1 | 1 | | | | | 27.8 | 3.9 | 801 | 7.07 | | | | | |
| 07 | CHS4 - PZ03 | " | 12:00 | GW | | X | 1 | 1 | | | | | 26.6 | 3.5 | 210 | 1.2 | | | | | |
| 08 | CHS4 - DP-06 | " | ~~12:20~~ 12:05 | GW | | X | 1 | 1 | | | | | 26.1 | 5.1 | 488 | 0.6 | | | | | |
| 09 | CHS4 - DP-04 | " | 12:20 | GW | | X | 1 | 1 | | | | | 26.0 | 5.5 | 747 | 1.4 | | | | | |
| 10 | CHS4 - DP-05 | " | 13:45 | GW | | X | 1 | 1 | | | | | 26.0 | 4.8 | 350 | 1.4 | | | | | |
| 11 | CHS4 - PZ05 | " | 14:30 | GW | | X | 1 | 1 | | | | | 26.1 | 5.0 | 687 | 2.4 | | | | | |
| 12 | CHS4 - PZ06 | " | ~~15:00~~ 15:00 | GW | | X | 1 | 1 | | | | | 26.1 | [illegible] | 380 | 4.0 | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | Date/Time: 1530 8/28/12 | Received: UPS | Date/Time: |
| Relinquished: UPS | Date/Time: | Received: | Date/Time: 08/29/12 13:00 pm |
| Relinquished: | Date/Time: 9/6/12 3:15 pm | Received: | Date/Time: ~~1300~~ 1700 09-06-12 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

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

Chain of Custody

FLORIDA DEPARTMENT OF HEALTH

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.25

## C-HS4 Monitoring Data Summary Report No. 2

## Progress Report

June 2013

4423-001


HAZEN AND SAWYER
Environmental Engineers & Scientists

In association with

SCHOOL OF MINES 1874 COLORADO

AET
Applied Environmental Technology

OTIS ENVIRONMENTAL CONSULTANTS, LLC

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

## TASK C.25
## PROGRESS REPORT

## C-HS4 Monitoring
## Data Summary Report No. 2

**Prepared for:**

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

FDOH Contract CORCL

**June 2013**

**Prepared by:**

HAZEN AND SAWYER
Environmental Engineers & Scientists

In Association With:

SCHOOL OF MINES 1874 COLORADO

# C-HS4 Monitoring
# Data Summary Report No. 2

## 1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 instrumentation report for the C-HS4 OSTDS system and plume documents the test area design, number and location of monitoring points, and preliminary field parameters from monitoring points for this Hillsborough County, Florida field site, and also includes preliminary sample collection and analyses.

## 2.0 Purpose

This report documents data that was collected in the second C-HS4 monitoring and sampling event which was conducted April 22 through April 24, 2013. The corresponding sample event report was submitted as C-HS4 Sample Event Report No. 2, June 2013, as a deliverable under Task C.24. The monitoring event consisted of water use measurement from the household water meter, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of effluent and groundwater samples and their analyses in a NELAC certified laboratory.

## 3.0 Materials and Methods

### 3.1 Project Site

The C-HS4 field site is also the B-HS2 passive nitrogen reduction system site located in Hillsborough County, FL adjacent to Eagle Lake and [redacted] Creek in a rural area. The Task B.6 installation report for the B-HS2 system documents the experimental system design which was installed in September 2012. The existing onsite sewage treatment and disposal system (OSTDS) consisted of a 1,050 gallon concrete septic tank located adjacent to the soil treatment unit which is a mounded drainfield (P.T.I.™ bundles). The new passive treatment system consists of a replacement 1,050 gallon two chamber con-

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crete primary tank; 300 gallon concrete recirculation tank; 900 gallon concrete Stage 1 unsaturated media filter; 300 gallon concrete pump tank; and 1,500 gallon two chamber concrete Stage 2 saturated media biofilter.

## 3.2 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the soil treatment unit as depicted in Figure 1. A 10-foot by 5-foot grid spacing was staked. Transect lines A through S run east-west, roughly parallel to the groundwater flow direction and increase (higher letter identification) moving southward from the drainfield. Transect lines 0 through 10 run north-south, roughly perpendicular to the groundwater flow direction and increase moving from the west to east. Based on initial screening data, 29 monitoring locations were chosen within the grid for standpipe piezometer installation. Groundwater monitoring points were installed in September and December 2012. Two types of monitoring point were installed using either hand or drilling methods: stainless steel drivepoints and standpipe piezometers. Stainless steel drivepoints consist of 1-foot screens with polypropylene tubing extending to the ground surface. Standpipe piezometers consist of either ¾-inch or 1-inch diameter PVC with a 1-foot or 5-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS3 Instrumentation Report for additional detail).

Each monitoring location was assigned a unique identification indicating grid location (self explanatory), and depth below ground surface (bottom of the well screen in feet). For example E03-8 is a standpipe piezometer sampler located on the grid at E03 at 8 feet below ground surface. A schematic of the C-HS4 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers and sample identification is included in Appendix A.

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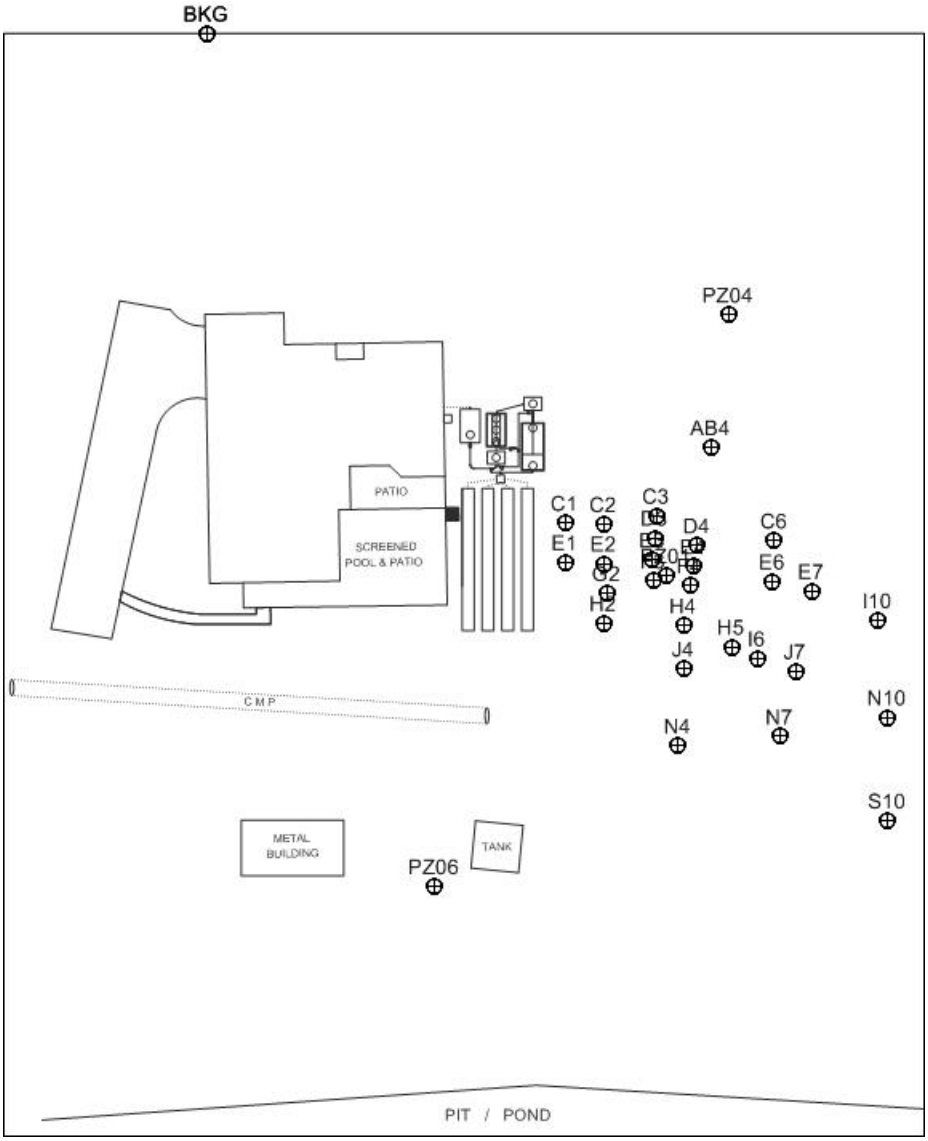


**Figure 1**
**C-HS4 Monitoring Network**

## 3.3 Operational Monitoring

A water meter for the home site was installed March 6, 2012. The water meter for the house site was read and recorded. A weather station (Balm in Wimauma, FL) is located approximately 10 miles from the site. Data from this weather station is available at the following website: http://fawn.ifas.ufl.edu/.

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## 3.4 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of groundwater flow. Groundwater levels were measured by inserting into monitoring wells a hand-cranked steel tape graduated in feet, to the nearest 0.01 ft. These measurements are then converted to groundwater surface elevations by using the surveyed elevation of the top of the monitoring well casing. The groundwater level within all the sampled standpipe piezometers was measured for this sampling event.

## 3.5 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected April 22 through April 24, 2013 for water quality analysis. A sample was collected from the septic tank to represent the effluent delivered to the drainfield. A peristaltic pump was used to collect STE directly into the analysis-specific containers. Groundwater samples were obtained using a peristaltic pump, which was attached directly to dedicated standpipe piezometer or drivepoint tubing. Samples were collected after sufficient purging (the sample was clear and pH and conductivity readings had stabilized) had occurred. Field parameters were then recorded.

The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms supplied by the laboratory. Chain of custody forms were used to document the transfer of samples from field personnel to the analytical laboratory.

In addition, field sample duplicates were collected immediately subsequent to the regular samples. The field duplicate samples taken include:

- BKG-15
- PZ-I6-15
- PZ-N7-15
- PZ-N10-08

Field parameters (pH, specific conductance, temperature (Temp), and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed in an overflowing plastic beaker as groundwater was being pumped. All samples were analyzed by the laboratory for: total Kjeldahl nitrogen (TKN-N), ammonia nitrogen ($NH_3$-N), and nitrate/nitrite nitrogen ($NO_X$-N). At some of the locations, total alkalinity, chloride (CL), chemical oxygen demand (COD), total phosphorus (TP), anions, and cations were included. All analyses were performed by an independent and fully certified analytical la-

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boratory (Southern Analytical Laboratory). Table 1 lists the analytical parameters, analytical methods, and detection limits for these analyses.

**Table 1**
**Analytical Parameters, Method of Analysis, and Detection Limits**

| Analytical Parameter | Method of Analysis | Method Detection Limit (mg/L) |
|---|---|---|
| Total Alkalinity as $CaCO_3$ | SM 2320B | 2 mg/L |
| Chemical Oxygen Demand (COD) | EPA 410.4 | 10 mg/L |
| 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 |
| Anions | | |
| Fluoride | EPA 300.0 | 0.01 mg/L |
| Chloride | EPA 300.0 | 0.05 mg/L |
| Nitrate-N | EPA 300.0 | 0.01 mg/L |
| Nitrite-N | EPA 300.0 | 0.01 mg/L |
| Orthophosphate-P | EPA 300.0 | 0.01 mg/L |
| Sulfate | EPA 300.0 | 0.20 mg/L |
| Cations | | |
| Boron | EPA 200.7 | 0.05 mg/L |
| Calcium | EPA 200.7 | 0.01 mg/L |
| Iron | EPA 200.7 | 0.02 mg/L |
| Magnesium | EPA 200.7 | 0.01 mg/L |
| Manganese | EPA 200.7 | 0.001 mg/L |
| Potassium | EPA 200.7 | 0.01 mg/L |
| Sodium | EPA 200.7 | 0.01 mg/L |

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## 3.6 Data Management

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

# 4.0 Results

## 4.1 Operational Data and Site Conditions

Table 2 summarizes the water meter readings and average daily water use for the residence at site C-HS4.

**Table 2**
**Water Meter Readings and Water Usage for C-HS4**

| Residence | Date Read | Meter Reading | Gallons/day since last reading | Gallons/day since installed |
|---|---|---|---|---|
| C-HS4 Residence | 3/6/2012 | 7,790 | Installed | Installed |
| | 1/1/2013 | 43,240 | 117.8 | 117.8 |
| | 2/5/2013 | 47,741 | 128.6 | 118.9 |
| | 4/23/2013 | 54,680 | 90.1 | 113.5 |

Daily recorded meteorological data is provided in Appendix B. Table 3 provides the daily averages leading up to and during the sample event.

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**Table 3**
**Meteorological Data Daily Averages Measured April 16 through April 24, 2013**

| Date | Temp Avg 60 cm (°F) | Temp Avg 2m (°F) | Temp Avg 10 m (°F) | Temp Soil Avg -10 cm (°F) | Dewpoint Avg 2m (°F) | Relative Humidity Avg 2m (%) | Rain Total 2m (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | ET (in/d) |
|---|---|---|---|---|---|---|---|---|---|---|
| 16-Apr-13 | 77.16 | 77.38 | 77.03 | 77.48 | 68.68 | 77 | 0 | 0 | 8.44 | 0.17 |
| 17-Apr-13 | 74.27 | 74.58 | 74.23 | 77.53 | 64.40 | 73 | 0 | 0 | 8.23 | 0.15 |
| 18-Apr-13 | 75.19 | 75.40 | 75.19 | 77.55 | 67.33 | 79 | 0.69 | 0.26 | 5.77 | 0.15 |
| 19-Apr-13 | 77.11 | 77.40 | 77.08 | 77.32 | 70.37 | 81 | 0.02 | 0.01 | 8.89 | 0.1 |
| 20-Apr-13 | 68.70 | 68.68 | 68.32 | 76.19 | 64.24 | 86 | 0 | 0 | 7.55 | 0.12 |
| 21-Apr-13 | 69.98 | 69.88 | 69.39 | 75.44 | 64.78 | 85 | 0.04 | 0.02 | 7.23 | 0.11 |
| 22-Apr-13 | 70.63 | 70.67 | 70.28 | 75.49 | 66.78 | 88 | 0.16 | 0.05 | 7.57 | 0.16 |
| 23-Apr-13 | 72.15 | 72.26 | 71.64 | 75.59 | 62.98 | 75 | 0 | 0 | 9.33 | 0.16 |
| 24-Apr-13 | 71.37 | 71.57 | 71.57 | 76.16 | 60.42 | 71 | 0 | 0 | 5.39 | 0.17 |

## 4.2 Groundwater Levels

Water levels were measured at all standpipe piezometers sampled April 22 through April 24, 2013 for this sampling event as summarized in Table 4. Figures 2 and 3 illustrate the surficial groundwater contours as measured within the standpipe piezometers during Sample Event 1 (January 16, 2013) and Sample Event 2 (April 22, 2013), respectively.

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**Table 4**
**Standpipe Piezometer Groundwater Levels April 22, 2013**

| Identification | Water Table El[1] (ft) | Identification | Water Table El[1] (ft) |
|---|---|---|---|
| PZ-01 | DRY | PZ-E7-15 | 10.45 |
| PZ-02 | DRY | PZ-F3-08 | DRY |
| PZ-03 | DRY | PZ-F3-15 | 10.90 |
| BKG-10 | 15.95 | PZ-F4-08 | DRY |
| BKG-15 | 15.45 | PZ-F4-15 | 10.63 |
| PZ-04 | DRY | PZ-G1 | DRY |
| PZ-05 | DRY | PZ-G2-12.5 | 11.53 |
| PZ-06 | DRY | PZ-H4-08 | DRY |
| PZ-AB4-08 | DRY | PZ-H4-15 | 10.82 |
| PZ-AB4-15 | 10.96 | PZ-H5-11.5 | 10.43 |
| PZ-C1 | DRY | PZ-I6-08 | 10.42 |
| PZ-C2 | 12.78 | PZ-I6-15 | 10.52 |
| PZ-C3-08 | DRY | PZ-I10-08 | 10.42 |
| PZ-C3-15 | 11.42 | PZ-I10-15 | 10.40 |
| PZ-C6-08 | 10.43 | PZ-J4-08 | DRY |
| PZ-C6-15 | 10.43 | PZ-J4-15 | 10.55 |
| PZ-D3-08 | DRY | PZ-J7-08 | 10.46 |
| PZ-D3-15 | 11.36 | PZ-J7-15 | 10.42 |
| PZ-D4-08 | DRY | PZ-N4-08 | DRY |
| PZ-D4-15 | 10.58 | PZ-N4-15 | 10.65 |
| PZ-E1 | 13.02 | PZ-N7-08 | 10.54 |
| PZ-E2 | 12.08 | PZ-N7-15 | 10.48 |
| PZ-E3-08 | DRY | PZ-N10-08 | 10.52 |
| PZ-E3-15 | 11.31 | PZ-N10-15 | 10.43 |
| PZ-E4-08 | DRY | PZ-S10-08 | 10.58 |
| PZ-E4-15 | 10.61 | DP-01 | DRY |
| PZ-E5-08 | DRY | DP-02 | DRY |
| PZ-E5-15 | 10.48 | DP-03 | DRY |
| PZ-E6-08 | 10.45 | DP-04 | DRY |
| PZ-E6-15 | 10.50 | DP-05 | DRY |
| PZ-E7-08 | 10.40 | DP-06 | DRY |

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

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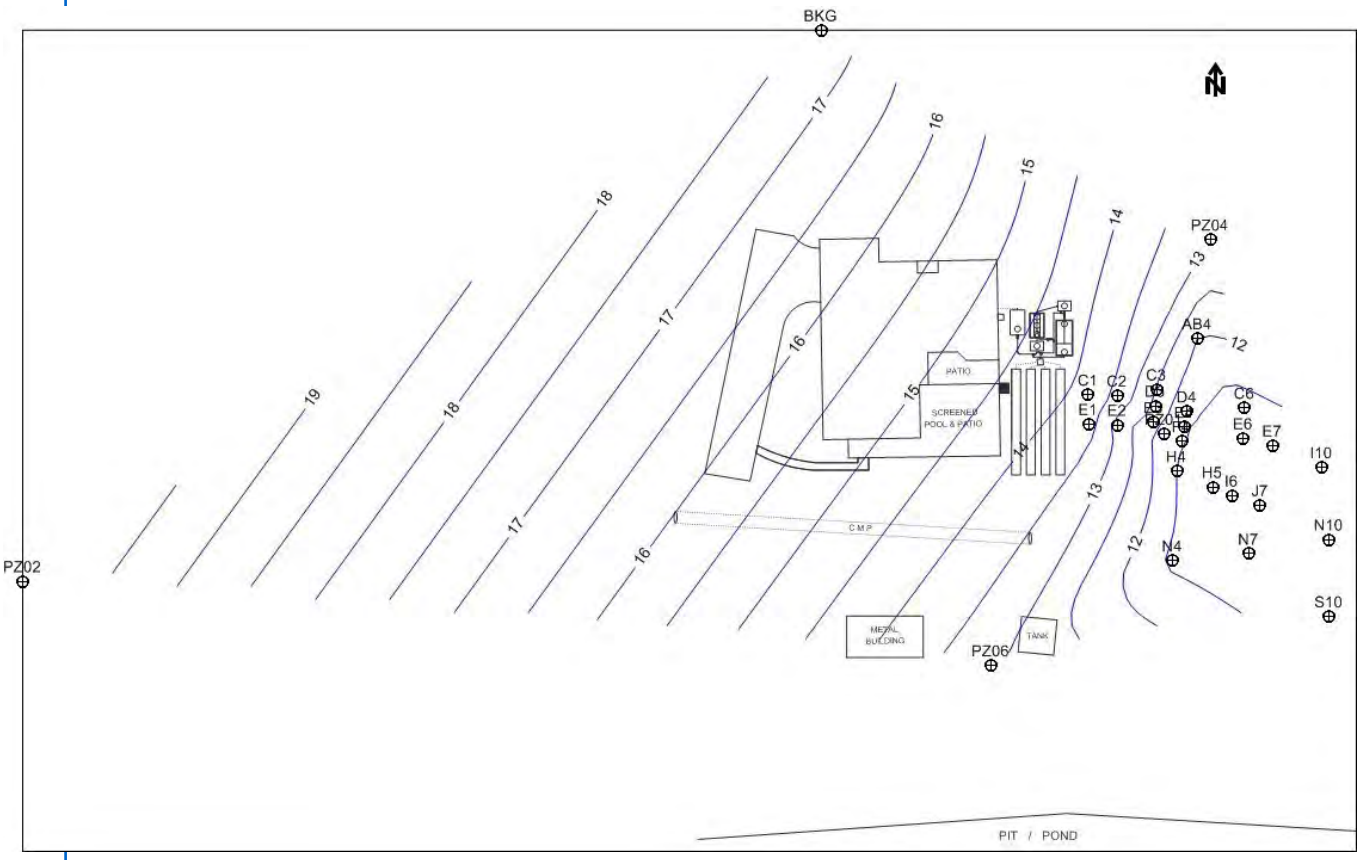


**Figure 2**
**Surficial Groundwater Contours SE1, January 16, 2013**

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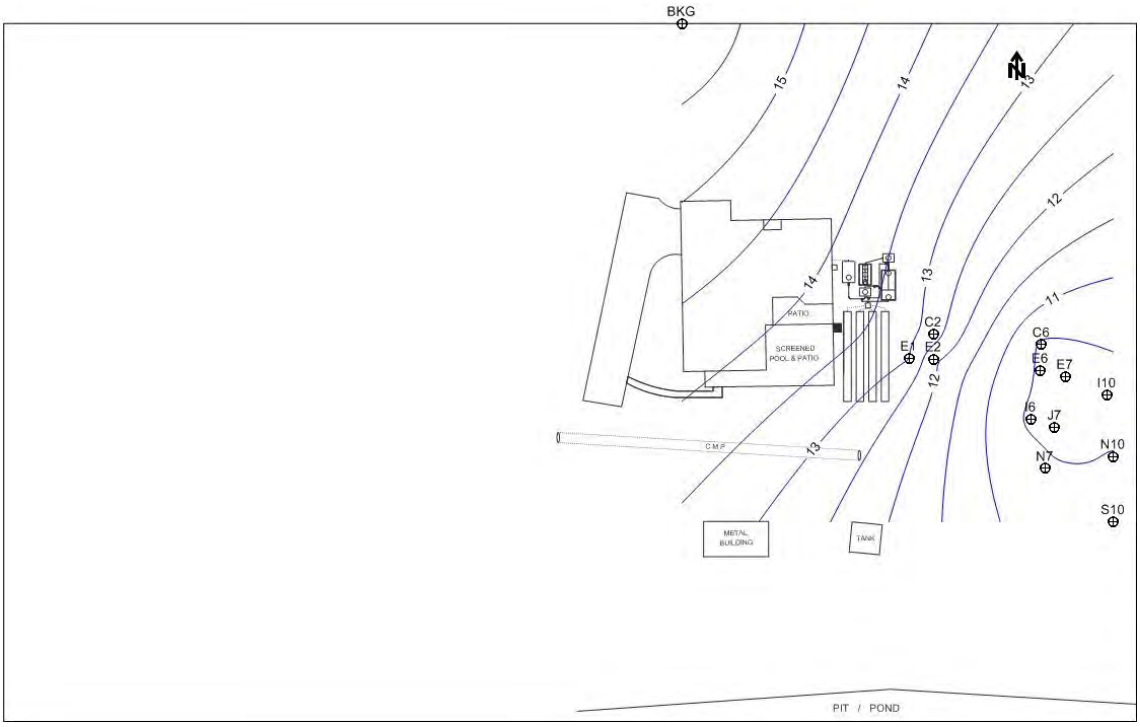


**Figure 3**
**Surficial Groundwater Contours SE2, April 22, 2013**

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## 4.3 Water Quality Analyses

### 4.3.1 Field Parameters

Field parameters (temperature, pH, dissolved oxygen (DO), and specific conductivity) were measured at all the sampling locations prior to sample collection and are provided in Appendix C. Variations in measured values between monitoring points were expected as the chemical composition of the groundwater varied due to the discharge of STE.

### 4.3.2 Correlations

Correlations between nitrogen parameters were investigated to determine if simple to measure field parameters could continue to be used to locate contaminant plumes. Figure 4 shows a scatter plot of nitrogen vs conductivity for groundwater samples. A strong linear correlation is not observed for conductivity (Figure 4).

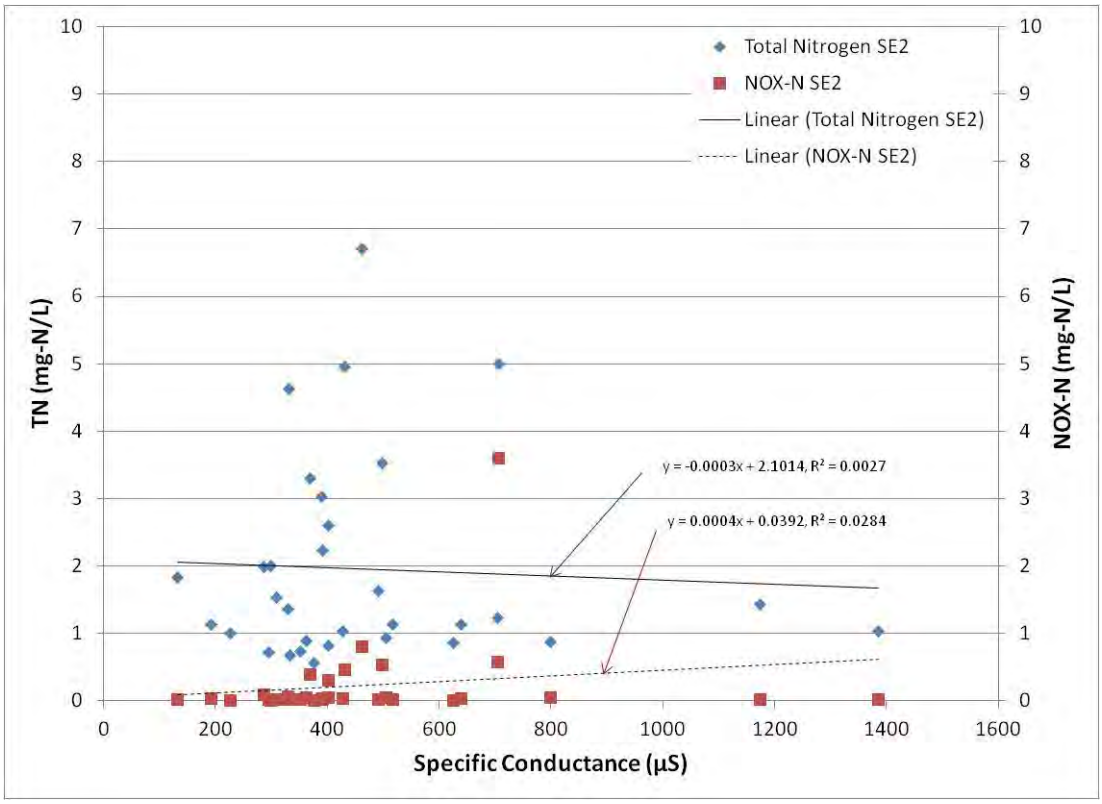


**Figure 4**
**Correlation Between the Specific Conductance (uS) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)**

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### 4.3.3 Analytical Parameters

In addition to measuring field parameters, all samples were analyzed for total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH3-N), and nitrate/nitrite nitrogen (NOX-N). At some of the locations, total alkalinity (as $CaCO_3$), chemical oxygen demand (COD), total phosphorus (TP), anions, and cations were included. By analyzing for the different nitrogen species, a clearer picture is gained on the transformation of nitrogen within the plume. The complete water quality analytical results for Sample Event No. 2 are listed in Table C.1 of Appendix C. The summary of the water quality is presented in Table D.1 of Appendix D. The laboratory report containing the raw analytical data is included in Appendix E which includes the chain of custody forms.

### 4.3.4 Nitrate/Nitrite Concentrations with Groundwater Depth

The general trend of the nitrogen plume at the site can be somewhat determined with the data collected to date. The piezometers installed at different locations and depths below the ground surface were mapped in **Surfer**. Although **Surfer** is an informative tool for mapping the information from the site, it cannot project a 3-dimensional view of concentrations with depth. Based on the distribution of points with depth, two "slices" were chosen for the groundwater data surrounding the system. A **Surfer** schematic illustrating the "slices" of NOX concentration with depth from April 2013 are presented in Figures 5 and 6. The two slices were separated by groundwater elevation above sea level (NGVD29 datum). Similar slices of TKN concentration with depth are presented in Figures 7 and 8. The maps show contours of the concentrations as estimated using the "natural neighbor" gridding method in **Surfer™**. This method was used because it did not extend results past data points, as was noted on previous project results.

The shallow and deep piezometer NOX results are very low concentrations (Figures 5 and 6). The shallow and deep piezometer TKN results near the system (Figures 7 and 8) appear to show the plume to be confined in a south-southeast direction from the drainfield. The deeper piezometers (Figure 6) indicate relatively low NOX concentrations at this point in time, similar to background levels. However, as evident in the comparison of the NOX and TKN plots of the deeper piezometers (Figures 6 and 8) there seems to be a background concentration of TKN. The specific conductance plots (Figure 9 and 10) are similar to the nitrogen plots. The plots indicate that the NOX concentration in the area near the drainfield has significantly decreased following the installation of the passive nitrogen reduction system.

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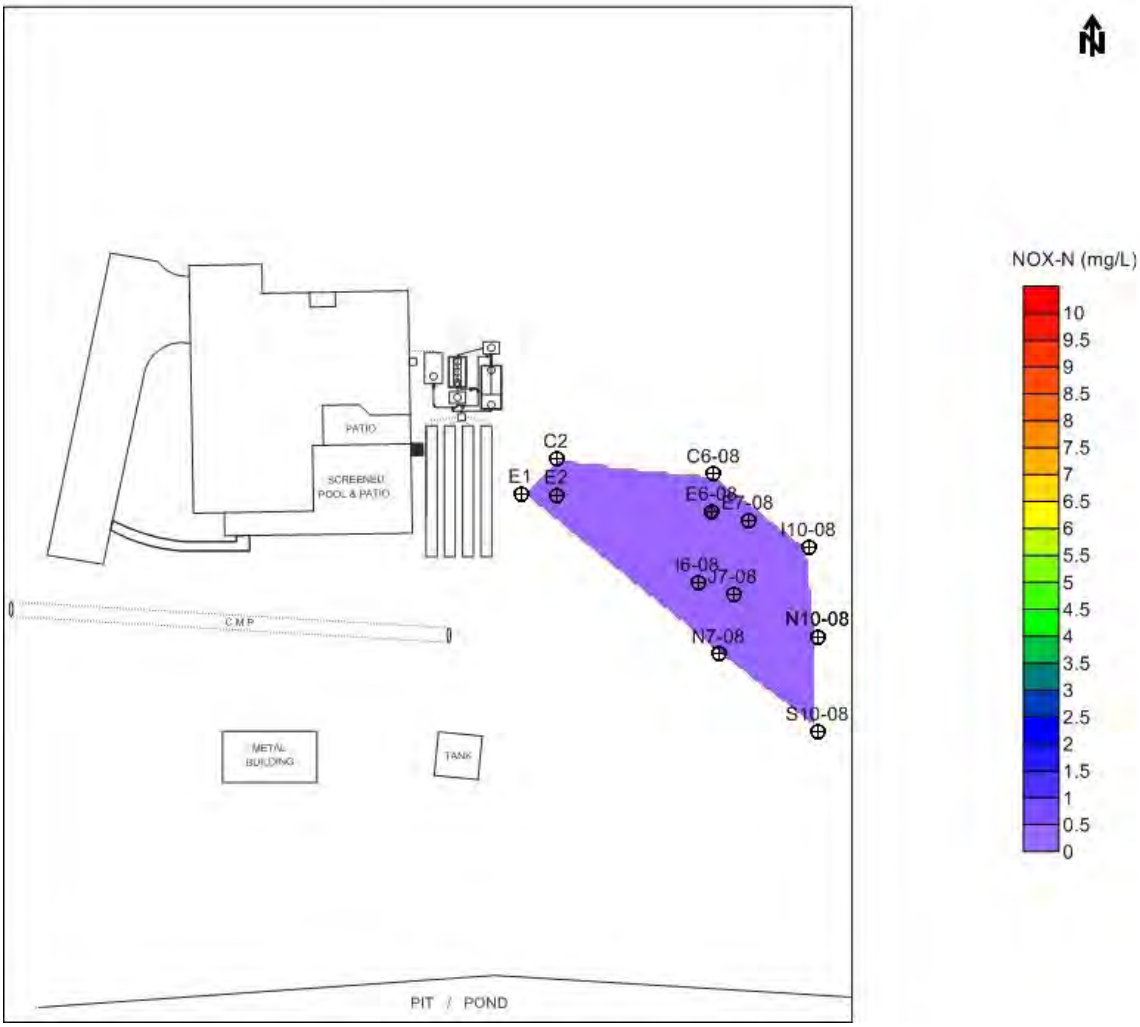


**Figure 5**
**Shallow GW Elev 7.9-16.0 ft above MSL (April 2013 Sample Event 2)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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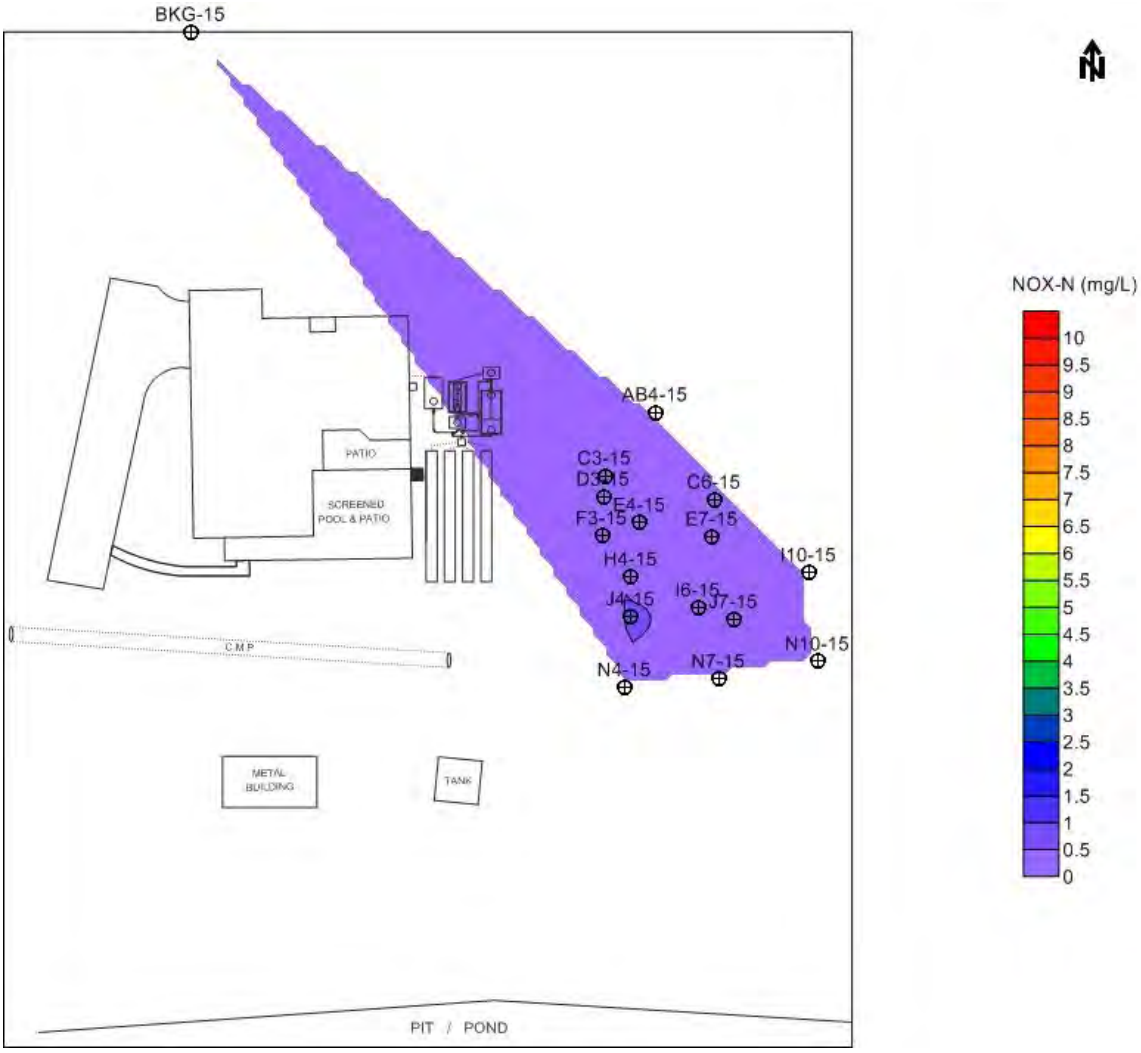


**Figure 6**
**Deep GW Elev 2.6-6.1 ft above MSL (April 2013 Sample Event 2)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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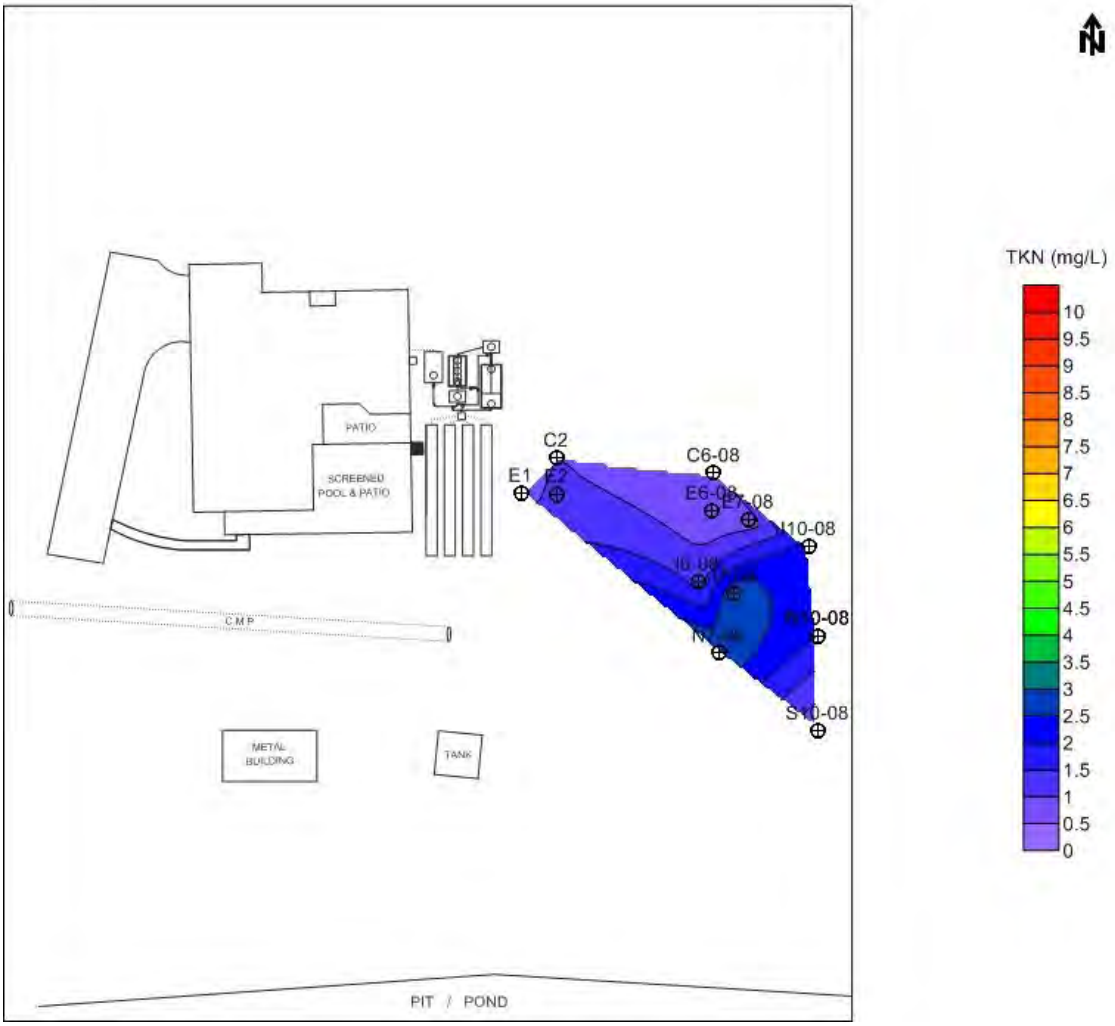


**Figure 7**
**Shallow GW Elev 7.9-16.0 ft above MSL (April 2013 Sample Event 2)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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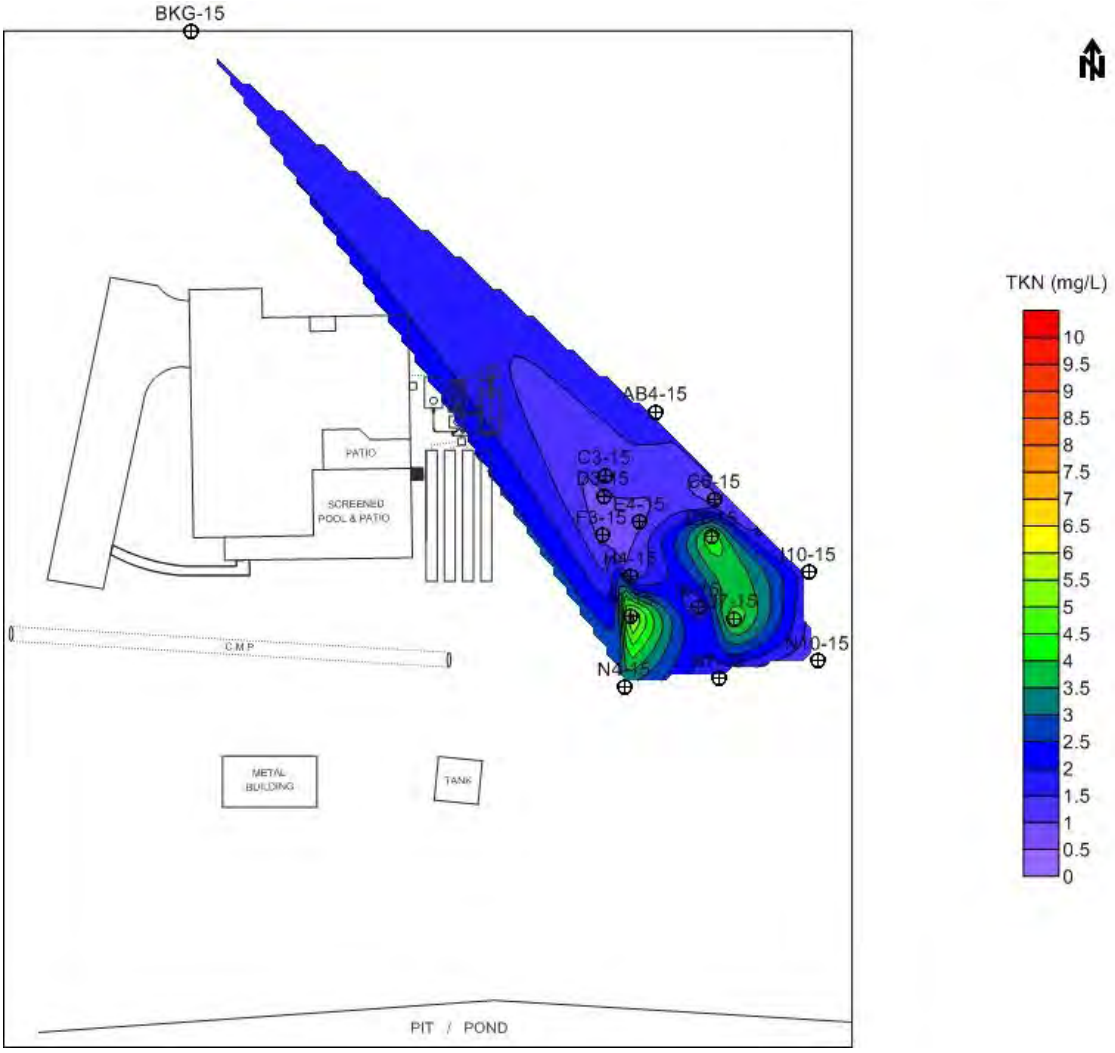


**Figure 8**
**Deep GW Elev 2.6-6.1 ft above MSL (April 2013 Sample Event 2)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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**Figure 9**
**Shallow GW Elev 7.9-16.0 ft above MSL (April 2013 Sample Event 2)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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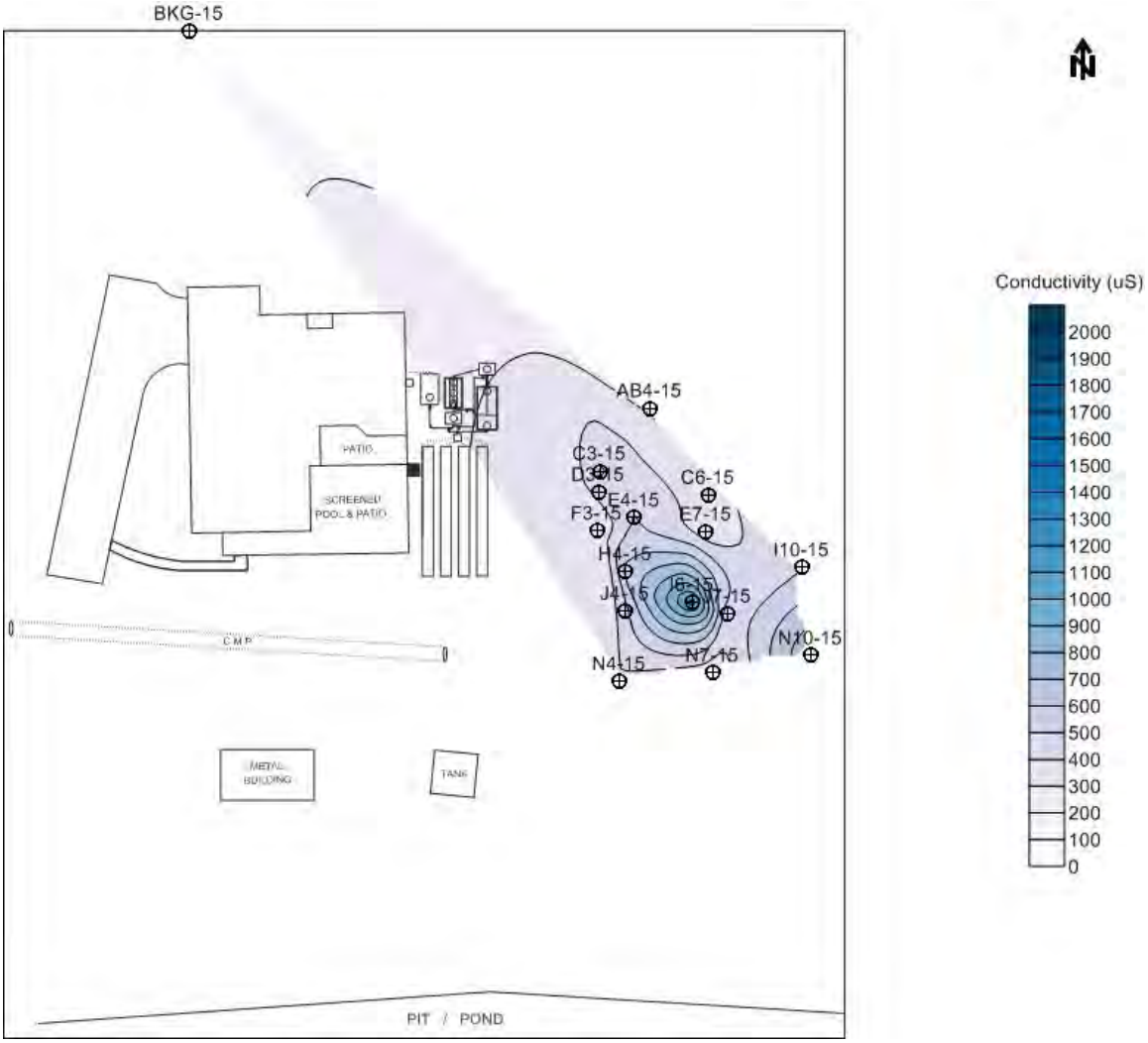


**Figure 10**
**Deep GW Elev 2.6-6.1 ft above MSL (April 2013 Sample Event 2)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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# 5.0 C-HS4 Data Summary Report No. 2: Summary and Recommendations

## 5.1 Summary

The results of the second sampling event served to identify the general trend of the NOX plume and provide the basis upon which to make adjustments and modifications to future monitoring locations. Results of Sample Event No. 2 indicate that:

- The nitrogen plume appears to be flowing in a south-southeast direction and similar to the groundwater contours.
- As expected, the plots indicate that the NOX concentration in the area near the drainfield has decreased following the installation of the passive nitrogen reduction system.

## 5.2 Conclusions

The project team will continue to evaluate all results including those that result from implementation of the recommendations and make further adaptations as needed (observational method). Following is a list with select recommendations which the next sample event will address:

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

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# Appendix A: C-HS4 Sample Identification

**Table A.1**

**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 1 | C-HS4-STE | Wastewater | N/A | N/A |
| 2 | PZ01 | 1" Standpipe Piezometer, 5' screen | 19.08 | 9.48 |
| 3 | PZ02 | 1" Standpipe Piezometer, 5' screen | 28.72 | 16.54 |
| 4 | PZ03 | 1" Standpipe Piezometer, 5' screen | 24.85 | 19.00 |
| 5 | PZ04 | 1" Standpipe Piezometer, 5' screen | 18.82 | 13.02 |
| 6 | PZ05 | 1" Standpipe Piezometer, 5' screen | 20.79 | NR |
| 7 | PZ06 | 1" Standpipe Piezometer, 5' screen | 22.17 | 11.02 |
| 8 | BKG-10 | 1" Standpipe Piezometer, 5' screen | 24.60 | 15.22 |
| 9 | BKG-15 | 3/4" Standpipe Piezometer, 1' screen | 24.60 | 10.17 |
| 10 | PZ-AB4-08 | 1" Standpipe Piezometer, 5' screen | 18.65 | 10.27 |
| 11 | PZ-AB4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.59 | 4.09 |
| 12 | PZ-C1 | 1" Standpipe Piezometer, 5' screen | 22.85 | 12.70 |
| 13 | PZ-C2 | 1" Standpipe Piezometer, 5' screen | 21.23 | 9.73 |
| 14 | PZ-C3-08 | 1" Standpipe Piezometer, 5' screen | 19.63 | 11.83 |
| 15 | PZ-C3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.09 |
| 16 | PZ-C6-08 | 1" Standpipe Piezometer, 5' screen | 17.53 | 9.03 |
| 17 | PZ-C6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.53 | 3.13 |
| 18 | PZ-D3-08 | 1" Standpipe Piezometer, 5' screen | 19.62 | 11.63 |
| 19 | PZ-D3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.08 |
| 20 | PZ-D4-08 | 1" Standpipe Piezometer, 5' screen | 18.77 | 10.89 |
| 21 | PZ-D4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.76 | 4.21 |
| 22 | PZ-E1 | 1" Standpipe Piezometer, 5' screen | 22.92 | 11.42 |
| 23 | PZ-E2 | 1" Standpipe Piezometer, 5' screen | 21.03 | 9.33 |
| 24 | PZ-E3-08 | 1" Standpipe Piezometer, 5' screen | 19.66 | 11.41 |
| 25 | PZ-E3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 4.98 |
| 26 | PZ-E4-08 | 1" Standpipe Piezometer, 5' screen | 18.70 | 10.80 |
| 27 | PZ-E4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.69 | 4.31 |
| 28 | PZ-E5-08 | 1" Standpipe Piezometer, 5' screen | 18.15 | 10.25 |
| 29 | PZ-E5-15 | 3/4" Standpipe Piezometer, 1' screen | 18.13 | 3.56 |
| 30 | PZ-E6-08 | 1" Standpipe Piezometer, 5' screen | 17.83 | 9.95 |

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**Table A.1 (continued)**
**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 31 | PZ-E6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.85 | 3.45 |
| 32 | PZ-E7-08 | 1" Standpipe Piezometer, 5' screen | 17.55 | 8.87 |
| 33 | PZ-E7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.55 | 3.05 |
| 34 | PZ-F3-08 | 1" Standpipe Piezometer, 5' screen | 19.54 | 11.59 |
| 35 | PZ-F3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.55 | 5.05 |
| 36 | PZ-F4-08 | 1" Standpipe Piezometer, 5' screen | 18.83 | 11.13 |
| 37 | PZ-F4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.88 | 4.48 |
| 38 | PZ-G1 | 1" Standpipe Piezometer, 5' screen | 20.72 | 12.82 |
| 39 | PZ-G2-12.5 | 2" Standpipe Piezometer, 7.5' screen | 21.03 | 8.88 |
| 40 | PZ-H4-08 | 1" Standpipe Piezometer, 5' screen | 19.19 | 10.91 |
| 41 | PZ-H4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.22 | 4.45 |
| 42 | PZ-H5-11.5 | 2" Standpipe Piezometer, 7.5' screen | 18.58 | 7.86 |
| 43 | PZ-I6-08 | 1" Standpipe Piezometer,5' screen | 18.42 | 9.37 |
| 44 | PZ-I6-15 | 3/4" Standpipe Piezometer, 1' screen | 18.42 | 3.87 |
| 45 | PZ-I10-08 | 1" Standpipe Piezometer, 5' screen | 16.87 | 8.95 |
| 46 | PZ-I10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.92 | 4.42 |
| 47 | PZ-J4-08 | 1" Standpipe Piezometer, 5' screen | 19.26 | 11.32 |
| 48 | PZ-J4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.25 | 4.73 |
| 49 | PZ-J7-08 | 1" Standpipe Piezometer, 5' screen | 17.86 | 9.41 |
| 50 | PZ-J7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.87 | 3.45 |
| 51 | PZ-N4-08 | 1" Standpipe Piezometer, 5' screen | 19.28 | 11.00 |
| 52 | PZ-N4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.30 | 4.82 |
| 53 | PZ-N7-08 | 1" Standpipe Piezometer, 5' screen | 18.01 | 9.46 |
| 54 | PZ-N7-15 | 3/4" Standpipe Piezometer, 1' screen | 18.03 | 3.23 |
| 55 | PZ-N10-08 | 1" Standpipe Piezometer, 5' screen | 16.92 | 9.17 |
| 56 | PZ-N10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.83 | 2.59 |
| 57 | PZ-S10-08 | 1" Standpipe Piezometer, 5' screen | 17.03 | 8.78 |
| 58 | DP01 | SST Drivepoint | 19.25 | |
| 59 | DP02 | SST Drivepoint | 19.24 | |
| 60 | DP03 | SST Drivepoint | 19.49 | |
| 61 | DP04 | SST Drivepoint | 19.22 | |
| 62 | DP05 | SST Drivepoint | 19.25 | |
| 63 | DP06 | SST Drivepoint | 19.38 | |

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

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# Appendix B: Weather Station Data

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# Table B.1
# Daily Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (%) | 2m Rain tot (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Feb-13 | 51.91 | 39.09 | 68.90 | 52.67 | 40.25 | 67.75 | 52.81 | 40.61 | 66.99 | 64.28 | 62.53 | 65.84 | 32.47 | 52 | 0 | 0 | 6.68 | 0.30 | 22.13 | 11 | 0.07 |
| 2-Feb-13 | 55.20 | 38.47 | 73.18 | 55.78 | 40.61 | 72.00 | 55.65 | 41.47 | 71.11 | 63.57 | 61.43 | 65.82 | 41.55 | 63 | 0 | 0 | 5.09 | 0.17 | 14.43 | 15 | 0.08 |
| 3-Feb-13 | 54.40 | 39.80 | 71.74 | 55.31 | 43.51 | 70.92 | 55.62 | 44.27 | 68.95 | 63.56 | 61.45 | 65.57 | 46.44 | 74 | 0 | 0 | 5.46 | 0.20 | 19.70 | 339 | 0.08 |
| 4-Feb-13 | 52.61 | 34.71 | 72.27 | 53.80 | 38.22 | 71.01 | 55.19 | 42.53 | 70.07 | 63.14 | 60.94 | 65.37 | 41.56 | 70 | 0 | 0 | 3.71 | 0.03 | 15.23 | 350 | 0.07 |
| 5-Feb-13 | 58.14 | 38.62 | 77.86 | 59.15 | 41.03 | 76.60 | 60.32 | 43.31 | 75.29 | 63.45 | 61.00 | 66.11 | 46.64 | 66 | 0 | 0 | 3.97 | 0.17 | 47.13 | 65 | 0.08 |
| 6-Feb-13 | 65.27 | 50.86 | 79.11 | 65.89 | 52.29 | 78.21 | 66.60 | 56.26 | 76.98 | 65.11 | 63.34 | 67.14 | 56.69 | 74 | 0 | 0 | 4.00 | 0.30 | 14.13 | 100 | 0.08 |
| 7-Feb-13 | 69.20 | 59.04 | 82.54 | 69.63 | 59.92 | 81.93 | 69.29 | 60.75 | 79.95 | 66.76 | 65.23 | 68.43 | 62.17 | 79 | 0.04 | 0.02 | 10.32 | 1.53 | 39.17 | 168 | 0.10 |
| 8-Feb-13 | 67.66 | 53.98 | 78.26 | 67.89 | 55.62 | 77.67 | 67.26 | 56.08 | 76.05 | 67.96 | 66.63 | 69.58 | 61.33 | 81 | 0 | 0 | 7.04 | 1.33 | 21.57 | 303 | 0.10 |
| 9-Feb-13 | 61.80 | 47.34 | 77.00 | 62.20 | 49.50 | 76.73 | 62.19 | 52.07 | 74.95 | 66.97 | 65.26 | 68.67 | 53.45 | 77 | 0 | 0 | 6.96 | 0.67 | 17.00 | 50 | 0.09 |
| 10-Feb-13 | 66.90 | 55.24 | 80.15 | 67.29 | 56.25 | 79.83 | 67.11 | 58.37 | 78.17 | 67.25 | 65.75 | 68.95 | 58.38 | 75 | 0 | 0 | 9.41 | 3.33 | 24.23 | 113 | 0.10 |
| 11-Feb-13 | 68.35 | 55.47 | 82.98 | 68.94 | 57.13 | 82.36 | 69.00 | 59.83 | 80.98 | 68.13 | 66.31 | 70.18 | 61.49 | 79 | 0 | 0 | 6.60 | 0.13 | 20.20 | 177 | 0.10 |
| 12-Feb-13 | 69.78 | 57.83 | 84.25 | 70.38 | 59.11 | 83.48 | 70.45 | 61.74 | 81.43 | 68.79 | 66.72 | 70.90 | 64.75 | 84 | 0 | 0 | 7.26 | 1.60 | 21.00 | 189 | 0.11 |
| 13-Feb-13 | 71.90 | 61.18 | 82.96 | 72.22 | 61.63 | 82.53 | 71.63 | 61.27 | 80.98 | 70.51 | 69.30 | 72.10 | 67.62 | 86 | 0.06 | 0.05 | 11.13 | 0.07 | 38.60 | 222 | 0.10 |
| 14-Feb-13 | 60.76 | 58.50 | 64.29 | 61.00 | 59.00 | 64.17 | 60.83 | 58.57 | 63.72 | 68.90 | 67.60 | 70.90 | 58.69 | 92 | 0.35 | 0.08 | 4.78 | 0.00 | 22.83 | 25 | 0.05 |
| 15-Feb-13 | 59.49 | 54.90 | 69.26 | 59.41 | 55.44 | 68.36 | 59.19 | 55.44 | 67.50 | 67.41 | 66.52 | 68.83 | 56.29 | 90 | 0.11 | 0.02 | 4.41 | 0.20 | 11.37 | 357 | 0.07 |
| 16-Feb-13 | 56.03 | 45.81 | 66.94 | 56.11 | 47.52 | 66.13 | 55.80 | 48.11 | 64.72 | 65.98 | 64.78 | 67.08 | 46.92 | 73 | 0.01 | 0.01 | 9.44 | 0.17 | 28.70 | 329 | 0.08 |
| 17-Feb-13 | 45.66 | 35.02 | 56.80 | 45.69 | 35.87 | 55.09 | 45.34 | 36.08 | 54.34 | 63.58 | 61.83 | 65.07 | 23.36 | 43 | 0 | 0 | 7.82 | 0.53 | 23.50 | 0 | 0.07 |
| 18-Feb-13 | 50.70 | 32.18 | 69.98 | 51.23 | 33.29 | 69.24 | 51.30 | 34.44 | 67.44 | 62.33 | 59.92 | 64.76 | 37.50 | 62 | 0 | 0 | 7.94 | 2.63 | 22.87 | 88 | 0.09 |
| 19-Feb-13 | 61.20 | 45.63 | 76.93 | 62.06 | 47.07 | 76.42 | 62.97 | 50.72 | 75.25 | 63.98 | 61.61 | 66.61 | 52.72 | 74 | 0 | 0 | 6.14 | 0.67 | 21.37 | 186 | 0.10 |
| 20-Feb-13 | 64.72 | 52.97 | 80.60 | 65.11 | 54.32 | 78.89 | 65.39 | 57.83 | 77.38 | 65.81 | 63.75 | 68.47 | 59.96 | 85 | 0 | 0 | 4.38 | 0.17 | 16.97 | 345 | 0.10 |
| 21-Feb-13 | 66.90 | 54.46 | 83.82 | 67.25 | 55.08 | 82.69 | 67.43 | 55.92 | 81.01 | 67.34 | 65.23 | 69.66 | 60.53 | 81 | 0 | 0 | 5.28 | 0.13 | 15.47 | 101 | 0.10 |
| 22-Feb-13 | 70.54 | 59.04 | 86.83 | 71.07 | 60.69 | 85.78 | 71.29 | 62.40 | 84.06 | 68.41 | 66.36 | 70.68 | 64.55 | 82 | 0 | 0 | 6.47 | 0.40 | 22.37 | 160 | 0.11 |
| 23-Feb-13 | 73.54 | 64.98 | 85.15 | 73.72 | 65.79 | 84.09 | 73.25 | 66.60 | 82.06 | 70.14 | 68.50 | 72.37 | 68.19 | 84 | 0 | 0 | 9.11 | 1.10 | 25.07 | 200 | 0.12 |
| 24-Feb-13 | 72.31 | 62.91 | 83.62 | 72.59 | 64.49 | 82.71 | 72.33 | 66.94 | 81.36 | 71.51 | 70.18 | 73.11 | 67.87 | 86 | 0 | 0 | 6.39 | 0.80 | 43.20 | 246 | 0.10 |
| 25-Feb-13 | 72.95 | 65.57 | 85.21 | 73.26 | 65.80 | 84.67 | 73.10 | 65.88 | 83.48 | 71.63 | 70.32 | 73.22 | 66.69 | 82 | 0 | 0 | 7.56 | 0.43 | 24.33 | 158 | 0.10 |
| 26-Feb-13 | 70.02 | 61.45 | 77.27 | 70.51 | 62.38 | 77.36 | 70.33 | 63.05 | 76.77 | 71.41 | 70.47 | 72.07 | 67.48 | 90 | 0.45 | 0.21 | 9.21 | 1.37 | 28.67 | 213 | 0.07 |
| 27-Feb-13 | 63.14 | 54.00 | 73.40 | 63.39 | 56.23 | 72.01 | 63.50 | 56.46 | 70.68 | 69.67 | 67.82 | 71.47 | 57.15 | 81 | 0 | 0 | 4.90 | 0.07 | 15.27 | 298 | 0.10 |
| 28-Feb-13 | 60.31 | 47.57 | 72.50 | 60.61 | 49.82 | 71.58 | 60.74 | 50.92 | 70.05 | 68.77 | 66.79 | 70.75 | 51.68 | 75 | 0 | 0 | 5.83 | 0.00 | 23.67 | 309 | 0.10 |

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# Table B.1 (continued)
# Monthly Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (%) | 2m Rain tot (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Mar-13 | 54.63 | 47.12 | 61.18 | 54.77 | 47.73 | 60.58 | 54.73 | 48.13 | 59.67 | 67.06 | 66.06 | 68.85 | 43.07 | 66 | 0 | 0 | 6.68 | 0.63 | 19.83 | 329 | 0.07 |
| 2-Mar-13 | 51.05 | 39.82 | 59.47 | 51.15 | 42.32 | 58.08 | 51.17 | 44.65 | 56.43 | 65.58 | 64.44 | 66.52 | 38.59 | 63 | 0 | 0 | 7.72 | 0.00 | 31.87 | 343 | 0.07 |
| 3-Mar-13 | 45.31 | 36.94 | 54.75 | 45.35 | 37.64 | 53.85 | 45.12 | 38.09 | 52.34 | 63.71 | 62.53 | 64.81 | 34.48 | 66 | 0 | 0 | 7.87 | 0.17 | 30.37 | 348 | 0.07 |
| 4-Mar-13 | 49.01 | 31.65 | 69.31 | 49.37 | 34.09 | 67.87 | 49.67 | 36.51 | 67.06 | 63.31 | 60.66 | 66.36 | 34.60 | 62 | 0 | 0 | 4.07 | 0.10 | 16.33 | 23 | 0.09 |
| 5-Mar-13 | 57.22 | 36.04 | 75.20 | 57.63 | 38.64 | 74.35 | 58.03 | 43.24 | 72.73 | 64.32 | 61.38 | 67.46 | 48.05 | 73 | 0 | 0 | 6.34 | 0.10 | 22.00 | 207 | 0.10 |
| 6-Mar-13 | 57.74 | 44.09 | 64.08 | 57.76 | 47.03 | 64.33 | 57.37 | 48.09 | 64.35 | 65.84 | 64.94 | 67.17 | 46.64 | 69 | 0.04 | 0.03 | 10.27 | 0.87 | 25.33 | 299 | 0.10 |
| 7-Mar-13 | 50.58 | 36.52 | 68.07 | 50.77 | 38.31 | 66.31 | 50.52 | 39.28 | 65.05 | 64.16 | 61.66 | 66.81 | 36.70 | 61 | 0 | 0 | 6.07 | 0.37 | 22.07 | 346 | 0.09 |
| 8-Mar-13 | 56.50 | 39.27 | 77.34 | 56.73 | 41.36 | 75.90 | 56.80 | 41.77 | 75.09 | 64.61 | 61.79 | 67.71 | 40.67 | 62 | 0 | 0 | 5.20 | 0.20 | 15.57 | 5 | 0.11 |
| 9-Mar-13 | 60.38 | 45.03 | 75.38 | 60.85 | 46.45 | 74.73 | 61.15 | 47.97 | 73.29 | 65.39 | 62.94 | 67.75 | 46.50 | 63 | 0 | 0 | 6.37 | 0.47 | 17.07 | 76 | 0.10 |
| 10-Mar-13 | 65.37 | 50.13 | 79.32 | 65.54 | 52.27 | 78.62 | 65.31 | 54.72 | 77.23 | 66.78 | 64.65 | 69.28 | 54.00 | 69 | 0 | 0 | 8.78 | 1.43 | 26.57 | 105 | 0.12 |
| 11-Mar-13 | 66.47 | 53.96 | 79.34 | 66.82 | 55.08 | 78.49 | 66.70 | 56.32 | 76.89 | 67.51 | 65.80 | 69.22 | 57.35 | 74 | 0 | 0 | 8.98 | 2.17 | 24.80 | 156 | 0.10 |
| 12-Mar-13 | 62.57 | 53.51 | 68.13 | 62.86 | 54.14 | 68.54 | 62.73 | 54.28 | 68.14 | 67.58 | 66.40 | 68.23 | 59.57 | 89 | 0.36 | 0.05 | 8.67 | 1.17 | 24.10 | 245 | 0.07 |
| 13-Mar-13 | 59.92 | 48.20 | 75.40 | 59.99 | 48.97 | 74.32 | 59.54 | 49.30 | 72.84 | 65.82 | 63.72 | 68.05 | 43.07 | 60 | 0 | 0 | 8.02 | 0.97 | 23.97 | 339 | 0.12 |
| 14-Mar-13 | 56.08 | 43.08 | 69.82 | 56.15 | 45.99 | 68.77 | 55.78 | 47.80 | 67.96 | 65.47 | 63.19 | 67.82 | 35.26 | 51 | 0 | 0 | 8.01 | 1.00 | 20.03 | 355 | 0.11 |
| 15-Mar-13 | 53.73 | 34.64 | 73.08 | 54.68 | 37.44 | 72.23 | 55.50 | 40.47 | 71.78 | 65.06 | 62.15 | 68.04 | 38.74 | 62 | 0 | 0 | 4.59 | 0.00 | 38.67 | 18 | 0.10 |
| 16-Mar-13 | 57.32 | 37.05 | 77.86 | 58.23 | 40.09 | 76.59 | 59.23 | 43.58 | 74.84 | 65.62 | 62.51 | 68.85 | 45.32 | 68 | 0 | 0 | 4.22 | 0.00 | 16.90 | 208 | 0.11 |
| 17-Mar-13 | 61.32 | 42.74 | 77.47 | 62.08 | 44.73 | 76.91 | 62.85 | 49.46 | 74.95 | 66.02 | 63.73 | 68.14 | 53.54 | 76 | 0 | 0 | 4.88 | 0.07 | 17.57 | 153 | 0.10 |
| 18-Mar-13 | 66.87 | 56.62 | 76.93 | 67.39 | 58.51 | 76.98 | 67.41 | 60.17 | 75.90 | 66.93 | 65.66 | 67.91 | 62.62 | 85 | 0 | 0 | 7.59 | 0.27 | 27.37 | 170 | 0.08 |
| 19-Mar-13 | 69.99 | 58.98 | 85.66 | 70.13 | 60.62 | 84.25 | 69.80 | 61.63 | 82.89 | 68.72 | 66.29 | 71.94 | 62.85 | 80 | 0 | 0 | 4.67 | 0.10 | 16.53 | 342 | 0.13 |
| 20-Mar-13 | 65.29 | 58.46 | 73.06 | 65.58 | 58.64 | 72.95 | 65.38 | 58.60 | 71.96 | 69.06 | 68.31 | 70.14 | 61.32 | 87 | 0.06 | 0.02 | 5.48 | 0.07 | 21.10 | 316 | 0.07 |
| 21-Mar-13 | 58.55 | 42.56 | 71.11 | 58.62 | 46.94 | 69.66 | 58.37 | 48.40 | 68.11 | 67.82 | 65.80 | 70.03 | 40.96 | 59 | 0 | 0 | 6.05 | 0.27 | 16.93 | 336 | 0.11 |
| 22-Mar-13 | 60.01 | 38.47 | 78.24 | 60.40 | 40.02 | 76.69 | 60.49 | 43.60 | 74.71 | 66.51 | 63.86 | 68.95 | 52.63 | 78 | 0.56 | 0.14 | 6.85 | 0.13 | 21.77 | 82 | 0.11 |
| 23-Mar-13 | 72.27 | 63.18 | 83.71 | 72.46 | 63.39 | 83.28 | 71.96 | 63.41 | 81.77 | 69.23 | 67.21 | 71.65 | 68.05 | 87 | 0 | 0 | 8.87 | 1.87 | 28.13 | 181 | 0.13 |
| 24-Mar-13 | 73.63 | 67.44 | 81.16 | 74.03 | 68.23 | 81.09 | 73.66 | 68.23 | 79.86 | 70.64 | 69.64 | 71.60 | 70.70 | 90 | 0 | 0 | 12.32 | 1.07 | 35.30 | 225 | 0.09 |
| 25-Mar-13 | 62.73 | 50.94 | 70.34 | 62.62 | 52.18 | 68.94 | 61.99 | 52.38 | 68.00 | 70.21 | 68.68 | 71.83 | 46.53 | 60 | 0 | 0 | 9.57 | 0.60 | 24.57 | 318 | 0.12 |
| 26-Mar-13 | 51.70 | 41.82 | 58.80 | 51.52 | 43.20 | 57.16 | 50.88 | 43.53 | 55.67 | 67.91 | 66.18 | 69.49 | 35.09 | 54 | 0 | 0 | 10.86 | 1.87 | 29.13 | 335 | 0.10 |
| 27-Mar-13 | 47.87 | 33.21 | 62.53 | 48.00 | 36.25 | 60.87 | 47.62 | 36.44 | 58.91 | 66.24 | 63.57 | 68.94 | 33.39 | 61 | 0 | 0 | 6.24 | 0.67 | 23.03 | 348 | 0.10 |
| 28-Mar-13 | 53.47 | 34.13 | 72.52 | 53.86 | 36.67 | 71.47 | 53.88 | 38.61 | 70.03 | 66.03 | 63.03 | 69.33 | 34.58 | 56 | 0 | 0 | 5.65 | 0.37 | 16.77 | 18 | 0.11 |
| 29-Mar-13 | 58.88 | 40.81 | 75.49 | 59.68 | 43.16 | 74.55 | 60.32 | 45.30 | 73.29 | 66.78 | 63.86 | 69.96 | 39.75 | 54 | 0 | 0 | 5.81 | 0.00 | 19.83 | 55 | 0.12 |
| 30-Mar-13 | 61.26 | 43.31 | 79.02 | 61.93 | 45.91 | 77.47 | 62.69 | 50.68 | 75.54 | 67.85 | 64.90 | 71.08 | 48.28 | 65 | 0 | 0 | 5.34 | 0.00 | 20.07 | 114 | 0.13 |
| 31-Mar-13 | 66.16 | 49.48 | 81.54 | 66.41 | 51.01 | 80.28 | 66.62 | 54.19 | 78.87 | 68.90 | 66.34 | 71.58 | 54.71 | 70 | 0 | 0 | 6.29 | 0.30 | 22.60 | 187 | 0.13 |

# Table B.1 (continued)
# Monthly Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (%) | 2m Rain tot (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Apr-13 | 70.01 | 60.57 | 81.05 | 70.14 | 61.12 | 80.26 | 69.78 | 61.79 | 78.82 | 70.54 | 68.47 | 72.93 | 63.64 | 82 | 0 | 0 | 6.99 | 0.80 | 21.20 | 239 | 0.15 |
| 2-Apr-13 | 70.02 | 57.85 | 85.66 | 69.92 | 58.37 | 84.52 | 70.00 | 59.11 | 83.32 | 72.12 | 69.44 | 75.31 | 60.81 | 77 | 0 | 0 | 3.87 | 0.00 | 14.03 | 275 | 0.12 |
| 3-Apr-13 | 72.12 | 59.02 | 86.04 | 72.34 | 60.57 | 85.26 | 72.06 | 63.03 | 84.02 | 72.46 | 70.74 | 74.08 | 64.46 | 78 | 0.02 | 0.01 | 7.87 | 0.20 | 24.13 | 108 | 0.06 |
| 4-Apr-13 | 67.17 | 63.46 | 71.15 | 67.54 | 64.04 | 70.93 | 67.42 | 63.73 | 70.05 | 70.52 | 68.77 | 72.99 | 65.60 | 94 | 2.37 | 0.54 | 8.66 | 0.43 | 31.93 | 180 | 0.11 |
| 5-Apr-13 | 66.51 | 59.85 | 73.18 | 66.64 | 59.95 | 72.81 | 66.29 | 60.08 | 71.46 | 69.48 | 68.38 | 71.02 | 61.33 | 84 | 0.02 | 0.01 | 8.32 | 0.67 | 29.13 | 285 | 0.14 |
| 6-Apr-13 | 65.75 | 56.59 | 78.04 | 65.52 | 56.53 | 77.40 | 65.16 | 56.59 | 76.21 | 70.07 | 67.75 | 72.79 | 55.43 | 72 | 0 | 0 | 7.80 | 0.73 | 19.00 | 49 | 0.15 |
| 7-Apr-13 | 69.75 | 55.20 | 83.07 | 69.68 | 56.01 | 82.11 | 69.47 | 58.28 | 80.40 | 71.32 | 68.65 | 74.39 | 58.45 | 71 | 0 | 0 | 6.87 | 0.40 | 18.70 | 91 | 0.16 |
| 8-Apr-13 | 71.95 | 58.37 | 85.19 | 72.10 | 59.32 | 84.31 | 72.11 | 61.38 | 83.08 | 72.87 | 70.29 | 75.67 | 58.79 | 67 | 0 | 0 | 6.73 | 0.67 | 16.60 | 105 | 0.15 |
| 9-Apr-13 | 71.49 | 57.70 | 84.54 | 71.63 | 58.60 | 83.66 | 71.70 | 61.79 | 81.86 | 73.43 | 71.11 | 75.65 | 62.71 | 76 | 0 | 0 | 8.12 | 1.40 | 21.80 | 110 | 0.15 |
| 10-Apr-13 | 72.60 | 58.08 | 87.57 | 72.78 | 59.04 | 86.99 | 72.78 | 60.75 | 86.20 | 73.89 | 71.29 | 76.48 | 63.75 | 76 | 0.15 | 0.09 | 6.43 | 0.00 | 27.73 | 114 | 0.15 |
| 11-Apr-13 | 75.91 | 68.02 | 89.06 | 76.01 | 68.47 | 88.11 | 75.60 | 69.03 | 86.25 | 74.86 | 73.22 | 76.89 | 70.45 | 85 | 0.38 | 0.2 | 9.94 | 0.83 | 28.63 | 159 | 0.09 |
| 12-Apr-13 | 75.57 | 71.40 | 80.96 | 75.93 | 71.98 | 81.16 | 75.75 | 72.19 | 80.37 | 74.64 | 73.83 | 75.49 | 72.03 | 88 | 0 | 0 | 9.62 | 0.07 | 26.13 | 198 | 0.15 |
| 13-Apr-13 | 75.25 | 65.70 | 89.02 | 75.26 | 66.51 | 87.51 | 75.09 | 67.59 | 86.45 | 75.17 | 72.95 | 77.76 | 67.09 | 78 | 0 | 0 | 4.22 | 0.17 | 25.70 | 324 | 0.14 |
| 14-Apr-13 | 75.42 | 65.82 | 88.99 | 75.46 | 66.45 | 88.16 | 75.05 | 66.49 | 86.94 | 75.63 | 73.89 | 77.63 | 68.43 | 80 | 0.01 | 0.01 | 8.45 | 0.17 | 40.80 | 131 | 0.17 |
| 15-Apr-13 | 76.24 | 63.70 | 90.90 | 76.23 | 64.18 | 89.76 | 75.97 | 65.08 | 88.77 | 76.52 | 73.98 | 79.47 | 66.15 | 73 | 0 | 0 | 4.53 | 0.03 | 16.57 | 198 | 0.17 |
| 16-Apr-13 | 77.16 | 66.40 | 89.96 | 77.38 | 67.26 | 89.42 | 77.03 | 68.13 | 87.96 | 77.48 | 75.24 | 79.84 | 68.68 | 77 | 0 | 0 | 8.44 | 0.00 | 21.37 | 80 | 0.17 |
| 17-Apr-13 | 74.27 | 62.74 | 86.34 | 74.58 | 63.79 | 85.68 | 74.23 | 64.45 | 84.04 | 77.53 | 75.36 | 79.61 | 64.40 | 73 | 0 | 0 | 8.23 | 1.90 | 22.43 | 79 | 0.15 |
| 18-Apr-13 | 75.19 | 61.84 | 87.73 | 75.40 | 62.94 | 87.01 | 75.19 | 64.96 | 86.43 | 77.55 | 75.29 | 79.57 | 67.33 | 79 | 0.69 | 0.26 | 5.77 | 0.07 | 19.17 | 108 | 0.15 |
| 19-Apr-13 | 77.11 | 68.43 | 87.30 | 77.40 | 69.19 | 87.08 | 77.08 | 70.00 | 86.22 | 77.32 | 75.78 | 78.69 | 70.37 | 81 | 0.02 | 0.01 | 8.89 | 1.00 | 24.07 | 177 | 0.10 |
| 20-Apr-13 | 68.70 | 60.15 | 75.49 | 68.68 | 60.19 | 74.70 | 68.32 | 60.31 | 73.54 | 76.19 | 75.29 | 77.13 | 64.24 | 86 | 0 | 0 | 7.55 | 0.63 | 19.33 | 29 | 0.12 |
| 21-Apr-13 | 69.98 | 59.79 | 83.23 | 69.88 | 59.74 | 82.33 | 69.39 | 59.85 | 81.66 | 75.44 | 73.69 | 77.34 | 64.78 | 85 | 0.04 | 0.02 | 7.23 | 0.27 | 17.23 | 56 | 0.11 |
| 22-Apr-13 | 70.63 | 64.94 | 80.91 | 70.67 | 65.37 | 79.99 | 70.28 | 65.59 | 78.69 | 75.49 | 74.43 | 76.78 | 66.78 | 88 | 0.16 | 0.05 | 7.57 | 0.33 | 21.23 | 45 | 0.16 |
| 23-Apr-13 | 72.15 | 64.00 | 83.80 | 72.26 | 64.42 | 83.19 | 71.64 | 64.44 | 81.52 | 75.59 | 73.65 | 77.86 | 62.98 | 75 | 0 | 0 | 9.33 | 1.10 | 21.73 | 66 | 0.16 |
| 24-Apr-13 | 71.37 | 55.63 | 86.83 | 71.57 | 56.68 | 85.64 | 71.57 | 58.71 | 85.24 | 76.16 | 73.31 | 79.21 | 60.42 | 71 | 0 | 0 | 5.39 | 0.20 | 18.43 | 84 | 0.17 |
| 25-Apr-13 | 73.48 | 59.99 | 88.43 | 73.73 | 61.45 | 86.76 | 73.77 | 62.35 | 85.51 | 77.07 | 74.46 | 79.68 | 63.29 | 73 | 0 | 0 | 4.94 | 0.17 | 16.80 | 28 | 0.16 |
| 26-Apr-13 | 74.15 | 57.79 | 87.42 | 74.65 | 59.85 | 86.86 | 74.92 | 63.12 | 85.69 | 77.53 | 75.00 | 79.93 | 62.81 | 69 | 0 | 0 | 4.93 | 0.10 | 17.30 | 80 | 0.16 |
| 27-Apr-13 | 73.97 | 62.91 | 85.98 | 74.24 | 63.88 | 85.28 | 73.97 | 65.14 | 83.46 | 77.89 | 75.99 | 79.75 | 65.02 | 75 | 0 | 0 | 7.91 | 1.97 | 22.73 | 85 | 0.17 |
| 28-Apr-13 | 74.37 | 59.77 | 86.74 | 74.53 | 61.14 | 85.82 | 74.35 | 63.88 | 84.06 | 78.08 | 75.79 | 80.40 | 62.21 | 68 | 0 | 0 | 7.94 | 0.07 | 21.03 | 121 | 0.15 |
| 29-Apr-13 | 74.05 | 62.31 | 86.85 | 74.33 | 63.23 | 85.84 | 74.21 | 65.03 | 84.34 | 78.39 | 76.53 | 80.15 | 65.31 | 75 | 0 | 0 | 5.84 | 0.00 | 19.50 | 162 | 0.16 |

# Appendix C: Sample Event 2 Water Quality Analytical Results

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Table C.2
Water Quality Analytical Results
(April 22 through April 24, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | 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 | 4/24/13 9:45 | 22.4 | 7.21 | | 0.08 | 1,341 | 120 | 58.05 | 58 | 17 | 41 | 0.05 | 41.05 | | | | 0.05 | 0.01 | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BKG-15 | 4/23/13 8:51 | 21.9 | 5.82 | 33 | 0.23 | 131 | | 1.83 | 1.8 | 1.16 | 0.64 | 0.03 | 0.67 | 3.2 | | | 0.03 | 0.01 | | | | | | | | | |
| BKG-15-DUP | 4/23/13 8:56 | 21.9 | 5.82 | 33 | 0.23 | 131 | | 1.83 | 1.8 | 1.11 | 0.69 | 0.03 | 0.72 | 3.1 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-AB4-15 | 4/23/13 9:14 | 21.5 | 6.55 | | 0.19 | 286 | | 1.99 | 1.9 | 1.57 | 0.33 | 0.09 | 0.42 | | | | 0.09 | 0.01 | | | | | | | | | |
| PZ-C2 | 4/24/13 8:53 | 5.5 | 21.70 | | 0.71 | 225 | | 1.02 | 1 | 0.56 | 0.44 | 0.02 | 0.46 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-C3-15 | 4/22/13 9:55 | 22.0 | 6.70 | | 0.94 | 516 | | 1.13 | 1.1 | 0.67 | 0.43 | 0.03 | 0.46 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-C6-08 | 4/22/13 11:51 | 21.8 | 4.40 | | 2.36 | 401 | | 0.82 | 0.77 | 0.65 | 0.12 | 0.05 | 0.17 | | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-C6-15 | 4/22/13 12:05 | 22.0 | 5.58 | | 4.45 | 351 | | 0.74 | 0.71 | 0.39 | 0.32 | 0.03 | 0.35 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-D3-15 | 4/22/13 10:12 | 22.0 | 6.74 | 160 | 3.97 | 427 | 77 | 1.04 | 1 | 0.59 | 0.41 | 0.04 | 0.45 | 1.8 | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-E1 | 4/24/13 9:07 | 21.1 | 5.35 | 22 | 4.33 | 361 | 24 | 0.90 | 0.85 | 0.49 | 0.36 | 0.05 | 0.41 | 0.14 | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-E2 | 4/24/13 9:30 | 21.1 | 5.86 | | 4.82 | 192 | | 1.14 | 1.1 | 0.73 | 0.37 | 0.04 | 0.41 | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-E4-15 | 4/22/13 11:05 | 21.9 | 6.57 | | 1.29 | 505 | | 0.93 | 0.88 | 0.52 | 0.36 | 0.05 | 0.41 | | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-E5-15 | 4/22/13 11:34 | 21.9 | 6.63 | | 4.60 | 625 | | 0.86 | 0.85 | 0.53 | 0.32 | 0.01 | 0.33 | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E6-08 | 4/22/13 12:18 | 21.9 | 4.87 | | 91.67 | 704 | | 1.23 | 0.65 | 0.64 | 0.009 | 0.58 | 0.59 | | | | 0.58 | 0.01 | | | | | | | | | |
| PZ-E6-15 | 4/22/13 12:38 | 22.6 | 5.34 | | 6.65 | 330 | 42 | 4.63 | 4.6 | 2.70 | 1.9 | 0.03 | 1.93 | 0.34 | 0.09 | 0.05 | 0.03 | 0.01 | 0.01 | 80 | 0.088 | 28 | 1.5 | 11 | 0.007 | 1.6 | 11 |
| PZ-E7-08 | 4/22/13 13:20 | 22.1 | 4.64 | 22 | 2.83 | 333 | 34 | 0.68 | 0.65 | 0.53 | 0.12 | 0.03 | 0.15 | 0.081 | 0.1 | 20 | 0.03 | 0.01 | 0.031 | 110 | 0.064 | 27 | 0.41 | 13 | 0.004 | 1.7 | 12 |
| PZ-E7-15 | 4/22/13 13:37 | 22.3 | 6.81 | 310 | 5.62 | 1,385 | 93 | 1.03 | 1 | 0.60 | 0.4 | 0.03 | 0.43 | 0.21 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-F3-15 | 4/22/13 10:46 | 22.1 | 6.60 | 130 | 2.16 | 294 | 49 | 0.72 | 0.69 | 0.36 | 0.33 | 0.03 | 0.36 | 1 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-G2-12.5 | 4/23/13 9:28 | 21.8 | 4.40 | | 2.57 | 706 | | 5.00 | 1.4 | 1.39 | 0.009 | 3.6 | 3.61 | | | | 3.6 | 0.01 | | | | | | | | | |
| PZ-H4-15 | 4/23/13 9:42 | 21.6 | 6.61 | 200 | 0.30 | 638 | 97 | 1.14 | 1.1 | 0.60 | 0.5 | 0.04 | 0.54 | 3.4 | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-H5-11.5 | 4/23/13 9:56 | 21.1 | 4.57 | | 3.09 | 402 | | 2.61 | 2.3 | 2.18 | 0.12 | 0.31 | 0.43 | | 0.099 | 25 | 0.31 | 0.01 | 0.01 | 130 | 0.09 | 33 | 0.048 | 16 | 0.003 | 1.7 | 13 |
| PZ-I6-08 | 4/22/13 13:55 | 22.1 | 4.59 | | 2.54 | 329 | | 1.36 | 1.3 | 0.86 | 0.44 | 0.06 | 0.50 | | | | 0.06 | 0.01 | | | | | | | | | |
| PZ-I6-15 | 4/22/13 14:10 | 22.9 | 6.71 | | 0.90 | 1,174 | | 1.43 | 1.4 | 0.89 | 0.51 | 0.03 | 0.54 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-I6-15-DUP | 4/22/13 14:15 | 22.9 | 6.71 | | 0.90 | 1,174 | | 1.34 | 1.3 | 0.74 | 0.56 | 0.04 | 0.60 | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-J10-08 | 4/23/13 10:34 | 21.5 | 4.81 | 11 | 0.37 | 391 | 42 | 2.23 | 2.2 | 2.06 | 0.14 | 0.03 | 0.17 | 0.048 | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-J10-15 | 4/23/13 10:45 | 21.7 | 6.12 | | 0.15 | 491 | | 1.63 | 1.6 | 0.40 | 1.2 | 0.03 | 1.23 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-K4-15 | 4/23/13 12:39 | 22.0 | 6.19 | 76 | 0.24 | 462 | 60 | 6.71 | 5.9 | 4.00 | 1.9 | 0.81 | 2.71 | 0.14 | | | 0.81 | 0.01 | | | | | | | | | |
| PZ-L7-08 | 4/23/13 10:05 | 21.2 | 4.46 | 11 | 0.17 | 369 | 53 | 3.30 | 2.9 | 2.37 | 0.53 | 0.4 | 0.93 | 0.055 | 0.058 | 37 | 0.4 | 0.01 | 0.01 | 94 | 0.11 | 30 | 0.15 | 14 | 0.002 | 1.8 | 11 |
| PZ-L7-15 | 4/23/13 10:21 | 21.4 | 5.03 | | 0.41 | 430 | | 4.96 | 4.5 | 3.83 | 0.67 | 0.46 | 1.13 | 0.23 | 0.061 | 46 | 0.46 | 0.01 | 0.01 | 120 | 0.13 | 42 | 0.42 | 18 | 0.004 | 1.4 | 11 |
| PZ-N4-15 | 4/23/13 12:23 | 21.8 | 6.21 | | 0.19 | 390 | | 3.04 | 3 | 2.55 | 0.45 | 0.04 | 0.49 | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-N7-08 | 4/23/13 11:42 | 22.2 | 6.23 | | 5.41 | 497 | | 3.53 | 3 | 0.20 | 2.8 | 0.53 | 3.33 | | 0.13 | 58 | 0.53 | 0.01 | 0.01 | 86 | 0.17 | 58 | 2.4 | 18 | 0.059 | 1.8 | 12 |
| PZ-N7-15 | 4/23/13 12:04 | 22.1 | 5.57 | | 0.36 | 309 | | 1.53 | 1.5 | 0.83 | 0.67 | 0.03 | 0.70 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-N7-15-DUP | 4/23/13 12:09 | 22.1 | 5.57 | | 0.36 | 309 | | 1.43 | 1.4 | 0.72 | 0.68 | 0.03 | 0.71 | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-N10-08 | 4/23/13 10:56 | 21.7 | 5.70 | 44 | 0.34 | 298 | 40 | 2.01 | 2 | 1.04 | 0.96 | 0.01 | 0.97 | 0.056 | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N10-08-DUP | 4/23/13 11:01 | 21.7 | 5.70 | 44 | 0.34 | 298 | 40 | 1.73 | 1.7 | 0.70 | 1 | 0.03 | 1.03 | 0.057 | | | 0.03 | 0.01 | | | | | | | | | |

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Table C.2 (con't)
Water Quality Analytical Results
(April 22 through April 24, 2013)

| Sample ID | Sample Date/Time | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | COD | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Anions | | | | | | Cations | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na |
| PZ-N10-15 | 4/23/13 11:15 | 22.2 | 6.78 | 11 | 0.12 | 798 | 0.88 | 0.83 | 0.38 | 0.05 | 0.43 | | | | | | | | | | | | | | | | |
| PZ-S10-08 | 4/23/13 11:30 | 22.2 | 4.75 | 11 | 0.17 | 375 | 22 | 0.56 | 0.55 | 0.05 | 0.2 | 0.01 | 0.21 | 0.048 | | | 0.01 | 0.01 | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 4/22/13 14:25 | 23.8 | 7.32 | 2 | 7.92 | 3.26 | 10 | 3 | 10 | 0.05 | 0.06 | 0.05 | 0.041 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.2 | 0.05 | 0.01 | 0.02 | 0.02 | 0.001 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 |
| EB | 4/22/13 14:23 | 23.8 | 7.32 | 2 | 7.93 | 3.26 | 10 | 3 | 10 | 0.05 | 0.06 | 0.05 | 0.041 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.2 | 0.05 | 0.01 | 0.02 | 0.02 | 0.001 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 |

[1] Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$

[2] Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$

[3] Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$

D.O. - Dissolved oxygen

G - Grab sample

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

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# Appendix D: Summary of Water Quality Data

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Table D.1
Summary of Water Quality Data

| Sample ID | Statistical Parameter | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 | n | 3 | 3 | 1 | 3 | 3 | 0 | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.17 | 7.20 | 610.00 | 0.29 | 1388.33 | | 58.00 | 70.50 | 120.00 | 59.71 | 59.67 | 14.00 | 45.67 | 0.04 | 45.71 | | | | | | | | 0.05 | 0.01 | | | | | | | | | |
| | STD. DEV. | 2.32 | 0.19 | | 0.18 | 65.43 | | | 41.72 | | 7.63 | 7.64 | 2.65 | 8.08 | 0.01 | 8.07 | | | | | | | | 0.00 | 0.00 | | | | | | | | | |
| | MIN | 22.40 | 7.00 | 610.00 | 0.08 | 1341.00 | | 58.00 | 41.00 | 120.00 | 53.05 | 53.00 | 12.00 | 41.00 | 0.03 | 41.05 | | | | | | | | 0.05 | 0.01 | | | | | | | | | |
| | MAX | 26.80 | 7.38 | 610.00 | 0.40 | 1463.00 | | 58.00 | 100.00 | 120.00 | 68.03 | 68.00 | 17.00 | 55.00 | 0.05 | 55.03 | | | | | | | | 0.05 | 0.01 | | | | | | | | | |
| PZ-01 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.05 | 4.98 | 12.50 | 2.33 | 580.00 | | | | 45.50 | 7.47 | 2.75 | 2.72 | 0.03 | 4.72 | 4.75 | 15.04 | | | | | | 30.00 | 0.33 | 0.01 | | | | | | | | | |
| | STD. DEV. | 3.89 | 0.95 | 14.85 | 2.08 | 125.87 | | | | 7.78 | 8.39 | 2.19 | 2.21 | 0.02 | 6.20 | 6.18 | 21.15 | | | | | | | | | | | | | | | | | |
| | MIN | 21.30 | 4.30 | 2.00 | 0.86 | 491.00 | | | | 40.00 | 1.53 | 1.20 | 1.15 | 0.02 | 0.33 | 0.38 | 0.09 | | | | | | 30.00 | 0.33 | 0.01 | | | | | | | | | |
| | MAX | 26.80 | 5.65 | 23.00 | 3.80 | 669.00 | | | | 51.00 | 13.40 | 4.30 | 4.28 | 0.05 | 9.10 | 9.12 | 30.00 | | | | | | 30.00 | 0.33 | 0.01 | | | | | | | | | |
| PZ-02 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-03 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | | | 11.00 | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | | | 11.00 | | | | | | | | | | | |
| | MAX | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | | | 11.00 | | | | | | | | | | | |
| PZ-04 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | | | 25.00 | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | | | 25.00 | | | | | | | | | | | |
| | MAX | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | | | 25.00 | | | | | | | | | | | |
| PZ-06 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | | | 14.00 | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | | | 14.00 | | | | | | | | | | | |
| | MAX | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | | | 14.00 | | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| BKG-10 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 21.60 | 4.76 | 2.00 | 6.63 | 334.00 | | | | 75.00 | 1.92 | 1.90 | 1.74 | 0.16 | 0.02 | 0.18 | 1.00 | | | | | 0.21 | 33.00 | 0.01 | 0.01 | 0.08 | 52.00 | 0.07 | 7.30 | 0.72 | 2.10 | 0.00 | 0.42 | 17.00 |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 21.60 | 4.76 | 2.00 | 6.63 | 334.00 | | | | 75.00 | 1.92 | 1.90 | 1.74 | 0.16 | 0.02 | 0.18 | 1.00 | | | | | 0.21 | 33.00 | 0.01 | 0.01 | 0.08 | 52.00 | 0.07 | 7.30 | 0.72 | 2.10 | 0.00 | 0.42 | 17.00 |
| | MAX | 21.60 | 4.76 | 2.00 | 6.63 | 334.00 | | | | 75.00 | 1.92 | 1.90 | 1.74 | 0.16 | 0.02 | 0.18 | 1.00 | | | | | 0.21 | 33.00 | 0.01 | 0.01 | 0.08 | 52.00 | 0.07 | 7.30 | 0.72 | 2.10 | 0.00 | 0.42 | 17.00 |
| BKG-15 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.60 | 5.86 | 33.50 | 0.23 | 127.70 | 110.00 | 1.80 | 0.69 | 87.00 | 3.02 | 2.40 | 2.46 | 0.62 | 0.03 | 0.56 | 2.50 | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.99 | 0.05 | 0.71 | 0.01 | 5.23 | | | | | | 0.85 | | 0.11 | 0.01 | | 0.85 | | | | | | | 0.00 | | | | | | | | | | |
| | MIN | 21.90 | 5.82 | 33.00 | 0.22 | 124.00 | 110.00 | 1.80 | 0.69 | 87.00 | 3.02 | 1.80 | 2.46 | 0.54 | 0.02 | 0.56 | 1.90 | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | MAX | 23.30 | 5.89 | 34.00 | 0.23 | 131.40 | 110.00 | 1.80 | 0.69 | 87.00 | 3.02 | 3.00 | 2.46 | 0.69 | 0.03 | 0.56 | 3.10 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-AB4-08 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.10 | 6.09 | 4.20 | 1.80 | 331.00 | | | | 34.00 | 0.99 | 0.96 | 0.48 | 0.48 | 0.03 | 0.51 | 0.43 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 23.10 | 6.09 | 4.20 | 1.80 | 331.00 | | | | 34.00 | 0.99 | 0.96 | 0.48 | 0.48 | 0.03 | 0.51 | 0.43 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | MAX | 23.10 | 6.09 | 4.20 | 1.80 | 331.00 | | | | 34.00 | 0.99 | 0.96 | 0.48 | 0.48 | 0.03 | 0.51 | 0.43 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-AB4-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.50 | 6.90 | | 2.02 | 371.00 | | 1.90 | 0.33 | | 0.85 | 1.35 | 0.29 | 0.42 | 0.08 | 0.56 | | | | | | | | 0.06 | 0.03 | | | | | | | | | |
| | STD. DEV. | 1.41 | 0.49 | | 2.58 | 120.21 | | | | | | 0.78 | | 0.12 | 0.02 | | | | | | | | | 0.05 | 0.01 | | | | | | | | | |
| | MIN | 21.50 | 6.55 | | 0.19 | 286.00 | | 1.90 | 0.33 | | 0.85 | 0.79 | 0.29 | 0.33 | 0.06 | 0.56 | | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | MAX | 23.50 | 7.24 | | 3.84 | 456.00 | | 1.90 | 0.33 | | 0.85 | 1.90 | 0.29 | 0.50 | 0.09 | 0.56 | | | | | | | | 0.09 | 0.04 | | | | | | | | | |
| PZ-C1 | n | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.60 | 5.69 | | 4.91 | 810.00 | | | | | 1.91 | 0.98 | 0.97 | 0.01 | 0.93 | 0.94 | | | | | | | | 0.93 | 0.01 | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 22.60 | 5.69 | | 4.91 | 810.00 | | | | | 1.91 | 0.98 | 0.97 | 0.01 | 0.93 | 0.94 | | | | | | | | 0.93 | 0.01 | | | | | | | | | |
| | MAX | 22.60 | 5.69 | | 4.91 | 810.00 | | | | | 1.91 | 0.98 | 0.97 | 0.01 | 0.93 | 0.94 | | | | | | | | 0.93 | 0.01 | | | | | | | | | |
| PZ-C2 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 14.26 | 13.80 | | 0.51 | 191.15 | | 1.00 | 0.44 | | 1.02 | 1.00 | 0.57 | 0.44 | 0.02 | 0.45 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | STD. DEV. | 12.36 | 11.18 | | 0.29 | 47.87 | | | | | | 0.00 | | 0.01 | 0.00 | | | | | | | | | 0.00 | 0.00 | | | | | | | | | |
| | MIN | 5.52 | 5.89 | | 0.30 | 157.30 | | 1.00 | 0.44 | | 1.02 | 1.00 | 0.57 | 0.43 | 0.02 | 0.45 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | MAX | 23.00 | 21.70 | | 0.71 | 225.00 | | 1.00 | 0.44 | | 1.02 | 1.00 | 0.57 | 0.44 | 0.02 | 0.45 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-C3-08 | n | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.00 | 5.15 | | 1.05 | 438.00 | | | | | 0.94 | 0.86 | 0.62 | 0.24 | 0.08 | 0.32 | | | | | | | | 0.08 | 0.01 | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 23.00 | 5.15 | | 1.05 | 438.00 | | | | | 0.94 | 0.86 | 0.62 | 0.24 | 0.08 | 0.32 | | | | | | | | 0.08 | 0.01 | | | | | | | | | |
| | MAX | 23.00 | 5.15 | | 1.05 | 438.00 | | | | | 0.94 | 0.86 | 0.62 | 0.24 | 0.08 | 0.32 | | | | | | | | 0.08 | 0.01 | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| PZ-C3-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.95 | 6.76 | | 1.15 | 502.50 | | 1.10 | 0.43 | | 0.60 | 0.84 | 0.24 | 0.38 | 0.03 | 0.36 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | STD. DEV. | 1.34 | 0.08 | | 0.30 | 19.09 | | | | | | 0.37 | | 0.07 | 0.00 | | | | | | | | | 0.00 | | | | | | | | | | | |
| | MIN | 22.00 | 6.70 | | 0.94 | 489.00 | | 1.10 | 0.43 | | 0.60 | 0.57 | 0.24 | 0.33 | 0.03 | 0.36 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | MAX | 23.90 | 6.82 | | 1.36 | 516.00 | | 1.10 | 0.43 | | 0.60 | 1.10 | 0.24 | 0.43 | 0.03 | 0.36 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| PZ-C6-08 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.15 | 4.32 | | 2.36 | 525.00 | | 0.77 | 0.12 | | 0.95 | 0.85 | 0.76 | 0.15 | 0.04 | 0.19 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | STD. DEV. | 0.49 | 0.12 | | 0.01 | 175.36 | | | | | | 0.11 | | 0.04 | 0.02 | | | | | | | | | 0.03 | | | | | | | | | | | |
| | MIN | 21.80 | 4.23 | | 2.35 | 401.00 | | 0.77 | 0.12 | | 0.95 | 0.77 | 0.76 | 0.12 | 0.02 | 0.19 | | | | | | | | 0.01 | 0.01 | | | | | | | | | | |
| | MAX | 22.50 | 4.40 | | 2.36 | 649.00 | | 0.77 | 0.12 | | 0.95 | 0.93 | 0.76 | 0.17 | 0.05 | 0.19 | | | | | | | | 0.05 | 0.01 | | | | | | | | | | |
| PZ-C6-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.60 | 5.68 | | 3.22 | 371.00 | | 0.71 | 0.32 | | 0.80 | 0.75 | 0.60 | 0.25 | 0.03 | 0.20 | | | | | | | | 0.02 | 0.01 | | | | | | | | | | |
| | STD. DEV. | 0.85 | 0.13 | | 1.74 | 28.28 | | | | | | 0.05 | | 0.10 | 0.01 | | | | | | | | | 0.01 | | | | | | | | | | | |
| | MIN | 22.00 | 5.58 | | 1.99 | 351.00 | | 0.71 | 0.32 | | 0.80 | 0.71 | 0.60 | 0.18 | 0.02 | 0.20 | | | | | | | | 0.01 | 0.01 | | | | | | | | | | |
| | MAX | 23.20 | 5.77 | | 4.45 | 391.00 | | 0.71 | 0.32 | | 0.80 | 0.78 | 0.60 | 0.32 | 0.03 | 0.20 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| PZ-D3-08 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.00 | 5.33 | 11.00 | 0.78 | 385.00 | | | | 42.00 | 1.39 | 0.88 | 0.78 | 0.10 | 0.51 | 0.61 | 0.46 | | | | | | | 0.51 | 0.01 | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 23.00 | 5.33 | 11.00 | 0.78 | 385.00 | | | | 42.00 | 1.39 | 0.88 | 0.78 | 0.10 | 0.51 | 0.61 | 0.46 | | | | | | | 0.51 | 0.01 | | | | | | | | | | |
| | MAX | 23.00 | 5.33 | 11.00 | 0.78 | 385.00 | | | | 42.00 | 1.39 | 0.88 | 0.78 | 0.10 | 0.51 | 0.61 | 0.46 | | | | | | | 0.51 | 0.01 | | | | | | | | | | |
| PZ-D3-15 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.90 | 6.74 | 160.00 | 2.84 | 619.00 | 77.00 | 1.00 | 0.41 | 68.00 | 1.92 | 1.45 | 0.99 | 0.66 | 0.03 | 0.93 | 3.65 | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | STD. DEV. | 1.27 | 0.00 | 0.00 | 1.61 | 271.53 | | | | 12.73 | | 0.64 | | 0.35 | 0.01 | | 2.62 | | | | | | | 0.02 | | | | | | | | | | | |
| | MIN | 22.00 | 6.74 | 160.00 | 1.70 | 427.00 | 77.00 | 1.00 | 0.41 | 59.00 | 1.92 | 1.00 | 0.99 | 0.41 | 0.02 | 0.93 | 1.80 | | | | | | | 0.01 | 0.01 | | | | | | | | | | |
| | MAX | 23.80 | 6.74 | 160.00 | 3.97 | 811.00 | 77.00 | 1.00 | 0.41 | 77.00 | 1.92 | 1.90 | 0.99 | 0.91 | 0.04 | 0.93 | 5.50 | | | | | | | 0.04 | 0.01 | | | | | | | | | | |
| PZ-D4-08 | n | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 21.90 | 5.25 | | 0.70 | 510.00 | | | | | 0.72 | 0.69 | 0.55 | 0.14 | 0.03 | 0.17 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 21.90 | 5.25 | | 0.70 | 510.00 | | | | | 0.72 | 0.69 | 0.55 | 0.14 | 0.03 | 0.17 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | MAX | 21.90 | 5.25 | | 0.70 | 510.00 | | | | | 0.72 | 0.69 | 0.55 | 0.14 | 0.03 | 0.17 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| PZ-D4-15 | n | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.00 | 6.87 | | 1.05 | 950.00 | | | | | 0.93 | 0.91 | 0.56 | 0.35 | 0.02 | 0.37 | | | | | | | | 0.02 | 0.01 | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 23.00 | 6.87 | | 1.05 | 950.00 | | | | | 0.93 | 0.91 | 0.56 | 0.35 | 0.02 | 0.37 | | | | | | | | 0.02 | 0.01 | | | | | | | | | | |
| | MAX | 23.00 | 6.87 | | 1.05 | 950.00 | | | | | 0.93 | 0.91 | 0.56 | 0.35 | 0.02 | 0.37 | | | | | | | | 0.02 | 0.01 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| PZ-E1 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 21.85 | 5.53 | 20.00 | 3.95 | 268.80 | 24.00 | 0.85 | 0.36 | 33.00 | 1.02 | 0.93 | 0.55 | 0.41 | 0.04 | 0.47 | 0.92 | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | STD. DEV. | 1.06 | 0.25 | 2.83 | 0.54 | 130.39 | | | | 12.73 | | 0.11 | | 0.06 | 0.02 | | 1.10 | | | | | | | 0.03 | | | | | | | | | | | |
| | MIN | 21.10 | 5.35 | 18.00 | 3.57 | 176.60 | 24.00 | 0.85 | 0.36 | 24.00 | 1.02 | 0.85 | 0.55 | 0.36 | 0.02 | 0.47 | 0.14 | | | | | | | 0.01 | 0.01 | | | | | | | | | | |
| | MAX | 22.60 | 5.70 | 22.00 | 4.33 | 361.00 | 24.00 | 0.85 | 0.36 | 42.00 | 1.02 | 1.00 | 0.55 | 0.45 | 0.05 | 0.47 | 1.70 | | | | | | | 0.05 | 0.01 | | | | | | | | | | |
| PZ-E2 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 21.40 | 5.88 | | 4.86 | 193.30 | | 1.10 | 0.37 | | 1.00 | 1.04 | 0.55 | 0.40 | 0.03 | 0.45 | | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | STD. DEV. | 0.42 | 0.03 | | 0.06 | 1.70 | | | | | | 0.08 | | 0.04 | 0.01 | | | | | | | | | 0.01 | | | | | | | | | | | |
| | MIN | 21.10 | 5.86 | | 4.82 | 192.10 | | 1.10 | 0.37 | | 1.00 | 0.98 | 0.55 | 0.37 | 0.02 | 0.45 | | | | | | | | 0.02 | 0.01 | | | | | | | | | | |
| | MAX | 21.70 | 5.90 | | 4.90 | 194.50 | | 1.10 | 0.37 | | 1.00 | 1.10 | 0.55 | 0.43 | 0.04 | 0.45 | | | | | | | | 0.04 | 0.01 | | | | | | | | | | |
| PZ-E3-08 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.70 | 5.62 | 30.00 | 0.73 | 728.00 | | | | 59.00 | 1.95 | 0.95 | 0.81 | 0.14 | 1.00 | 1.14 | 0.88 | | | | | | | 1.00 | 0.01 | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 22.70 | 5.62 | 30.00 | 0.73 | 728.00 | | | | 59.00 | 1.95 | 0.95 | 0.81 | 0.14 | 1.00 | 1.14 | 0.88 | | | | | | | 1.00 | 0.01 | | | | | | | | | | |
| | MAX | 22.70 | 5.62 | 30.00 | 0.73 | 728.00 | | | | 59.00 | 1.95 | 0.95 | 0.81 | 0.14 | 1.00 | 1.14 | 0.88 | | | | | | | 1.00 | 0.01 | | | | | | | | | | |
| PZ-E3-15 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.60 | 6.57 | 83.00 | 4.23 | 331.00 | | | | 63.00 | 1.23 | 1.20 | 0.85 | 0.35 | 0.03 | 0.38 | 3.70 | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 24.60 | 6.57 | 83.00 | 4.23 | 331.00 | | | | 63.00 | 1.23 | 1.20 | 0.85 | 0.35 | 0.03 | 0.38 | 3.70 | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| | MAX | 24.60 | 6.57 | 83.00 | 4.23 | 331.00 | | | | 63.00 | 1.23 | 1.20 | 0.85 | 0.35 | 0.03 | 0.38 | 3.70 | | | | | | | 0.03 | 0.01 | | | | | | | | | | |
| PZ-E4-08 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 21.60 | 5.29 | 4.20 | 0.74 | 632.00 | | | | 44.00 | 0.76 | 0.55 | 0.52 | 0.03 | 0.21 | 0.24 | 0.07 | | | | | 0.26 | 29.00 | 0.21 | 0.01 | 0.01 | 210.00 | 0.16 | 46.00 | 0.16 | 26.00 | 0.00 | 4.00 | 16.00 |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 21.60 | 5.29 | 4.20 | 0.74 | 632.00 | | | | 44.00 | 0.76 | 0.55 | 0.52 | 0.03 | 0.21 | 0.24 | 0.07 | | | | | 0.26 | 29.00 | 0.21 | 0.01 | 0.01 | 210.00 | 0.16 | 46.00 | 0.16 | 26.00 | 0.00 | 4.00 | 16.00 |
| | MAX | 21.60 | 5.29 | 4.20 | 0.74 | 632.00 | | | | 44.00 | 0.76 | 0.55 | 0.52 | 0.03 | 0.21 | 0.24 | 0.07 | | | | | 0.26 | 29.00 | 0.21 | 0.01 | 0.01 | 210.00 | 0.16 | 46.00 | 0.16 | 26.00 | 0.00 | 4.00 | 16.00 |
| PZ-E4-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.30 | 6.65 | | 1.46 | 511.00 | | 0.88 | 0.36 | | 1.01 | 0.94 | 0.63 | 0.36 | 0.04 | 0.38 | | | | | | | | 0.04 | 0.01 | | | | | | | | | | |
| | STD. DEV. | 0.57 | 0.11 | | 0.23 | 8.49 | | | | | | 0.08 | | 0.00 | 0.02 | | | | | | | | | 0.02 | | | | | | | | | | | |
| | MIN | 21.90 | 6.57 | | 1.29 | 505.00 | | 0.88 | 0.36 | | 1.01 | 0.88 | 0.63 | 0.36 | 0.02 | 0.38 | | | | | | | | 0.02 | 0.01 | | | | | | | | | | |
| | MAX | 22.70 | 6.73 | | 1.62 | 517.00 | | 0.88 | 0.36 | | 1.01 | 0.99 | 0.63 | 0.36 | 0.05 | 0.38 | | | | | | | | 0.05 | 0.01 | | | | | | | | | | |
| PZ-E5-08 | n | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.60 | 5.01 | | 0.72 | 552.00 | | | | | 1.02 | 1.00 | 0.81 | 0.19 | 0.02 | 0.21 | | | | | | | | 0.01 | 0.01 | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 22.60 | 5.01 | | 0.72 | 552.00 | | | | | 1.02 | 1.00 | 0.81 | 0.19 | 0.02 | 0.21 | | | | | | | | 0.01 | 0.01 | | | | | | | | | | |
| | MAX | 22.60 | 5.01 | | 0.72 | 552.00 | | | | | 1.02 | 1.00 | 0.81 | 0.19 | 0.02 | 0.21 | | | | | | | | 0.01 | 0.01 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| PZ-E5-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.65 | 6.68 | | 2.88 | 722.50 | | 0.85 | 0.32 | | 1.12 | 0.98 | 0.88 | 0.27 | 0.02 | 0.24 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | STD. DEV. | 1.06 | 0.07 | | 2.44 | 137.89 | | | | | | 0.18 | | 0.07 | 0.01 | | | | | | | | | 0.00 | | | | | | | | | | |
| | MIN | 21.90 | 6.63 | | 1.15 | 625.00 | | 0.85 | 0.32 | | 1.12 | 0.85 | 0.88 | 0.22 | 0.01 | 0.24 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | MAX | 23.40 | 6.73 | | 4.60 | 820.00 | | 0.85 | 0.32 | | 1.12 | 1.10 | 0.88 | 0.32 | 0.02 | 0.24 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-E6-08 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.20 | 4.93 | | 47.00 | 602.50 | | 0.65 | 0.01 | | 1.05 | 0.83 | 0.84 | 0.08 | 0.32 | 0.21 | | | | | | | | 0.32 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.42 | 0.08 | | 63.18 | 143.54 | | | | | | 0.25 | | 0.11 | 0.37 | | | | | | | | | 0.37 | | | | | | | | | | |
| | MIN | 21.90 | 4.87 | | 2.32 | 501.00 | | 0.65 | 0.01 | | 1.05 | 0.65 | 0.84 | 0.01 | 0.05 | 0.21 | | | | | | | | 0.05 | 0.01 | | | | | | | | | |
| | MAX | 22.50 | 4.99 | | 91.67 | 704.00 | | 0.65 | 0.01 | | 1.05 | 1.00 | 0.84 | 0.16 | 0.58 | 0.21 | | | | | | | | 0.58 | 0.01 | | | | | | | | | |
| PZ-E6-15 | n | 2 | 2 | 0 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 22.95 | 5.39 | | 4.85 | 355.00 | 42.00 | 4.60 | 1.90 | 42.00 | 2.12 | 3.35 | 1.41 | 1.30 | 0.03 | 0.71 | 0.34 | | | | | 0.09 | 0.05 | 0.02 | 0.01 | 0.01 | 80.00 | 0.09 | 28.00 | 1.50 | 11.00 | 0.01 | 1.60 | 11.00 |
| | STD. DEV. | 0.49 | 0.07 | | 2.55 | 35.36 | | | | | | 1.77 | | 0.86 | 0.01 | | | | | | | | | 0.01 | | | | | | | | | | |
| | MIN | 22.60 | 5.34 | | 3.05 | 330.00 | 42.00 | 4.60 | 1.90 | 42.00 | 2.12 | 2.10 | 1.41 | 0.69 | 0.02 | 0.71 | 0.34 | | | | | 0.09 | 0.05 | 0.01 | 0.01 | 0.01 | 80.00 | 0.09 | 28.00 | 1.50 | 11.00 | 0.01 | 1.60 | 11.00 |
| | MAX | 23.30 | 5.44 | | 6.65 | 380.00 | 42.00 | 4.60 | 1.90 | 42.00 | 2.12 | 4.60 | 1.41 | 1.90 | 0.03 | 0.71 | 0.34 | | | | | 0.09 | 0.05 | 0.03 | 0.01 | 0.01 | 80.00 | 0.09 | 28.00 | 1.50 | 11.00 | 0.01 | 1.60 | 11.00 |
| PZ-E7-08 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | MEAN | 22.50 | 4.81 | 12.60 | 3.01 | 365.50 | 34.00 | 0.65 | 0.12 | 35.00 | 1.42 | 0.83 | 0.99 | 0.06 | 0.23 | 0.43 | 0.05 | | | | | 0.12 | 18.50 | 0.23 | 0.01 | 0.02 | 120.00 | 0.11 | 28.00 | 0.33 | 13.50 | 0.00 | 3.00 | 13.00 |
| | STD. DEV. | 0.57 | 0.24 | 13.29 | 0.25 | 45.96 | | | | 1.41 | | 0.25 | | 0.08 | 0.28 | | 0.04 | | | | | 0.03 | 2.12 | 0.28 | | 0.01 | 14.14 | 0.06 | 1.41 | 0.11 | 0.71 | 0.00 | 1.84 | 1.41 |
| | MIN | 22.10 | 4.64 | 3.20 | 2.83 | 333.00 | 34.00 | 0.65 | 0.12 | 34.00 | 1.42 | 0.65 | 0.99 | 0.01 | 0.03 | 0.43 | 0.03 | | | | | 0.10 | 17.00 | 0.03 | 0.01 | 0.01 | 110.00 | 0.06 | 27.00 | 0.25 | 13.00 | 0.00 | 1.70 | 12.00 |
| | MAX | 22.90 | 4.98 | 22.00 | 3.18 | 398.00 | 34.00 | 0.65 | 0.12 | 36.00 | 1.42 | 1.00 | 0.99 | 0.12 | 0.42 | 0.43 | 0.08 | | | | | 0.14 | 20.00 | 0.42 | 0.01 | 0.03 | 130.00 | 0.15 | 29.00 | 0.41 | 14.00 | 0.00 | 4.30 | 14.00 |
| PZ-E7-15 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.90 | 6.98 | 280.00 | 4.78 | 1562.50 | 93.00 | 1.00 | 0.40 | 82.00 | 1.32 | 1.15 | 0.84 | 0.43 | 0.03 | 0.48 | 0.19 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.85 | 0.23 | 42.43 | 1.20 | 251.02 | | | | 15.56 | | 0.21 | | 0.04 | 0.01 | | 0.04 | | | | | | | 0.01 | | | | | | | | | | |
| | MIN | 22.30 | 6.81 | 250.00 | 3.93 | 1385.00 | 93.00 | 1.00 | 0.40 | 71.00 | 1.32 | 1.00 | 0.84 | 0.40 | 0.02 | 0.48 | 0.16 | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | MAX | 23.50 | 7.14 | 310.00 | 5.62 | 1740.00 | 93.00 | 1.00 | 0.40 | 93.00 | 1.32 | 1.30 | 0.84 | 0.46 | 0.03 | 0.48 | 0.21 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-F3-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-F3-15 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.10 | 6.72 | 111.50 | 3.16 | 323.50 | 49.00 | 0.69 | 0.33 | 49.00 | 0.84 | 0.76 | 0.50 | 0.33 | 0.03 | 0.34 | 1.25 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.00 | 0.17 | 26.16 | 1.41 | 41.72 | | | | 0.00 | | 0.09 | | 0.01 | 0.01 | | 0.35 | | | | | | | 0.01 | | | | | | | | | | |
| | MIN | 22.10 | 6.60 | 93.00 | 2.16 | 294.00 | 49.00 | 0.69 | 0.33 | 49.00 | 0.84 | 0.69 | 0.50 | 0.32 | 0.02 | 0.34 | 1.00 | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | MAX | 22.10 | 6.84 | 130.00 | 4.16 | 353.00 | 49.00 | 0.69 | 0.33 | 49.00 | 0.84 | 0.82 | 0.50 | 0.33 | 0.03 | 0.34 | 1.50 | | | | | | | 0.03 | 0.01 | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| PZ-F4-08 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 20.40 | 5.55 | 8.40 | 5.49 | 813.00 | | | | 53.00 | 6.20 | 2.00 | 1.99 | 0.01 | 4.20 | 4.21 | 0.05 | | | | | 0.06 | 35.00 | 4.20 | 0.08 | 0.01 | 280.00 | 0.34 | 66.00 | 0.12 | 33.00 | 0.01 | 6.10 | 30.00 |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 20.40 | 5.55 | 8.40 | 5.49 | 813.00 | | | | 53.00 | 6.20 | 2.00 | 1.99 | 0.01 | 4.20 | 4.21 | 0.05 | | | | | 0.06 | 35.00 | 4.20 | 0.08 | 0.01 | 280.00 | 0.34 | 66.00 | 0.12 | 33.00 | 0.01 | 6.10 | 30.00 |
| | MAX | 20.40 | 5.55 | 8.40 | 5.49 | 813.00 | | | | 53.00 | 6.20 | 2.00 | 1.99 | 0.01 | 4.20 | 4.21 | 0.05 | | | | | 0.06 | 35.00 | 4.20 | 0.08 | 0.01 | 280.00 | 0.34 | 66.00 | 0.12 | 33.00 | 0.01 | 6.10 | 30.00 |
| PZ-F4-15 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.20 | 7.14 | 200.00 | 5.08 | 1287.00 | | | | 61.00 | 1.33 | 1.30 | 0.86 | 0.44 | 0.03 | 0.47 | 0.36 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 22.20 | 7.14 | 200.00 | 5.08 | 1287.00 | | | | 61.00 | 1.33 | 1.30 | 0.86 | 0.44 | 0.03 | 0.47 | 0.36 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | MAX | 22.20 | 7.14 | 200.00 | 5.08 | 1287.00 | | | | 61.00 | 1.33 | 1.30 | 0.86 | 0.44 | 0.03 | 0.47 | 0.36 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-G2-12.5 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.10 | 4.55 | | 1.99 | 638.00 | | 1.40 | 0.01 | | 1.38 | 1.13 | 0.81 | 0.03 | 2.06 | 0.57 | | | | | | | | 2.06 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.42 | 0.21 | | 0.83 | 96.17 | | | | | | 0.38 | | 0.03 | 2.18 | | | | | | | | | 2.18 | | | | | | | | | | |
| | MIN | 21.80 | 4.40 | | 1.40 | 570.00 | | 1.40 | 0.01 | | 1.38 | 0.86 | 0.81 | 0.01 | 0.52 | 0.57 | | | | | | | | 0.52 | 0.01 | | | | | | | | | |
| | MAX | 22.40 | 4.70 | | 2.57 | 706.00 | | 1.40 | 0.01 | | 1.38 | 1.40 | 0.81 | 0.05 | 3.60 | 0.57 | | | | | | | | 3.60 | 0.01 | | | | | | | | | |
| PZ-H4-08 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.00 | 5.21 | 2.00 | 4.17 | 559.00 | | | | 36.00 | 1.45 | 0.15 | 0.14 | 0.01 | 1.30 | 1.31 | 0.22 | | | | | | | 1.30 | 0.01 | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 23.00 | 5.21 | 2.00 | 4.17 | 559.00 | | | | 36.00 | 1.45 | 0.15 | 0.14 | 0.01 | 1.30 | 1.31 | 0.22 | | | | | | | 1.30 | 0.01 | | | | | | | | | |
| | MAX | 23.00 | 5.21 | 2.00 | 4.17 | 559.00 | | | | 36.00 | 1.45 | 0.15 | 0.14 | 0.01 | 1.30 | 1.31 | 0.22 | | | | | | | 1.30 | 0.01 | | | | | | | | | |
| PZ-H4-15 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.55 | 6.81 | 175.00 | 2.96 | 748.00 | 97.00 | 1.10 | 0.50 | 83.00 | 1.03 | 1.05 | 0.47 | 0.52 | 0.04 | 0.56 | 2.50 | | | | | | | 0.04 | 0.01 | | | | | | | | | |
| | STD. DEV. | 1.34 | 0.28 | 35.36 | 3.75 | 155.56 | | | | 19.80 | | 0.07 | | 0.02 | 0.01 | | 1.27 | | | | | | | 0.01 | | | | | | | | | | |
| | MIN | 21.60 | 6.61 | 150.00 | 0.30 | 638.00 | 97.00 | 1.10 | 0.50 | 69.00 | 1.03 | 1.00 | 0.47 | 0.50 | 0.03 | 0.56 | 1.60 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | MAX | 23.50 | 7.01 | 200.00 | 5.61 | 858.00 | 97.00 | 1.10 | 0.50 | 97.00 | 1.03 | 1.10 | 0.47 | 0.53 | 0.04 | 0.56 | 3.40 | | | | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-H5-11.5 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 21.65 | 4.56 | | 2.18 | 421.50 | | 2.30 | 0.12 | | 2.20 | 1.70 | 0.73 | 0.25 | 0.71 | 1.47 | | | | | | 0.10 | 25.00 | 0.71 | 0.01 | 0.01 | 130.00 | 0.09 | 33.00 | 0.05 | 16.00 | 0.00 | 1.70 | 13.00 |
| | STD. DEV. | 0.78 | 0.01 | | 1.29 | 27.58 | | | | | | 0.85 | | 0.18 | 0.56 | | | | | | | | | 0.56 | | | | | | | | | | |
| | MIN | 21.10 | 4.55 | | 1.27 | 402.00 | | 2.30 | 0.12 | | 2.20 | 1.10 | 0.73 | 0.12 | 0.31 | 1.47 | | | | | | 0.10 | 25.00 | 0.31 | 0.01 | 0.01 | 130.00 | 0.09 | 33.00 | 0.05 | 16.00 | 0.00 | 1.70 | 13.00 |
| | MAX | 22.20 | 4.57 | | 3.09 | 441.00 | | 2.30 | 0.12 | | 2.20 | 2.30 | 0.73 | 0.37 | 1.10 | 1.47 | | | | | | 0.10 | 25.00 | 1.10 | 0.01 | 0.01 | 130.00 | 0.09 | 33.00 | 0.05 | 16.00 | 0.00 | 1.70 | 13.00 |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| PZ-I6-08 | n | 2 | 2 | 1 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 22.30 | 4.82 | 3.20 | 1.37 | 357.00 | | 1.30 | 0.44 | | 1.70 | 1.40 | 0.98 | 0.48 | 0.13 | 0.72 | | | | | | 0.22 | 21.00 | 0.13 | 0.01 | 0.01 | 110.00 | 0.13 | 29.00 | 1.10 | 15.00 | 0.02 | 2.60 | 14.00 |
| | STD. DEV. | 0.28 | 0.32 | | 1.65 | 39.60 | | | | | 0.00 | 0.14 | | 0.06 | 0.10 | | | | | | | | | 0.10 | | | | | | | | | | |
| | MIN | 22.10 | 4.59 | 3.20 | 0.20 | 329.00 | | 1.30 | 0.44 | | 1.70 | 1.30 | 0.98 | 0.44 | 0.06 | 0.72 | | | | | | 0.22 | 21.00 | 0.06 | 0.01 | 0.01 | 110.00 | 0.13 | 29.00 | 1.10 | 15.00 | 0.02 | 2.60 | 14.00 |
| | MAX | 22.50 | 5.04 | 3.20 | 2.54 | 385.00 | | 1.30 | 0.44 | | 1.70 | 1.50 | 0.98 | 0.52 | 0.20 | 0.72 | | | | | | 0.22 | 21.00 | 0.20 | 0.01 | 0.01 | 110.00 | 0.13 | 29.00 | 1.10 | 15.00 | 0.02 | 2.60 | 14.00 |
| PZ-I6-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.15 | 6.81 | | 0.54 | 1511.50 | | 1.40 | 0.51 | | 1.12 | 1.25 | 0.72 | 0.45 | 0.03 | 0.40 | | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.35 | 0.13 | | 0.51 | 477.30 | | | | | | 0.21 | | 0.09 | 0.01 | | | | | | | | | 0.01 | | | | | | | | | | |
| | MIN | 22.90 | 6.71 | | 0.18 | 1174.00 | | 1.40 | 0.51 | | 1.12 | 1.10 | 0.72 | 0.38 | 0.02 | 0.40 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | MAX | 23.40 | 6.90 | | 0.90 | 1849.00 | | 1.40 | 0.51 | | 1.12 | 1.40 | 0.72 | 0.51 | 0.03 | 0.40 | | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-I10-08 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.20 | 5.05 | 12.00 | 0.44 | 425.50 | 42.00 | 2.20 | 0.14 | 38.00 | 1.54 | 1.44 | 0.64 | 0.09 | 0.45 | 0.91 | 0.05 | | | | | | | 0.45 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.99 | 0.34 | 1.41 | 0.10 | 48.79 | | | | 5.66 | | 1.07 | | 0.07 | 0.59 | | 0.00 | | | | | | | 0.59 | | | | | | | | | | |
| | MIN | 21.50 | 4.81 | 11.00 | 0.37 | 391.00 | 42.00 | 2.20 | 0.14 | 34.00 | 1.54 | 0.68 | 0.64 | 0.05 | 0.03 | 0.91 | 0.05 | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | MAX | 22.90 | 5.29 | 13.00 | 0.51 | 460.00 | 42.00 | 2.20 | 0.14 | 42.00 | 1.54 | 2.20 | 0.64 | 0.14 | 0.86 | 0.91 | 0.05 | | | | | | | 0.86 | 0.01 | | | | | | | | | |
| PZ-I10-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.40 | 6.48 | | 0.47 | 612.50 | | 1.60 | 1.20 | | 0.95 | 1.27 | 0.38 | 0.88 | 0.03 | 0.57 | | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.99 | 0.50 | | 0.45 | 171.83 | | | | | | 0.47 | | 0.46 | 0.01 | | | | | | | | | 0.01 | | | | | | | | | | |
| | MIN | 21.70 | 6.12 | | 0.15 | 491.00 | | 1.60 | 1.20 | | 0.95 | 0.93 | 0.38 | 0.55 | 0.02 | 0.57 | | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | MAX | 23.10 | 6.83 | | 0.79 | 734.00 | | 1.60 | 1.20 | | 0.95 | 1.60 | 0.38 | 1.20 | 0.03 | 0.57 | | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| PZ-J4-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-J4-15 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.50 | 6.33 | 88.00 | 0.30 | 523.50 | 60.00 | 5.90 | 1.90 | 62.50 | 1.63 | 3.70 | 0.86 | 1.27 | 0.47 | 0.77 | 0.44 | | | | | | | 0.47 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.71 | 0.20 | 16.97 | 0.08 | 86.97 | | | | 3.54 | | 3.11 | | 0.89 | 0.48 | | 0.42 | | | | | | | 0.48 | | | | | | | | | | |
| | MIN | 22.00 | 6.19 | 76.00 | 0.24 | 462.00 | 60.00 | 5.90 | 1.90 | 60.00 | 1.63 | 1.50 | 0.86 | 0.64 | 0.13 | 0.77 | 0.14 | | | | | | | 0.13 | 0.01 | | | | | | | | | |
| | MAX | 23.00 | 6.47 | 100.00 | 0.36 | 585.00 | 60.00 | 5.90 | 1.90 | 65.00 | 1.63 | 5.90 | 0.86 | 1.90 | 0.81 | 0.77 | 0.74 | | | | | | | 0.81 | 0.01 | | | | | | | | | |
| PZ-J7-08 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | MEAN | 22.00 | 4.77 | 9.20 | 0.48 | 334.00 | 53.00 | 2.90 | 0.53 | 45.50 | 1.09 | 1.95 | 0.82 | 0.36 | 0.25 | 0.27 | 0.06 | | | | | 0.08 | 28.00 | 0.25 | 0.01 | 0.01 | 89.00 | 0.11 | 26.00 | 0.25 | 12.50 | 0.00 | 1.90 | 11.00 |
| | STD. DEV. | 1.13 | 0.43 | 2.55 | 0.43 | 49.50 | | | | 10.61 | | 1.34 | | 0.25 | 0.22 | | 0.01 | | | | | 0.04 | 12.73 | 0.22 | 0.00 | 0.00 | 7.07 | 0.00 | 5.66 | 0.14 | 2.12 | 0.00 | 0.14 | 0.00 |
| | MIN | 21.20 | 4.46 | 7.40 | 0.17 | 299.00 | 53.00 | 2.90 | 0.53 | 38.00 | 1.09 | 1.00 | 0.82 | 0.18 | 0.09 | 0.27 | 0.06 | | | | | 0.06 | 19.00 | 0.09 | 0.01 | 0.01 | 84.00 | 0.11 | 22.00 | 0.15 | 11.00 | 0.00 | 1.80 | 11.00 |
| | MAX | 22.80 | 5.07 | 11.00 | 0.78 | 369.00 | 53.00 | 2.90 | 0.53 | 53.00 | 1.09 | 2.90 | 0.82 | 0.53 | 0.40 | 0.27 | 0.07 | | | | | 0.11 | 37.00 | 0.40 | 0.01 | 0.01 | 94.00 | 0.11 | 30.00 | 0.35 | 14.00 | 0.00 | 2.00 | 11.00 |
| PZ-J7-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 22.45 | 5.17 | | 0.74 | 422.50 | | 4.50 | 0.67 | | 4.92 | 4.70 | 4.05 | 0.76 | 0.24 | 0.87 | 0.23 | | | | | 0.06 | 46.00 | 0.24 | 0.01 | 0.01 | 120.00 | 0.13 | 42.00 | 0.42 | 18.00 | 0.00 | 1.40 | 11.00 |
| | STD. DEV. | 1.48 | 0.19 | | 0.46 | 10.61 | | 0.00 | | | | 0.28 | | 0.13 | 0.31 | | | | | | | | | 0.00 | | | | | | | | | | |
| | MIN | 21.40 | 5.03 | | 0.41 | 415.00 | | 4.50 | 0.67 | | 4.92 | 4.50 | 4.05 | 0.67 | 0.02 | 0.87 | 0.23 | | | | | 0.06 | 46.00 | 0.01 | 0.01 | 0.01 | 120.00 | 0.13 | 42.00 | 0.42 | 18.00 | 0.00 | 1.40 | 11.00 |
| | MAX | 23.50 | 5.30 | | 1.06 | 430.00 | | 4.50 | 0.67 | | 4.92 | 4.90 | 4.05 | 0.85 | 0.46 | 0.87 | 0.23 | | | | | 0.06 | 46.00 | 0.46 | 0.01 | 0.01 | 120.00 | 0.13 | 42.00 | 0.42 | 18.00 | 0.00 | 1.40 | 11.00 |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| PZ-N4-08 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.90 | 5.67 | 17.00 | 4.27 | 280.00 | | | | 34.00 | 0.51 | 0.49 | 0.30 | 0.19 | 0.02 | 0.21 | 0.10 | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 22.90 | 5.67 | 17.00 | 4.27 | 280.00 | | | | 34.00 | 0.51 | 0.49 | 0.30 | 0.19 | 0.02 | 0.21 | 0.10 | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | MAX | 22.90 | 5.67 | 17.00 | 4.27 | 280.00 | | | | 34.00 | 0.51 | 0.49 | 0.30 | 0.19 | 0.02 | 0.21 | 0.10 | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-N4-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.45 | 6.45 | | 0.29 | 558.00 | | 3.00 | 0.45 | | 1.52 | 2.25 | 1.01 | 0.47 | 0.03 | 0.51 | | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | STD. DEV. | 0.92 | 0.34 | | 0.13 | 237.59 | | | | | | 1.06 | | 0.03 | 0.01 | | | | | | | | | 0.02 | | | | | | | | | | |
| | MIN | 21.80 | 6.21 | | 0.19 | 390.00 | | 3.00 | 0.45 | | 1.52 | 1.50 | 1.01 | 0.45 | 0.02 | 0.51 | | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | MAX | 23.10 | 6.69 | | 0.38 | 726.00 | | 3.00 | 0.45 | | 1.52 | 3.00 | 1.01 | 0.49 | 0.04 | 0.51 | | | | | | | | 0.04 | 0.01 | | | | | | | | | |
| PZ-N7-08 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 23.30 | 6.10 | | 3.23 | 475.50 | | 3.00 | 2.80 | | 3.82 | 3.40 | 0.80 | 2.90 | 0.28 | 3.02 | | | | | | 0.13 | 58.00 | 0.27 | 0.01 | 0.01 | 86.00 | 0.17 | 58.00 | 2.40 | 18.00 | 0.06 | 1.80 | 12.00 |
| | STD. DEV. | 1.56 | 0.19 | | 3.09 | 30.41 | | | | | | 0.57 | | 0.14 | 0.36 | | | | | | | | | 0.37 | | | | | | | | | | |
| | MIN | 22.20 | 5.96 | | 1.04 | 454.00 | | 3.00 | 2.80 | | 3.82 | 3.00 | 0.80 | 2.80 | 0.02 | 3.02 | | | | | | 0.13 | 58.00 | 0.01 | 0.01 | 0.01 | 86.00 | 0.17 | 58.00 | 2.40 | 18.00 | 0.06 | 1.80 | 12.00 |
| | MAX | 24.40 | 6.23 | | 5.41 | 497.00 | | 3.00 | 2.80 | | 3.82 | 3.80 | 0.80 | 3.00 | 0.53 | 3.02 | | | | | | 0.13 | 58.00 | 0.53 | 0.01 | 0.01 | 86.00 | 0.17 | 58.00 | 2.40 | 18.00 | 0.06 | 1.80 | 12.00 |
| PZ-N7-15 | n | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.00 | 5.65 | | 0.34 | 284.00 | | 1.50 | 0.67 | | 1.86 | 1.55 | 1.10 | 0.59 | 0.15 | 0.76 | | | | | | | | 0.15 | 0.01 | | | | | | | | | |
| | STD. DEV. | 1.27 | 0.11 | | 0.04 | 35.36 | | | | | | 0.07 | | 0.12 | 0.16 | | | | | | | | | 0.16 | | | | | | | | | | |
| | MIN | 22.10 | 5.57 | | 0.31 | 259.00 | | 1.50 | 0.67 | | 1.86 | 1.50 | 1.10 | 0.50 | 0.03 | 0.76 | | | | | | | | 0.03 | 0.01 | | | | | | | | | |
| | MAX | 23.90 | 5.73 | | 0.36 | 309.00 | | 1.50 | 0.67 | | 1.86 | 1.60 | 1.10 | 0.67 | 0.26 | 0.76 | | | | | | | | 0.26 | 0.01 | | | | | | | | | |
| PZ-N10-08 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.60 | 6.05 | 53.00 | 0.34 | 400.00 | 40.00 | 2.00 | 0.96 | 37.00 | 2.52 | 2.25 | 1.30 | 1.08 | 0.02 | 1.22 | 0.19 | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | STD. DEV. | 1.27 | 0.49 | 12.73 | 0.01 | 144.25 | | | | 4.24 | | 0.35 | | 0.17 | 0.01 | | 0.19 | | | | | | | 0.00 | | | | | | | | | | |
| | MIN | 21.70 | 5.70 | 44.00 | 0.33 | 298.00 | 40.00 | 2.00 | 0.96 | 34.00 | 2.52 | 2.00 | 1.30 | 0.96 | 0.01 | 1.22 | 0.06 | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | MAX | 23.50 | 6.40 | 62.00 | 0.34 | 502.00 | 40.00 | 2.00 | 0.96 | 40.00 | 2.52 | 2.50 | 1.30 | 1.20 | 0.02 | 1.22 | 0.33 | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| PZ-N10-15 | n | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 0 | 1 | 2 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.25 | 6.95 | 11.00 | 0.47 | 1185.50 | 22.00 | 0.55 | 0.20 | | 1.12 | 0.97 | 0.62 | 0.43 | 0.04 | 0.50 | | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | STD. DEV. | 1.48 | 0.23 | | 0.49 | 548.01 | | | | | | 0.19 | | 0.07 | 0.02 | | | | | | | | | | | | | | | | | | | |
| | MIN | 22.20 | 6.78 | 11.00 | 0.12 | 798.00 | 22.00 | 0.55 | 0.20 | | 1.12 | 0.83 | 0.62 | 0.38 | 0.02 | 0.50 | | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | MAX | 24.30 | 7.11 | 11.00 | 0.82 | 1573.00 | 22.00 | 0.55 | 0.20 | | 1.12 | 1.10 | 0.62 | 0.48 | 0.05 | 0.50 | | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| PZ-S10-08 | n | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.10 | 5.03 | 6.30 | 0.44 | 339.00 | | | | 26.00 | 0.66 | 0.59 | 0.51 | 0.16 | 0.02 | 0.15 | 0.05 | | | | | | | 0.02 | 0.01 | | | | | | | | | |
| | STD. DEV. | 1.27 | 0.40 | | 0.38 | 50.91 | | | | 5.66 | | 0.06 | | 0.06 | 0.01 | | 0.00 | | | | | | | 0.01 | | | | | | | | | | |
| | MIN | 22.20 | 4.75 | 6.30 | 0.17 | 303.00 | | | | 22.00 | 0.66 | 0.55 | 0.51 | 0.12 | 0.01 | 0.15 | 0.05 | | | | | | | 0.01 | 0.01 | | | | | | | | | |
| | MAX | 24.00 | 5.31 | 6.30 | 0.71 | 375.00 | | | | 30.00 | 0.66 | 0.63 | 0.51 | 0.20 | 0.03 | 0.15 | 0.05 | | | | | | | 0.03 | 0.01 | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | Fecal (Ct/100 mL) | E-coli | 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 |
| FB-DI | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | MEAN | 21.55 | 7.49 | 2.00 | 8.26 | 2.35 | 10.00 | 0.05 | 0.01 | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | | | | | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 |
| | STD. DEV. | 3.18 | 0.23 | 0.00 | 0.48 | 1.29 | | | | 0.00 | | 0.00 | | 0.00 | 0.00 | | 0.00 | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | MIN | 19.30 | 7.32 | 2.00 | 7.92 | 1.43 | 10.00 | 0.05 | 0.01 | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | | | | | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 |
| | MAX | 23.80 | 7.65 | 2.00 | 8.60 | 3.26 | 10.00 | 0.05 | 0.01 | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | | | | | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 |
| FB-TAP | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | | | 0.16 | 0.01 | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | | | 0.16 | 0.01 | | | | | | | | | |
| | MAX | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | | | 0.16 | 0.01 | | | | | | | | | |
| EB | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | MEAN | 21.55 | 7.49 | 2.00 | 8.26 | 2.35 | | | | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | | | | | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.02 | 0.13 |
| | STD. DEV. | 3.18 | 0.23 | 0.00 | 0.48 | 1.29 | | | | 0.00 | | 0.00 | | 0.00 | 0.00 | | 0.00 | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| | MIN | 19.30 | 7.32 | 2.00 | 7.92 | 1.43 | | | | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | | | | | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 |
| | MAX | 23.80 | 7.65 | 2.00 | 8.60 | 3.26 | | | | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | | | | | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.03 | 0.13 |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.



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# Appendix E: Laboratory Report

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

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

May 16, 2013
Work Order: 1303532

# Laboratory Report

**Project Name** Hillsborough County C-HS4 SE#3

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **STE** | | | | | | |
| Matrix | | **Wastewater** | | | | | | |
| SAL Sample Number | | **1303532-01** | | | | | | |
| Date/Time Collected | | **04/24/13 09:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/24/13 11:30** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.21 | | | | | | |
| Temperature | | 22.4 °C | | | | | | |
| Conductivity | | 1341 umhos | | | | | | |
| Dissolved Oxygen | | 0.08 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 41 | EPA 350.1 | 0.40 | 0.095 | | 05/01/13 11:45 | 10 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 58 | EPA 351.2 | 0.20 | 0.05 | 05/01/13 10:34 | 05/07/13 13:43 | 41.67 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 04/25/13 00:37 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **BKG-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-07** | | | | | | |
| Date/Time Collected | | **04/23/13 08:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.82 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 131.4 umhos | | | | | | |
| Dissolved Oxygen | | 0.23 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.64 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 14:59 | 1 |
| Chemical Oxygen Demand | mg/L | 120 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 3.2 | SM 4500P-E | 0.20 | 0.050 | 04/26/13 15:25 | 04/29/13 12:42 | 5 |
| Total Alkalinity | mg/L | 33 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 13:51 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **BKG-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-08** | | | | | | |
| Date/Time Collected | | **04/23/13 08:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.82 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 131.4 umhos | | | | | | |
| Dissolved Oxygen | | 0.23 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.69 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:01 | 1 |
| Chemical Oxygen Demand | mg/L | 110 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 3.1 | SM 4500P-E | 0.20 | 0.050 | 04/26/13 15:25 | 04/29/13 12:43 | 5 |
| Total Alkalinity | mg/L | 33 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 13:53 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |
| Sample Description | | **PZ-AB4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-13** | | | | | | |
| Date/Time Collected | | **04/23/13 09:14** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.55 | | | | | | |
| Temperature | | 21.5 °C | | | | | | |
| Conductivity | | 286 umhos | | | | | | |
| Dissolved Oxygen | | 0.19 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.33 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:03 | 1 |
| Nitrate (as N) | mg/L | 0.09 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.9 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 13:55 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.09 | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

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**May 16, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C2** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-15** | | | | | | |
| Date/Time Collected | | **04/24/13 08:53** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/24/13 11:30** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.52 | | | | | | |
| Temperature | | 21.7 °C | | | | | | |
| Conductivity | | 225 umhos | | | | | | |
| Dissolved Oxygen | | 0.71 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.44 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:05 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 05/01/13 10:34 | 05/07/13 11:45 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 04/25/13 00:37 | 1 |
| Sample Description | | **PZ-C3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-17** | | | | | | |
| Date/Time Collected | | **04/22/13 09:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.70 | | | | | | |
| Temperature | | 22.0 °C | | | | | | |
| Conductivity | | 516 umhos | | | | | | |
| Dissolved Oxygen | | 0.94 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.43 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:44 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| Sample Description | | **PZ-C6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-18** | | | | | | |
| Date/Time Collected | | **04/22/13 11:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-18** | | | | | | |
| Date/Time Collected | | **04/22/13 11:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.40 | | | | | | |
| Temperature | | 21.8 °C | | | | | | |
| Conductivity | | 401 umhos | | | | | | |
| Dissolved Oxygen | | 2.36 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.12 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:46 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.77 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:02 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| Sample Description | | **PZ-C6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-19** | | | | | | |
| Date/Time Collected | | **04/22/13 12:05** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.58 | | | | | | |
| Temperature | | 22.0 °C | | | | | | |
| Conductivity | | 351 umhos | | | | | | |
| Dissolved Oxygen | | 4.45 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.32 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:48 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.71 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:04 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| Sample Description | | **PZ-D3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-21** | | | | | | |
| Date/Time Collected | | **04/22/13 10:12** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |

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**May 16, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-D3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-21** | | | | | | |
| Date/Time Collected | | **04/22/13 10:12** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.74 | | | | | | |
| Temperature | | 22.0 °C | | | | | | |
| Conductivity | | 427 umhos | | | | | | |
| Dissolved Oxygen | | 3.97 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.41 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:50 | 1 |
| Chemical Oxygen Demand | mg/L | 77 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Phosphorous - Total as P | mg/L | 1.8 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:43 | 1 |
| Total Alkalinity | mg/L | 160 | SM 2320B | 8.0 | 2.0 | | 04/26/13 14:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:06 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.04 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E1** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-24** | | | | | | |
| Date/Time Collected | | **04/24/13 09:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/24/13 11:30** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.35 | | | | | | |
| Temperature | | 21.1 °C | | | | | | |
| Conductivity | | 361 umhos | | | | | | |
| Dissolved Oxygen | | 4.33 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.36 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:07 | 1 |
| Chemical Oxygen Demand | mg/L | 24 I | EPA 410.4 | 25 | 10 | 05/07/13 10:13 | 05/07/13 15:25 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Phosphorous - Total as P | mg/L | 0.14 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:25 | 04/29/13 12:22 | 1 |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.85 | EPA 351.2 | 0.20 | 0.05 | 05/01/13 10:34 | 05/07/13 11:46 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 04/25/13 00:37 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E2** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-25** | | | | | | |
| Date/Time Collected | | **04/24/13 09:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/24/13 11:30** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.86 | | | | | | |
| Temperature | | 21.1 °C | | | | | | |
| Conductivity | | 192.1 umhos | | | | | | |
| Dissolved Oxygen | | 4.82 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.37 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:09 | 1 |
| Nitrate (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 05/01/13 10:34 | 05/07/13 11:48 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.04 I | EPA 300.0 | 0.08 | 0.02 | | 04/25/13 00:37 | 1 |
| Sample Description | | **PZ-E4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-29** | | | | | | |
| Date/Time Collected | | **04/22/13 11:05** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.57 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 505 umhos | | | | | | |
| Dissolved Oxygen | | 1.29 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.36 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:52 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.88 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:08 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| Sample Description | | **PZ-E5-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-31** | | | | | | |
| Date/Time Collected | | **04/22/13 11:34** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |

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**May 16, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E5-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-31** | | | | | | |
| Date/Time Collected | | **04/22/13 11:34** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.63 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 625 umhos | | | | | | |
| Dissolved Oxygen | | 4.60 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.32 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:54 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.85 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:09 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-32** | | | | | | |
| Date/Time Collected | | **04/22/13 12:18** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.87 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 704 umhos | | | | | | |
| Dissolved Oxygen | | 1.67 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:56 | 1 |
| Nitrate (as N) | mg/L | 0.58 | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.65 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:11 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.58 | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-33** | | | | | | |
| Date/Time Collected | | **04/22/13 12:38** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-33** | | | | | | |
| Date/Time Collected | | **04/22/13 12:38** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.34 | | | | | | |
| Temperature | | 22.6 °C | | | | | | |
| Conductivity | | 330 umhos | | | | | | |
| Dissolved Oxygen | | 6.65 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.9 | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:32 | 1 |
| Chemical Oxygen Demand | mg/L | 42 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 04/23/13 15:26 | 1 |
| Fluoride | mg/L | 0.090 | EPA 300.0 | 0.040 | 0.010 | | 04/23/13 15:26 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/23/13 15:26 | 1 |
| Phosphorous - Total as P | mg/L | 0.34 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:44 | 1 |
| Sulfate | mg/L | 80 | EPA 300.0 | 0.60 | 0.20 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 4.6 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:13 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.088 I | EPA 200.7** | 0.10 | 0.050 | 04/23/13 10:54 | 05/01/13 11:33 | 1 |
| Calcium | mg/L | 28 | EPA 200.7 | 0.50 | 0.042 | 04/23/13 10:54 | 05/01/13 11:33 | 1 |
| Iron | mg/L | 1.5 | EPA 200.7 | 0.10 | 0.020 | 04/23/13 10:54 | 05/01/13 11:33 | 1 |
| Magnesium | mg/L | 11 | EPA 200.7 | 0.50 | 0.020 | 04/23/13 10:54 | 05/01/13 11:33 | 1 |
| Manganese | mg/L | 0.0067 I | EPA 200.7 | 0.010 | 0.0010 | 04/23/13 10:54 | 05/01/13 11:33 | 1 |
| Potassium | mg/L | 1.6 | EPA 200.7 | 0.050 | 0.010 | 04/23/13 10:54 | 05/01/13 11:33 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 04/23/13 10:54 | 05/01/13 11:33 | 1 |
| Sample Description | | **PZ-E7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-34** | | | | | | |
| Date/Time Collected | | **04/22/13 13:20** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.64 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 333 umhos | | | | | | |
| Dissolved Oxygen | | 2.83 mg/L | | | | | | |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-34** | | | | | | |
| Date/Time Collected | | **04/22/13 13:20** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.64 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 333 umhos | | | | | | |
| Dissolved Oxygen | | 2.83 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.12 | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:34 | 1 |
| Chemical Oxygen Demand | mg/L | 34 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Chloride | mg/L | 20 | EPA 300.0 | 0.20 | 0.050 | | 04/23/13 15:26 | 1 |
| Fluoride | mg/L | 0.10 | EPA 300.0 | 0.040 | 0.010 | | 04/23/13 15:26 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Orthophosphate as P | mg/L | 0.031 I | EPA 300.0 | 0.040 | 0.010 | | 04/23/13 15:26 | 1 |
| Phosphorous - Total as P | mg/L | 0.081 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:46 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 0.60 | 0.20 | | 04/25/13 16:46 | 1 |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | | 04/26/13 14:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.65 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:14 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.064 I | EPA 200.7** | 0.10 | 0.050 | 04/23/13 10:54 | 04/30/13 14:27 | 1 |
| Calcium | mg/L | 27 | EPA 200.7 | 0.50 | 0.042 | 04/23/13 10:54 | 04/30/13 14:27 | 1 |
| Iron | mg/L | 0.41 | EPA 200.7 | 0.10 | 0.020 | 04/23/13 10:54 | 04/30/13 14:27 | 1 |
| Magnesium | mg/L | 13 | EPA 200.7 | 0.50 | 0.020 | 04/23/13 10:54 | 04/30/13 14:27 | 1 |
| Manganese | mg/L | 0.0036 I | EPA 200.7 | 0.010 | 0.0010 | 04/23/13 10:54 | 04/30/13 14:27 | 1 |
| Potassium | mg/L | 1.7 | EPA 200.7 | 0.050 | 0.010 | 04/23/13 10:54 | 04/30/13 14:27 | 1 |
| Sodium | mg/L | 12 | EPA 200.7 | 0.50 | 0.13 | 04/23/13 10:54 | 04/30/13 14:27 | 1 |
| Sample Description | | **PZ-E7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-35** | | | | | | |
| Date/Time Collected | | **04/22/13 13:37** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.81 | | | | | | |
| Temperature | | 22.3 °C | | | | | | |
| Conductivity | | 1385 umhos | | | | | | |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-35** | | | | | | |
| Date/Time Collected | | **04/22/13 13:37** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.81 | | | | | | |
| Temperature | | 22.3 °C | | | | | | |
| Conductivity | | 1385 umhos | | | | | | |
| Dissolved Oxygen | | 5.62 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.40 | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:36 | 1 |
| Chemical Oxygen Demand | mg/L | 93 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Phosphorous - Total as P | mg/L | 0.21 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:47 | 1 |
| Total Alkalinity | mg/L | 310 | SM 2320B | 8.0 | 2.0 | | 04/26/13 14:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:16 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-F3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-37** | | | | | | |
| Date/Time Collected | | **04/22/13 10:46** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.60 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 294 umhos | | | | | | |
| Dissolved Oxygen | | 2.16 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.33 | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:38 | 1 |
| Chemical Oxygen Demand | mg/L | 49 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Phosphorous - Total as P | mg/L | 1.0 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:48 | 1 |
| Total Alkalinity | mg/L | 130 | SM 2320B | 8.0 | 2.0 | | 04/26/13 14:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.69 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:30 | 04/26/13 09:57 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-G2-12.5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-42** | | | | | | |
| Date/Time Collected | | **04/23/13 09:28** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.40 | | | | | | |
| Temperature | | 21.8 °C | | | | | | |
| Conductivity | | 706 umhos | | | | | | |
| Dissolved Oxygen | | 2.57 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 16:14 | 1 |
| Nitrate (as N) | mg/L | 3.6 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 13:56 | 1 |
| Nitrate+Nitrite (N) | mg/L | 3.6 | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-44** | | | | | | |
| Date/Time Collected | | **04/23/13 09:42** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.61 | | | | | | |
| Temperature | | 21.6 °C | | | | | | |
| Conductivity | | 638 umhos | | | | | | |
| Dissolved Oxygen | | 0.30 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.50 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:13 | 1 |
| Chemical Oxygen Demand | mg/L | 97 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 3.4 | SM 4500P-E | 0.20 | 0.050 | 04/26/13 15:25 | 04/29/13 12:44 | 5 |
| Total Alkalinity | mg/L | 200 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 13:57 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.04 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H5-11.5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-45** | | | | | | |
| Date/Time Collected | | **04/23/13 09:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.57 | | | | | | |
| Temperature | | 21.1 °C | | | | | | |
| Conductivity | | 402 umhos | | | | | | |
| Dissolved Oxygen | | 3.09 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.12 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:15 | 1 |
| Chloride | mg/L | 25 | EPA 300.0 | 0.20 | 0.050 | | 04/24/13 15:50 | 1 |
| Fluoride | mg/L | 0.099 | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Nitrate (as N) | mg/L | 0.31 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Sulfate | mg/L | 130 | EPA 300.0 | 0.60 | 0.20 | | 04/25/13 16:46 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.3 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 13:58 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.31 | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.090 I | EPA 200.7** | 0.10 | 0.050 | 05/01/13 10:21 | 05/02/13 12:36 | 1 |
| Calcium | mg/L | 33 | EPA 200.7 | 0.50 | 0.042 | 05/01/13 10:21 | 05/02/13 12:36 | 1 |
| Iron | mg/L | 0.048 I | EPA 200.7 | 0.10 | 0.020 | 05/01/13 10:21 | 05/02/13 12:36 | 1 |
| Magnesium | mg/L | 16 | EPA 200.7 | 0.50 | 0.020 | 05/01/13 10:21 | 05/02/13 12:36 | 1 |
| Manganese | mg/L | 0.0028 I | EPA 200.7 | 0.010 | 0.0010 | 05/01/13 10:21 | 05/02/13 12:36 | 1 |
| Potassium | mg/L | 1.7 | EPA 200.7 | 0.050 | 0.010 | 05/01/13 10:21 | 05/02/13 12:36 | 1 |
| Sodium | mg/L | 13 | EPA 200.7 | 0.50 | 0.13 | 05/01/13 10:21 | 05/02/13 12:36 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-46** | | | | | | |
| Date/Time Collected | | **04/22/13 13:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.59 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 329 umhos | | | | | | |
| Dissolved Oxygen | | 2.54 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.44 | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:40 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-46** | | | | | | |
| Date/Time Collected | | **04/22/13 13:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.59 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 329 umhos | | | | | | |
| Dissolved Oxygen | | 2.54 mg/L | | | | | | |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.3 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:30 | 04/26/13 09:58 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| Sample Description | | **PZ-I6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-47** | | | | | | |
| Date/Time Collected | | **04/22/13 14:10** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.71 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 1174 umhos | | | | | | |
| Dissolved Oxygen | | 0.90 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.51 | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:42 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:30 | 04/26/13 10:00 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |
| Sample Description | | **PZ-I6-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-48** | | | | | | |
| Date/Time Collected | | **04/22/13 14:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.71 | | | | | | |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I6-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-48** | | | | | | |
| Date/Time Collected | | **04/22/13 14:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.71 | | | | | | |
| Temperature | | 21.9 °C | | | | | | |
| Conductivity | | 1174 umhos | | | | | | |
| Dissolved Oxygen | | 0.90 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.56 | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:44 | 1 |
| Nitrate (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/23/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.3 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:30 | 04/26/13 10:02 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.04 I | EPA 300.0 | 0.08 | 0.02 | | 04/23/13 15:26 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-49** | | | | | | |
| Date/Time Collected | | **04/23/13 10:34** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.81 | | | | | | |
| Temperature | | 21.5 °C | | | | | | |
| Conductivity | | 391 umhos | | | | | | |
| Dissolved Oxygen | | 0.37 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.14 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:17 | 1 |
| Chemical Oxygen Demand | mg/L | 42 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.048 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:25 | 04/29/13 12:24 | 1 |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.2 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 14:00 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

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**Tampa, FL 33619**

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I10-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-50** | | | | | | |
| Date/Time Collected | | **04/23/13 10:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.12 | | | | | | |
| Temperature | | 21.7 °C | | | | | | |
| Conductivity | | 491 umhos | | | | | | |
| Dissolved Oxygen | | 0.15 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.2 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 15:28 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.6 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 14:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-52** | | | | | | |
| Date/Time Collected | | **04/23/13 12:39** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.19 | | | | | | |
| Temperature | | 22.0 °C | | | | | | |
| Conductivity | | 462 umhos | | | | | | |
| Dissolved Oxygen | | 0.24 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.9 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 09:58 | 1 |
| Chemical Oxygen Demand | mg/L | 60 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.81 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.14 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:49 | 1 |
| Total Alkalinity | mg/L | 76 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 5.9 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 14:23 | 20.83 |
| Nitrate+Nitrite (N) | mg/L | 0.81 | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

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**Tampa, FL 33619**

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-53** | | | | | | |
| Date/Time Collected | | **04/23/13 10:05** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.46 | | | | | | |
| Temperature | | 21.2 °C | | | | | | |
| Conductivity | | 369 umhos | | | | | | |
| Dissolved Oxygen | | 0.17 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.53 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:00 | 1 |
| Chemical Oxygen Demand | mg/L | 53 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Chloride | mg/L | 37 | EPA 300.0 | 0.20 | 0.050 | | 04/25/13 16:46 | 1 |
| Fluoride | mg/L | 0.058 | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Nitrate (as N) | mg/L | 0.40 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.055 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:50 | 1 |
| Sulfate | mg/L | 94 | EPA 300.0 | 0.60 | 0.20 | | 04/25/13 16:46 | 1 |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.9 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:36 | 04/26/13 14:03 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.40 | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.11 | EPA 200.7** | 0.10 | 0.050 | 05/01/13 10:21 | 05/02/13 12:45 | 1 |
| Calcium | mg/L | 30 | EPA 200.7 | 0.50 | 0.042 | 05/01/13 10:21 | 05/02/13 12:45 | 1 |
| Iron | mg/L | 0.15 | EPA 200.7 | 0.10 | 0.020 | 05/01/13 10:21 | 05/02/13 12:45 | 1 |
| Magnesium | mg/L | 14 | EPA 200.7 | 0.50 | 0.020 | 05/01/13 10:21 | 05/02/13 12:45 | 1 |
| Manganese | mg/L | 0.0019 I | EPA 200.7 | 0.010 | 0.0010 | 05/01/13 10:21 | 05/02/13 12:45 | 1 |
| Potassium | mg/L | 1.8 | EPA 200.7 | 0.050 | 0.010 | 05/01/13 10:21 | 05/02/13 12:45 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 05/01/13 10:21 | 05/02/13 12:45 | 1 |

| | |
|---|---|
| Sample Description | **PZ-J7-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1303532-54** |
| Date/Time Collected | **04/23/13 10:21** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **04/23/13 13:55** |
| **Client Provided Field Data** | |
| pH | 5.03 |
| Temperature | 21.4 °C |
| Conductivity | 430 umhos |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-54** | | | | | | |
| Date/Time Collected | | **04/23/13 10:21** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.03 | | | | | | |
| Temperature | | 21.4 °C | | | | | | |
| Conductivity | | 430 umhos | | | | | | |
| Dissolved Oxygen | | 0.41 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.67 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:02 | 1 |
| Chloride | mg/L | 46 | EPA 300.0 | 0.20 | 0.050 | | 04/26/13 01:33 | 1 |
| Fluoride | mg/L | 0.061 | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Nitrate (as N) | mg/L | 0.46 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.23 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:52 | 1 |
| Sulfate | mg/L | 120 | EPA 300.0 | 0.60 | 0.20 | | 04/26/13 01:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 4.5 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 14:21 | 20.83 |
| Nitrate+Nitrite (N) | mg/L | 0.46 | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.13 | EPA 200.7** | 0.10 | 0.050 | 05/01/13 10:21 | 05/02/13 12:48 | 1 |
| Calcium | mg/L | 42 | EPA 200.7 | 0.50 | 0.042 | 05/01/13 10:21 | 05/02/13 12:48 | 1 |
| Iron | mg/L | 0.42 | EPA 200.7 | 0.10 | 0.020 | 05/01/13 10:21 | 05/02/13 12:48 | 1 |
| Magnesium | mg/L | 18 | EPA 200.7 | 0.50 | 0.020 | 05/01/13 10:21 | 05/02/13 12:48 | 1 |
| Manganese | mg/L | 0.0035 I | EPA 200.7 | 0.010 | 0.0010 | 05/01/13 10:21 | 05/02/13 12:48 | 1 |
| Potassium | mg/L | 1.4 | EPA 200.7 | 0.050 | 0.010 | 05/01/13 10:21 | 05/02/13 12:48 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 05/01/13 10:21 | 05/02/13 12:48 | 1 |

| | |
|---|---|
| Sample Description | **PZ-N4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1303532-56** |
| Date/Time Collected | **04/23/13 12:23** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **04/23/13 13:55** |

**Client Provided Field Data**

| | |
|---|---|
| pH | 6.21 |
| Temperature | 21.8 °C |
| Conductivity | 390 umhos |
| Dissolved Oxygen | 0.19 mg/L |

**Inorganics**

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-56** | | | | | | |
| Date/Time Collected | | **04/23/13 12:23** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.21 | | | | | | |
| Temperature | | 21.8 °C | | | | | | |
| Conductivity | | 390 umhos | | | | | | |
| Dissolved Oxygen | | 0.19 mg/L | | | | | | |
| Ammonia as N | mg/L | 0.45 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:12 | 1 |
| Nitrate (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.0 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:26 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.04 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |
| Sample Description | | **PZ-N7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-57** | | | | | | |
| Date/Time Collected | | **04/23/13 11:42** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.23 | | | | | | |
| Temperature | | 22.2 °C | | | | | | |
| Conductivity | | 497 umhos | | | | | | |
| Dissolved Oxygen | | 5.41 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 2.8 | EPA 350.1 | 0.40 | 0.095 | | 04/29/13 12:26 | 10 |
| Chloride | mg/L | 58 | EPA 300.0 | 0.20 | 0.050 | | 04/26/13 01:33 | 1 |
| Fluoride | mg/L | 0.13 | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Nitrate (as N) | mg/L | 0.53 | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 15:50 | 1 |
| Sulfate | mg/L | 86 | EPA 300.0 | 0.60 | 0.20 | | 04/24/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.0 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 14:22 | 20.83 |
| Nitrate+Nitrite (N) | mg/L | 0.53 | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.17 | EPA 200.7** | 0.10 | 0.050 | 05/01/13 10:21 | 05/02/13 12:52 | 1 |
| Calcium | mg/L | 58 | EPA 200.7 | 0.50 | 0.042 | 05/01/13 10:21 | 05/02/13 12:52 | 1 |
| Iron | mg/L | 2.4 | EPA 200.7 | 0.10 | 0.020 | 05/01/13 10:21 | 05/02/13 12:52 | 1 |
| Magnesium | mg/L | 18 | EPA 200.7 | 0.50 | 0.020 | 05/01/13 10:21 | 05/02/13 12:52 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-57** | | | | | | |
| Date/Time Collected | | **04/23/13 11:42** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.23 | | | | | | |
| Temperature | | 22.2 °C | | | | | | |
| Conductivity | | 497 umhos | | | | | | |
| Dissolved Oxygen | | 5.41 mg/L | | | | | | |
| Manganese | mg/L | 0.059 | EPA 200.7 | 0.010 | 0.0010 | 05/01/13 10:21 | 05/02/13 12:52 | 1 |
| Potassium | mg/L | 1.8 | EPA 200.7 | 0.050 | 0.010 | 05/01/13 10:21 | 05/02/13 12:52 | 1 |
| Sodium | mg/L | 12 | EPA 200.7 | 0.50 | 0.13 | 05/01/13 10:21 | 05/02/13 12:52 | 1 |
| Sample Description | | **PZ-N7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-58** | | | | | | |
| Date/Time Collected | | **04/23/13 12:04** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.57 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 309 umhos | | | | | | |
| Dissolved Oxygen | | 0.36 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.67 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:16 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:29 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |
| Sample Description | | **PZ-N7-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-59** | | | | | | |
| Date/Time Collected | | **04/23/13 12:09** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.57 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N7-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-59** | | | | | | |
| Date/Time Collected | | **04/23/13 12:09** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.57 | | | | | | |
| Temperature | | 22.1 °C | | | | | | |
| Conductivity | | 309 umhos | | | | | | |
| Dissolved Oxygen | | 0.36 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.68 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:18 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:31 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-60** | | | | | | |
| Date/Time Collected | | **04/23/13 10:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.70 | | | | | | |
| Temperature | | 21.7 °C | | | | | | |
| Conductivity | | 298 umhos | | | | | | |
| Dissolved Oxygen | | 0.34 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.96 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:21 | 1 |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 04/24/13 09:20 | 04/24/13 14:00 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.056 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:53 | 1 |
| Total Alkalinity | mg/L | 44 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.0 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:33 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

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

**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-61** | | | | | | |
| Date/Time Collected | | **04/23/13 11:01** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.70 | | | | | | |
| Temperature | | 21.7 °C | | | | | | |
| Conductivity | | 298 umhos | | | | | | |
| Dissolved Oxygen | | 0.34 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.0 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:22 | 1 |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 05/07/13 10:13 | 05/07/13 15:25 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 15:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.057 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 11:54 | 1 |
| Total Alkalinity | mg/L | 44 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.7 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:34 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 15:50 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-62** | | | | | | |
| Date/Time Collected | | **04/23/13 11:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.78 | | | | | | |
| Temperature | | 22.2 °C | | | | | | |
| Conductivity | | 798 umhos | | | | | | |
| Dissolved Oxygen | | 0.12 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.38 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:24 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.83 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:36 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 04/25/13 00:37 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-S10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1303532-63** | | | | | | |
| Date/Time Collected | | **04/23/13 11:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/23/13 13:55** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.75 | | | | | | |
| Temperature | | 22.2 °C | | | | | | |
| Conductivity | | 375 umhos | | | | | | |
| Dissolved Oxygen | | 0.17 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.20 | EPA 350.1 | 0.040 | 0.009 | | 04/29/13 10:25 | 1 |
| Chemical Oxygen Demand | mg/L | 22 I | EPA 410.4 | 25 | 10 | 05/07/13 10:13 | 05/07/13 15:25 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/25/13 00:37 | 1 |
| Phosphorous - Total as P | mg/L | 0.048 | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 12:00 | 1 |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 04/30/13 12:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.55 | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:33 | 04/26/13 13:38 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 04/25/13 00:37 | 1 |
| Sample Description | | **FB-DI** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1303532-71** | | | | | | |
| Date/Time Collected | | **04/22/13 14:25** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.32 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 3.26 umhos | | | | | | |
| Dissolved Oxygen | | 7.92 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:46 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 05/07/13 10:13 | 05/07/13 15:25 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 04/24/13 00:13 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 00:13 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 00:13 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 00:13 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 00:13 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 12:01 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 04/24/13 00:13 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 04/26/13 14:33 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#3**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **FB-DI** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1303532-71** | | | | | | |
| Date/Time Collected | | **04/22/13 14:25** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.32 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 3.26 umhos | | | | | | |
| Dissolved Oxygen | | 7.92 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:30 | 04/26/13 10:03 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 00:13 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7** | 0.10 | 0.050 | 04/24/13 09:15 | 04/24/13 11:21 | 1 |
| Calcium | mg/L | 0.042 U | EPA 200.7 | 0.50 | 0.042 | 04/24/13 09:15 | 04/24/13 11:21 | 1 |
| Iron | mg/L | 0.020 U | EPA 200.7 | 0.10 | 0.020 | 04/24/13 09:15 | 04/24/13 11:21 | 1 |
| Magnesium | mg/L | 0.020 U | EPA 200.7 | 0.50 | 0.020 | 04/24/13 09:15 | 05/08/13 13:39 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 04/24/13 09:15 | 04/24/13 11:21 | 1 |
| Potassium | mg/L | 0.010 U | EPA 200.7 | 0.050 | 0.010 | 04/24/13 09:15 | 04/29/13 13:34 | 1 |
| Sodium | mg/L | 0.13 U | EPA 200.7 | 0.50 | 0.13 | 04/24/13 09:15 | 04/24/13 11:21 | 1 |
| Sample Description | | **EB** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1303532-72** | | | | | | |
| Date/Time Collected | | **04/22/13 14:23** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.32 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 3.26 umhos | | | | | | |
| Dissolved Oxygen | | 7.92 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 04/25/13 12:48 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 05/07/13 10:13 | 05/07/13 15:25 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 04/24/13 00:13 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 00:13 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 00:13 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 04/24/13 00:13 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 04/24/13 00:13 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 04/26/13 15:23 | 04/29/13 12:03 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 04/24/13 00:13 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

## Laboratory Report

| **Project Name** | **Hillsborough County C-HS4 SE#3** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Parameters** | **Units** | **Results *** | **Method** | **PQL** | **MDL** | **Prepared** | **Analyzed** | **Dilution** |
| Sample Description | | **EB** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1303532-72** | | | | | | |
| Date/Time Collected | | **04/22/13 14:23** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **04/22/13 16:00** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.32 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 3.26 umhos | | | | | | |
| Dissolved Oxygen | | 7.92 mg/L | | | | | | |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 04/26/13 14:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 04/24/13 15:30 | 04/26/13 10:05 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 04/24/13 00:13 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7** | 0.10 | 0.050 | 04/24/13 09:15 | 04/24/13 11:25 | 1 |
| Calcium | mg/L | 0.042 U | EPA 200.7 | 0.50 | 0.042 | 04/24/13 09:15 | 04/24/13 11:25 | 1 |
| Iron | mg/L | 0.020 U | EPA 200.7 | 0.10 | 0.020 | 04/24/13 09:15 | 04/24/13 11:25 | 1 |
| Magnesium | mg/L | 0.020 U | EPA 200.7 | 0.50 | 0.020 | 04/24/13 09:15 | 05/08/13 13:42 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 04/24/13 09:15 | 04/24/13 11:25 | 1 |
| Potassium | mg/L | 0.010 U | EPA 200.7 | 0.050 | 0.010 | 04/24/13 09:15 | 04/29/13 13:38 | 1 |
| Sodium | mg/L | 0.13 U | EPA 200.7 | 0.50 | 0.13 | 04/24/13 09:15 | 04/24/13 11:25 | 1 |

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**May 16, 2013**
**Work Order: 1303532**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32323 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD32323-BLK1)** | | | | | Prepared & Analyzed: 04/23/13 | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| 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 | | | | | | |
| **LCS (BD32323-BS1)** | | | | | Prepared & Analyzed: 04/23/13 | | | | | |
| Chloride | 3.25 | 0.20 | 0.050 | mg/L | 3.0 | | 108 | 85-115 | | |
| Sulfate | 9.68 | 0.60 | 0.20 | mg/L | 9.0 | | 108 | 85-115 | | |
| Orthophosphate as P | 0.975 | 0.040 | 0.010 | mg/L | 0.90 | | 108 | 85-115 | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | | 91 | 85-115 | | |
| Nitrate (as N) | 1.82 | 0.04 | 0.01 | mg/L | 1.7 | | 107 | 85-115 | | |
| Fluoride | 0.910 | 0.040 | 0.010 | mg/L | 0.90 | | 101 | 85-115 | | |
| **LCS Dup (BD32323-BSD1)** | | | | | Prepared & Analyzed: 04/23/13 | | | | | |
| Sulfate | 9.72 | 0.60 | 0.20 | mg/L | 9.0 | | 108 | 85-115 | 0.4 | 200 |
| Orthophosphate as P | 0.955 | 0.040 | 0.010 | mg/L | 0.90 | | 106 | 85-115 | 2 | 200 |
| Fluoride | 0.968 | 0.040 | 0.010 | mg/L | 0.90 | | 108 | 85-115 | 6 | 200 |
| Nitrate (as N) | 1.83 | 0.04 | 0.01 | mg/L | 1.7 | | 108 | 85-115 | 0.5 | 200 |
| Chloride | 3.25 | 0.20 | 0.050 | mg/L | 3.0 | | 108 | 85-115 | 0 | 200 |
| Nitrite (as N) | 1.28 | 0.04 | 0.01 | mg/L | 1.4 | | 91 | 85-115 | 0.8 | 200 |
| **Matrix Spike (BD32323-MS1)** | | **Source: 1303532-21** | | | Prepared & Analyzed: 04/23/13 | | | | | |
| Nitrate (as N) | 1.80 | 0.04 | 0.01 | mg/L | 1.7 | 0.0409 | 103 | 85-115 | | |
| Sulfate | 51.8 | 0.60 | 0.20 | mg/L | 9.0 | 42.4 | 104 | 85-115 | | |
| Fluoride | 1.13 | 0.040 | 0.010 | mg/L | 0.90 | 0.179 | 106 | 85-115 | | |
| Nitrite (as N) | 1.30 | 0.04 | 0.01 | mg/L | 1.4 | ND | 93 | 85-115 | | |
| Chloride | 14.9 | 0.20 | 0.050 | mg/L | 3.0 | 11.5 | 113 | 80-120 | | |
| Orthophosphate as P | 0.909 | 0.040 | 0.010 | mg/L | 0.90 | ND | 101 | 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 BD32323 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BD32323-MS2)** | | **Source: 1303532-48** | | | Prepared & Analyzed: 04/23/13 | | | | | |
| Chloride | 29.9 | 0.20 | 0.050 | mg/L | 3.0 | 26.9 | 100 | 80-120 | | |
| Nitrite (as N) | 1.37 | 0.04 | 0.01 | mg/L | 1.4 | ND | 98 | 85-115 | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 119 | NR | 85-115 | | |
| Nitrate (as N) | 1.83 | 0.04 | 0.01 | mg/L | 1.7 | 0.0446 | 105 | 85-115 | | |
| Fluoride | 1.38 | 0.040 | 0.010 | mg/L | 0.90 | 0.436 | 105 | 85-115 | | |
| Orthophosphate as P | 1.03 | 0.040 | 0.010 | mg/L | 0.90 | 0.139 | 99 | 85-115 | | |
| **Batch BD32324 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD32324-BLK1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| 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 (BD32324-BS1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Orthophosphate as P | 0.953 | 0.040 | 0.010 | mg/L | 0.90 | | 106 | 85-115 | | |
| Fluoride | 0.863 | 0.040 | 0.010 | mg/L | 0.90 | | 96 | 85-115 | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | | 91 | 85-115 | | |
| Chloride | 3.02 | 0.20 | 0.050 | mg/L | 3.0 | | 101 | 85-115 | | |
| Sulfate | 9.67 | 0.60 | 0.20 | mg/L | 9.0 | | 107 | 85-115 | | |
| Nitrate (as N) | 1.80 | 0.04 | 0.01 | mg/L | 1.7 | | 106 | 85-115 | | |
| **LCS Dup (BD32324-BSD1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Nitrate (as N) | 1.81 | 0.04 | 0.01 | mg/L | 1.7 | | 106 | 85-115 | 0.6 | 200 |
| Chloride | 3.22 | 0.20 | 0.050 | mg/L | 3.0 | | 107 | 85-115 | 6 | 200 |
| Fluoride | 0.906 | 0.040 | 0.010 | mg/L | 0.90 | | 101 | 85-115 | 5 | 200 |
| Orthophosphate as P | 0.938 | 0.040 | 0.010 | mg/L | 0.90 | | 104 | 85-115 | 2 | 200 |
| Sulfate | 9.71 | 0.60 | 0.20 | mg/L | 9.0 | | 108 | 85-115 | 0.4 | 200 |
| Nitrite (as N) | 1.32 | 0.04 | 0.01 | mg/L | 1.4 | | 94 | 85-115 | 4 | 200 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32324 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BD32324-MS1)** | | **Source: 1303737-08** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Fluoride | 2.62 | 0.040 | 0.010 | mg/L | 0.90 | 1.68 | 104 | 85-115 | | |
| Chloride | 26.0 J5 | 0.20 | 0.050 | mg/L | 3.0 | 25.3 | 23 | 80-120 | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 128 | NR | 85-115 | | |
| Nitrate (as N) | 2.11 | 0.04 | 0.01 | mg/L | 1.7 | 0.490 | 95 | 85-115 | | |
| Orthophosphate as P | 1.48 | 0.040 | 0.010 | mg/L | 0.90 | 0.516 | 107 | 85-115 | | |
| Nitrite (as N) | 1.33 | 0.04 | 0.01 | mg/L | 1.4 | ND | 95 | 85-115 | | |
| **Matrix Spike (BD32324-MS2)** | | **Source: 1303739-04** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Nitrate (as N) | 1.79 | 0.04 | 0.01 | mg/L | 1.7 | ND | 105 | 85-115 | | |
| Chloride | 3.05 | 0.20 | 0.050 | mg/L | 3.0 | ND | 102 | 80-120 | | |
| Fluoride | 0.886 | 0.040 | 0.010 | mg/L | 0.90 | ND | 98 | 85-115 | | |
| Orthophosphate as P | 0.954 | 0.040 | 0.010 | mg/L | 0.90 | ND | 106 | 85-115 | | |
| Sulfate | 9.72 | 0.60 | 0.20 | mg/L | 9.0 | ND | 108 | 85-115 | | |
| Nitrite (as N) | 1.26 | 0.04 | 0.01 | mg/L | 1.4 | ND | 90 | 85-115 | | |
| **Batch BD32409 - COD prep** | | | | | | | | | | |
| **Blank (BD32409-BLK1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BD32409-BS1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Chemical Oxygen Demand | 51 | 25 | 10 | mg/L | 50 | | 102 | 90-110 | | |
| **Matrix Spike (BD32409-MS1)** | | **Source: 1303532-34** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Chemical Oxygen Demand | 79 | 25 | 10 | mg/L | 50 | 34 | 90 | 85-115 | | |
| **Matrix Spike Dup (BD32409-MSD1)** | | **Source: 1303532-34** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Chemical Oxygen Demand | 79 | 25 | 10 | mg/L | 50 | 34 | 90 | 85-115 | 0 | 32 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32423 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD32423-BLK1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **LCS (BD32423-BS1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Chloride | 3.25 | 0.20 | 0.050 | mg/L | 3.0 | | 108 | 85-115 | | |
| Sulfate | 9.79 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | | |
| Nitrate (as N) | 1.84 | 0.04 | 0.01 | mg/L | 1.7 | | 108 | 85-115 | | |
| Nitrite (as N) | 1.29 | 0.04 | 0.01 | mg/L | 1.4 | | 92 | 85-115 | | |
| Fluoride | 0.950 | 0.040 | 0.010 | mg/L | 0.90 | | 106 | 85-115 | | |
| Orthophosphate as P | 0.970 | 0.040 | 0.010 | mg/L | 0.90 | | 108 | 85-115 | | |
| **LCS Dup (BD32423-BSD1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Sulfate | 9.81 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | 0.2 | 200 |
| Nitrate (as N) | 1.84 | 0.04 | 0.01 | mg/L | 1.7 | | 108 | 85-115 | 0 | 200 |
| Nitrite (as N) | 1.31 | 0.04 | 0.01 | mg/L | 1.4 | | 94 | 85-115 | 2 | 200 |
| Orthophosphate as P | 0.972 | 0.040 | 0.010 | mg/L | 0.90 | | 108 | 85-115 | 0.2 | 200 |
| Fluoride | 0.959 | 0.040 | 0.010 | mg/L | 0.90 | | 107 | 85-115 | 0.9 | 200 |
| Chloride | 3.26 | 0.20 | 0.050 | mg/L | 3.0 | | 109 | 85-115 | 0.3 | 200 |
| **Matrix Spike (BD32423-MS1)** | | **Source: 1303532-49** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Nitrate (as N) | 1.85 | 0.04 | 0.01 | mg/L | 1.7 | 0.0344 | 107 | 85-115 | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 103 | NR | 85-115 | | |
| Chloride | 32.8 | 0.20 | 0.050 | mg/L | 3.0 | 29.3 | 117 | 80-120 | | |
| Fluoride | 1.03 | 0.040 | 0.010 | mg/L | 0.90 | 0.113 | 102 | 85-115 | | |
| Orthophosphate as P | 0.829 | 0.040 | 0.010 | mg/L | 0.90 | ND | 92 | 85-115 | | |
| Nitrite (as N) | 1.38 | 0.04 | 0.01 | mg/L | 1.4 | ND | 99 | 85-115 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32423 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BD32423-MS2)** | | **Source: 1303532-61** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Nitrite (as N) | 1.41 | 0.04 | 0.01 | mg/L | 1.4 | ND | 101 | 85-115 | | |
| Orthophosphate as P | 0.979 | 0.040 | 0.010 | mg/L | 0.90 | 0.0227 | 106 | 85-115 | | |
| Sulfate | 68.4 | 0.60 | 0.20 | mg/L | 9.0 | 59.2 | 102 | 85-115 | | |
| Nitrate (as N) | 1.88 | 0.04 | 0.01 | mg/L | 1.7 | 0.0296 | 109 | 85-115 | | |
| Fluoride | 0.927 | 0.040 | 0.010 | mg/L | 0.90 | 0.0592 | 96 | 85-115 | | |
| Chloride | 22.5 | 0.20 | 0.050 | mg/L | 3.0 | 19.4 | 103 | 80-120 | | |
| **Batch BD32424 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD32424-BLK1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| 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 (BD32424-BS1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Nitrite (as N) | 1.31 | 0.04 | 0.01 | mg/L | 1.4 | | 94 | 85-115 | | |
| Nitrate (as N) | 1.85 | 0.04 | 0.01 | mg/L | 1.7 | | 109 | 85-115 | | |
| **LCS Dup (BD32424-BSD1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Nitrate (as N) | 1.84 | 0.04 | 0.01 | mg/L | 1.7 | | 108 | 85-115 | 0.5 | 200 |
| Nitrite (as N) | 1.31 | 0.04 | 0.01 | mg/L | 1.4 | | 94 | 85-115 | 0 | 200 |
| **Matrix Spike (BD32424-MS1)** | | **Source: 1303532-25** | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Nitrate (as N) | 1.87 | 0.04 | 0.01 | mg/L | 1.7 | 0.0429 | 107 | 85-115 | | |
| Nitrite (as N) | 1.35 | 0.04 | 0.01 | mg/L | 1.4 | ND | 96 | 85-115 | | |
| **Batch BD32438 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BD32438-BLK1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Ammonia as N | passes at 0 I | 0.040 | 0.009 | mg/L | | | | | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32438 - Ammonia by SEAL** | | | | | | | | | | |
| **LCS (BD32438-BS1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Ammonia as N | 0.48 | 0.040 | 0.009 | mg/L | 0.50 | | 96 | 90-110 | | |
| **Matrix Spike (BD32438-MS1)** | | **Source: 1303532-71** | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Ammonia as N | 0.48 | 0.040 | 0.009 | mg/L | 0.50 | ND | 95 | 90-110 | | |
| **Matrix Spike (BD32438-MS2)** | | **Source: 1303532-72** | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | ND | 98 | 90-110 | | |
| **Matrix Spike Dup (BD32438-MSD1)** | | **Source: 1303532-71** | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Ammonia as N | 0.48 | 0.040 | 0.009 | mg/L | 0.50 | ND | 97 | 90-110 | 2 | 10 |
| **Matrix Spike Dup (BD32438-MSD2)** | | **Source: 1303532-72** | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Ammonia as N | 0.45 | 0.040 | 0.009 | mg/L | 0.50 | ND | 91 | 90-110 | 7 | 10 |
| **Batch BD32443 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BD32443-BLK1)** | | | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BD32443-BS1)** | | | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.38 | 0.20 | 0.05 | mg/L | 2.5 | | 94 | 90-110 | | |
| **Matrix Spike (BD32443-MS1)** | | **Source: 1304338-07** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.33 | 0.20 | 0.05 | mg/L | 2.5 | 0.665 | 105 | 90-110 | | |
| **Matrix Spike (BD32443-MS2)** | | **Source: 1304414-07** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.05 | 0.20 | 0.05 | mg/L | 2.5 | 0.610 | 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 BD32443 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike Dup (BD32443-MSD1)** | | **Source: 1304338-07** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.26 | 0.20 | 0.05 | mg/L | 2.5 | 0.665 | 102 | 90-110 | 2 | 20 |
| **Matrix Spike Dup (BD32443-MSD2)** | | **Source: 1304414-07** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.34 | 0.20 | 0.05 | mg/L | 2.5 | 0.610 | 108 | 90-110 | 9 | 20 |
| **Batch BD32444 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BD32444-BLK1)** | | | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BD32444-BS1)** | | | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.64 | 0.20 | 0.05 | mg/L | 2.5 | | 104 | 90-110 | | |
| **Matrix Spike (BD32444-MS1)** | | **Source: 1303532-63** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.21 | 0.20 | 0.05 | mg/L | 2.5 | 0.549 | 105 | 90-110 | | |
| **Matrix Spike (BD32444-MS2)** | | **Source: 1304366-01** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.34 | 0.20 | 0.05 | mg/L | 2.5 | 0.756 | 102 | 90-110 | | |
| **Matrix Spike Dup (BD32444-MSD1)** | | **Source: 1303532-63** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.07 | 0.20 | 0.05 | mg/L | 2.5 | 0.549 | 100 | 90-110 | 4 | 20 |
| **Matrix Spike Dup (BD32444-MSD2)** | | **Source: 1304366-01** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.13 | 0.20 | 0.05 | mg/L | 2.5 | 0.756 | 94 | 90-110 | 6 | 20 |
| **Batch BD32445 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BD32445-BLK1)** | | | | | Prepared: 04/24/13 Analyzed: 04/27/13 | | | | | |
| 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 BD32445 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **LCS (BD32445-BS1)** | | | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.35 | 0.20 | 0.05 | mg/L | 2.5 | | 93 | 90-110 | | |
| **Matrix Spike (BD32445-MS1)** | | **Source: 1303532-42** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.05 | 0.20 | 0.05 | mg/L | 2.5 | 1.35 | 106 | 90-110 | | |
| **Matrix Spike Dup (BD32445-MSD1)** | | **Source: 1303532-42** | | | Prepared: 04/24/13 Analyzed: 04/26/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.70 | 0.20 | 0.05 | mg/L | 2.5 | 1.35 | 92 | 90-110 | 9 | 20 |
| **Batch BD32512 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD32512-BLK1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BD32512-BS1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Sulfate | 9.80 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | | |
| Chloride | 3.28 | 0.20 | 0.050 | mg/L | 3.0 | | 109 | 85-115 | | |
| **LCS Dup (BD32512-BSD1)** | | | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Sulfate | 9.83 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | 0.3 | 200 |
| Chloride | 3.28 | 0.20 | 0.050 | mg/L | 3.0 | | 109 | 85-115 | 0 | 200 |
| **Matrix Spike (BD32512-MS1)** | | **Source: 1304437-02** | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Sulfate | 2,580 | 0.60 | 0.20 | mg/L | 1800 | 692 | 105 | 85-115 | | |
| Chloride | 5,080 | 0.20 | 0.050 | mg/L | 600 | 4450 | 105 | 80-120 | | |
| **Matrix Spike (BD32512-MS2)** | | **Source: 1303532-53** | | | Prepared & Analyzed: 04/25/13 | | | | | |
| Nitrite (as N) | 13.2 | 0.04 | 0.01 | mg/L | 14 | ND | 94 | 85-115 | | |
| Sulfate | 191 | 0.60 | 0.20 | mg/L | 90 | 93.5 | 108 | 85-115 | | |
| Chloride | 70.8 | 0.20 | 0.050 | mg/L | 30 | 36.9 | 113 | 80-120 | | |
| Fluoride | 9.85 | 0.040 | 0.010 | mg/L | 9.0 | 0.527 | 104 | 85-115 | | |
| Nitrate (as N) | 18.6 | 0.04 | 0.01 | mg/L | 17 | 0.629 | 106 | 85-115 | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32513 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD32513-BLK1)** | | | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| **LCS (BD32513-BS1)** | | | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Sulfate | 9.80 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | | |
| Chloride | 3.24 | 0.20 | 0.050 | mg/L | 3.0 | | 108 | 85-115 | | |
| **LCS Dup (BD32513-BSD1)** | | | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Sulfate | 9.81 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | 0.1 | 200 |
| Chloride | 3.27 | 0.20 | 0.050 | mg/L | 3.0 | | 109 | 85-115 | 0.9 | 200 |
| **Matrix Spike (BD32513-MS1)** | | **Source: 1304358-01** | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Chloride | 15,700 | 0.20 | 0.050 | mg/L | 3000 | 12200 | 117 | 80-120 | | |
| Sulfate | 10,000 | 0.60 | 0.20 | mg/L | 9000 | 524 | 105 | 85-115 | | |
| **Batch BD32514 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BD32514-BLK1)** | | | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BD32514-BS1)** | | | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | | 105 | 90-110 | | |
| **Matrix Spike (BD32514-MS1)** | | **Source: 1303532-63** | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.68 | 0.040 | 0.009 | mg/L | 0.50 | 0.20 | 97 | 90-110 | | |
| **Matrix Spike (BD32514-MS2)** | | **Source: 1304414-07** | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.017 | 101 | 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 BD32514 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike Dup (BD32514-MSD1)** | | **Source: 1303532-63** | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.67 | 0.040 | 0.009 | mg/L | 0.50 | 0.20 | 95 | 90-110 | 2 | 10 |
| **Matrix Spike Dup (BD32514-MSD2)** | | **Source: 1304414-07** | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.55 | 0.040 | 0.009 | mg/L | 0.50 | 0.017 | 106 | 90-110 | 5 | 10 |
| **Batch BD32634 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BD32634-BLK1)** | | | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BD32634-BS1)** | | | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 0.790 | 0.040 | 0.010 | mg/L | 0.80 | | 99 | 90-110 | | |
| **Matrix Spike (BD32634-MS1)** | | **Source: 1303532-71** | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 1.01 | 0.040 | 0.010 | mg/L | 1.0 | ND | 101 | 90-110 | | |
| **Matrix Spike (BD32634-MS2)** | | **Source: 1303532-72** | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 0.978 | 0.040 | 0.010 | mg/L | 1.0 | ND | 98 | 90-110 | | |
| **Matrix Spike Dup (BD32634-MSD1)** | | **Source: 1303532-71** | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 0.997 | 0.040 | 0.010 | mg/L | 1.0 | ND | 100 | 90-110 | 1 | 25 |
| **Matrix Spike Dup (BD32634-MSD2)** | | **Source: 1303532-72** | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 1.02 | 0.040 | 0.010 | mg/L | 1.0 | ND | 102 | 90-110 | 4 | 25 |
| **Batch BD32635 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BD32635-BLK1)** | | | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| 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 BD32635 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **LCS (BD32635-BS1)** | | | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 0.797 | 0.040 | 0.010 | mg/L | 0.80 | | 100 | 90-110 | | |
| **Matrix Spike (BD32635-MS1)** | | **Source: 1303532-24** | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 1.10 | 0.040 | 0.010 | mg/L | 1.0 | 0.141 | 96 | 90-110 | | |
| **Matrix Spike Dup (BD32635-MSD1)** | | **Source: 1303532-24** | | | Prepared: 04/26/13 Analyzed: 04/29/13 | | | | | |
| Phosphorous - Total as P | 1.13 | 0.040 | 0.010 | mg/L | 1.0 | 0.141 | 99 | 90-110 | 2 | 25 |
| **Batch BD32908 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BD32908-BLK1)** | | | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BD32908-BS1)** | | | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 0.55 | 0.040 | 0.009 | mg/L | 0.50 | | 109 | 90-110 | | |
| **Matrix Spike (BD32908-MS1)** | | **Source: 1303532-07** | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 1.1 | 0.040 | 0.009 | mg/L | 0.50 | 0.64 | 99 | 90-110 | | |
| **Matrix Spike (BD32908-MS2)** | | **Source: 1304453-11** | | | Prepared & Analyzed: 04/30/13 | | | | | |
| Ammonia as N | 0.46 | 0.040 | 0.009 | mg/L | 0.50 | ND | 93 | 90-110 | | |
| **Matrix Spike Dup (BD32908-MSD1)** | | **Source: 1303532-07** | | | Prepared & Analyzed: 04/29/13 | | | | | |
| Ammonia as N | 1.2 | 0.040 | 0.009 | mg/L | 0.50 | 0.64 | 108 | 90-110 | 4 | 10 |
| **Matrix Spike Dup (BD32908-MSD2)** | | **Source: 1304453-11** | | | Prepared & Analyzed: 04/30/13 | | | | | |
| Ammonia as N | 0.47 | 0.040 | 0.009 | mg/L | 0.50 | ND | 94 | 90-110 | 2 | 10 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD33027 - alkalinity** | | | | | | | | | | |
| **Blank (BD33027-BLK1)** | | | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BD33027-BS1)** | | | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 105 | 90-110 | | |
| **Matrix Spike (BD33027-MS1)** | | **Source: 1304307-02** | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Total Alkalinity | 270 | 8.0 | 2.0 | mg/L | 120 | 150 | 96 | 80-120 | | |
| **Matrix Spike Dup (BD33027-MSD1)** | | **Source: 1304307-02** | | | Prepared & Analyzed: 04/26/13 | | | | | |
| Total Alkalinity | 260 | 8.0 | 2.0 | mg/L | 120 | 150 | 87 | 80-120 | 4 | 26 |
| **Batch BD33028 - alkalinity** | | | | | | | | | | |
| **Blank (BD33028-BLK1)** | | | | | Prepared & Analyzed: 04/30/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BD33028-BS1)** | | | | | Prepared & Analyzed: 04/30/13 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 105 | 90-110 | | |
| **Matrix Spike (BD33028-MS1)** | | **Source: 1303532-61** | | | Prepared & Analyzed: 04/30/13 | | | | | |
| Total Alkalinity | 150 | 8.0 | 2.0 | mg/L | 120 | 44 | 87 | 80-120 | | |
| **Matrix Spike Dup (BD33028-MSD1)** | | **Source: 1303532-61** | | | Prepared & Analyzed: 04/30/13 | | | | | |
| Total Alkalinity | 160 | 8.0 | 2.0 | mg/L | 120 | 44 | 96 | 80-120 | 7 | 26 |
| **Batch BE30101 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BE30101-BLK1)** | | | | | Prepared & Analyzed: 05/01/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE30101 - Ammonia by SEAL** | | | | | | | | | | |
| **LCS (BE30101-BS1)** | | | | | Prepared & Analyzed: 05/01/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | | 104 | 90-110 | | |
| **Matrix Spike (BE30101-MS1)** | | **Source: 1304512-07** | | | Prepared & Analyzed: 05/01/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | 0.024 | 103 | 90-110 | | |
| **Matrix Spike (BE30101-MS2)** | | **Source: 1304534-07** | | | Prepared & Analyzed: 05/01/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | 0.019 | 98 | 90-110 | | |
| **Matrix Spike Dup (BE30101-MSD1)** | | **Source: 1304512-07** | | | Prepared & Analyzed: 05/01/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.024 | 102 | 90-110 | 0.8 | 10 |
| **Matrix Spike Dup (BE30101-MSD2)** | | **Source: 1304534-07** | | | Prepared & Analyzed: 05/01/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | 0.019 | 103 | 90-110 | 5 | 10 |
| **Batch BE30107 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BE30107-BLK1)** | | | | | Prepared: 05/01/13 Analyzed: 05/07/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BE30107-BS1)** | | | | | Prepared: 05/01/13 Analyzed: 05/07/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.68 | 0.20 | 0.05 | mg/L | 2.5 | | 106 | 90-110 | | |
| **Matrix Spike (BE30107-MS1)** | | **Source: 1304532-01** | | | Prepared: 05/01/13 Analyzed: 05/07/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.50 | 0.20 | 0.05 | mg/L | 2.5 | 1.10 | 95 | 90-110 | | |
| **Matrix Spike (BE30107-MS2)** | | **Source: 1304534-07** | | | Prepared: 05/01/13 Analyzed: 05/07/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.25 | 0.20 | 0.05 | mg/L | 2.5 | 0.783 | 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 BE30107 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike Dup (BE30107-MSD1)** | | **Source: 1304532-01** | | | Prepared: 05/01/13 Analyzed: 05/07/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.37 J5 | 0.20 | 0.05 | mg/L | 2.5 | 1.10 | 90 | 90-110 | 4 | 20 |
| **Matrix Spike Dup (BE30107-MSD2)** | | **Source: 1304534-07** | | | Prepared: 05/01/13 Analyzed: 05/07/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.22 | 0.20 | 0.05 | mg/L | 2.5 | 0.783 | 96 | 90-110 | 0.9 | 20 |
| **Batch BE30719 - COD prep** | | | | | | | | | | |
| **Blank (BE30719-BLK1)** | | | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BE30719-BS1)** | | | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 51 | 25 | 10 | mg/L | 50 | | 102 | 90-110 | | |
| **LCS (BE30719-BS2)** | | | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 49 | 25 | 10 | mg/L | 50 | | 98 | 90-110 | | |
| **LCS (BE30719-BS3)** | | | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 49 | 25 | 10 | mg/L | 50 | | 98 | 90-110 | | |
| **LCS (BE30719-BS4)** | | | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 46 | 25 | 10 | mg/L | 50 | | 92 | 90-110 | | |
| **LCS (BE30719-BS5)** | | | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 49 | 25 | 10 | mg/L | 50 | | 98 | 90-110 | | |
| **Matrix Spike (BE30719-MS1)** | | **Source: 1303532-71** | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 49 | 25 | 10 | mg/L | 50 | ND | 98 | 85-115 | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE30719 - COD prep** | | | | | | | | | | |
| **Matrix Spike Dup (BE30719-MSD1)** | | **Source: 1303532-71** | | | Prepared & Analyzed: 05/07/13 | | | | | |
| Chemical Oxygen Demand | 51 | 25 | 10 | mg/L | 50 | ND | 102 | 85-115 | 4 | 32 |

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**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32317 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BD32317-BLK1)** | | | | | Prepared: 04/23/13 Analyzed: 05/01/13 | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| **Blank (BD32317-BLK2)** | | | | | Prepared: 04/23/13 Analyzed: 05/01/13 | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Sodium | )00,000,000 | 0.50 | 0.13 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| **LCS (BD32317-BS1)** | | | | | Prepared: 04/23/13 Analyzed: 04/30/13 | | | | | |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | | 100 | 85-115 | | |
| Calcium | 20 | 0.50 | 0.042 | mg/L | 20 | | 100 | 85-115 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | | 98 | 85-115 | | |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | | 100 | 85-115 | | |
| Sodium | 21 | 0.50 | 0.13 | mg/L | 20 | | 106 | 85-115 | | |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | | 101 | 85-115 | | |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | | 93 | 85-115 | | |
| **Matrix Spike (BD32317-MS1)** | | **Source: 1303532-33** | | | Prepared: 04/23/13 Analyzed: 05/01/13 | | | | | |
| Iron | 9.2 | 0.10 | 0.020 | mg/L | 8.0 | 1.5 | 96 | 70-130 | | |
| Boron | 0.45 | 0.10 | 0.050 | mg/L | 0.40 | 0.088 | 90 | 70-130 | | |
| Magnesium | 28 | 0.50 | 0.020 | mg/L | 20 | 11 | 87 | 70-130 | | |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | 1.6 | 92 | 70-130 | | |
| Calcium | 44 | 0.50 | 0.042 | mg/L | 20 | 28 | 78 | 70-130 | | |
| Sodium | 29 L | 0.50 | 0.13 | mg/L | 20 | 11 | 91 | 70-130 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0067 | 95 | 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 BD32317 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike (BD32317-MS2)** | | **Source: 1303737-01** | | | Prepared: 04/23/13 Analyzed: 05/01/13 | | | | | |
| Magnesium | 28 | 0.50 | 0.020 | mg/L | 20 | 12 | 82 | 70-130 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | 0.022 | 92 | 70-130 | | |
| Calcium | 58 | 0.50 | 0.042 | mg/L | 20 | 36 | 109 | 70-130 | | |
| Boron | 0.40 | 0.10 | 0.050 | mg/L | 0.40 | ND | 100 | 70-130 | | |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | 0.41 | 95 | 70-130 | | |
| Sodium | 30 L | 0.50 | 0.13 | mg/L | 20 | 12 | 88 | 70-130 | | |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | 1.8 | 92 | 70-130 | | |
| **Matrix Spike Dup (BD32317-MSD1)** | | **Source: 1303532-33** | | | Prepared: 04/23/13 Analyzed: 05/01/13 | | | | | |
| Boron | 0.47 | 0.10 | 0.050 | mg/L | 0.40 | 0.088 | 96 | 70-130 | 5 | 30 |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0067 | 99 | 70-130 | 3 | 30 |
| Sodium | 30 L | 0.50 | 0.13 | mg/L | 20 | 11 | 96 | 70-130 | 3 | 30 |
| Magnesium | 29 | 0.50 | 0.020 | mg/L | 20 | 11 | 93 | 70-130 | 4 | 30 |
| Calcium | 46 | 0.50 | 0.042 | mg/L | 20 | 28 | 87 | 70-130 | 4 | 30 |
| Iron | 9.4 | 0.10 | 0.020 | mg/L | 8.0 | 1.5 | 100 | 70-130 | 3 | 30 |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 1.6 | 94 | 70-130 | 2 | 30 |
| **Matrix Spike Dup (BD32317-MSD2)** | | **Source: 1303737-01** | | | Prepared: 04/23/13 Analyzed: 05/01/13 | | | | | |
| Sodium | 29 L | 0.50 | 0.13 | mg/L | 20 | 12 | 82 | 70-130 | 4 | 30 |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | 1.8 | 92 | 70-130 | 0.03 | 30 |
| Boron | 0.40 | 0.10 | 0.050 | mg/L | 0.40 | ND | 100 | 70-130 | 0.1 | 30 |
| Calcium | 57 | 0.50 | 0.042 | mg/L | 20 | 36 | 104 | 70-130 | 2 | 30 |
| Iron | 8.2 | 0.10 | 0.020 | mg/L | 8.0 | 0.41 | 97 | 70-130 | 1 | 30 |
| Magnesium | 28 | 0.50 | 0.020 | mg/L | 20 | 12 | 81 | 70-130 | 1 | 30 |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | 0.022 | 94 | 70-130 | 2 | 30 |
| **Batch BD32407 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BD32407-BLK1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |

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**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32407 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **LCS (BD32407-BS1)** | | | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Calcium | 18 | 0.50 | 0.042 | mg/L | 20 | | 90 | 85-115 | | |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | | 91 | 85-115 | | |
| Magnesium | 18 | 0.50 | 0.020 | mg/L | 20 | | 90 | 85-115 | | |
| Sodium | 20 | 0.50 | 0.13 | mg/L | 20 | | 98 | 85-115 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | | 96 | 85-115 | | |
| Potassium | 18 | 0.050 | 0.010 | mg/L | 20 | | 90 | 85-115 | | |
| Iron | 7.8 | 0.10 | 0.020 | mg/L | 8.0 | | 97 | 85-115 | | |
| **Matrix Spike (BD32407-MS1)** | | **Source: 1303613-01** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Manganese | 0.43 | 0.010 | 0.0010 | mg/L | 0.40 | 0.049 | 96 | 70-130 | | |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | ND | 93 | 70-130 | | |
| Sodium | 27 | 0.50 | 0.13 | mg/L | 20 | 8.9 | 89 | 70-130 | | |
| Iron | 7.9 | 0.10 | 0.020 | mg/L | 8.0 | ND | 99 | 70-130 | | |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | 1.3 | 91 | 70-130 | | |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | 1.8 | 89 | 70-130 | | |
| Calcium | 23 | 0.50 | 0.042 | mg/L | 20 | 6.1 | 86 | 70-130 | | |
| **Matrix Spike (BD32407-MS2)** | | **Source: 1304307-01** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 3.9 | 88 | 70-130 | | |
| Sodium | 100 | 0.50 | 0.13 | mg/L | 20 | 84 | 82 | 70-130 | | |
| Iron | 7.9 | 0.10 | 0.020 | mg/L | 8.0 | ND | 99 | 70-130 | | |
| Boron | 0.44 | 0.10 | 0.050 | mg/L | 0.40 | 0.074 | 92 | 70-130 | | |
| Magnesium | 31 | 0.50 | 0.020 | mg/L | 20 | 15 | 84 | 70-130 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 98 | 70-130 | | |
| Calcium | 75 | 0.50 | 0.042 | mg/L | 20 | 61 | 71 | 70-130 | | |
| **Matrix Spike Dup (BD32407-MSD1)** | | **Source: 1303613-01** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | 0.049 | 93 | 70-130 | 2 | 30 |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | 1.3 | 90 | 70-130 | 1 | 30 |
| Calcium | 23 | 0.50 | 0.042 | mg/L | 20 | 6.1 | 85 | 70-130 | 2 | 30 |
| Iron | 7.7 | 0.10 | 0.020 | mg/L | 8.0 | ND | 97 | 70-130 | 2 | 30 |
| Sodium | 28 | 0.50 | 0.13 | mg/L | 20 | 8.9 | 95 | 70-130 | 4 | 30 |
| Potassium | 19 | 0.050 | 0.010 | mg/L | 20 | 1.8 | 88 | 70-130 | 1 | 30 |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | ND | 92 | 70-130 | 1 | 30 |

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

**May 16, 2013**
**Work Order: 1303532**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD32407 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BD32407-MSD2)** | | **Source: 1304307-01** | | | Prepared & Analyzed: 04/24/13 | | | | | |
| Potassium | 23 | 0.050 | 0.010 | mg/L | 20 | 3.9 | 96 | 70-130 | 7 | 30 |
| Boron | 0.43 | 0.10 | 0.050 | mg/L | 0.40 | 0.074 | 89 | 70-130 | 2 | 30 |
| Sodium | 100 | 0.50 | 0.13 | mg/L | 20 | 84 | 86 | 70-130 | 0.7 | 30 |
| Manganese | 0.38 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 95 | 70-130 | 2 | 30 |
| Calcium | 77 | 0.50 | 0.042 | mg/L | 20 | 61 | 80 | 70-130 | 2 | 30 |
| Iron | 7.8 | 0.10 | 0.020 | mg/L | 8.0 | ND | 98 | 70-130 | 2 | 30 |
| Magnesium | 33 | 0.50 | 0.020 | mg/L | 20 | 15 | 90 | 70-130 | 4 | 30 |
| **Batch BE30105 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BE30105-BLK1)** | | | | | Prepared: 05/01/13 Analyzed: 05/02/13 | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Potassium | 0.12 | 0.050 | 0.010 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| **LCS (BE30105-BS1)** | | | | | Prepared: 05/01/13 Analyzed: 05/02/13 | | | | | |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | | 98 | 85-115 | | |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | | 98 | 85-115 | | |
| Iron | 8.3 | 0.10 | 0.020 | mg/L | 8.0 | | 104 | 85-115 | | |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | | 102 | 85-115 | | |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | | 93 | 85-115 | | |
| Sodium | 21 | 0.50 | 0.13 | mg/L | 20 | | 103 | 85-115 | | |
| Calcium | 19 | 0.50 | 0.042 | mg/L | 20 | | 97 | 85-115 | | |

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

**May 16, 2013**
**Work Order: 1303532**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE30105 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike (BE30105-MS1)** | | **Source: 1303532-45** | | | Prepared: 05/01/13 Analyzed: 05/02/13 | | | | | |
| Sodium | 32 | 0.50 | 0.13 | mg/L | 20 | 13 | 97 | 70-130 | | |
| Potassium | 22 | 0.050 | 0.010 | mg/L | 20 | 1.7 | 100 | 70-130 | | |
| Iron | 8.2 | 0.10 | 0.020 | mg/L | 8.0 | 0.048 | 102 | 70-130 | | |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | 0.090 | 69 | 70-130 | | |
| Calcium | 53 | 0.50 | 0.042 | mg/L | 20 | 33 | 101 | 70-130 | | |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0028 | 100 | 70-130 | | |
| Magnesium | 36 | 0.50 | 0.020 | mg/L | 20 | 16 | 98 | 70-130 | | |
| **Matrix Spike (BE30105-MS2)** | | **Source: 1303739-02** | | | Prepared: 05/01/13 Analyzed: 05/02/13 | | | | | |
| Manganese | 0.49 | 0.010 | 0.0010 | mg/L | 0.40 | 0.11 | 96 | 70-130 | | |
| Boron | 0.38 | 0.10 | 0.050 | mg/L | 0.40 | ND | 94 | 70-130 | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 1.6 | 98 | 70-130 | | |
| Sodium | 48 | 0.50 | 0.13 | mg/L | 20 | 31 | 86 | 70-130 | | |
| Magnesium | 41 | 0.50 | 0.020 | mg/L | 20 | 21 | 98 | 70-130 | | |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | 0.052 | 100 | 70-130 | | |
| Calcium | 43 | 0.50 | 0.042 | mg/L | 20 | 23 | 97 | 70-130 | | |
| **Matrix Spike Dup (BE30105-MSD1)** | | **Source: 1303532-45** | | | Prepared: 05/01/13 Analyzed: 05/02/13 | | | | | |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0028 | 101 | 70-130 | 0.9 | 30 |
| Magnesium | 33 | 0.50 | 0.020 | mg/L | 20 | 16 | 85 | 70-130 | 7 | 30 |
| Calcium | 49 | 0.50 | 0.042 | mg/L | 20 | 33 | 78 | 70-130 | 9 | 30 |
| Sodium | 31 | 0.50 | 0.13 | mg/L | 20 | 13 | 91 | 70-130 | 4 | 30 |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | 1.7 | 92 | 70-130 | 7 | 30 |
| Iron | 8.2 | 0.10 | 0.020 | mg/L | 8.0 | 0.048 | 102 | 70-130 | 0.2 | 30 |
| Boron | 0.38 | 0.10 | 0.050 | mg/L | 0.40 | 0.090 | 72 | 70-130 | 3 | 30 |
| **Matrix Spike Dup (BE30105-MSD2)** | | **Source: 1303739-02** | | | Prepared: 05/01/13 Analyzed: 05/02/13 | | | | | |
| Calcium | 42 | 0.50 | 0.042 | mg/L | 20 | 23 | 95 | 70-130 | 1 | 30 |
| Sodium | 49 | 0.50 | 0.13 | mg/L | 20 | 31 | 94 | 70-130 | 3 | 30 |
| Magnesium | 40 | 0.50 | 0.020 | mg/L | 20 | 21 | 94 | 70-130 | 2 | 30 |
| Manganese | 0.50 | 0.010 | 0.0010 | mg/L | 0.40 | 0.11 | 97 | 70-130 | 0.8 | 30 |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 1.6 | 97 | 70-130 | 1 | 30 |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | ND | 91 | 70-130 | 3 | 30 |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | 0.052 | 100 | 70-130 | 0.1 | 30 |

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

**May 16, 2013**
**Work Order: 1303532**

## * 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.

| | |
|---|---|
| L | Off-scale high. Result exceeded highest calibration standard. |
| J5 | Matrix spike of this sample was outside typical range. All other QC criteria were acceptable. |

Questions regarding this report should be directed to :

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

Kathryn@southernanalyticallabs.com

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 14 | PZ-C1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 15 | PZ-C2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 16 | PZ-C3-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 17 | PZ-C3-15 | 4/22/13 | 0955 | GW | | X | 1 | 1 | | | | | | | | 6.70 | 22.0 | 516 | 0.94 | |
| 18 | PZ-C6-08 | 4/22/13 | 1151 | GW | | X | 1 | 1 | | | | | | | | 4.40 | 21.8 | 401 | 2.30 | |
| 19 | PZ-C6-15 | | 1205 | GW | | X | 1 | 1 | | | | | | | | 5.58 | 22.0 | 351 | 4.45 | |
| 20 | PZ-D3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 21 | PZ-D3-15 | 4/22/13 | 1012 | GW | | X | | | 1 | 1 | | | | | | 6.74 | 22.0 | 427 | 3.97 | |
| 22 | PZ-D4-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 23 | PZ-D4-15 | 4/22/13 | No sample | GW | | X | 1 | 1 | | | | | | | | 7.14 | 22.1 | 670 | 7.08 | |
| 24 | PZ-E1 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| S Hartley | 4/4/13 1500 | | |
| Relinquished: | Date/Time: 4/22/13 1600 | Received: | Date/Time: 4/22/13 1600 |
| 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 |

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. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, HNO3 B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool NOx, F, Cl, OP, $SO_4$ | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 26 | PZ-E3-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 27 | PZ-E3-15 | 4/22/13 | No Sample | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 28 | PZ-E4-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 29 | PZ-E4-15 | 4/22/13 | 1105 | GW | | X | 1 | 1 | | | | | | | | 6.57 | 21.9 | 505 | 1.29 | |
| 30 | PZ-E5-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 31 | PZ-E5-15 | 4/22/13 | 1134 | GW | | X | 1 | 1 | | | | | | | | 6.63 | 21.9 | 625 | 4.60 | |
| 32 | PZ-E6-08 | 4/22/13 | 1218 | GW | | X | 1 | 1 | | | | | | | | 4.87 | 21.9 | 704 | 1.67 | |
| 33 | PZ-E6-15 | 4/22/13 | 1238 | GW | | X | | | | 1 | | 1 | 1 | | | 5.34 | 22.6 | 330 | 6.65 | |
| 34 | PZ-E7-08 | 4/22/13 | 1320 | GW | | X | | | | 1 | 1 | 1 | | | | 4.64 | 22.1 | 333 | 2.83 | |
| 35 | PZ-E7-15 | 4/22/13 | 1337 | GW | | X | | | 1 | 1 | | | | | | 6.81 | 22.3 | 1385 | 5.62 | |
| 36 | PZ-F3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 0900 4/5/13 | | |
| | 1600 4/22/13 | | 4/22/13 1600 |
| | | | |
| | | | |
| | | | |

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

Chain of Custody.xls
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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool NOx, F, Cl, OP, $SO_4$ | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-F3-15 | 4/22/13 | 1046 | GW | | X | | | 1 | 1 | | | | | | 6.60 | 22.1 | 294 | 2.16 | |
| 38 | PZ-F4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 39 | PZ-F4-08-DUP | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 40 | PZ-F4-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 41 | PZ-G1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 42 | PZ-G2-12.5 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 43 | PZ-H4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 44 | PZ-H4-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 45 | PZ-H5-11.5 | | | GW | | X | 1 | | | | | 1 | 1 | | | | | | | |
| 46 | PZ-I6-08 | 4/22/13 | 1355 | GW | | X | 1 | 1 | | | | | | | | 4.59 | 22.1 | 329 | 2.54 | |
| 47 | PZ-I6-15 | | 1410 | GW | | X | 1 | 1 | | | | | | | | 6.71 | 21.9 | 1174 | 0.90 | |
| 48 | PZ-I6-15-DUP | | 1415 | GW | | X | 1 | 1 | | | | | | | | 6.71 | 21.9 | 1174 | 0.90 | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 0820 4/5/13 | | |
| Relinquished: | 1600 4/22/13 | | 4/22/13 1600 |
| 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

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Rev.Date 11/19/01

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | | | WW | | X | 1 | 1 | | | | | | | | | | | | |
| 02 | PZ-01 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 03 | PZ-01-DUP | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 04 | PZ-02 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 05 | PZ-03 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 06 | BKG-10 | 4/23/13 | No sample | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 07 | BKG-15 | | 0851 | GW | | X | | | 1 | 1 | | | | | | 5.82 | 21.9 | 131.4 | 0.23 | |
| 08 | BKG-15-DUP | | 0856 | GW | | X | | | 1 | 1 | | | | | | 5.82 | 21.9 | 131.4 | 0.23 | |
| 09 | PZ-04 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 10 | PZ-05 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 11 | PZ-06 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 12 | PZ-AB4-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Relinquished: | Date/Time: 1355 4/23/13 | Received: K Mudmack | Date/Time: 1355 4/23/13 |
| 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 |

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB4-15 | 4/23/13 | 09H | GW | | X | 1 | 1 | | | | | | | | 6.55 | 21.5 | [illegible] | 0.19 | |
| 14 | PZ-C1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 15 | PZ-C2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 16 | PZ-C3-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 17 | PZ-C3-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 18 | PZ-C6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 19 | PZ-C6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 20 | PZ-D3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 21 | PZ-D3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 22 | PZ-D4-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 23 | PZ-D4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 24 | PZ-E1 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: [signature] | Date/Time: 4/4/13 1500 | Received: [signature] | Date/Time: |
| Relinquished: [signature] | Date/Time: 4/23/13 1355 | Received: K Mudmant | Date/Time: 4/23/13 1355 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool NOx, F, Cl, OP, $SO_4$ | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-F3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 38 | PZ-F4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 39 | PZ-F4-08-DUP | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 40 | PZ-F4-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 41 | PZ-G1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 42 | PZ-G2-12.5 | 4/23/13 | 0928 | GW | | X | 1 | 1 | | | | | | | | 4.40 | 21.8 | 706 | 2.57 | |
| 43 | PZ-H4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 44 | PZ-H4-15 | 4/23/13 | 0942 | GW | | X | | | 1 | 1 | | | | | | 6.61 | 21.6 | 638 | 0.30 | |
| 45 | PZ-H5-11.5 | | 0956 | GW | | X | 1 | | | | | 1 | 1 | | | 4.57 | 21.1 | 402 | 3.09 | |
| 46 | PZ-I6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 47 | PZ-I6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 48 | PZ-I6-15-DUP | | | GW | | X | 1 | 1 | | | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: 0930 4/5/13 | Received: | Date/Time: |
|---|---|---|---|
| Relinquished: | Date/Time: 1355 4/23/13 | Received: K Mudmach | Date/Time: 4/23/13 1355 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | PZ-I10-08 | 4/23/13 | 1034 | GW | | X | | | 1 | 1 | | | | | | 4.81 | 21.5 | 391 | 0.37 | |
| 50 | PZ-I10-15 | | 1045 | GW | | X | 1 | 1 | | | | | | | | 6.12 | 21.7 | 491 | 0.15 | |
| 51 | PZ-J4-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 52 | PZ-J4-15 | 4/23/13 | 1239 | GW | | X | | | 1 | 1 | | | | | | 6.19 | 22.0 | 402 | 0.24 | |
| 53 | PZ-J7-08 | | 1005 | GW | | X | | | | 1 | 1 | 1 | | | | 4.46 | 21.2 | 369 | 0.17 | |
| 54 | PZ-J7-15 | | 1021 | GW | | X | | | | | | 1 | 1 | 1 | | 5.03 | 21.4 | 430 | 0.41 | |
| 55 | PZ-N4-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 56 | PZ-N4-15 | 4/23/13 | 1223 | GW | | X | 1 | 1 | | | | | | | | 6.21 | 21.8 | 390 | 0.19 | |
| 57 | PZ-N7-08 | | 1142 | GW | | X | 1 | | | | | 1 | 1 | | | 6.23 | 22.2 | 497 | 5.41 | |
| 58 | PZ-N7-15 | | 1204 | GW | | X | 1 | 1 | | | | | | | | 5.57 | 22.1 | 309 | 0.36 | |
| 59 | PZ-N7-15-DUP | | 1209 | GW | | X | 1 | 1 | | | | | | | | 5.57 | 22.1 | 309 | 0.36 | |
| 60 | PZ-N10-08 | | 1056 | GW | | X | | | 1 | 1 | | | | | | 5.70 | 21.7 | 298 | 0.34 | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J. Hartley | 0930 4/23/13 | | |
| Relinquished: | Date/Time: 1355 4/23/13 | Received: K Mudmeck | Date/Time: 1355 4/23/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | PZ-N10-08-DUP | 4/23/13 | 1101 | GW | | X | | | 1 | 1 | | | | | | 7.70 | 21.7 | 298 | 0.34 | |
| 62 | PZ-N10-15 | | 1115 | GW | | X | 1 | 1 | | | | | | | | 6.78 | 22.2 | 798 | 0.12 | |
| 63 | PZ-S10-08 | | 1130 | GW | | X | | | 1 | 1 | | | | | | 4.75 | 22.2 | 375 | 0.17 | |
| 64 | DP-01 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 65 | DP-02 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 66 | DP-03 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 67 | DP-04-Shallow | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 68 | DP-04-Deep | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 69 | DP-05 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 70 | DP-06 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 71 | FB-DI | 4/22/13 | 1425 | R | | X | | | | 1 | 1 | 1 | | | | 7.32 | 23.8 | 3.26 | 7.92 | |
| 72 | EB | | 1423 | R | | X | | | | 1 | 1 | 1 | | | | 7.32 | 23.8 | 3.26 | 7.92 | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Relinquished: | Date/Time: 1355 4/23/13 | Received: K Mudmand | Date/Time: 1355 4/23/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | 4/24/13 | 0945 | WW | | X | 1 | 1 | | | | | | | | 7.21 | 22.4 | 1344 | 0.08 | |
| 02 | PZ-01 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 03 | PZ-01-DUP | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 04 | PZ-02 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 05 | PZ-03 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 06 | BKG-10 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 07 | BKG-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 08 | BKG-15-DUP | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 09 | PZ-04 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 10 | PZ-05 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 11 | PZ-06 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 12 | PZ-AB4-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Relinquished: | Date/Time: 1130 4/24/13 | Received: K Mudmark | Date/Time: 4/24/13 1130 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 14 | PZ-C1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 15 | PZ-C2 | 4/24/13 | 0853 | GW | | X | 1 | 1 | | | | | | | | 5.52 | 21.7 | 225 | 0.71 | |
| 16 | PZ-C3-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 17 | PZ-C3-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 18 | PZ-C6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 19 | PZ-C6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 20 | PZ-D3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 21 | PZ-D3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 22 | PZ-D4-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 23 | PZ-D4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 24 | PZ-E1 | 4/24/13 | 0907 | GW | | X | | | 1 | 1 | | | | | | 5.35 | 21.1 | 361 | 4.33 | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: S Hartley | Date/Time: 4/4/13 1500 | Received: | Date/Time: |
| Relinquished: | Date/Time: 4/24/13 1130 | Received: K Mudmand | Date/Time: 4/24/13 1130 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1303532

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#3

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 | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 500mLP, Cool NOx | 500mLP, Cool Total Alkalinity, NOx | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 250mLP, HNO3 B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool NOx, F, Cl, OP, $SO_4$ | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | 4/24/13 | 0930 | GW | | X | 1 | 1 | | | | | | | | 5.86 | 21.1 | 192.1 | 4.82 | |
| 26 | PZ-E3-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 27 | PZ-E3-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 28 | PZ-E4-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 29 | PZ-E4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 30 | PZ-E5-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 31 | PZ-E5-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 32 | PZ-E6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 33 | PZ-E6-15 | | | GW | | X | | | | 1 | | 1 | 1 | | | | | | | |
| 34 | PZ-E7-08 | | | GW | | X | | | | 1 | 1 | 1 | | | | | | | | |
| 35 | PZ-E7-15 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |
| 36 | PZ-F3-08 | | | GW | | X | | | 1 | 1 | | | | | | | | | | |

| Containers Prepared/ Relinquished | Date/Time: 0900 4/23/13 | Received: | Date/Time: |
|---|---|---|---|
| Relinquished: | Date/Time: 1130 4/24/13 | Received: K Mudmerch | Date/Time: 1130 4/24/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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Chain of Custody

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.25

## C-HS4 Monitoring Data Summary Report No. 3

## Progress Report

September 2013

HAZEN AND SAWYER
Environmental Engineers & Scientists

In association with:

AET

Otis Environmental Consultants, LLC

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

## TASK C.25
## PROGRESS REPORT

## C-HS4 Monitoring
## Data Summary Report No. 3

**Prepared for:**

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

FDOH Contract CORCL

**September 2013**

**Prepared by:**

HAZEN AND SAWYER
Environmental Engineers & Scientists

In Association With:

SCHOOL OF MINES
1874
COLORADO

# C-HS4 Monitoring
# Data Summary Report No. 3

## 1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 instrumentation report for the C-HS4 OSTDS system and plume documents the test area design, number and location of monitoring points, and preliminary field parameters from monitoring points for this Hillsborough County, Florida field site, and also includes preliminary sample collection and analyses.

## 2.0 Purpose

This report documents data that was collected in the third C-HS4 monitoring and sampling event which was conducted July 24 through July 25, 2013. The corresponding sample event report was submitted as C-HS4 Sample Event Report No. 3, July 2013, as a deliverable under Task C.24. The monitoring event consisted of water use measurement from the household water meter, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of effluent and groundwater samples and their analyses in a NELAC certified laboratory.

## 3.0 Materials and Methods

### 3.1 Project Site

The C-HS4 field site is also the B-HS2 passive nitrogen reduction system site located in Hillsborough County, FL adjacent to Eagle Lake and [redacted] Creek in a rural area. The Task B.6 installation report for the B-HS2 system documents the experimental system design which was installed in September 2012. The existing onsite sewage treatment and disposal system (OSTDS) consisted of a 1,050 gallon concrete septic tank located adjacent to the soil treatment unit which is a mounded drainfield (P.T.I.™ bundles). The new passive treatment system consists of a replacement 1,050 gallon two chamber con-

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crete primary tank; 300 gallon concrete recirculation tank; 900 gallon concrete Stage 1 unsaturated media filter; 300 gallon concrete pump tank; and 1,500 gallon two chamber concrete Stage 2 saturated media biofilter.

## 3.2 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the soil treatment unit as depicted in Figure 1. A 10-foot by 5-foot grid spacing was staked. Transect lines A through S run east-west, roughly parallel to the groundwater flow direction and increase (higher letter identification) moving southward from the drainfield. Transect lines 0 through 10 run north-south, roughly perpendicular to the groundwater flow direction and increase moving from the west to east. Based on initial screening data, 29 monitoring locations were chosen within the grid for standpipe piezometer installation. Groundwater monitoring points were installed in September and December 2012. Two types of monitoring point were installed using either hand or drilling methods: stainless steel drivepoints and standpipe piezometers. Stainless steel drivepoints consist of 1-foot screens with polypropylene tubing extending to the ground surface. Standpipe piezometers consist of either ¾-inch or 1-inch diameter PVC with a 1-foot or 5-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS3 Instrumentation Report for additional detail).

Each monitoring location was assigned a unique identification indicating grid location (self explanatory), and depth below ground surface (bottom of the well screen in feet). For example E03-8 is a standpipe piezometer sampler located on the grid at E03 at 8 feet below ground surface. A schematic of the C-HS4 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers and sample identification is included in Appendix A.

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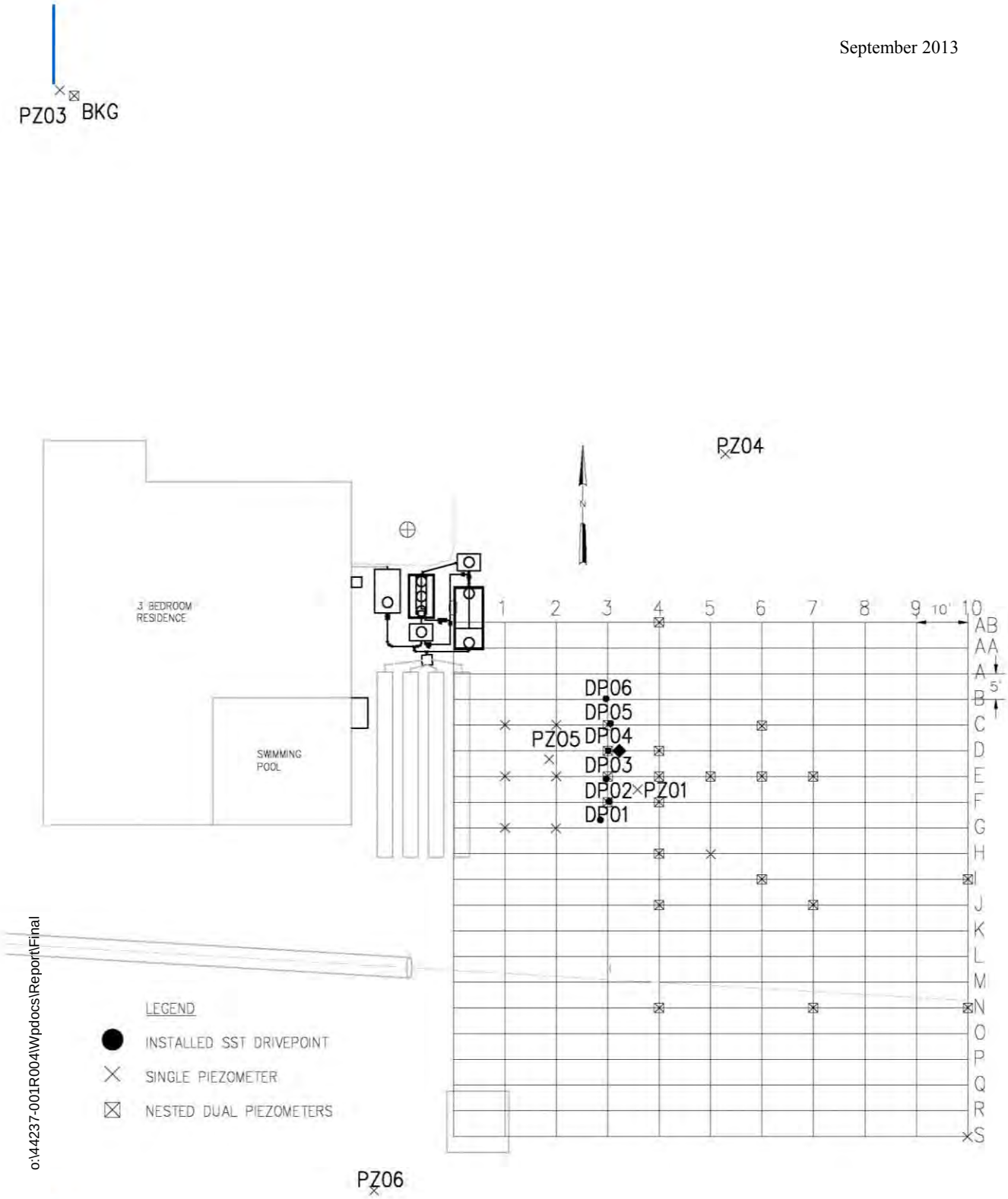


**Figure 1**
**C-HS4 Monitoring Network**

## 3.3 Operational Monitoring

A water meter for the home site was installed March 6, 2012. The water meter for the house site was read and recorded. A weather station (Balm in Wimauma, FL) is located approximately 10 miles from the site. Data from this weather station is available at the following website: http://fawn.ifas.ufl.edu/.

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## 3.4 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of groundwater flow. Groundwater levels were measured by inserting into monitoring wells a hand-cranked steel tape graduated in feet, to the nearest 0.01 ft. These measurements are then converted to groundwater surface elevations by using the surveyed elevation of the top of the monitoring well casing. The groundwater level within all the sampled standpipe piezometers was measured for this sampling event.

## 3.5 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected July 24 through July 25, 2013 for water quality analysis. As previously discussed, the experimental PNRS system was installed in September 2012. Therefore, in addition to evaluating the groundwater data relative to the septic tank effluent, the treated effluent from the PNRS system (B-HS2 ST2) should be considered. The B-HS2 PNRS system has been sampled bimonthly since start-up. For this groundwater monitoring event, a sample of the treated effluent (B-HS2-ST2) collected August 7, 2013 is considered. Prior to September 25, 2012, STE was discharged directly to the drainfield. Following the September 25, 2012 construction of the PNRS system, treated effluent (B-HS2-ST2) was discharged to the drainfield.

A peristaltic pump was used to collect STE and B-HS2-ST2 directly into the analysis-specific containers. Groundwater samples were obtained using a peristaltic pump, which was attached directly to dedicated standpipe piezometer or drivepoint tubing. Samples were collected after sufficient purging (the sample was clear and pH and conductivity readings had stabilized) had occurred. Field parameters were then recorded.

The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms supplied by the laboratory. Chain of custody forms were used to document the transfer of samples from field personnel to the analytical laboratory.

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In addition, field sample duplicates were collected immediately subsequent to the regular samples. The field duplicate samples taken include:

- STE
- PZ01
- PZ-E7-15
- PZ-F4-08
- PZ-I6-15
- PZ-J7-15
- PZ-N7-15
- PZ-S10-08

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

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**Table 1**
**Analytical Parameters, Method of Analysis, and Detection Limits**

| Analytical Parameter | Method of Analysis | Method Detection Limit (mg/L) |
|---|---|---|
| Total Alkalinity as $CaCO_3$ | SM 2320B | 2 mg/L |
| Chemical Oxygen Demand (COD) | EPA 410.4 | 10 mg/L |
| 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 |
| Anions | | |
| Fluoride | EPA 300.0 | 0.01 mg/L |
| Chloride | EPA 300.0 | 0.05 mg/L |
| Nitrate-N | EPA 300.0 | 0.01 mg/L |
| Nitrite-N | EPA 300.0 | 0.01 mg/L |
| Orthophosphate-P | EPA 300.0 | 0.01 mg/L |
| Sulfate | EPA 300.0 | 0.20 mg/L |
| Cations | | |
| Boron | EPA 200.7 | 0.05 mg/L |
| Calcium | EPA 200.7 | 0.01 mg/L |
| Iron | EPA 200.7 | 0.02 mg/L |
| Magnesium | EPA 200.7 | 0.01 mg/L |
| Manganese | EPA 200.7 | 0.001 mg/L |
| Potassium | EPA 200.7 | 0.01 mg/L |
| Sodium | EPA 200.7 | 0.01 mg/L |

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### 3.6 Data Management

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

## 4.0 Results

### 4.1 Operational Data and Site Conditions

Table 2 summarizes the water meter readings and average daily water use for the residence at site C-HS4.

**Table 2**
**Water Meter Readings and Water Usage for C-HS4**

| Residence | Date Read | Meter Reading | Gallons/day since last reading | Gallons/day since installed |
|---|---|---|---|---|
| C-HS4 Residence | 3/6/2012 | 7,790 | Installed | Installed |
| | 1/1/2013 | 43,240 | 117.8 | 117.8 |
| | 2/5/2013 | 47,741 | 128.6 | 118.9 |
| | 4/23/2013 | 54,680 | 90.1 | 113.5 |
| | 7/24/2013 | 62,422 | 84.2 | 108.2 |

Daily recorded meteorological data is provided in Appendix B. Table 3 provides the daily averages leading up to and during the sample event.

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**Table 3**
**Meteorological Data Daily Averages Measured July 18 through July 25, 2013**

| Date | Temp Avg 60 cm (°F) | Temp Avg 2m (°F) | Temp Avg 10 m (°F) | Temp Soil Avg -10 cm (°F) | Dewpoint Avg 2m (°F) | Relative Humidity Avg 2m (%) | Rain Total 2m (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | ET (in/d) |
|---|---|---|---|---|---|---|---|---|---|---|
| 18-Jul-13 | 74.71 | 75.07 | 74.71 | 79.84 | 72.36 | 92 | 0.39 | 0.15 | 5.46 | 0.12 |
| 19-Jul-13 | 75.76 | 76.02 | 75.44 | 80.08 | 72.94 | 91 | 0.01 | 0.01 | 5.81 | 0.13 |
| 20-Jul-13 | 76.41 | 76.66 | 76.23 | 80.35 | 73.58 | 91 | 0.41 | 0.32 | 5.24 | 0.14 |
| 21-Jul-13 | 79.55 | 79.77 | 79.31 | 81.01 | 75.57 | 88 | 0 | 0 | 4.76 | 0.18 |
| 22-Jul-13 | 80.79 | 81.27 | 80.74 | 82.31 | 75.97 | 85 | 0 | 0 | 5.26 | 0.18 |
| 23-Jul-13 | 78.05 | 78.74 | 78.50 | 82.01 | 74.66 | 89 | 0.05 | 0.02 | 4.32 | 0.14 |
| 24-Jul-13 | 80.27 | 80.91 | 80.42 | 81.81 | 75.44 | 84 | 0 | 0 | 6.79 | 0.17 |
| 25-Jul-13 | 79.98 | 80.67 | 80.16 | 82.07 | 75.91 | 86 | 0.82 | 0.34 | 6.64 | 0.13 |

## 4.2 Groundwater Levels

Water levels were measured at all standpipe piezometers sampled July 24 through July 25, 2013 for this sampling event as summarized in Table 4. Figures 2, 3, and 4 illustrate the surficial groundwater contours as measured within the standpipe piezometers during Sample Event 1 (January 16, 2013), Sample Event 2 (April 22, 2013), and Sample Event 3 (July 24, 2013), respectively.

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**Table 4**
**Standpipe Piezometer Groundwater Levels July 24, 2013**

| Identification | Water Table El[1] (ft) | Identification | Water Table El[1] (ft) |
|---|---|---|---|
| PZ-01 | 11.70 | PZ-E7-15 | 11.45 |
| PZ-02 | DRY | PZ-F3-08 | 11.89 |
| PZ-03 | DRY | PZ-F3-15 | 11.85 |
| BKG-10 | 16.85 | PZ-F4-08 | 11.62 |
| BKG-15 | 16.32 | PZ-F4-15 | 11.67 |
| PZ-04 | DRY | PZ-G1 | NR |
| PZ-05 | NR | PZ-G2-12.5 | 12.33 |
| PZ-06 | 13.09 | PZ-H4-08 | 11.61 |
| PZ-AB4-08 | 12.05 | PZ-H4-15 | 11.44 |
| PZ-AB4-15 | 12.07 | PZ-H5-11.5 | 11.43 |
| PZ-C1 | 13.80 | PZ-I6-08 | 11.47 |
| PZ-C2 | 13.26 | PZ-I6-15 | 11.51 |
| PZ-C3-08 | 12.38 | PZ-I10-08 | 11.32 |
| PZ-C3-15 | 12.37 | PZ-I10-15 | 11.37 |
| PZ-C6-08 | 11.43 | PZ-J4-08 | 11.64 |
| PZ-C6-15 | 11.42 | PZ-J4-15 | 11.57 |
| PZ-D3-08 | 12.34 | PZ-J7-08 | 11.41 |
| PZ-D3-15 | 12.09 | PZ-J7-15 | 11.39 |
| PZ-D4-08 | 11.72 | PZ-N4-08 | 11.66 |
| PZ-D4-15 | 11.71 | PZ-N4-15 | 11.63 |
| PZ-E1 | 13.60 | PZ-N7-08 | 11.46 |
| PZ-E2 | 12.72 | PZ-N7-15 | 11.48 |
| PZ-E3-08 | 12.31 | PZ-N10-08 | 11.47 |
| PZ-E3-15 | 12.16 | PZ-N10-15 | 11.43 |
| PZ-E4-08 | 11.65 | PZ-S10-08 | 11.45 |
| PZ-E4-15 | 11.65 | DP-01 | DRY |
| PZ-E5-08 | 11.50 | DP-02 | DRY |
| PZ-E5-15 | 11.51 | DP-03 | DRY |
| PZ-E6-08 | 11.48 | DP-04 | DRY |
| PZ-E6-15 | 11.40 | DP-05 | DRY |
| PZ-E7-08 | 11.43 | DP-06 | DRY |

[1]Elevation above mean sea level based on NGVD 1929
NR = no reading

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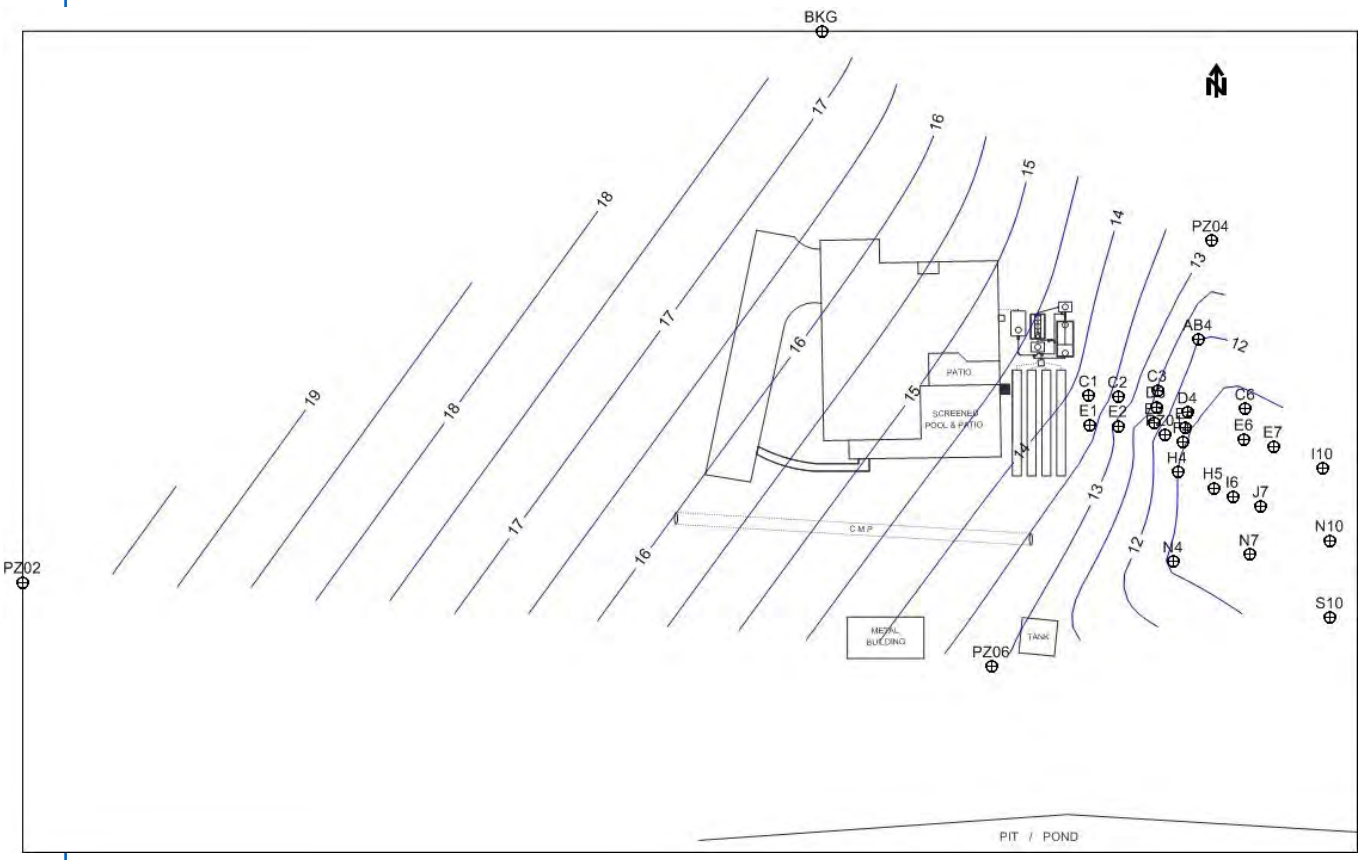


**Figure 2**
**Surficial Groundwater Contours SE1, January 16, 2013**

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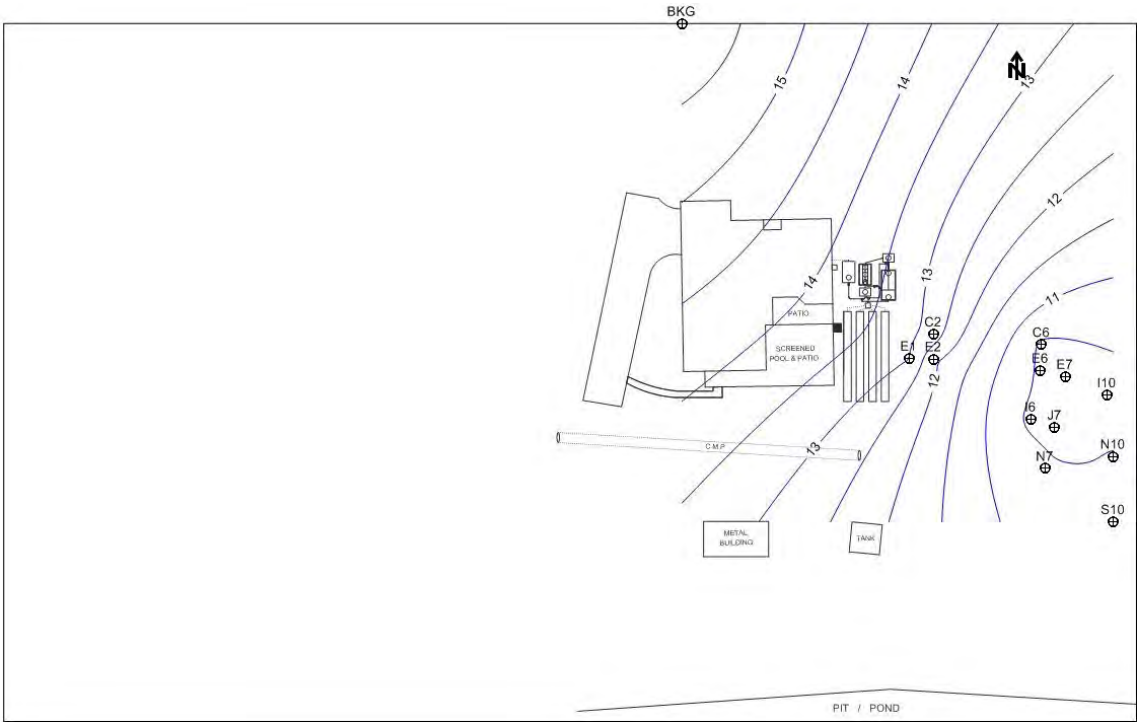


**Figure 3**
**Surficial Groundwater Contours SE2, April 22, 2013**

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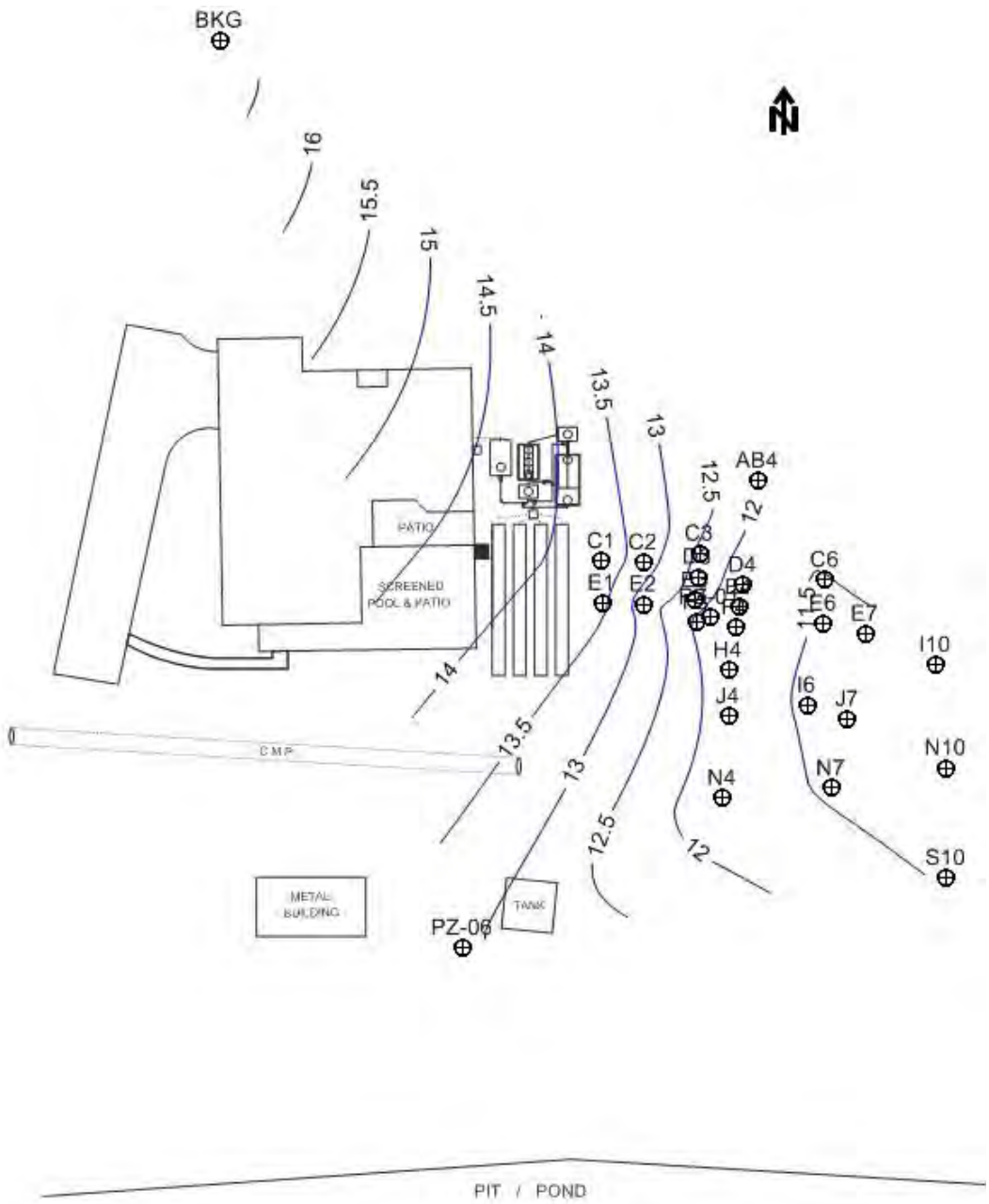


**Figure 4**
**Surficial Groundwater Contours SE3, July 24, 2013**

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## 4.3 Water Quality Analyses

The experimental PNRS system was installed in September 2012; so, in addition to evaluating the groundwater data relative to the septic tank effluent, the PNRS system treated effluent (B-HS2-ST2) should be considered. Prior to September 25, 2012, STE was discharged directly to the drainfield. Following the September 25, 2012 construction of the PNRS system, treated effluent (B-HS2-ST2) was discharged to the drainfield.

### 4.3.1 Field Parameters

Field parameters (temperature, pH, dissolved oxygen (DO), and specific conductivity) were measured at all the sampling locations prior to sample collection and are provided in Appendix C. Variations in measured values between monitoring points were expected as the chemical composition of the groundwater varied due to the discharge of STE and PNRS treated effluent (B-HS2-ST2).

### 4.3.2 Correlations

Correlations between nitrogen parameters were investigated to determine if simple to measure field parameters could continue to be used to locate contaminant plumes. Figures 5 and 6 show scatter plots of nitrogen vs conductivity and chloride, respectively, for groundwater samples. A strong linear correlation is not observed for neither conductivity nor chloride. This is probably because the PNRS is still discharging conductivity and chloride, with a lower nitrogen concentration (1.4 mg/L). However, the downgradient groundwater samples could still be influenced by STE (55 mg/L) depending on the travel time.

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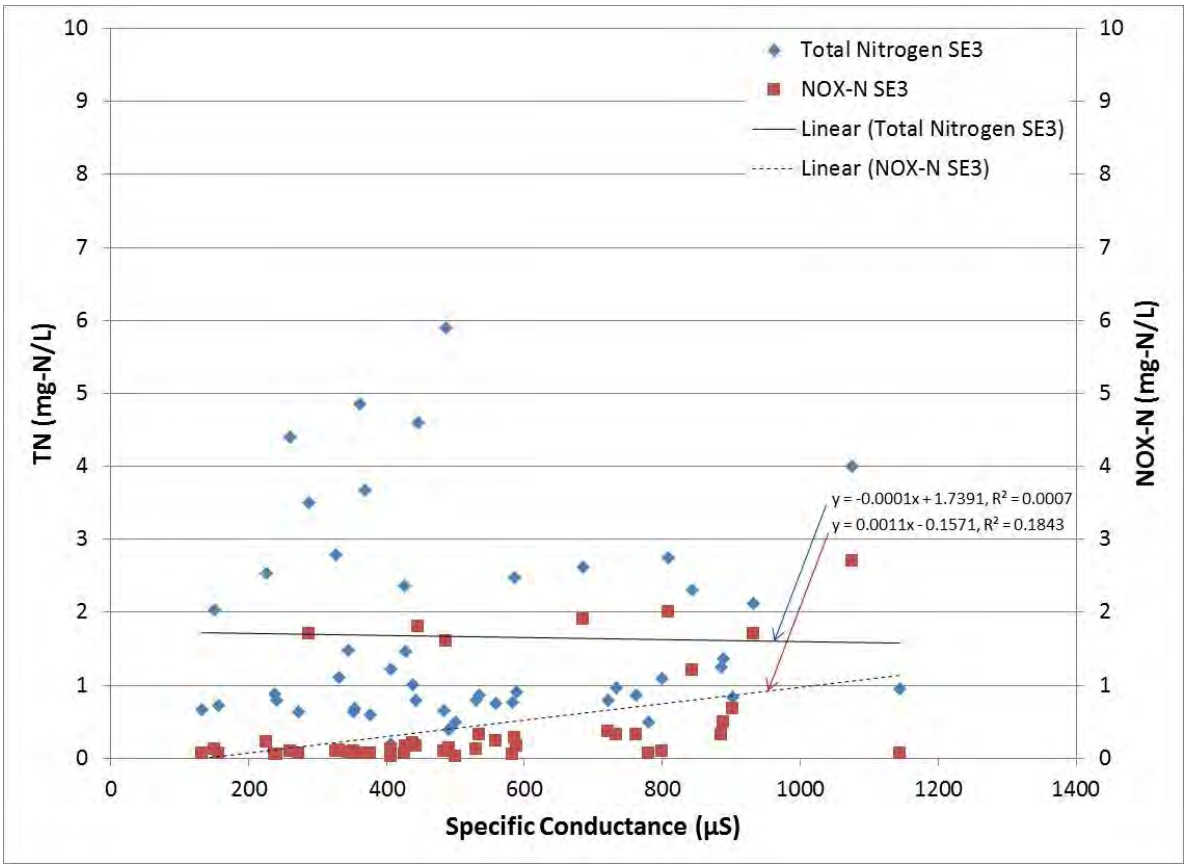


**Figure 5**
**Correlation Between the Specific Conductance (uS) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)**

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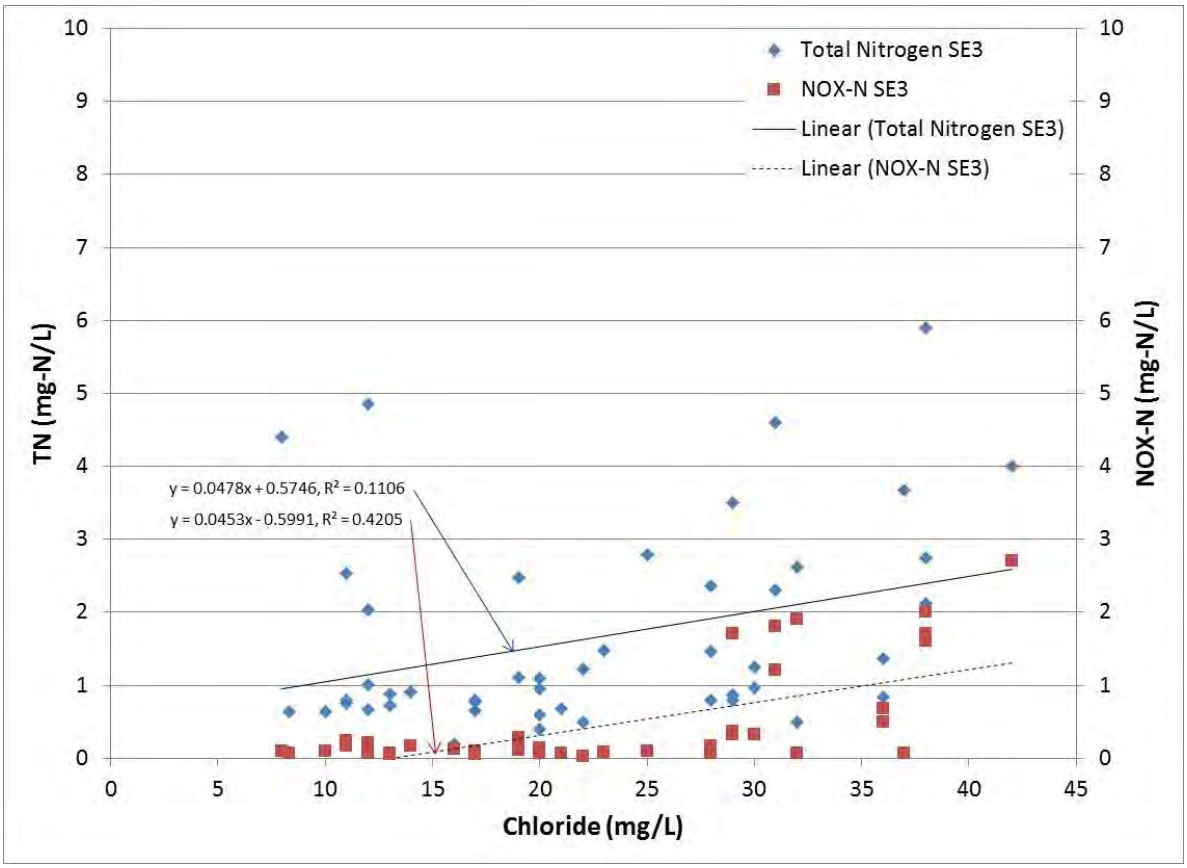


**Figure 6**
**Correlation Between the Chloride (mg/L) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)**

### 4.3.3 Analytical Parameters

In addition to measuring field parameters, all samples were analyzed for total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH3-N), nitrate/nitrite nitrogen (NOX-N), chloride (CL) and sulfate (SO4). At some of the locations, total alkalinity (as $CaCO_3$), chemical oxygen demand (COD), total phosphorus (TP), anions, and cations were included. By analyzing for the different nitrogen species, a clearer picture is gained on the transformation of nitrogen within the plume. The complete water quality analytical results for Sample Event No. 3 are listed in Table C.1 of Appendix C. The summary of the water quality is presented in Table D.1 of Appendix D. The laboratory report containing the raw analytical data is included in Appendix E which includes the chain of custody forms.

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### 4.3.4 Nitrate/Nitrite Concentrations with Groundwater Depth

The general trend of the nitrogen plume at the site can be somewhat determined with the data collected to date. The piezometers installed at different locations and depths below the ground surface were mapped in **Surfer**. Although **Surfer** is an informative tool for mapping the information from the site, it cannot project a 3-dimensional view of concentrations with depth. Based on the distribution of points with depth, two "slices" were chosen for the groundwater data surrounding the system. A **Surfer** schematic illustrating the "slices" of NOX concentration with depth from July 2013 are presented in Figures 7 and 8. The two slices were separated by groundwater elevation above sea level (NGVD29 datum). Similar slices of TKN concentration with depth are presented in Figures 9 and 10. The maps show contours of the concentrations as estimated using the "natural neighbor" gridding method in **Surfer™**. This method was used because it did not extend results past data points, as was noted on previous project results.

The shallow and deep piezometer NOX results are very low concentrations (Figures 7 and 8). The plots continue to indicate that the NOX concentration in the area near the drainfield has significantly decreased following the installation of the passive nitrogen reduction system. The shallow and deep piezometer TKN results (Figures 9 and 10) and NOX results appear to show the plume to be confined in a south-southeast direction from the drainfield. The deeper piezometers (Figure 8) indicate relatively low NOX concentrations at this point in time, similar to background levels. However, as evident in the comparison of the NOX and TKN plots of the deeper piezometers (Figures 8 and 10) there seems to be a background concentration of TKN. The specific conductance, chloride and sulfate plots (Figures 11 through 16) also appear to show the plume to be confined in a south-southeast direction from the drainfield.

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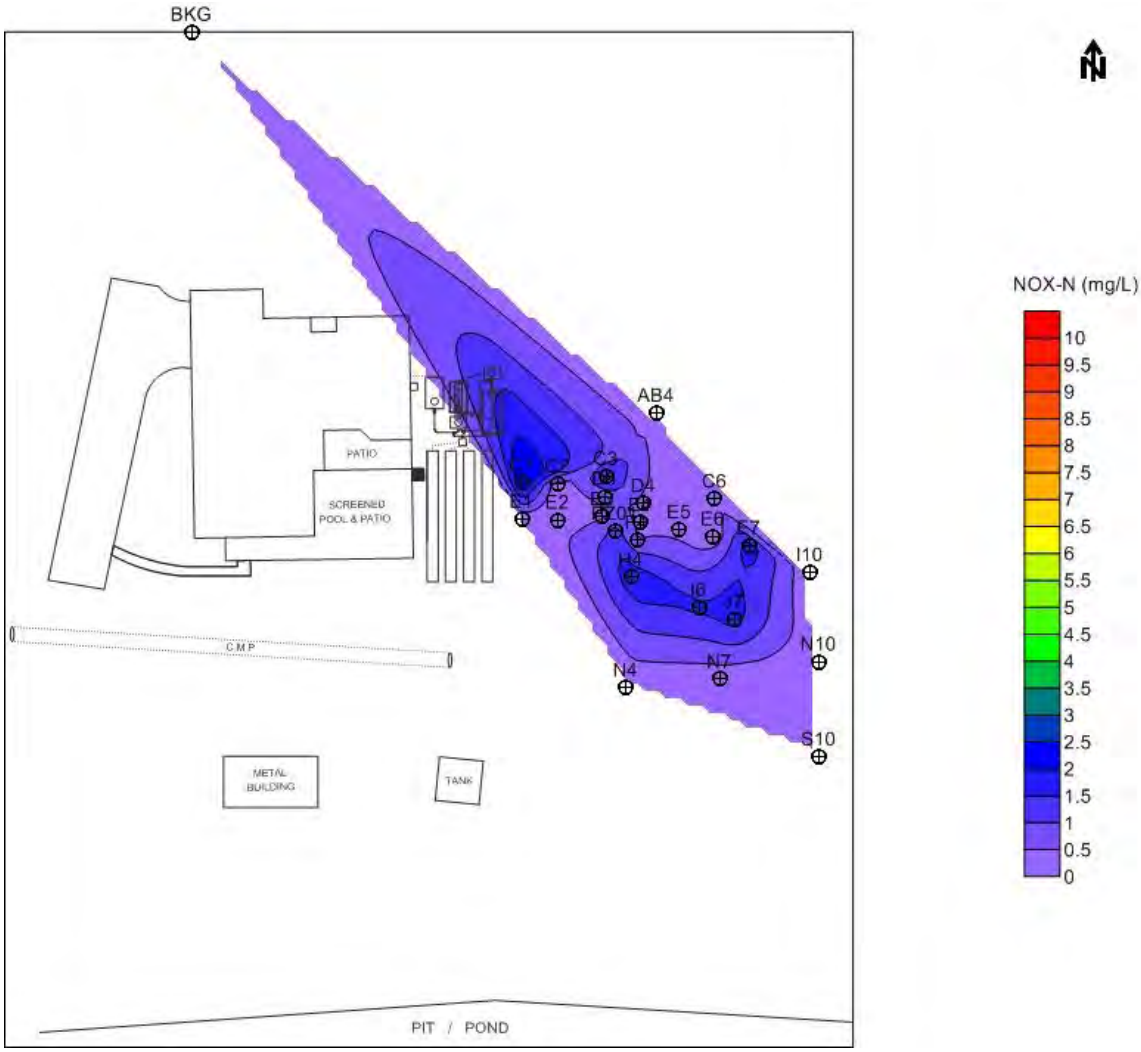


**Figure 7**
**Shallow GW Elev 7.9-16.9 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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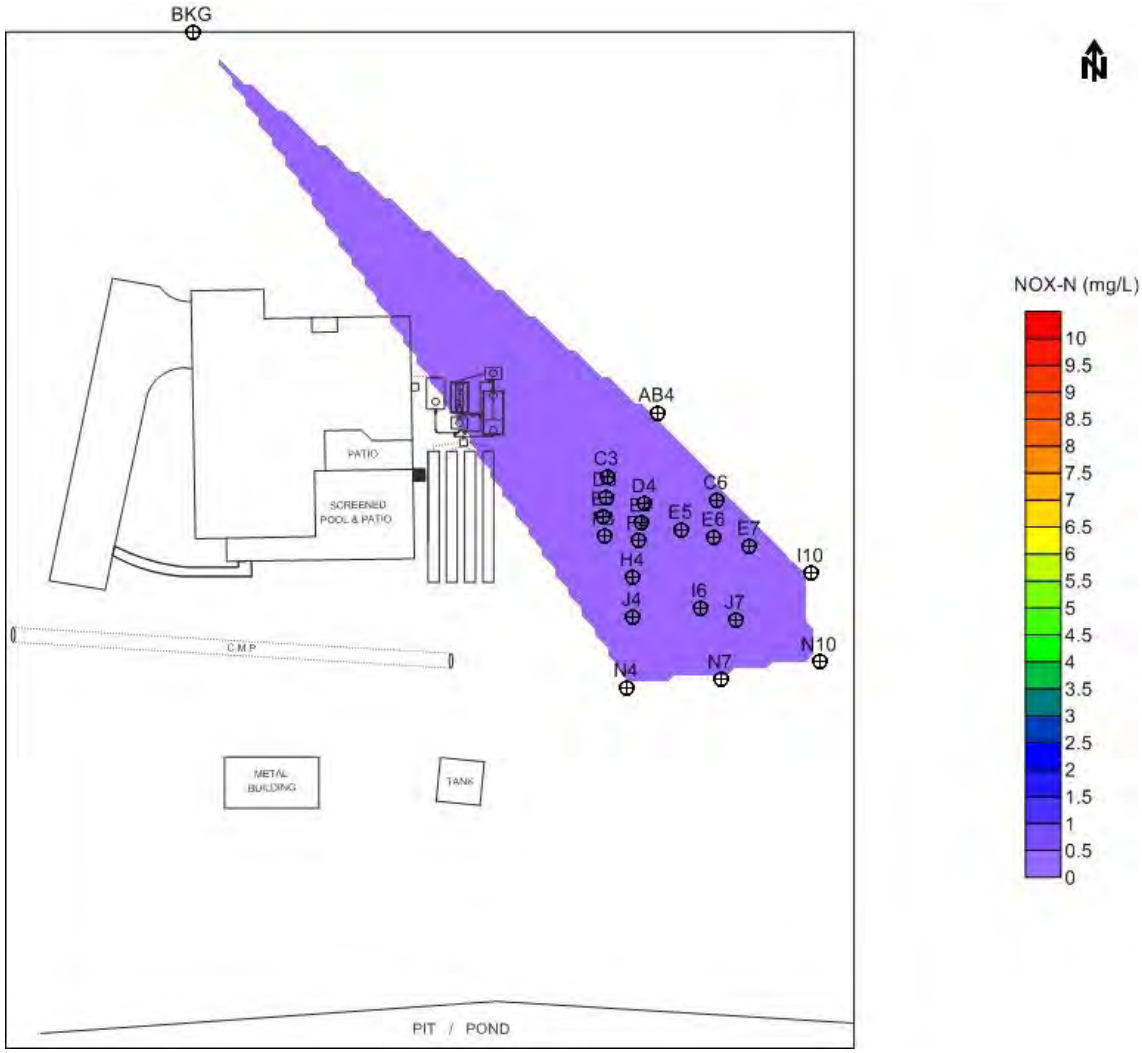


**Figure 8**
**Deep GW Elev 2.6-6.1 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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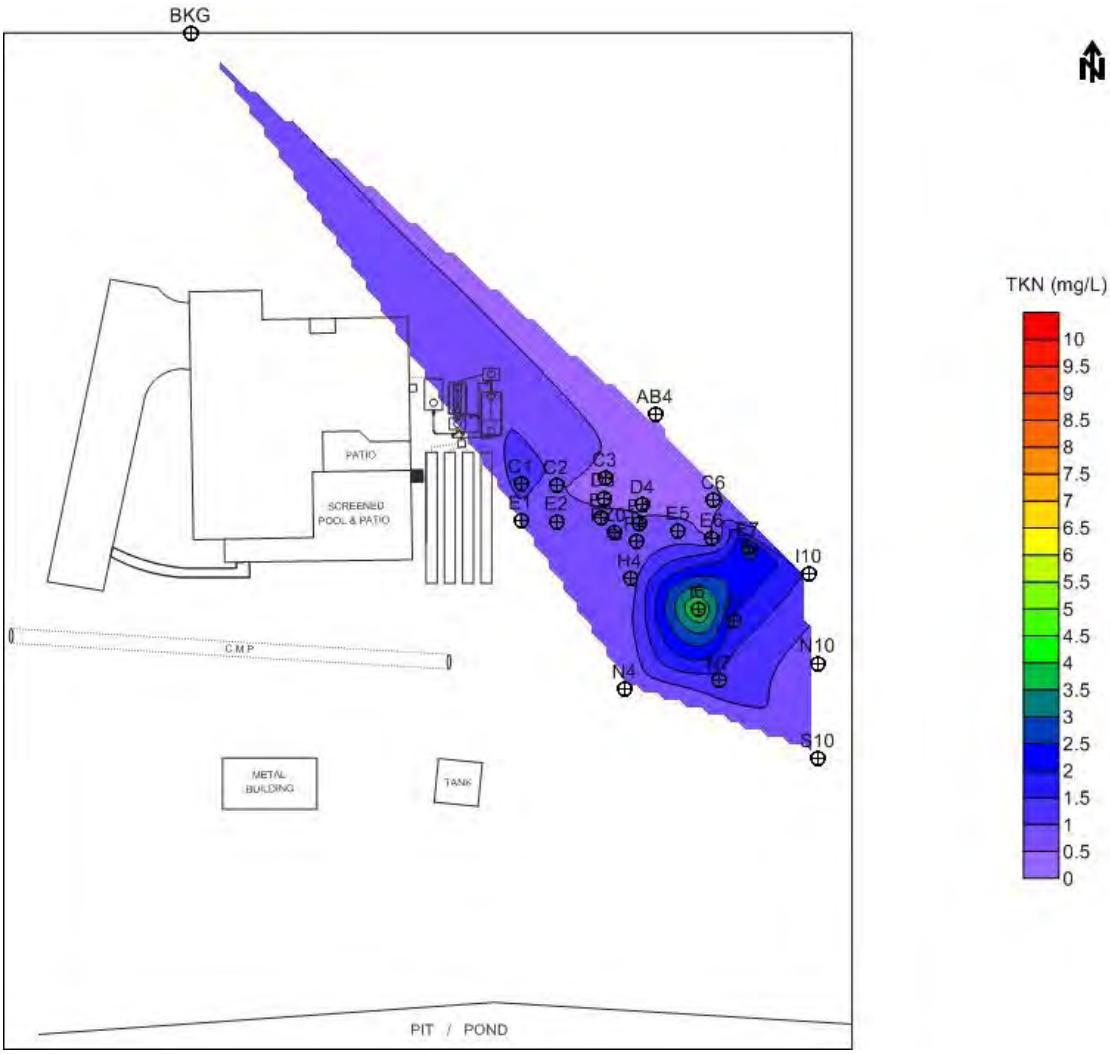


**Figure 9**
**Shallow GW Elev 7.9-16.9 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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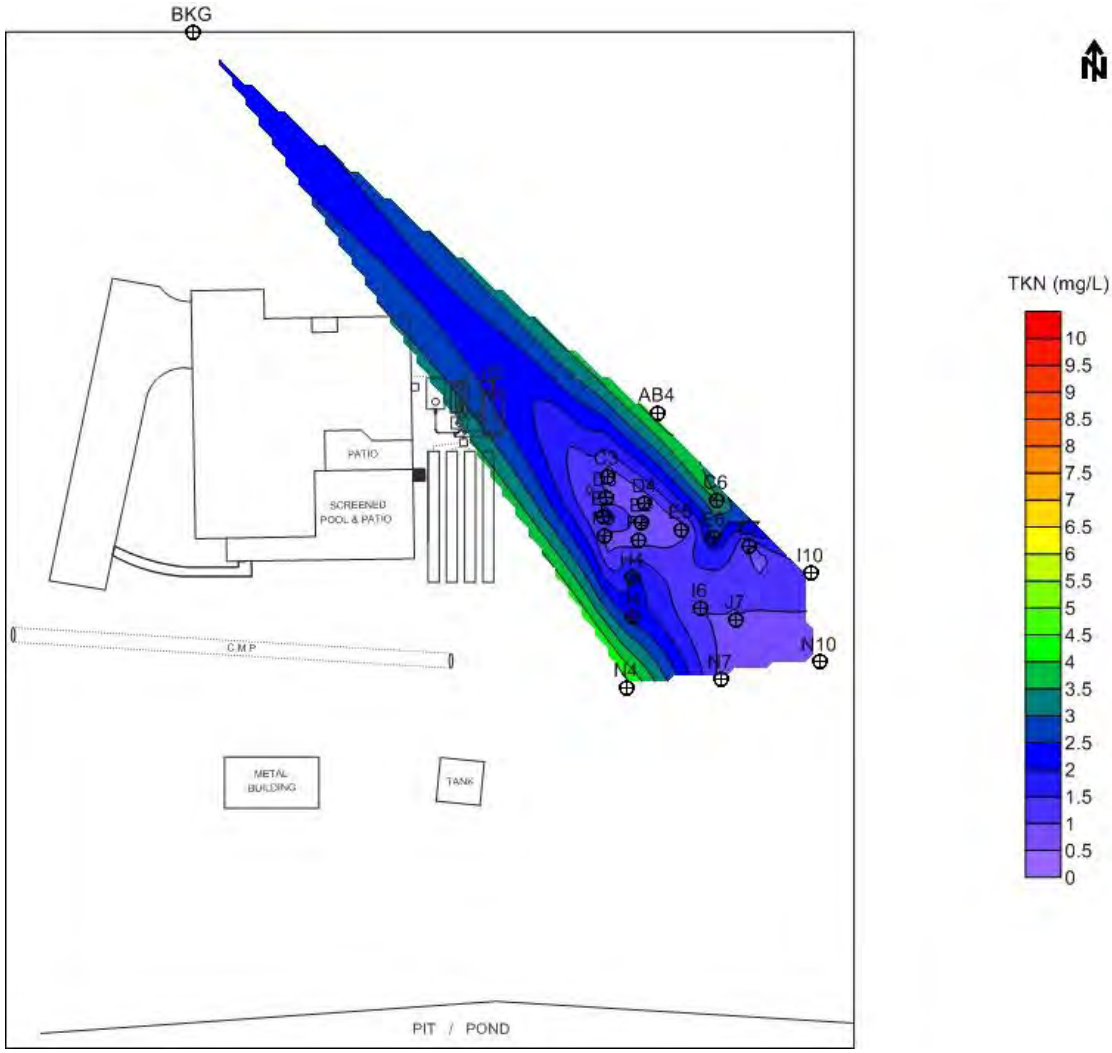


**Figure 10**
**Deep GW Elev 2.6-6.1 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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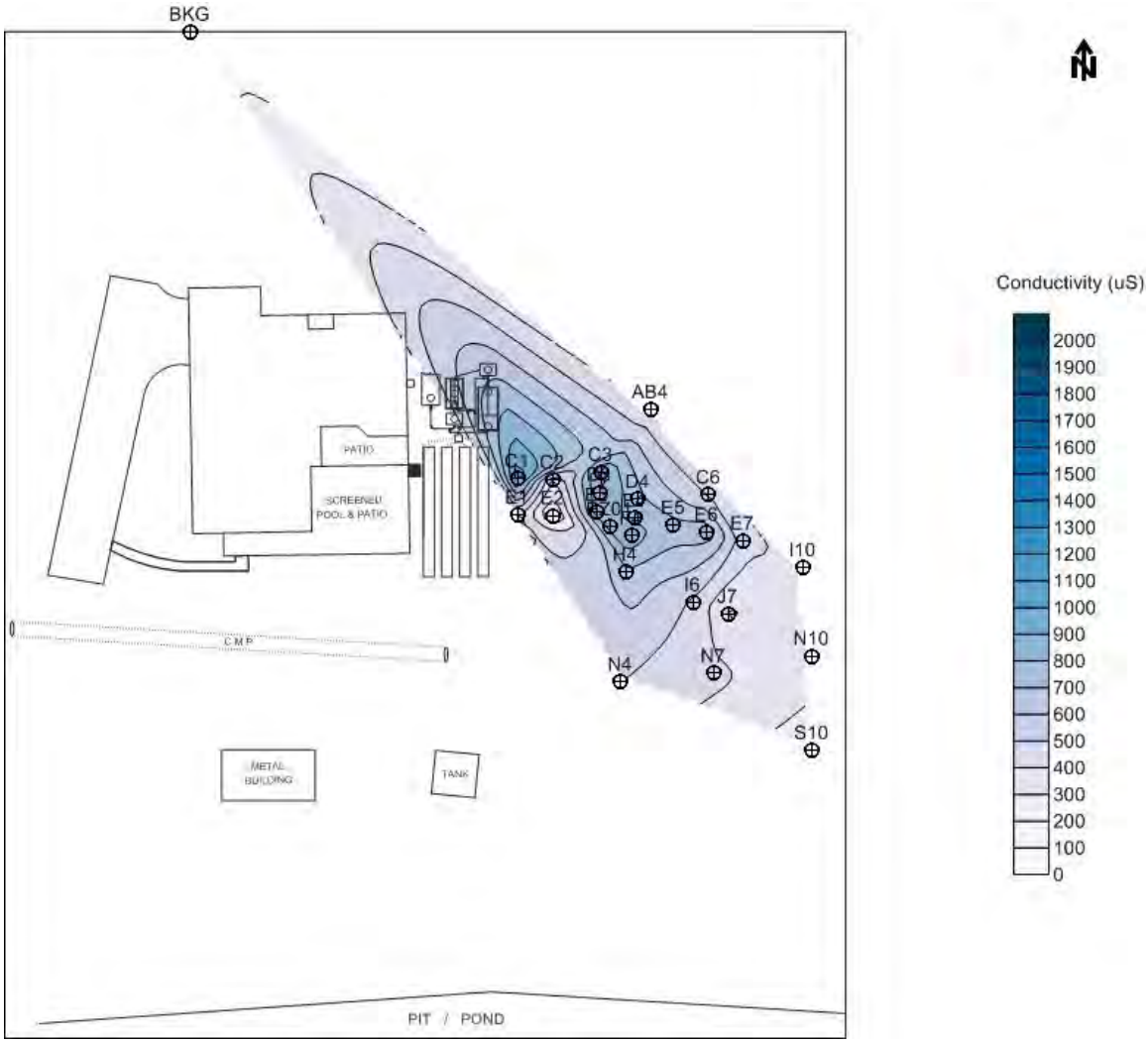


**Figure 11**
**Shallow GW Elev 7.9-16.9 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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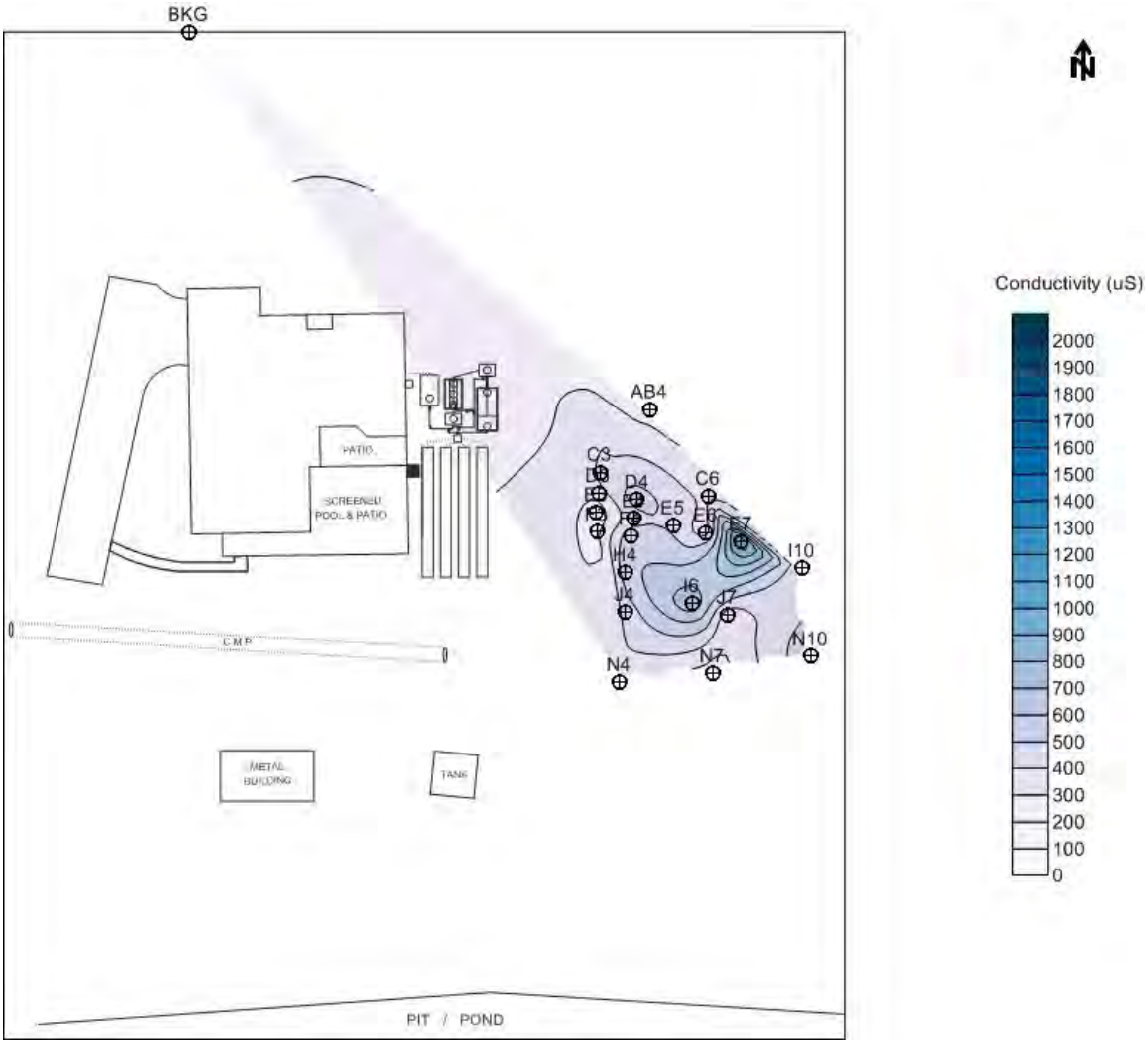


**Figure 12**
**Deep GW Elev 2.6-6.1 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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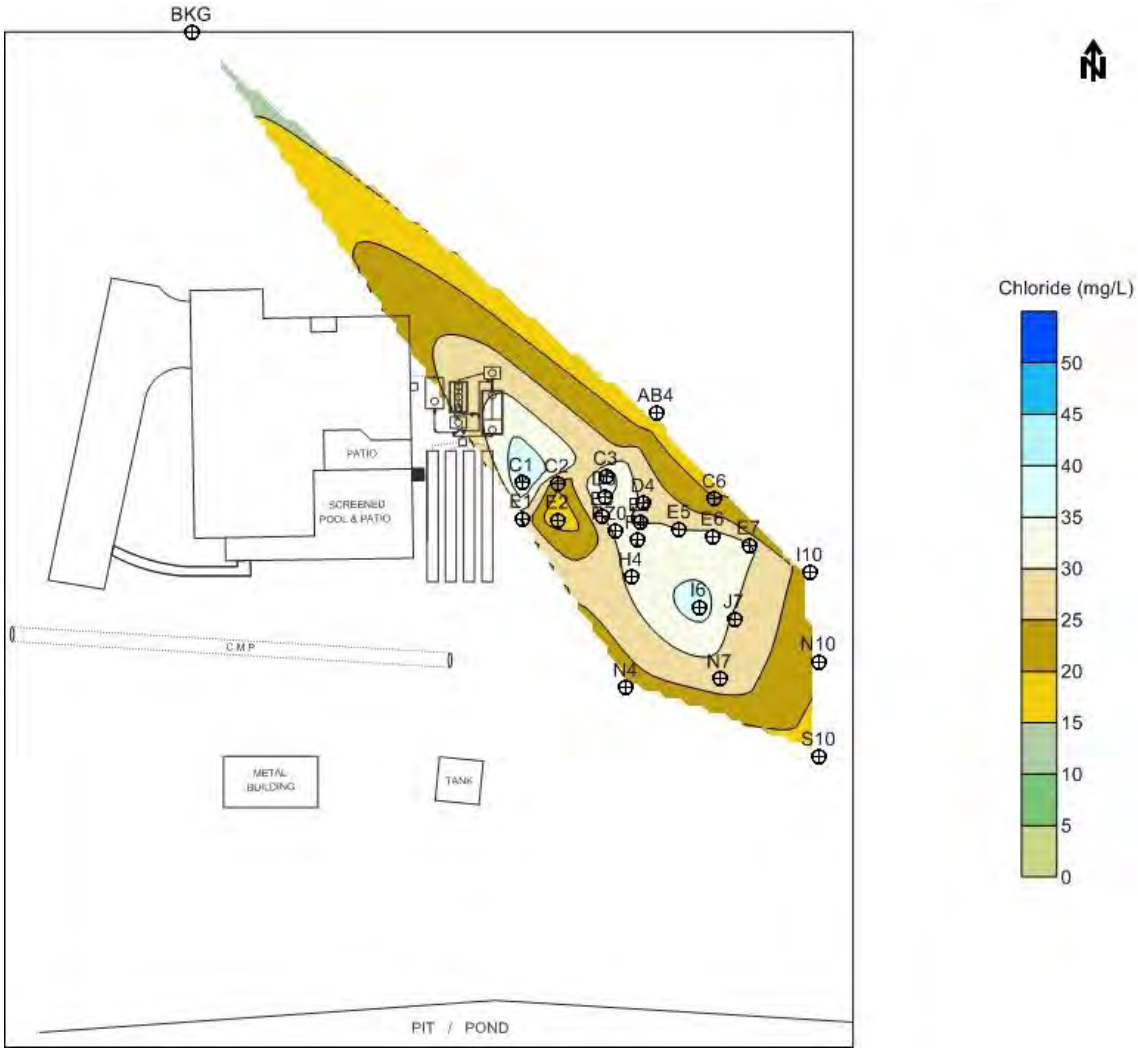


**Figure 13**
**Shallow GW Elev 7.9-16.9 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating Chloride concentrations in the subsurface**

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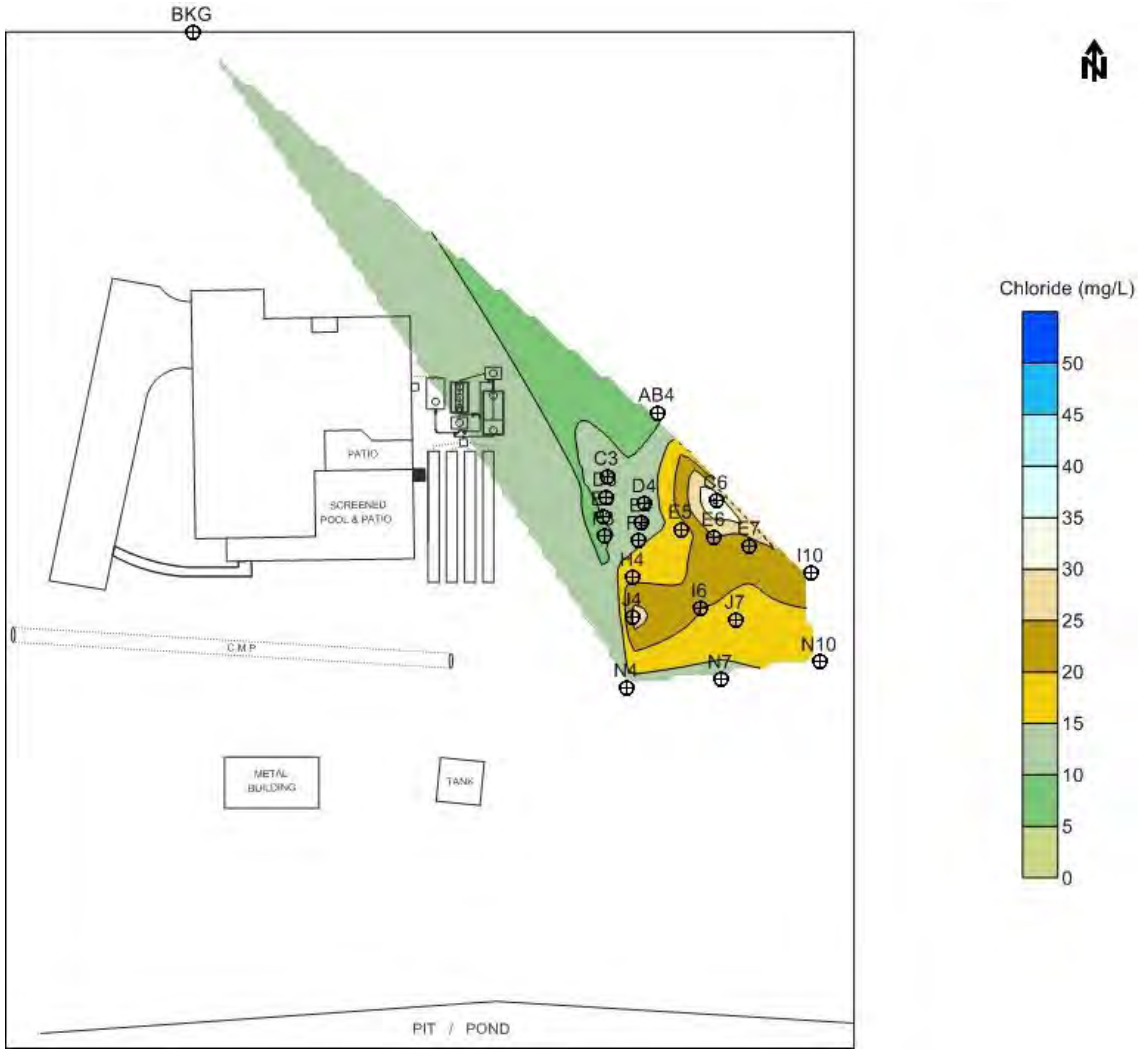


**Figure 14**
**Deep GW Elev 2.6-6.1 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating Chloride concentrations in the subsurface**

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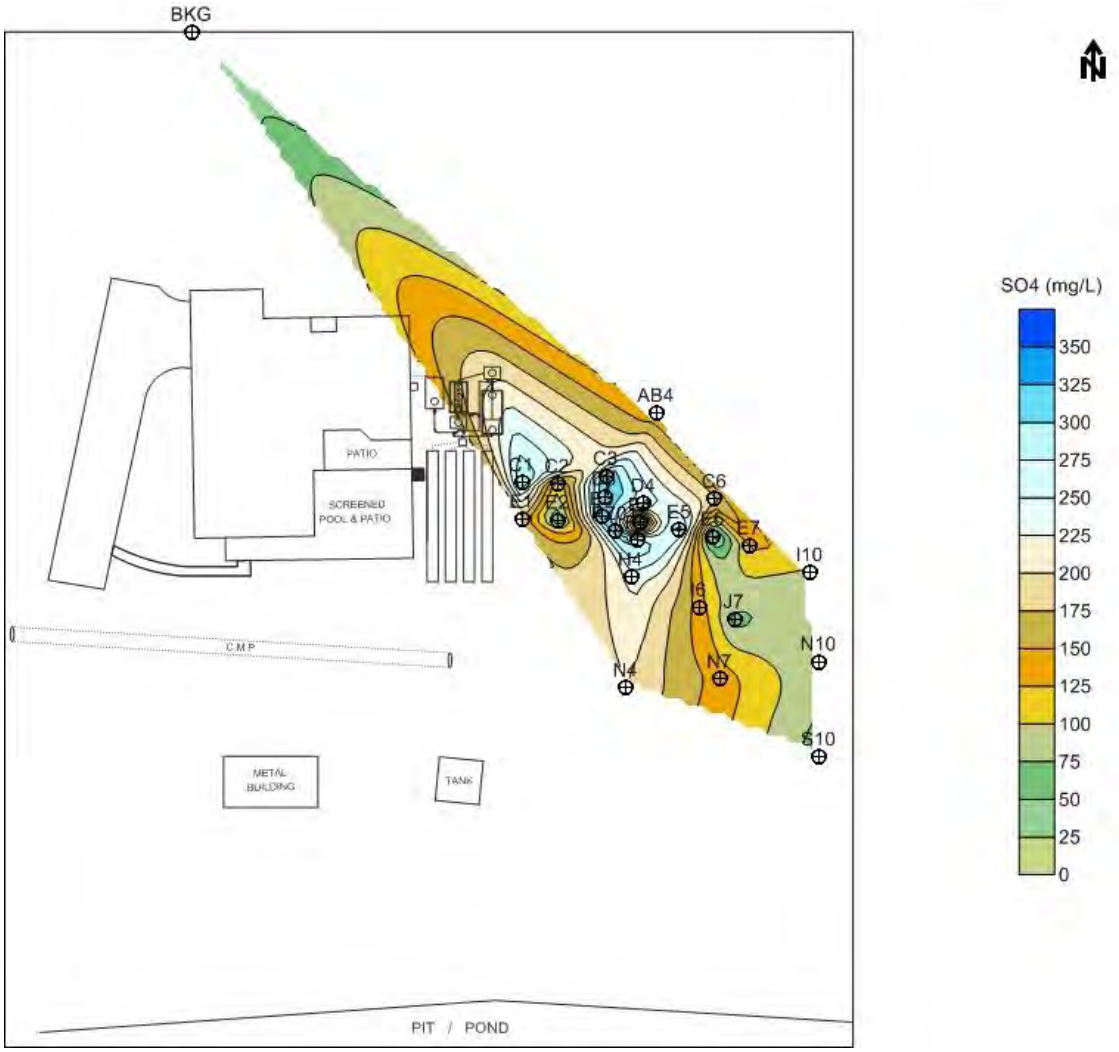


**Figure 15**
**Shallow GW Elev 7.9-16.9 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating Sulfate concentrations in the subsurface**

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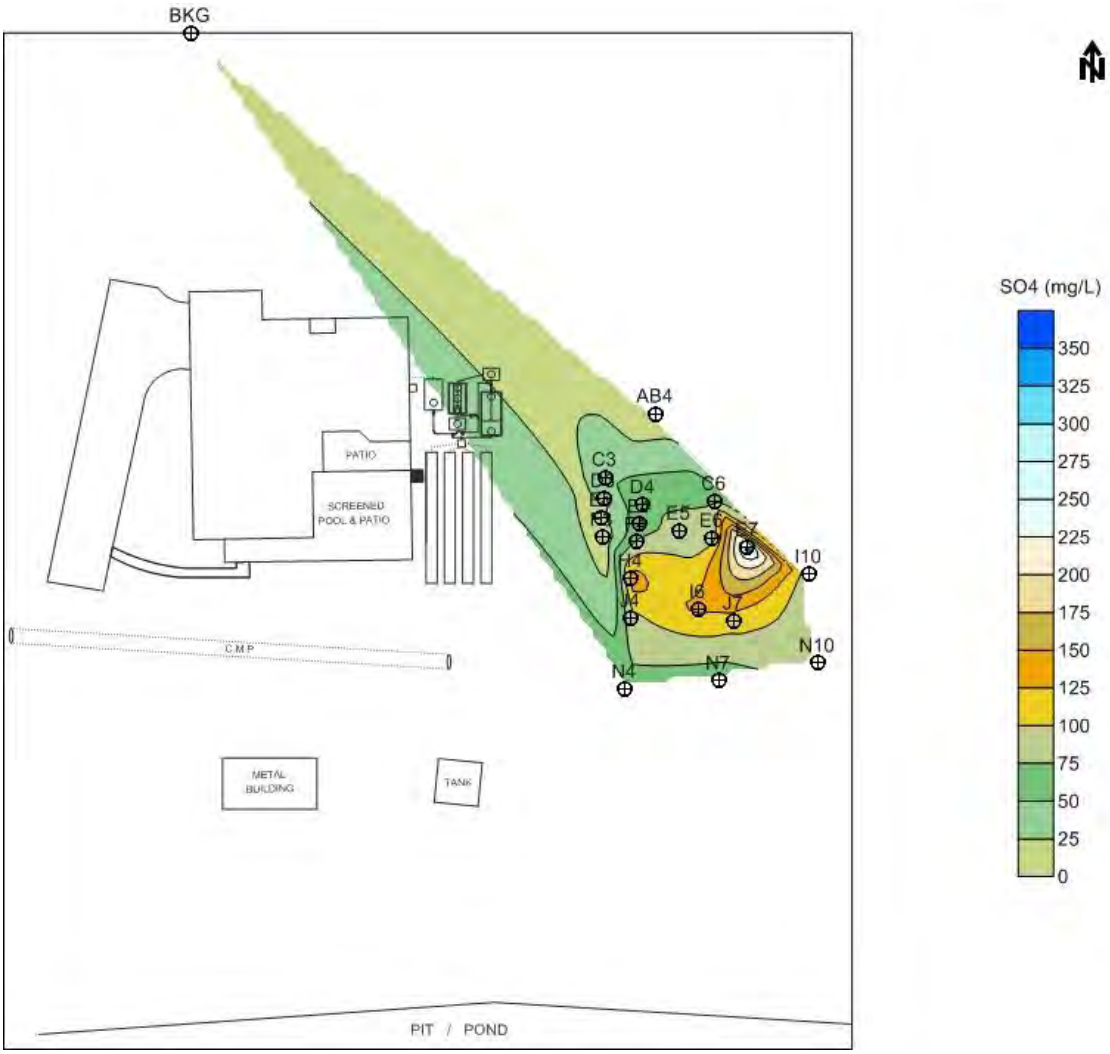


**Figure 16**
**Deep GW Elev 2.6-6.1 ft above MSL (July 2013 Sample Event 3)**
**Schematic (using Surfer) illustrating Sulfate concentrations in the subsurface**

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# 5.0 C-HS4 Data Summary Report No. 3: Summary and Recommendations

## 5.1 Summary

The results of the third sampling event served to identify the general trend of the NOX plume and provide the basis to evaluate nitrate movement in the subsurface, and to determine any impacts of the passive nitrogen reduction system (PNRS) NOX in the groundwater. Results of Sample Event No. 3 indicate that:

- The nitrogen plume appears to be flowing in a south-southeast direction and similar to the groundwater contours.
- As expected, the plots indicate that the NOX concentration in the area near the drainfield has decreased following the installation of the PNRS.

## 5.2 Conclusions

The project team will continue to evaluate all results including those that result from implementation of the recommendations and make further adaptations as needed (observational method). Following is a list with select recommendations which the next sample event will address:

- Additional analyses of field parameters will give a better understanding of if and how they may correlate to nitrogen occurrence and reduction.
- Additional groundwater level monitoring will provide information needed to determine the necessary parameters for model development.
- Further sampling of all locations will provide a snapshot of the site needed for plume identification and for nitrogen fate and transport determination.
- Time series analysis of data will be used to show any reduction in NOX concentration in the groundwater due to PNRS.

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# Appendix A: C-HS4 Sample Identification

**Table A.1**

**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 1 | C-HS4-STE | Wastewater | N/A | N/A |
| 1b | B-HS2-ST2 | Treated effluent from PNRS | N/A | N/A |
| 2 | PZ01 | 1" Standpipe Piezometer, 5' screen | 19.08 | 9.48 |
| 3 | PZ02 | 1" Standpipe Piezometer, 5' screen | 28.72 | 16.54 |
| 4 | PZ03 | 1" Standpipe Piezometer, 5' screen | 24.85 | 19.00 |
| 5 | PZ04 | 1" Standpipe Piezometer, 5' screen | 18.82 | 13.02 |
| 6 | PZ05 | 1" Standpipe Piezometer, 5' screen | 20.79 | NR |
| 7 | PZ06 | 1" Standpipe Piezometer, 5' screen | 22.17 | 11.02 |
| 8 | BKG-10 | 1" Standpipe Piezometer, 5' screen | 24.60 | 15.22 |
| 9 | BKG-15 | 3/4" Standpipe Piezometer, 1' screen | 24.60 | 10.17 |
| 10 | PZ-AB4-08 | 1" Standpipe Piezometer, 5' screen | 18.65 | 10.27 |
| 11 | PZ-AB4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.59 | 4.09 |
| 12 | PZ-C1 | 1" Standpipe Piezometer, 5' screen | 22.85 | 12.70 |
| 13 | PZ-C2 | 1" Standpipe Piezometer, 5' screen | 21.23 | 9.73 |
| 14 | PZ-C3-08 | 1" Standpipe Piezometer, 5' screen | 19.63 | 11.83 |
| 15 | PZ-C3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.09 |
| 16 | PZ-C6-08 | 1" Standpipe Piezometer, 5' screen | 17.53 | 9.03 |
| 17 | PZ-C6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.53 | 3.13 |
| 18 | PZ-D3-08 | 1" Standpipe Piezometer, 5' screen | 19.62 | 11.63 |
| 19 | PZ-D3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.08 |
| 20 | PZ-D4-08 | 1" Standpipe Piezometer, 5' screen | 18.77 | 10.89 |
| 21 | PZ-D4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.76 | 4.21 |
| 22 | PZ-E1 | 1" Standpipe Piezometer, 5' screen | 22.92 | 11.42 |
| 23 | PZ-E2 | 1" Standpipe Piezometer, 5' screen | 21.03 | 9.33 |
| 24 | PZ-E3-08 | 1" Standpipe Piezometer, 5' screen | 19.66 | 11.41 |
| 25 | PZ-E3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 4.98 |
| 26 | PZ-E4-08 | 1" Standpipe Piezometer, 5' screen | 18.70 | 10.80 |
| 27 | PZ-E4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.69 | 4.31 |
| 28 | PZ-E5-08 | 1" Standpipe Piezometer, 5' screen | 18.15 | 10.25 |
| 29 | PZ-E5-15 | 3/4" Standpipe Piezometer, 1' screen | 18.13 | 3.56 |
| 30 | PZ-E6-08 | 1" Standpipe Piezometer, 5' screen | 17.83 | 9.95 |

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**Table A.1 (continued)**
**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 31 | PZ-E6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.85 | 3.45 |
| 32 | PZ-E7-08 | 1" Standpipe Piezometer, 5' screen | 17.55 | 8.87 |
| 33 | PZ-E7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.55 | 3.05 |
| 34 | PZ-F3-08 | 1" Standpipe Piezometer, 5' screen | 19.54 | 11.59 |
| 35 | PZ-F3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.55 | 5.05 |
| 36 | PZ-F4-08 | 1" Standpipe Piezometer, 5' screen | 18.83 | 11.13 |
| 37 | PZ-F4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.88 | 4.48 |
| 38 | PZ-G1 | 1" Standpipe Piezometer, 5' screen | 20.72 | 12.82 |
| 39 | PZ-G2-12.5 | 2" Standpipe Piezometer, 7.5' screen | 21.03 | 8.88 |
| 40 | PZ-H4-08 | 1" Standpipe Piezometer, 5' screen | 19.19 | 10.91 |
| 41 | PZ-H4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.22 | 4.45 |
| 42 | PZ-H5-11.5 | 2" Standpipe Piezometer, 7.5' screen | 18.58 | 7.86 |
| 43 | PZ-I6-08 | 1" Standpipe Piezometer,5' screen | 18.42 | 9.37 |
| 44 | PZ-I6-15 | 3/4" Standpipe Piezometer, 1' screen | 18.42 | 3.87 |
| 45 | PZ-I10-08 | 1" Standpipe Piezometer, 5' screen | 16.87 | 8.95 |
| 46 | PZ-I10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.92 | 4.42 |
| 47 | PZ-J4-08 | 1" Standpipe Piezometer, 5' screen | 19.26 | 11.32 |
| 48 | PZ-J4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.25 | 4.73 |
| 49 | PZ-J7-08 | 1" Standpipe Piezometer, 5' screen | 17.86 | 9.41 |
| 50 | PZ-J7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.87 | 3.45 |
| 51 | PZ-N4-08 | 1" Standpipe Piezometer, 5' screen | 19.28 | 11.00 |
| 52 | PZ-N4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.30 | 4.82 |
| 53 | PZ-N7-08 | 1" Standpipe Piezometer, 5' screen | 18.01 | 9.46 |
| 54 | PZ-N7-15 | 3/4" Standpipe Piezometer, 1' screen | 18.03 | 3.23 |
| 55 | PZ-N10-08 | 1" Standpipe Piezometer, 5' screen | 16.92 | 9.17 |
| 56 | PZ-N10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.83 | 2.59 |
| 57 | PZ-S10-08 | 1" Standpipe Piezometer, 5' screen | 17.03 | 8.78 |
| 58 | DP01 | SST Drivepoint | 19.25 | |
| 59 | DP02 | SST Drivepoint | 19.24 | |
| 60 | DP03 | SST Drivepoint | 19.49 | |
| 61 | DP04 | SST Drivepoint | 19.22 | |
| 62 | DP05 | SST Drivepoint | 19.25 | |
| 63 | DP06 | SST Drivepoint | 19.38 | |

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

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# Appendix B: Weather Station Data

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# Table B.1
# Daily Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (%) | 2m Rain tot (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-May-13 | 68.68 | 65.1 | 73.69 | 68.97 | 65.3 | 74.08 | 68.91 | 65.48 | 73.63 | 76.19 | 74.19 | 78.4 | 68.15 | 97 | 1.18 | 0.38 | 5.73 | 0.3 | 23.97 | 90 | 0.06 |
| 2-May-13 | 69.89 | 63.14 | 77.23 | 70.01 | 63.25 | 76.78 | 69.61 | 63.37 | 75.67 | 74.56 | 73.47 | 75.79 | 67.75 | 93 | 0.04 | 0.01 | 5.96 | 0.07 | 27.3 | 104 | 0.09 |
| 3-May-13 | 72.41 | 62.71 | 83.34 | 72.31 | 63.54 | 82.56 | 71.96 | 64.99 | 80.91 | 76.07 | 73.69 | 78.69 | 67.22 | 85 | 0 | 0 | 5.31 | 0.1 | 23.83 | 337 | 0.16 |
| 4-May-13 | 72.22 | 66.58 | 80.49 | 72.38 | 66.92 | 80.1 | 71.75 | 66.85 | 78.35 | 76.7 | 75.11 | 78.46 | 66.91 | 84 | 0 | 0 | 7.05 | 1.03 | 22.1 | 293 | 0.14 |
| 5-May-13 | 68.33 | 56.48 | 77.5 | 68.4 | 58.19 | 76.8 | 67.8 | 60.58 | 74.84 | 76.58 | 74.8 | 78.6 | 55.98 | 68 | 0 | 0 | 8.99 | 0.43 | 23.13 | 307 | 0.17 |
| 6-May-13 | 66.77 | 52.54 | 75.78 | 67 | 54.16 | 74.79 | 66.75 | 56.93 | 73.02 | 76.44 | 74.37 | 79 | 57.07 | 72 | 0 | 0 | 5.87 | 0.07 | 20.17 | 283 | 0.15 |
| 7-May-13 | 64.84 | 50.4 | 77.04 | 65.2 | 51.94 | 76.14 | 65.65 | 54.5 | 74.7 | 76.06 | 73.54 | 78.58 | 56.26 | 76 | 0 | 0 | 5.15 | 0 | 23 | 235 | 0.15 |
| 8-May-13 | 67.48 | 52.65 | 79.86 | 67.9 | 54.41 | 78.96 | 68.45 | 57.47 | 77.47 | 76.34 | 73.72 | 79 | 58.9 | 76 | 0 | 0 | 4.46 | 0 | 16.67 | 261 | 0.16 |
| 9-May-13 | 71.57 | 55.04 | 86.74 | 71.76 | 57.25 | 85.5 | 72.22 | 59.59 | 84.92 | 76.96 | 74.08 | 79.99 | 60.52 | 72 | 0 | 0 | 3.87 | 0 | 12.47 | 10 | 0.18 |
| 10-May-13 | 75.67 | 61.05 | 90.57 | 75.89 | 62.31 | 89.42 | 75.71 | 63.73 | 87.82 | 78.27 | 75.99 | 80.94 | 66.4 | 75 | 0 | 0 | 6.56 | 0 | 30.2 | 192 | 0.18 |
| 11-May-13 | 75.98 | 63.36 | 89.13 | 76.3 | 65.07 | 88.63 | 76.23 | 67.64 | 87.21 | 78.9 | 77.05 | 80.83 | 69.59 | 82 | 0 | 0 | 6.04 | 0 | 19.97 | 207 | 0.16 |
| 12-May-13 | 75.9 | 64.45 | 86.43 | 76.23 | 66.2 | 85.82 | 75.96 | 68.22 | 84.09 | 79.41 | 77.63 | 81.64 | 69.42 | 81 | 0 | 0 | 5.45 | 0 | 19.27 | 266 | 0.16 |
| 13-May-13 | 71.57 | 59.16 | 84.83 | 72.17 | 60.6 | 83.71 | 72.34 | 61.56 | 82.27 | 78.82 | 77.29 | 80.6 | 59.48 | 68 | 0 | 0 | 5.32 | 0 | 19.07 | 338 | 0.15 |
| 14-May-13 | 69.13 | 52.86 | 83.86 | 69.44 | 54.34 | 82.67 | 69.71 | 55.74 | 81.61 | 78 | 75.31 | 80.85 | 50.88 | 57 | 0 | 0 | 6.1 | 0.33 | 16.2 | 46 | 0.17 |
| 15-May-13 | 71.37 | 54.05 | 86.41 | 71.98 | 56.79 | 85.39 | 72.33 | 59.76 | 83.48 | 78.51 | 75.6 | 81.46 | 57.47 | 64 | 0 | 0 | 5.84 | 0.4 | 17.63 | 96 | 0.17 |
| 16-May-13 | 74.15 | 59.45 | 87.08 | 74.27 | 61.16 | 86.13 | 74.3 | 62.65 | 84.54 | 79.44 | 76.68 | 82.4 | 60.14 | 65 | 0 | 0 | 5.75 | 0 | 17.03 | 138 | 0.18 |
| 17-May-13 | 76.32 | 60.26 | 90.41 | 76.47 | 62.42 | 88.99 | 76.54 | 64.85 | 87.91 | 79.87 | 77.45 | 82.2 | 63.48 | 67 | 0 | 0 | 4.93 | 0.2 | 14.8 | 120 | 0.16 |
| 18-May-13 | 77.43 | 64.15 | 91.38 | 77.52 | 65.21 | 89.47 | 77.54 | 67.12 | 88.14 | 80.72 | 78.01 | 83.52 | 66.18 | 72 | 0 | 0 | 4.9 | 0.07 | 15.2 | 162 | 0.18 |
| 19-May-13 | 77.89 | 62.96 | 91.81 | 78 | 64.35 | 90.07 | 77.9 | 66.02 | 88.23 | 81.49 | 78.6 | 84.49 | 66.24 | 70 | 0 | 0 | 4.57 | 0 | 16.13 | 241 | 0.19 |
| 20-May-13 | 75.43 | 65.35 | 91.62 | 75.57 | 66 | 90.25 | 75.38 | 66.54 | 89.29 | 80.13 | 76.14 | 84.13 | 68.67 | 82 | 1.96 | 1 | 5.01 | 0.07 | 38.87 | 121 | 0.16 |
| 21-May-13 | 72.05 | 63.43 | 89.1 | 72.18 | 64.08 | 87.28 | 72.18 | 65.64 | 85.59 | 77.14 | 74.37 | 79.86 | 68.41 | 89 | 0.35 | 0.11 | 4.8 | 0.13 | 28.77 | 93 | 0.15 |
| 22-May-13 | 75.09 | 64.69 | 87.93 | 75.15 | 65.26 | 87.19 | 74.91 | 66.42 | 85.78 | 78.44 | 75.65 | 81.63 | 69.38 | 84 | 0 | 0 | 4.53 | 0.13 | 17.37 | 80 | 0.18 |
| 23-May-13 | 77.14 | 65.34 | 88.97 | 77.37 | 66.22 | 88.52 | 77.15 | 67.01 | 86.7 | 79.74 | 77.27 | 82.4 | 70.49 | 81 | 0 | 0 | 4.21 | 0 | 15.67 | 305 | 0.17 |
| 24-May-13 | 78.85 | 65.44 | 92.35 | 79.64 | 67.46 | 91.98 | 79.76 | 69.57 | 90.41 | 80.53 | 77.81 | 83.37 | 67.81 | 71 | 0 | 0 | 5.05 | 0 | 21.23 | 329 | 0.2 |
| 25-May-13 | 77.24 | 65.68 | 89.02 | 77.68 | 66.63 | 88.48 | 77.33 | 68.14 | 86.63 | 80.74 | 78.57 | 83.01 | 64.84 | 68 | 0 | 0 | 9.14 | 1.03 | 22.23 | 74 | 0.2 |
| 26-May-13 | 72.85 | 57.96 | 85.73 | 73.42 | 60.58 | 85.5 | 73.4 | 62.28 | 83.86 | 80.3 | 77.97 | 82.4 | 59.44 | 66 | 0 | 0 | 6.5 | 0.2 | 15.8 | 74 | 0.18 |
| 27-May-13 | 74.4 | 60.71 | 87.49 | 74.92 | 61.77 | 87.49 | 74.58 | 63.3 | 85.71 | 80.13 | 77.79 | 82.44 | 63.5 | 71 | 0 | 0 | 8.02 | 0.53 | 21.2 | 82 | 0.18 |
| 28-May-13 | 74.78 | 64.6 | 89.19 | 75.18 | 65.48 | 88.68 | 74.74 | 66.65 | 86.23 | 80.26 | 78.64 | 81.95 | 69.61 | 84 | 0 | 0 | 9.49 | 2.47 | 26.87 | 86 | 0.16 |
| 29-May-13 | 75.55 | 68.25 | 86.56 | 75.84 | 68.95 | 85.68 | 75.25 | 69.69 | 82.96 | 80.03 | 78.64 | 81.63 | 70.6 | 85 | 0.03 | 0.02 | 9.81 | 2.33 | 31.7 | 97 | 0.16 |

## Table B.1 (continued)
## Monthly Recorded Meteorological Data
## Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (%) | 2m Rain tot (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30-May-13 | 77 | 71.04 | 85.87 | 77.38 | 71.51 | 85.37 | 76.75 | 71.76 | 83.43 | 79.73 | 78.6 | 80.82 | 70.89 | 81 | 0 | 0 | 11.97 | 3.23 | 33.03 | 96 | 0.16 |
| 31-May-13 | 77.37 | 69.51 | 87.94 | 77.76 | 70.09 | 87.12 | 77.09 | 70.39 | 84.76 | 79.7 | 78.37 | 80.96 | 71.22 | 81 | 0.02 | 0.02 | 10.16 | 3.03 | 36.93 | 104 | 0.15 |
| 1-Jun-13 | 76.47 | 70.75 | 86.67 | 76.85 | 71.6 | 86.14 | 76.26 | 72.16 | 84.83 | 79.63 | 78.64 | 80.78 | 73.06 | 89 | 0.16 | 0.1 | 7.78 | 0.13 | 21.77 | 106 | 0.12 |
| 2-Jun-13 | 76.97 | 69.12 | 91.36 | 77.32 | 70.45 | 89.78 | 76.96 | 70.84 | 88.39 | 79.5 | 78.04 | 82.51 | 73.72 | 90 | 1.6 | 0.8 | 3.91 | 0 | 31.3 | 167 | 0.15 |
| 3-Jun-13 | 74.85 | 69.89 | 84.74 | 75.41 | 70.92 | 83.8 | 75.1 | 72.05 | 82.56 | 78.42 | 77.49 | 80.26 | 73.59 | 94 | 2.16 | 0.89 | 4.32 | 0 | 19.8 | 174 | 0.11 |
| 4-Jun-13 | 76.1 | 72.5 | 83.89 | 76.51 | 73.15 | 83.34 | 75.81 | 72.84 | 81.3 | 78.51 | 77.27 | 79.99 | 73.06 | 90 | 0.07 | 0.07 | 5.73 | 0.37 | 26.03 | 156 | 0.12 |
| 5-Jun-13 | 76.61 | 71.4 | 83.82 | 77.33 | 72.25 | 84.11 | 76.7 | 71.89 | 82.67 | 78.58 | 77.67 | 79.41 | 73.04 | 87 | 0.1 | 0.03 | 8.34 | 2.4 | 20.37 | 124 | 0.11 |
| 6-Jun-13 | 74.46 | 72.39 | 77.95 | 75.27 | 73.24 | 78.71 | 74.81 | 72.91 | 77.85 | 76.63 | 75.6 | 78.35 | 73.33 | 94 | 3.2 | 0.46 | 13.64 | 1.77 | 32.13 | 178 | 0.07 |
| 7-Jun-13 | 77.26 | 69.1 | 85.26 | 77.95 | 70.32 | 85.32 | 77.31 | 70.7 | 83.71 | 77.65 | 75.42 | 80.01 | 73.16 | 86 | 0 | 0 | 5.85 | 0.2 | 47.33 | 230 | 0.15 |
| 8-Jun-13 | 74.8 | 70.07 | 88.99 | 75.41 | 71.08 | 88.32 | 75.02 | 71.04 | 86.47 | 77.71 | 76.35 | 80.46 | 73 | 93 | 3 | 0.54 | 4.8 | 0 | 26.17 | 180 | 0.12 |
| 9-Jun-13 | 76.64 | 69.3 | 89.6 | 77.14 | 70.2 | 89.02 | 76.45 | 70.27 | 87.06 | 78.02 | 75.87 | 80.8 | 73.97 | 91 | 0.05 | 0.02 | 5.99 | 0.2 | 17.3 | 97 | 0.15 |
| 10-Jun-13 | 77.57 | 68.99 | 91.33 | 78.26 | 71.06 | 90.59 | 77.79 | 71.02 | 89.42 | 79.01 | 77.29 | 82.35 | 73.22 | 86 | 1.91 | 0.92 | 5.38 | 0 | 30.43 | 115 | 0.17 |
| 11-Jun-13 | 78.53 | 71.49 | 88.47 | 79.05 | 72.55 | 88.25 | 78.7 | 73.02 | 87.39 | 78.91 | 77.11 | 80.74 | 74.22 | 86 | 0 | 0 | 4.56 | 0 | 18.6 | 83 | 0.15 |
| 12-Jun-13 | 79.52 | 69.19 | 93.38 | 79.84 | 70.39 | 92.8 | 79.47 | 70.63 | 91.74 | 80.4 | 77.68 | 83.48 | 72.54 | 81 | 0.07 | 0.05 | 3.83 | 0 | 24.8 | 62 | 0.2 |
| 13-Jun-13 | 80.15 | 69.69 | 90.57 | 80.54 | 70.7 | 90.54 | 79.85 | 70.93 | 88.92 | 81.64 | 79 | 84.47 | 73.24 | 80 | 0 | 0 | 4.93 | 0.07 | 15.87 | 253 | 0.2 |
| 14-Jun-13 | 79.91 | 72.82 | 88 | 80.5 | 73.9 | 87.96 | 79.81 | 73.92 | 86.45 | 82.03 | 80.19 | 83.95 | 73.23 | 80 | 0 | 0 | 5.88 | 0.3 | 18.13 | 254 | 0.18 |
| 15-Jun-13 | 79.17 | 70.95 | 90.28 | 79.61 | 72.28 | 89.71 | 79.13 | 73.33 | 88.32 | 81.83 | 80.28 | 83.68 | 74.9 | 87 | 0.11 | 0.07 | 4.37 | 0.03 | 20 | 250 | 0.14 |
| 16-Jun-13 | 80.21 | 73.27 | 93.47 | 80.53 | 74.46 | 93.09 | 79.82 | 74.82 | 91.35 | 82.68 | 80.4 | 85.75 | 75.22 | 85 | 0.02 | 0.01 | 5.56 | 0.2 | 21.2 | 113 | 0.19 |
| 17-Jun-13 | 81.25 | 72.37 | 93.36 | 81.65 | 73.2 | 92.61 | 81.29 | 73.51 | 91.38 | 83.19 | 80.83 | 85.71 | 74.68 | 81 | 0.04 | 0.02 | 3.8 | 0 | 22.53 | 222 | 0.19 |
| 18-Jun-13 | 81.39 | 72.19 | 92.08 | 81.94 | 73.33 | 91.33 | 81.51 | 74.3 | 89.82 | 83.45 | 81.23 | 85.6 | 74.82 | 81 | 0 | 0 | 4.26 | 0 | 19.03 | 210 | 0.19 |
| 19-Jun-13 | 79.79 | 72.01 | 89.49 | 80.21 | 72.93 | 88.39 | 79.83 | 73.26 | 86.83 | 83.33 | 81.61 | 84.9 | 75.06 | 85 | 0.16 | 0.16 | 4.21 | 0.13 | 27.07 | 154 | 0.17 |
| 20-Jun-13 | 78.38 | 69.76 | 91.51 | 78.83 | 69.57 | 90.97 | 78.36 | 70.68 | 89.46 | 82.41 | 80.38 | 85.6 | 72.8 | 83 | 1.56 | 0.83 | 4.94 | 0.07 | 51.1 | 162 | 0.18 |
| 21-Jun-13 | 76.23 | 68.09 | 91.17 | 76.53 | 68.83 | 90.19 | 76.12 | 70.2 | 89.01 | 81.16 | 78.91 | 83.61 | 71.84 | 87 | 0.02 | 0.01 | 4.18 | 0 | 26.83 | 102 | 0.17 |
| 22-Jun-13 | 78.69 | 69.04 | 92.25 | 79.02 | 70.05 | 91.04 | 78.48 | 71.04 | 89.94 | 82.06 | 79.59 | 84.85 | 71.69 | 81 | 0 | 0 | 4.75 | 0.17 | 17.3 | 97 | 0.19 |
| 23-Jun-13 | 78.26 | 70.07 | 91.89 | 78.7 | 71.17 | 91.4 | 78.32 | 72.25 | 90.01 | 82.56 | 80.6 | 84.85 | 73.32 | 85 | 0.01 | 0.01 | 4.75 | 0.07 | 28.4 | 99 | 0.16 |
| 24-Jun-13 | 81.02 | 70.54 | 91.72 | 81.44 | 71.82 | 91.83 | 80.89 | 72.72 | 90.43 | 83 | 80.73 | 85.42 | 73.08 | 78 | 0 | 0 | 6.29 | 0.53 | 18.67 | 103 | 0.2 |
| 25-Jun-13 | 81.33 | 70.5 | 91.8 | 81.89 | 71.76 | 91.74 | 81.38 | 72.36 | 90.21 | 83.56 | 81.64 | 85.57 | 73.26 | 77 | 0 | 0 | 5.36 | 0 | 19.83 | 101 | 0.18 |
| 26-Jun-13 | 77.63 | 70.68 | 92.75 | 78.14 | 71.64 | 92.01 | 77.78 | 71.22 | 90.63 | 83.32 | 81.97 | 85.1 | 73.24 | 86 | 0.17 | 0.07 | 4.85 | 0 | 21.23 | 132 | 0.15 |
| 27-Jun-13 | 78.73 | 68.68 | 91.33 | 79.19 | 69.84 | 90.43 | 78.77 | 70.36 | 89.31 | 82.27 | 80.24 | 84.51 | 72.69 | 82 | 0.83 | 0.44 | 3.79 | 0 | 27.5 | 196 | 0.18 |

## Table B.1 (continued)
## Monthly Recorded Meteorological Data
## Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) - 10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (%) | 2m Rain tot (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29-Jun-13 | 77.02 | 72.48 | 86.94 | 77.86 | 73.78 | 86.81 | 77.24 | 73.22 | 85.32 | 82.3 | 81.41 | 83.44 | 74.82 | 91 | 0.92 | 0.54 | 5.79 | 0 | 29.87 | 198 | 0.12 |
| 30-Jun-13 | 76.47 | 72.59 | 84.34 | 77.09 | 73.47 | 84.18 | 76.41 | 73.27 | 82.42 | 81.2 | 80.26 | 81.95 | 74.87 | 93 | 0.35 | 0.13 | 7.06 | 0.47 | 19.2 | 169 | 0.11 |
| 1-Jul-13 | 73.81 | 71.62 | 80.02 | 74.5 | 71.98 | 80.19 | 74.02 | 72 | 78.78 | 79.98 | 79.14 | 80.91 | 73.26 | 96 | 0.64 | 0.06 | 8.92 | 0.9 | 22.73 | 176 | 0.07 |
| 2-Jul-13 | 75.53 | 70.74 | 88.92 | 76.02 | 71.35 | 88.7 | 75.38 | 71.06 | 86.56 | 79.49 | 78.44 | 82.63 | 73.39 | 92 | 1.74 | 0.81 | 6.6 | 0.83 | 37.03 | 142 | 0.13 |
| 3-Jul-13 | 76.11 | 71.78 | 89.2 | 76.69 | 72.55 | 89.01 | 75.99 | 72.34 | 86.85 | 79.89 | 78.42 | 82.02 | 73.81 | 92 | 0.11 | 0.09 | 7.33 | 0.27 | 40.4 | 125 | 0.14 |
| 4-Jul-13 | 75.76 | 69.03 | 89.51 | 76.4 | 69.96 | 89.51 | 75.79 | 70.38 | 87.53 | 80.13 | 78.64 | 82.18 | 72.33 | 88 | 0.25 | 0.07 | 7.92 | 0 | 42.6 | 117 | 0.16 |
| 5-Jul-13 | 77.79 | 70.48 | 89.35 | 78.29 | 71.24 | 89.19 | 77.61 | 71.08 | 87.4 | 80.47 | 78.69 | 82.31 | 74.73 | 89 | 0.01 | 0.01 | 8.13 | 0.53 | 43.63 | 113 | 0.17 |
| 6-Jul-13 | 80.72 | 71.87 | 90.12 | 81.36 | 72.91 | 90.21 | 80.68 | 73.18 | 88.59 | 81.71 | 79.54 | 84.13 | 74.1 | 80 | 0 | 0 | 8.04 | 1.73 | 20.87 | 114 | 0.2 |
| 7-Jul-13 | 80.27 | 71.17 | 89.33 | 81.02 | 72.59 | 89.44 | 80.67 | 72.95 | 87.98 | 82.39 | 80.46 | 84.38 | 74.12 | 81 | 0 | 0 | 8.82 | 0.7 | 47.97 | 90 | 0.19 |
| 8-Jul-13 | 80.51 | 71.15 | 91.08 | 81.03 | 72.41 | 90.5 | 80.67 | 73.42 | 89.2 | 82.9 | 80.87 | 85.08 | 74.15 | 81 | 0 | 0 | 5.85 | 0.27 | 33.1 | 97 | 0.19 |
| 9-Jul-13 | 79.19 | 69.22 | 90.68 | 79.92 | 70.45 | 90.46 | 79.74 | 71.26 | 88.99 | 82.93 | 81 | 84.81 | 72.77 | 80 | 0 | 0 | 5.48 | 0.13 | 21.63 | 78 | 0.19 |
| 10-Jul-13 | 78.97 | 69.17 | 91.65 | 79.24 | 70.41 | 90.39 | 79.13 | 71.82 | 88.93 | 82.76 | 80.94 | 84.65 | 72.99 | 83 | 0.03 | 0.02 | 4.08 | 0 | 48 | 74 | 0.17 |
| 11-Jul-13 | 77.56 | 71.35 | 88 | 77.96 | 72.36 | 86.43 | 77.56 | 72.64 | 84.85 | 82.59 | 81.3 | 83.68 | 73.72 | 87 | 0.07 | 0.05 | 4.98 | 0.5 | 17.27 | 176 | 0.14 |
| 12-Jul-13 | 75.07 | 69.13 | 85.82 | 75.73 | 70.52 | 84.97 | 75.81 | 72.03 | 84.16 | 80.33 | 78.28 | 82.35 | 73.16 | 92 | 2.33 | 1.25 | 3.87 | 0 | 27.2 | 165 | 0.11 |
| 13-Jul-13 | 75.75 | 69.48 | 86.85 | 76.08 | 70.77 | 85.86 | 75.82 | 71.31 | 84.38 | 78.97 | 77.65 | 80.04 | 73.33 | 92 | 0.27 | 0.17 | 5.01 | 0.27 | 22.03 | 136 | 0.12 |
| 14-Jul-13 | 75.13 | 71.06 | 86.41 | 75.45 | 71.8 | 84.78 | 75.05 | 71.58 | 84.04 | 79.65 | 78.51 | 80.76 | 73.23 | 93 | 0.41 | 0.29 | 6.08 | 0.2 | 18.13 | 138 | 0.11 |
| 15-Jul-13 | 78.58 | 71.1 | 90.57 | 78.73 | 71.94 | 89.53 | 78.15 | 71.71 | 88.11 | 80.35 | 78.64 | 82.42 | 73.29 | 85 | 0 | 0 | 6.33 | 0.43 | 18.53 | 86 | 0.18 |
| 16-Jul-13 | 75.34 | 70.88 | 88.03 | 75.73 | 71.65 | 86.97 | 75.4 | 71.06 | 86.25 | 80.4 | 79.57 | 81.91 | 72.76 | 91 | 0.57 | 0.48 | 7.79 | 2 | 36.8 | 78 | 0.13 |
| 17-Jul-13 | 75.98 | 70.97 | 87.49 | 76.41 | 71.78 | 86.56 | 75.95 | 71.89 | 85.24 | 79.96 | 78.75 | 81.48 | 73.52 | 91 | 0.01 | 0.01 | 6.75 | 1.43 | 27.2 | 77 | 0.13 |
| 18-Jul-13 | 74.71 | 69.75 | 86.81 | 75.07 | 70.48 | 86.07 | 74.71 | 70.5 | 84.7 | 79.84 | 78.73 | 81.28 | 72.36 | 92 | 0.39 | 0.15 | 5.46 | 0.33 | 22.5 | 105 | 0.12 |
| 19-Jul-13 | 75.76 | 69.33 | 88.61 | 76.02 | 70.12 | 87.51 | 75.44 | 70.05 | 86.29 | 80.05 | 78.46 | 82.02 | 72.94 | 91 | 0.01 | 0.01 | 5.81 | 0.2 | 26.77 | 134 | 0.13 |
| 20-Jul-13 | 76.41 | 69.49 | 92.32 | 76.66 | 70.59 | 90.55 | 76.23 | 71.04 | 89.1 | 80.35 | 78.91 | 82.45 | 73.58 | 91 | 0.41 | 0.32 | 5.24 | 0.43 | 39.93 | 131 | 0.14 |
| 21-Jul-13 | 79.55 | 70.25 | 90.12 | 79.77 | 71.33 | 89.47 | 79.31 | 71.96 | 88.34 | 81.01 | 78.82 | 83.46 | 75.57 | 88 | 0 | 0 | 4.76 | 0.3 | 17.63 | 171 | 0.18 |
| 22-Jul-13 | 80.79 | 71.73 | 90.97 | 81.27 | 72.95 | 90.25 | 80.74 | 73.38 | 88.95 | 82.31 | 80.29 | 84.49 | 75.97 | 85 | 0 | 0 | 5.26 | 0 | 22.13 | 224 | 0.18 |
| 23-Jul-13 | 78.05 | 71.87 | 89.26 | 78.74 | 73.4 | 88.97 | 78.5 | 73.99 | 87.82 | 82.01 | 80.53 | 83.57 | 74.66 | 89 | 0.05 | 0.02 | 4.32 | 0.07 | 18.13 | 227 | 0.14 |
| 24-Jul-13 | 80.27 | 72.16 | 88.09 | 80.91 | 73.83 | 87.78 | 80.42 | 74.12 | 86.47 | 81.81 | 80.17 | 83.62 | 75.44 | 84 | 0 | 0 | 6.79 | 0.3 | 20.9 | 248 | 0.17 |
| 25-Jul-13 | 79.98 | 73.81 | 88.07 | 80.67 | 75.34 | 87.82 | 80.16 | 74.97 | 86.63 | 82.07 | 81.05 | 83.28 | 75.91 | 86 | 0.82 | 0.34 | 6.64 | 0.17 | 21.63 | 248 | 0.13 |

# Appendix C: Sample Event 3 Water Quality Analytical Results

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Table C.2
Water Quality Analytical Results
(July 24 through July 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| **STE Sample** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STE | 7/25/13 11:32 | 24.1 | 6.96 | 460 | 0.06 | 1327 | | 36 | 130 | | 55.05 | 55 | 8 | 47 | 0.05 | 47.05 | 16 | | | 2.4 | 44 | 0.05 | 0.01 | 4.4 | 220 | 0.69 | 130 | 0.11 | 43 | 0.03 | 22 | 42 | 36 | 780 | 24000 |
| STE DUP | 7/26/13 11:37 | 24.1 | 6.96 | 460 | 0.06 | 1327 | | 27 | 130 | | 55.05 | 55 | 10 | 45 | 0.05 | 45.05 | 15 | | | 2.5 | 45 | 0.05 | 0.01 | 4.4 | 230 | 0.69 | 120 | 0.11 | 41 | 0.029 | 20 | 41 | 27 | 770 | 24000 |
| **Treated Effluent from PNRS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BHS2-ST2 | 8/7/13 8:04 | 26.1 | 6.88 | 400 | 0.15 | 1303 | | 3 | 92 | 10 | 1.4 | 1.4 | 1.0 | 0.41 | 0.02 | 0.4 | 11 | | | | | | | 1.9 | 180 | 21 | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ01 | 7/24/13 11:34 | 25.6 | 5.30 | 16 | 4.02 | 844 | | | | 180 | 2.30 | 1.1 | 0.97 | 0.13 | 1.2 | 1.33 | 2.8 | | | | 31 | 1.2 | 0.01 | | 320 | | | | | | | | | | |
| PZ01-DUP | 7/24/13 11:37 | 25.6 | 5.30 | 16 | 4.02 | 844 | | | | 88 | 2.20 | 1 | 0.97 | 0.033 | 1.2 | 1.23 | 0.18 | | | | 31 | 1.2 | 0.01 | | 320 | | | | | | | | | | |
| BKG-10 | 7/25/13 10:52 | 26.1 | 3.90 | 3.8 | 4.74 | 132 | | 99 | 2 | 45 | 0.66 | 0.59 | 0.54 | 0.054 | 0.07 | 0.12 | 0.1 | 22 | 27 | 0.011 | 12 | 0.06 | 0.02 | 0.01 | 16 | 0.05 | 3.5 | 2.5 | 0.73 | 0.003 | 0.64 | 8.7 | 99 | 20 | |
| BKG-15 | 7/25/13 11:23 | 24.5 | 5.15 | 38 | 0.11 | 151 | | | | 130 | 2.03 | 1.9 | 1.34 | 0.56 | 0.13 | 0.69 | 0.65 | | | | 12 | 0.06 | 0.07 | | 13 | | | | | | | | | | |
| PZ-AB4-08 | 7/25/13 11:29 | 24.8 | 4.09 | 2 | 2.37 | 407 | | | | 10 | 0.20 | 0.08 | 0.02 | 0.064 | 0.12 | 0.18 | 0.032 | | | | 16 | 0.12 | 0.01 | | 130 | | | | | | | | | | |
| PZ-AB4-15 | 7/25/13 11:44 | 24.7 | 5.94 | 120 | 6.13 | 260 | | | | | 4.40 | 4.3 | 4.04 | 0.26 | 0.1 | 0.36 | | | | | 8 | 0.06 | 0.05 | | 6.2 | | | | | | | | | | |
| PZ-C1 | 7/25/13 10:24 | 27.0 | 6.18 | 130 | 5.65 | 1,076 | | | | | 4.00 | 1.3 | 1.29 | 0.012 | 2.7 | 2.71 | | | | | 42 | 2.7 | 0.01 | | 310 | | | | | | | | | | |
| PZ-C2 | 7/25/13 10:07 | 24.8 | 5.07 | 22 | 0.55 | 377 | | | | | 0.59 | 0.53 | 0.16 | 0.37 | 0.06 | 0.43 | | | | | 20 | 0.06 | 0.01 | | 100 | | | | | | | | | | |
| PZ-C3-08 | 7/25/13 9:27 | 25.2 | 4.69 | 5.1 | 5.49 | 932 | | | | | 2.12 | 0.42 | 0.37 | 0.051 | 1.7 | 1.75 | | | | | 38 | 1.7 | 0.01 | | 330 | | | | | | | | | | |
| PZ-C3-15 | 7/25/13 9:45 | 24.3 | 6.48 | 150 | 2.12 | 443 | | | | | 0.79 | 0.62 | 0.33 | 0.29 | 0.17 | 0.46 | | | | | 11 | 0.09 | 0.08 | | 48 | | | | | | | | | | |
| PZ-C6-08 | 7/25/2013 9:42 | 24.3 | 3.75 | 2 | 0.26 | 491 | | | | | 0.40 | 0.26 | 0.19 | 0.074 | 0.14 | 0.21 | | | | | 20 | 0.14 | 0.01 | | 180 | | | | | | | | | | |
| PZ-C6-15 | 7/25/13 9:55 | 23.4 | 5.13 | 24 | 0.08 | 369 | | | | | 3.67 | 3.6 | 1.80 | 1.8 | 0.07 | 1.87 | | | | | 37 | 0.07 | 0.01 | | 74 | | | | | | | | | | |
| PZ-D3-08 | 7/25/13 8:47 | 25.0 | 4.69 | 3.6 | 3.86 | 902 | | | | 32 | 0.84 | 0.16 | 0.15 | 0.01 | 0.68 | 0.69 | 0.11 | | | | 36 | 0.68 | 0.01 | | 330 | | | | | | | | | | |
| PZ-D3-15 | 7/25/13 9:07 | 24.8 | 6.53 | 120 | 6.31 | 352 | | | | 56 | 0.64 | 0.54 | 0.26 | 0.28 | 0.1 | 0.38 | 1.3 | | | | 10 | 0.05 | 0.05 | | 17 | | | | | | | | | | |
| PZ-D4-08 | 7/24/13 13:29 | 25.0 | 4.27 | 2 | 2.11 | 721 | | | | | 0.79 | 0.43 | 0.40 | 0.028 | 0.36 | 0.39 | | | | | 29 | 0.36 | 0.01 | | 270 | | | | | | | | | | |
| PZ-D4-15 | 7/24/13 13:45 | 25.2 | 6.67 | 180 | 5.84 | 559 | | | | | 0.75 | 0.51 | 0.26 | 0.25 | 0.24 | 0.49 | | | | | 11 | 0.14 | 0.1 | | 73 | | | | | | | | | | |
| PZ-E1 | 7/25/13 10:45 | 25.8 | 5.25 | 17 | 5.05 | 530 | | | | 32 | 0.80 | 0.67 | 0.45 | 0.22 | 0.13 | 0.35 | 0.069 | | | | 28 | 0.13 | 0.01 | | 170 | | | | | | | | | | |
| PZ-E2 | 7/25/13 11:09 | 26.6 | 6.11 | 37 | 7.63 | 156 | | | | | 0.72 | 0.66 | 0.36 | 0.3 | 0.06 | 0.36 | | | | | 13 | 0.06 | 0.01 | | 42 | | | | | | | | | | |
| PZ-E3-08 | 7/25/13 8:08 | 25.1 | 5.33 | 18 | 2.11 | 886 | | | | 71 | 1.25 | 0.92 | 0.88 | 0.039 | 0.33 | 0.37 | 0.14 | 36 | 36 | 0.01 | 30 | 0.33 | 0.01 | 0.01 | 330 | 0.37 | 86 | 1.1 | 38 | 0.003 | 14 | 33 | | | |
| PZ-E3-15 | 7/25/13 8:35 | 24.1 | 6.07 | 67 | 2.75 | 225 | | | | 170 | 2.53 | 2.3 | 2.05 | 0.25 | 0.23 | 0.48 | 14 | | | | 11 | 0.11 | 0.12 | | 22 | | | | | | | | | | |
| PZ-E4-08 | 7/24/13 12:45 | 25.9 | 4.03 | 2 | 2.95 | 762 | | | | 54 | 0.86 | 0.54 | 0.53 | 0.014 | 0.32 | 0.33 | 0.19 | | | | 29 | 0.32 | 0.01 | | 0.2 | | | | | | | | | | |
| PZ-E4-15 | 7/24/13 13:09 | 24.8 | 6.17 | 120 | 0.71 | 438 | | | | | 1.01 | 0.8 | 0.34 | 0.46 | 0.21 | 0.67 | | | | | 12 | 0.11 | 0.1 | | 59 | | | | | | | | | | |
| PZ-E5-08 | 7/25/13 10:13 | 24.5 | 3.96 | 2 | 0.48 | 733 | | | | | 0.96 | 0.64 | 0.58 | 0.059 | 0.32 | 0.38 | | | | | 30 | 0.32 | 0.01 | | 290 | | | | | | | | | | |
| PZ-E5-15 | 7/25/13 10:28 | 23.8 | 6.09 | 100 | 0.08 | 483 | | | | | 0.65 | 0.56 | 0.34 | 0.22 | 0.09 | 0.31 | | | | | 17 | 0.09 | 0.01 | | 82 | | | | | | | | | | |
| PZ-E6-08 | 7/24/13 13:50 | 25.0 | 3.73 | 2 | 1.67 | 780 | | | | | 0.49 | 0.43 | 0.40 | 0.03 | 0.06 | 0.09 | | | | | 32 | 0.06 | 0.01 | | 0.2 | | | | | | | | | | |
| PZ-E6-15 | 7/24/13 14:04 | 23.8 | 4.81 | 12 | 0.74 | 326 | | | | | 2.79 | 2.7 | 1.60 | 1.1 | 0.09 | 1.19 | 0.34 | 18 | 17 | 0.01 | 25 | 0.09 | 0.01 | 0.01 | 82 | 0.088 | 31 | 1.5 | 11 | 0.005 | 1.4 | 11 | | | |
| PZ-E7-08 | 7/25/13 9:09 | 24.2 | 4.27 | 2 | 0.57 | 445 | | | | 35 | 4.60 | 2.8 | 2.66 | 0.14 | 1.8 | 1.94 | 0.038 | 19 | 18 | 0.46 | 31 | 1.8 | 0.01 | 0.01 | 130 | 0.14 | 44 | 0.2 | 16 | 0.009 | 1.8 | 12 | | | |
| PZ-E7-15 | 7/25/13 9:25 | 23.5 | 6.49 | 290 | 0.16 | 1,145 | | | | 54 | 0.95 | 0.89 | 0.48 | 0.41 | 0.06 | 0.47 | 0.28 | | | | 20 | 0.06 | 0.01 | | 270 | | | | | | | | | | |
| PZ-E7-15-DUP | 7/25/13 9:30 | 23.5 | 6.49 | 270 | 0.16 | 1,145 | | | | 58 | 1.02 | 0.96 | 0.56 | 0.4 | 0.06 | 0.46 | 0.31 | | | | 21 | 0.06 | 0.01 | | 260 | | | | | | | | | | |
| PZ-F3-15 | 7/24/13 10:56 | 28.0 | 6.93 | 120 | 7.49 | 272 | | | | 26 | 0.63 | 0.57 | 0.36 | 0.21 | 0.06 | 0.27 | 0.59 | | | | 8.3 | 0.05 | 0.01 | | 0.73 | | | | | | | | | | |
| PZ-F4-08 | 7/24/13 11:54 | 25.8 | 4.06 | 2 | 1.43 | 888 | | | | 54 | 1.36 | 0.86 | 0.84 | 0.018 | 0.5 | 0.52 | 0.068 | 26 | 26 | 1.3 | 36 | 0.5 | 0.01 | 0.01 | 310 | 0.49 | 69 | 0.43 | 27 | 0.014 | 7.1 | 49 | | | |
| PZ-F4-08 DUP | 7/24/13 12:04 | 25.8 | 4.06 | 2 | 1.43 | 888 | | | | 51 | 1.29 | 0.79 | 0.78 | 0.012 | 0.5 | 0.51 | 0.073 | 28 | 27 | 1.1 | 36 | 0.5 | 0.01 | 0.01 | 320 | 0.5 | 67 | 0.38 | 27 | 0.012 | 7.9 | 45 | | | |
| PZ-F4-15 | 7/24/13 12:29 | 25.4 | 6.44 | 180 | 0.80 | 588 | | | | 32 | 0.91 | 0.75 | 0.46 | 0.29 | 0.16 | 0.45 | 0.26 | | | | 14 | 0.16 | 0.01 | | 78 | | | | | | | | | | |
| PZ-G2-12.5 | 7/24/13 10:02 | 25.1 | 4.11 | 2 | 2.09 | 809 | | | | | 2.74 | 0.74 | 0.73 | 0.009 | 2 | 2.01 | | | | | 38 | 2 | 0.01 | | 0.2 | | | | | | | | | | |
| PZ-H4-08 | 7/25/13 8:17 | 25.1 | 4.07 | 2 | 2.16 | 685 | | | | 35 | 2.62 | 0.72 | 0.69 | 0.028 | 1.9 | 1.93 | 0.079 | 15 | 14 | 0.01 | 32 | 1.9 | 0.01 | 0.01 | 240 | 0.39 | 56 | 0.41 | 27 | 0.005 | 8.1 | 32 | | | |
| PZ-H4-15 | 7/25/13 8:34 | 24.2 | 6.33 | 170 | 0.23 | 586 | | | | 13 | 2.48 | 2.2 | 1.90 | 0.3 | 0.28 | 0.58 | 11 | | | | 19 | 0.23 | 0.05 | | 140 | | | | | | | | | | |
| PZ-H5-11.5 | 7/25/13 8:51 | 24.3 | 4.01 | 2 | 2.80 | 535 | | | | | 0.86 | 0.53 | 0.52 | 0.009 | 0.33 | 0.34 | | 17 | 17 | 0.056 | 29 | 0.33 | 0.01 | 0.01 | 170 | 0.15 | 48 | 0.041 | 22 | 0.005 | 2 | 17 | | | |

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Table C.2 (con't)
Water Quality Analytical Results
(July 24 through July 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-I6-08 | 7/24/13 12:48 | 24.8 | 3.87 | 2 | 1.24 | 486 | | | | | 5.90 | 4.3 | 3.85 | 0.45 | 1.6 | 2.05 | | | | | 38 | 1.6 | 0.01 | | 140 | | | | | | | | | | |
| PZ-I6-15 | 7/24/13 13:01 | 23.8 | 6.45 | 160 | 0.95 | 800 | | | | | 1.10 | 1 | 0.75 | 0.25 | 0.1 | 0.35 | | | | | 20 | 0.1 | 0.01 | | 130 | | | | | | | | | | |
| PZ-I6-15-DUP | 7/24/13 13:06 | 23.8 | 6.45 | 130 | 0.95 | 800 | | | | | 1.10 | 1 | 0.74 | 0.26 | 0.1 | 0.36 | | | | | 20 | 0.1 | 0.01 | | 120 | | | | | | | | | | |
| PZ-I10-08 | 7/24/13 11:43 | 24.2 | 4.33 | 2 | 1.74 | 344 | | | | 23 | 1.48 | 1.4 | 0.82 | 0.58 | 0.08 | 0.66 | 0.03 | | | | 23 | 0.08 | 0.01 | | 96 | | | | | | | | | | |
| PZ-I10-15 | 7/24/13 11:55 | 23.5 | 5.84 | 59 | 1.51 | 406 | | | | | 1.22 | 1.2 | 0.58 | 0.62 | 0.02 | 0.64 | | | | | 22 | 0.01 | 0.01 | | 84 | | | | | | | | | | |
| PZ-J4-15 | 7/24/13 13:29 | 25.0 | 5.98 | 54 | 3.28 | 426 | | | | 26 | 2.36 | 2.3 | 0.90 | 1.4 | 0.06 | 1.46 | 0.1 | | | | 28 | 0.06 | 0.01 | | 91 | | | | | | | | | | |
| PZ-J7-08 | 7/24/13 12:07 | 24.5 | 4.32 | 2 | 1.24 | 287 | | | | 17 | 3.50 | 1.8 | 1.76 | 0.042 | 1.7 | 1.74 | 0.12 | 16 | 16 | 0.41 | 29 | 1.7 | 0.01 | 0.016 | 66 | 0.12 | 27 | 0.32 | 11 | 0.004 | 1.1 | 9.4 | | | |
| PZ-J7-15 | 7/24/13 12:24 | 23.7 | 4.80 | 4.9 | 2.29 | 331 | | | | | 1.11 | 1 | 0.57 | 0.43 | 0.11 | 0.54 | 0.31 | 21 | 20 | 0.01 | 19 | 0.11 | 0.01 | 0.01 | 110 | 0.057 | 32 | 1.5 | 12 | 0.004 | 1.1 | 11 | | | |
| PZ-J7-15 DUP | 7/24/13 12:29 | 23.7 | 4.80 | 7 | 2.29 | 331 | | | | | 1.05 | 0.94 | 0.57 | 0.37 | 0.11 | 0.48 | 0.31 | 20 | 20 | 0.01 | 19 | 0.11 | 0.01 | 0.01 | 110 | 0.06 | 34 | 1.5 | 13 | 0.004 | 1.2 | 12 | | | |
| PZ-N4-08 | 7/24/13 9:57 | 25.0 | 4.48 | 2 | 5.43 | 500 | | | | 23 | 0.49 | 0.47 | 0.40 | 0.068 | 0.02 | 0.09 | | | | | 22 | 0.01 | 0.01 | | 200 | | | | | | | | | | |
| PZ-N4-15 | 7/24/13 10:14 | 23.5 | 5.96 | 140 | 1.86 | 361 | | | | | 4.86 | 4.8 | 4.41 | 0.39 | 0.06 | 0.45 | | | | | 12 | 0.06 | 0.01 | | 66 | | | | | | | | | | |
| PZ-N7-08 | 7/24/13 10:29 | 24.1 | 4.75 | 3.4 | 1.62 | 428 | | | | | 1.47 | 1.3 | 0.85 | 0.45 | 0.17 | 0.62 | | 18 | 16 | 0.56 | 28 | 0.17 | 0.01 | 0.026 | 140 | 0.079 | 44 | 3.9 | 14 | 0.045 | 0.95 | 11 | | | |
| PZ-N7-15 | 7/24/13 10:46 | 23.4 | 5.26 | 17 | 1.78 | 237 | | | | | 0.88 | 0.83 | 0.59 | 0.24 | 0.05 | 0.29 | | | | | 13 | 0.05 | 0.01 | | 58 | | | | | | | | | | |
| PZ-N7-15-DUP | 7/24/13 10:51 | 23.4 | 5.26 | 17 | 1.78 | 237 | | | | | 0.94 | 0.89 | 0.65 | 0.24 | 0.05 | 0.29 | | | | | 13 | 0.05 | 0.01 | | 58 | | | | | | | | | | |
| PZ-N10-08 | 7/24/13 11:20 | 24.0 | 5.40 | 22 | 0.63 | 353 | | | | 35 | 0.68 | 0.62 | 0.48 | 0.14 | 0.06 | 0.20 | 0.19 | | | | 21 | 0.06 | 0.01 | | 87 | | | | | | | | | | |
| PZ-N10-15 | 7/24/13 11:32 | 23.4 | 6.41 | 130 | 1.40 | 582 | | | | | 0.77 | 0.72 | 0.45 | 0.27 | 0.05 | 0.32 | | | | | 17 | 0.05 | 0.01 | | 92 | | | | | | | | | | |
| PZ-S10-08 | 7/24/13 11:02 | 24.5 | 5.01 | 2.2 | 2.19 | 240 | | | | 32 | 0.79 | 0.74 | 0.45 | 0.29 | 0.05 | 0.34 | 0.07 | | | | 17 | 0.05 | 0.01 | | 62 | | | | | | | | | | |
| PZ-S10-08 DUP | 7/24/13 11:07 | 24.5 | 5.01 | 2 | 2.19 | 240 | | | | 32 | 0.85 | 0.79 | 0.48 | 0.31 | 0.06 | 0.37 | 0.064 | | | | 18 | 0.06 | 0.01 | | 62 | | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 7/25/13 11:50 | 24 | 7.45 | 2 | 7.25 | 1 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 | | | |
| EB | 7/25/13 11:55 | 24 | 7.45 | 2 | 7.58 | 1 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.01 | 0.13 | | | |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$

[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$.

[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_X$.

D.O. - Dissolved oxygen

G - Grab sample

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

Orange - shaded data points indicate too many colonies were present. The numeric value represents the dilution factor times the maximum reportable number of colonies.

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# Appendix D: Summary of Water Quality Data

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Table D.1
Summary of Water Quality Data

| Sample ID | Statistical Parameter | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| STE | n | 4 | 4 | 1 | 4 | 4 | 2 | 3 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 1 | 0 | 0 | 1 | 1 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| | MEAN | 24.15 | 7.14 | 460.00 | 0.24 | 1373.00 | 47.00 | 90.33 | 120.00 | 58.55 | 55.33 | 12.50 | 43.00 | 0.05 | 46.05 | 16.00 | | | 2.40 | 44.00 | 0.05 | 0.01 | 4.40 | 220.00 | 0.69 | 130.00 | 0.11 | 43.00 | 0.03 | 22.00 | 42.00 | 780.00 | | 24000.00 |
| | STD. DEV. | 1.90 | 0.20 | | 0.19 | 61.60 | | 45.28 | | 6.65 | 2.52 | 3.70 | 3.46 | 0.01 | 6.62 | | | | | | 0.00 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.40 | 6.96 | 460.00 | 0.06 | 1327.00 | 36.00 | 41.00 | 120.00 | 53.05 | 53.00 | 8.00 | 41.00 | 0.03 | 41.05 | 16.00 | | | 2.40 | 44.00 | 0.05 | 0.01 | 4.40 | 220.00 | 0.69 | 130.00 | 0.11 | 43.00 | 0.03 | 22.00 | 42.00 | 780.00 | | 24000.00 |
| | MAX | 26.80 | 7.38 | 460.00 | 0.40 | 1463.00 | 58.00 | 130.00 | 120.00 | 68.03 | 58.00 | 17.00 | 47.00 | 0.05 | 55.03 | 16.00 | | | 2.40 | 44.00 | 0.05 | 0.01 | 4.40 | 220.00 | 0.69 | 130.00 | 0.11 | 43.00 | 0.03 | 22.00 | 42.00 | 780.00 | | 24000.00 |
| BHS2-ST2 (treated effluent) | n | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |
| | MEAN | 22.5 | 6.83 | 334 | 0.146 | 1222 | 6.8 | 67.6 | 170 | 3.46 | 3.44 | 1.28 | 2.16 | 0.02 | 2.18 | 4.92 | | | | | | | 2.47 | 192 | | | | | | | | | 112.5 | 29 |
| | STD. DEV. | 3.6626 | 0.1851 | 76.68116 | 0.061 | 65.53624951 | 5.1672 | 32.323 | 101.73 | 2.413089 | 2.413089 | 0.236326 | 2.21548 | 0 | 2.21548 | 3.5153 | | | | | | | 1.26174 | 27.749 | | | | | | | | | 81.802608 | |
| | MIN | 16.5 | 6.51 | 220 | 0.07 | 1135 | 2 | 32 | 10 | 1.42 | 1.4 | 0.99 | 0.37 | 0.02 | 0.39 | 2.4 | | | | | | | 0.85 | 170 | | | | | | | | | 10 | 29 |
| | MAX | 26.1 | 6.99 | 410 | 0.24 | 1303 | 15 | 110 | 260 | 6.52 | 6.5 | 1.5 | 5 | 0.02 | 5.02 | 11 | | | | | | | 4.1 | 240 | | | | | | | | | 200 | 29 |
| PZ-01 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.57 | 5.08 | 13.67 | 2.89 | 668.00 | | | 90.33 | 5.74 | 2.20 | 2.13 | 0.07 | 3.54 | 3.61 | 10.96 | | | | 30.50 | 0.77 | 0.01 | | 320.00 | | | | | | | | | | |
| | STD. DEV. | 2.89 | 0.70 | 10.69 | 1.76 | 176.50 | | | 77.85 | 6.64 | 1.82 | 1.86 | 0.06 | 4.83 | 4.79 | 16.54 | | | | 0.71 | 0.62 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.30 | 4.30 | 2.00 | 0.86 | 491.00 | | | 40.00 | 1.53 | 1.10 | 0.97 | 0.02 | 0.33 | 0.38 | 0.09 | | | | 30.00 | 0.33 | 0.01 | | 320.00 | | | | | | | | | | |
| | MAX | 26.80 | 5.65 | 23.00 | 4.02 | 844.00 | | | 180.00 | 13.40 | 4.30 | 4.28 | 0.13 | 9.10 | 9.12 | 30.00 | | | | 31.00 | 1.20 | 0.01 | | 320.00 | | | | | | | | | | |
| PZ-02 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-03 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| | MAX | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| PZ-04 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| | MAX | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| PZ-06 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |
| | MAX | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| BKG-10 | n | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.85 | 4.33 | 2.90 | 5.69 | 233.00 | 99.00 | 2.00 | 60.00 | 1.29 | 1.25 | 1.14 | 0.11 | 0.05 | 0.15 | 0.55 | 22.00 | 27.00 | 0.11 | 22.50 | 0.04 | 0.02 | 0.05 | 34.00 | 0.06 | 5.40 | 1.61 | 1.42 | 0.002 | 0.53 | 12.85 | | | |
| | STD. DEV. | 3.18 | 0.61 | 1.27 | 1.34 | 142.84 | | | 21.21 | 0.89 | 0.93 | 0.85 | 0.07 | 0.04 | 0.04 | 0.64 | | | 0.14 | 14.85 | 0.04 | 0.01 | 0.05 | 25.46 | 0.01 | 2.69 | 1.26 | 0.97 | 0.00 | 0.16 | 5.87 | | | |
| | MIN | 21.60 | 3.90 | 2.00 | 4.74 | 132.00 | 99.00 | 2.00 | 45.00 | 0.66 | 0.59 | 0.54 | 0.05 | 0.02 | 0.12 | 0.10 | 22.00 | 27.00 | 0.01 | 12.00 | 0.01 | 0.01 | 0.01 | 16.00 | 0.05 | 3.50 | 0.72 | 0.73 | 0.002 | 0.42 | 8.70 | | | |
| | MAX | 26.10 | 4.76 | 3.80 | 6.63 | 334.00 | 99.00 | 2.00 | 75.00 | 1.92 | 1.90 | 1.74 | 0.16 | 0.07 | 0.18 | 1.00 | 22.00 | 27.00 | 0.21 | 33.00 | 0.06 | 0.02 | 0.08 | 52.00 | 0.07 | 7.30 | 2.50 | 2.10 | 0.003 | 0.64 | 17.00 | | | |
| BKG-15 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 2 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.23 | 5.62 | 35.00 | 0.19 | 135.47 | 1.80 | 0.64 | 108.50 | 2.53 | 2.23 | 1.90 | 0.58 | 0.06 | 0.63 | 1.92 | | | | 12.00 | 0.03 | 0.04 | | 13.00 | | | | | | | | | | |
| | STD. DEV. | 1.30 | 0.41 | 2.65 | 0.07 | 13.95 | | | 30.41 | 0.70 | 0.67 | 0.79 | 0.05 | 0.06 | 0.09 | 1.28 | | | | | 0.03 | 0.04 | | | | | | | | | | | | |
| | MIN | 21.90 | 5.15 | 33.00 | 0.11 | 124.00 | 1.80 | 0.64 | 87.00 | 2.03 | 1.80 | 1.34 | 0.54 | 0.02 | 0.56 | 0.65 | | | | 12.00 | 0.01 | 0.01 | | 13.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.89 | 38.00 | 0.23 | 151.00 | 1.80 | 0.64 | 130.00 | 3.02 | 3.00 | 2.46 | 0.64 | 0.13 | 0.69 | 3.20 | | | | 12.00 | 0.06 | 0.07 | | 13.00 | | | | | | | | | | |
| PZ-AB4-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.95 | 5.09 | 3.10 | 2.09 | 369.00 | | | 22.00 | 0.60 | 0.52 | 0.25 | 0.27 | 0.08 | 0.35 | 0.23 | | | | 16.00 | 0.08 | 0.01 | | 130.00 | | | | | | | | | | |
| | STD. DEV. | 1.20 | 1.41 | 1.56 | 0.40 | 53.74 | | | 16.97 | 0.56 | 0.62 | 0.33 | 0.29 | 0.06 | 0.23 | 0.28 | | | | | 0.06 | 0.00 | | | | | | | | | | | | |
| | MIN | 23.10 | 4.09 | 2.00 | 1.80 | 331.00 | | | 10.00 | 0.20 | 0.08 | 0.02 | 0.06 | 0.03 | 0.18 | 0.03 | | | | 16.00 | 0.03 | 0.01 | | 130.00 | | | | | | | | | | |
| | MAX | 24.80 | 6.09 | 4.20 | 2.37 | 407.00 | | | 34.00 | 0.99 | 0.96 | 0.48 | 0.48 | 0.12 | 0.51 | 0.43 | | | | 16.00 | 0.12 | 0.01 | | 130.00 | | | | | | | | | | |
| PZ-AB4-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.23 | 6.58 | 120.00 | 3.39 | 334.00 | 1.90 | 0.33 | | 2.63 | 2.33 | 2.17 | 0.36 | 0.08 | 0.46 | | | | | 8.00 | 0.06 | 0.03 | | 6.20 | | | | | | | | | | |
| | STD. DEV. | 1.62 | 0.65 | | 3.00 | 106.45 | | | | 2.51 | 1.79 | 2.65 | 0.12 | 0.02 | 0.14 | | | | | | 0.04 | 0.02 | | | | | | | | | | | | |
| | MIN | 21.50 | 5.94 | 120.00 | 0.19 | 260.00 | 1.90 | 0.33 | | 0.85 | 0.79 | 0.29 | 0.26 | 0.06 | 0.36 | | | | | 8.00 | 0.02 | 0.01 | | 6.20 | | | | | | | | | | |
| | MAX | 24.70 | 7.24 | 120.00 | 6.13 | 456.00 | 1.90 | 0.33 | | 4.40 | 4.30 | 4.04 | 0.50 | 0.10 | 0.56 | | | | | 8.00 | 0.09 | 0.05 | | 6.20 | | | | | | | | | | |
| PZ-C1 | n | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.80 | 5.94 | 130.00 | 5.28 | 943.00 | | | | 2.96 | 1.14 | 1.13 | 0.01 | 1.82 | 1.83 | | | | | 42.00 | 1.82 | 0.01 | | 310.00 | | | | | | | | | | |
| | STD. DEV. | 3.11 | 0.35 | | 0.52 | 188.09 | | | | 1.48 | 0.23 | 0.22 | 0.00 | 1.25 | 1.25 | | | | | | 1.25 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.60 | 5.69 | 130.00 | 4.91 | 810.00 | | | | 1.91 | 0.98 | 0.97 | 0.01 | 0.93 | 0.94 | | | | | 42.00 | 0.93 | 0.01 | | 310.00 | | | | | | | | | | |
| | MAX | 27.00 | 6.18 | 130.00 | 5.65 | 1076.00 | | | | 4.00 | 1.30 | 1.29 | 0.01 | 2.70 | 2.71 | | | | | 42.00 | 2.70 | 0.01 | | 310.00 | | | | | | | | | | |
| PZ-C2 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 17.77 | 10.89 | 22.00 | 0.52 | 253.10 | 1.00 | 0.44 | | 0.81 | 0.84 | 0.37 | 0.41 | 0.03 | 0.44 | | | | | 20.00 | 0.03 | 0.01 | | 100.00 | | | | | | | | | | |
| | STD. DEV. | 10.65 | 9.37 | | 0.21 | 112.51 | | | | 0.30 | 0.27 | 0.29 | 0.04 | 0.02 | 0.01 | | | | | | 0.03 | 0.00 | | | | | | | | | | | | |
| | MIN | 5.52 | 5.07 | 22.00 | 0.30 | 157.30 | 1.00 | 0.44 | | 0.59 | 0.53 | 0.16 | 0.37 | 0.02 | 0.43 | | | | | 20.00 | 0.01 | 0.01 | | 100.00 | | | | | | | | | | |
| | MAX | 24.80 | 21.70 | 22.00 | 0.71 | 377.00 | 1.00 | 0.44 | | 1.02 | 1.00 | 0.57 | 0.44 | 0.06 | 0.45 | | | | | 20.00 | 0.06 | 0.01 | | 100.00 | | | | | | | | | | |
| PZ-C3-08 | n | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.10 | 4.92 | 5.10 | 3.27 | 685.00 | | | | 1.53 | 0.64 | 0.49 | 0.15 | 0.89 | 1.04 | | | | | 38.00 | 0.89 | 0.01 | | 330.00 | | | | | | | | | | |
| | STD. DEV. | 1.56 | 0.33 | | 3.14 | 349.31 | | | | 0.83 | 0.31 | 0.18 | 0.13 | 1.15 | 1.01 | | | | | | 1.15 | 0.00 | | | | | | | | | | | | |
| | MIN | 23.00 | 4.69 | 5.10 | 1.05 | 438.00 | | | | 0.94 | 0.42 | 0.37 | 0.05 | 0.08 | 0.32 | | | | | 38.00 | 0.08 | 0.01 | | 330.00 | | | | | | | | | | |
| | MAX | 25.20 | 5.15 | 5.10 | 5.49 | 932.00 | | | | 2.12 | 0.86 | 0.62 | 0.24 | 1.70 | 1.75 | | | | | 38.00 | 1.70 | 0.01 | | 330.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-C3-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.40 | 6.67 | 150.00 | 1.47 | 482.67 | 1.10 | 0.43 | | 0.70 | 0.76 | 0.29 | 0.35 | 0.08 | 0.41 | | | | | 11.00 | 0.05 | 0.05 | | | | | | | | | | | | |
| | STD. DEV. | 1.23 | 0.17 | | 0.60 | 36.91 | | | | 0.13 | 0.29 | 0.06 | 0.07 | 0.08 | 0.07 | | | | | | 0.03 | 0.05 | | | | | | | | | | | | |
| | MIN | 22.00 | 6.48 | 150.00 | 0.94 | 443.00 | 1.10 | 0.43 | | 0.60 | 0.57 | 0.24 | 0.29 | 0.03 | 0.36 | | | | | 11.00 | 0.03 | 0.01 | | | | | | | | | | | | |
| | MAX | 24.30 | 6.82 | 150.00 | 2.12 | 516.00 | 1.10 | 0.43 | | 0.79 | 1.10 | 0.33 | 0.43 | 0.17 | 0.46 | | | | | 11.00 | 0.09 | 0.08 | | | | | | | | | | | | |
| PZ-C6-08 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.87 | 4.13 | 2.00 | 1.66 | 513.67 | 0.77 | 0.12 | | 0.68 | 0.65 | 0.47 | 0.12 | 0.07 | 0.20 | | | | | 20.00 | 0.07 | 0.01 | | | | | | | | | | | | |
| | STD. DEV. | 1.29 | 0.34 | | 1.21 | 125.54 | | | | 0.39 | 0.35 | 0.41 | 0.05 | 0.06 | 0.02 | | | | | | 0.07 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.80 | 3.75 | 2.00 | 0.26 | 401.00 | 0.77 | 0.12 | | 0.40 | 0.26 | 0.19 | 0.07 | 0.02 | 0.19 | | | | | 20.00 | 0.01 | 0.01 | | | | | | | | | | | | |
| | MAX | 24.30 | 4.40 | 2.00 | 2.36 | 649.00 | 0.77 | 0.12 | | 0.95 | 0.93 | 0.76 | 0.17 | 0.14 | 0.21 | | | | | 20.00 | 0.14 | 0.01 | | | | | | | | | | | | |
| PZ-C6-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.87 | 5.49 | 24.00 | 2.17 | 370.33 | 0.71 | 0.32 | | 2.24 | 1.70 | 1.20 | 0.77 | 0.04 | 1.04 | | | | | 37.00 | 0.04 | 0.01 | | 74.00 | | | | | | | | | | |
| | STD. DEV. | 0.76 | 0.33 | | 2.19 | 20.03 | | | | 2.03 | 1.65 | 0.85 | 0.90 | 0.03 | 1.18 | | | | | | 0.03 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.00 | 5.13 | 24.00 | 0.08 | 351.00 | 0.71 | 0.32 | | 0.80 | 0.71 | 0.60 | 0.18 | 0.02 | 0.20 | | | | | 37.00 | 0.01 | 0.01 | | 74.00 | | | | | | | | | | |
| | MAX | 23.40 | 5.77 | 24.00 | 4.45 | 391.00 | 0.71 | 0.32 | | 3.67 | 3.60 | 1.80 | 1.80 | 0.07 | 1.87 | | | | | 37.00 | 0.07 | 0.01 | | 74.00 | | | | | | | | | | |
| PZ-D3-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.00 | 5.01 | 7.30 | 2.32 | 643.50 | | | 37.00 | 1.12 | 0.52 | 0.47 | 0.06 | 0.60 | 0.65 | 0.29 | | | | 36.00 | 0.60 | 0.01 | | 330.00 | | | | | | | | | | |
| | STD. DEV. | 1.41 | 0.45 | 5.23 | 2.18 | 365.57 | | | 7.07 | 0.39 | 0.51 | 0.45 | 0.06 | 0.12 | 0.06 | 0.25 | | | | | 0.12 | 0.00 | | | | | | | | | | | | |
| | MIN | 23.00 | 4.69 | 3.60 | 0.78 | 385.00 | | | 32.00 | 0.84 | 0.16 | 0.15 | 0.01 | 0.51 | 0.61 | 0.11 | | | | 36.00 | 0.51 | 0.01 | | 330.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.33 | 11.00 | 3.86 | 902.00 | | | 42.00 | 1.39 | 0.88 | 0.78 | 0.10 | 0.68 | 0.69 | 0.46 | | | | 36.00 | 0.68 | 0.01 | | 330.00 | | | | | | | | | | |
| PZ-D3-15 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.53 | 6.67 | 146.67 | 3.99 | 530.00 | 1.00 | 0.41 | 64.00 | 1.28 | 1.15 | 0.63 | 0.53 | 0.05 | 0.66 | 2.87 | | | | 10.00 | 0.03 | 0.03 | | 17.00 | | | | | | | | | | |
| | STD. DEV. | 1.42 | | 23.09 | 2.31 | 246.23 | | | 11.36 | 0.91 | 0.69 | 0.52 | 0.33 | 0.04 | 0.39 | 2.29 | | | | | 0.02 | 0.03 | | | | | | | | | | | | |
| | MIN | 22.00 | 6.53 | 120.00 | 1.70 | 352.00 | 1.00 | 0.41 | 56.00 | 0.64 | 0.54 | 0.26 | 0.28 | 0.02 | 0.38 | 1.30 | | | | 10.00 | 0.01 | 0.01 | | 17.00 | | | | | | | | | | |
| | MAX | 24.80 | 6.74 | 160.00 | 6.31 | 811.00 | 1.00 | 0.41 | 77.00 | 1.92 | 1.90 | 0.99 | 0.91 | 0.10 | 0.93 | 5.50 | | | | 10.00 | 0.05 | 0.05 | | 17.00 | | | | | | | | | | |
| PZ-D4-08 | n | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.45 | 4.76 | 2.00 | 1.41 | 615.50 | | | | 0.76 | 0.56 | 0.48 | 0.08 | 0.20 | 0.28 | | | | | 29.00 | 0.20 | 0.01 | | 270.00 | | | | | | | | | | |
| | STD. DEV. | 2.19 | 0.69 | | 1.00 | 149.20 | | | | 0.05 | 0.18 | 0.10 | 0.08 | 0.23 | 0.15 | | | | | | 0.23 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.90 | 4.27 | 2.00 | 0.70 | 510.00 | | | | 0.72 | 0.43 | 0.40 | 0.03 | 0.03 | 0.17 | | | | | 29.00 | 0.03 | 0.01 | | 270.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.25 | 2.00 | 2.11 | 721.00 | | | | 0.79 | 0.69 | 0.55 | 0.14 | 0.36 | 0.39 | | | | | 29.00 | 0.36 | 0.01 | | 270.00 | | | | | | | | | | |
| PZ-D4-15 | n | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.10 | 6.77 | 180.00 | 3.45 | 754.50 | | | | 0.84 | 0.71 | 0.41 | 0.30 | 0.13 | 0.43 | | | | | 11.00 | 0.08 | 0.06 | | 73.00 | | | | | | | | | | |
| | STD. DEV. | 1.56 | 0.14 | | 3.39 | 276.48 | | | | 0.13 | 0.28 | 0.21 | 0.07 | 0.16 | 0.08 | | | | | | 0.08 | 0.06 | | | | | | | | | | | | |
| | MIN | 23.00 | 6.67 | 180.00 | 1.05 | 559.00 | | | | 0.75 | 0.51 | 0.26 | 0.25 | 0.02 | 0.37 | | | | | 11.00 | 0.02 | 0.01 | | 73.00 | | | | | | | | | | |
| | MAX | 25.20 | 6.87 | 180.00 | 5.84 | 950.00 | | | | 0.93 | 0.91 | 0.56 | 0.35 | 0.24 | 0.49 | | | | | 11.00 | 0.14 | 0.10 | | 73.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-E1 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.17 | 5.43 | 19.00 | 4.32 | 355.87 | 0.85 | 0.36 | 32.67 | 0.91 | 0.84 | 0.50 | 0.34 | 0.07 | 0.41 | 0.64 | | | | 28.00 | 0.06 | 0.01 | | 170.00 | | | | | | | | | | |
| | STD. DEV. | 2.40 | 0.24 | 2.65 | 0.74 | 176.76 | | | 9.02 | 0.16 | 0.17 | 0.07 | 0.12 | 0.06 | 0.08 | 0.92 | | | | | 0.06 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.10 | 5.25 | 17.00 | 3.57 | 176.60 | 0.85 | 0.36 | 24.00 | 0.80 | 0.67 | 0.45 | 0.22 | 0.02 | 0.35 | 0.07 | | | | 28.00 | 0.01 | 0.01 | | 170.00 | | | | | | | | | | |
| | MAX | 25.80 | 5.70 | 22.00 | 5.05 | 530.00 | 0.85 | 0.36 | 42.00 | 1.02 | 1.00 | 0.55 | 0.45 | 0.13 | 0.47 | 1.70 | | | | 28.00 | 0.13 | 0.01 | | 170.00 | | | | | | | | | | |
| PZ-E2 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.13 | 5.96 | 37.00 | 5.78 | 180.87 | 1.10 | 0.37 | | 0.86 | 0.91 | 0.46 | 0.37 | 0.04 | 0.41 | | | | | 13.00 | 0.04 | 0.01 | | 42.00 | | | | | | | | | | |
| | STD. DEV. | 3.02 | 0.13 | | 1.60 | 21.57 | | | | 0.20 | 0.23 | 0.13 | 0.07 | 0.02 | 0.06 | | | | | | 0.02 | | | | | | | | | | | | | |
| | MIN | 21.10 | 5.86 | 37.00 | 4.82 | 156.00 | 1.10 | 0.37 | | 0.72 | 0.66 | 0.36 | 0.30 | 0.02 | 0.36 | | | | | 13.00 | 0.02 | 0.01 | | 42.00 | | | | | | | | | | |
| | MAX | 26.60 | 6.11 | 37.00 | 7.63 | 194.50 | 1.10 | 0.37 | | 1.00 | 1.10 | 0.55 | 0.43 | 0.06 | 0.45 | | | | | 13.00 | 0.06 | 0.01 | | 42.00 | | | | | | | | | | |
| PZ-E3-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 23.90 | 5.48 | 24.00 | 1.42 | 807.00 | | | 65.00 | 1.60 | 0.94 | 0.85 | 0.09 | 0.67 | 0.75 | 0.51 | 36.00 | 36.00 | 0.01 | 30.00 | 0.67 | 0.01 | 0.01 | 330.00 | 0.37 | 86.00 | 1.10 | 38.00 | 0.00 | 14.00 | 33.00 | | | |
| | STD. DEV. | 1.70 | 0.21 | 8.49 | 0.98 | 111.72 | | | 8.49 | 0.49 | 0.02 | 0.05 | 0.07 | 0.47 | 0.55 | 0.52 | | | | | 0.47 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.70 | 5.33 | 18.00 | 0.73 | 728.00 | | | 59.00 | 1.25 | 0.92 | 0.81 | 0.04 | 0.33 | 0.37 | 0.14 | 36.00 | 36.00 | 0.01 | 30.00 | 0.33 | 0.01 | 0.01 | 330.00 | 0.37 | 86.00 | 1.10 | 38.00 | 0.003 | 14.00 | 33.00 | | | |
| | MAX | 25.10 | 5.62 | 30.00 | 2.11 | 886.00 | | | 71.00 | 1.95 | 0.95 | 0.88 | 0.14 | 1.00 | 1.14 | 0.88 | 36.00 | 36.00 | 0.01 | 30.00 | 1.00 | 0.01 | 0.01 | 330.00 | 0.37 | 86.00 | 1.10 | 38.00 | 0.003 | 14.00 | 33.00 | | | |
| PZ-E3-15 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.35 | 6.32 | 75.00 | 3.49 | 278.00 | | | 116.50 | 1.88 | 1.75 | 1.45 | 0.30 | 0.13 | 0.43 | 8.85 | | | | 11.00 | 0.07 | 0.07 | | 22.00 | | | | | | | | | | |
| | STD. DEV. | 0.35 | 0.35 | 11.31 | 1.05 | 74.95 | | | 75.66 | 0.92 | 0.78 | 0.85 | 0.07 | 0.14 | 0.07 | 7.28 | | | | | 0.06 | 0.08 | | | | | | | | | | | | |
| | MIN | 24.10 | 6.07 | 67.00 | 2.75 | 225.00 | | | 63.00 | 1.23 | 1.20 | 0.85 | 0.25 | 0.03 | 0.38 | 3.70 | | | | 11.00 | 0.03 | 0.01 | | 22.00 | | | | | | | | | | |
| | MAX | 24.60 | 6.57 | 83.00 | 4.23 | 331.00 | | | 170.00 | 2.53 | 2.30 | 2.05 | 0.35 | 0.23 | 0.48 | 14.00 | | | | 11.00 | 0.11 | 0.12 | | 22.00 | | | | | | | | | | |
| PZ-E4-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 1 | 2 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 23.75 | 4.66 | 3.10 | 1.85 | 697.00 | | | 49.00 | 0.81 | 0.55 | 0.52 | 0.02 | 0.27 | 0.29 | 0.13 | | | 0.26 | 29.00 | 0.27 | 0.01 | 0.01 | 105.10 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| | STD. DEV. | 3.04 | 0.89 | 1.56 | 1.56 | 91.92 | | | 7.07 | 0.07 | 0.01 | 0.01 | 0.01 | 0.08 | 0.06 | 0.09 | | | | 0.00 | 0.08 | 0.00 | | 148.35 | | | | | | | | | | |
| | MIN | 21.60 | 4.03 | 2.00 | 0.74 | 632.00 | | | 44.00 | 0.76 | 0.54 | 0.52 | 0.01 | 0.21 | 0.24 | 0.07 | | | 0.26 | 29.00 | 0.21 | 0.01 | 0.01 | 0.20 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| | MAX | 25.90 | 5.29 | 4.20 | 2.95 | 762.00 | | | 54.00 | 0.86 | 0.55 | 0.53 | 0.03 | 0.32 | 0.33 | 0.19 | | | 0.26 | 29.00 | 0.32 | 0.01 | 0.01 | 210.00 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| PZ-E4-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.13 | 6.49 | 120.00 | 1.21 | 486.67 | 0.88 | 0.36 | | 1.01 | 0.89 | 0.49 | 0.39 | 0.09 | 0.53 | | | | | 12.00 | 0.06 | 0.06 | | 59.00 | | | | | | | | | | |
| | STD. DEV. | 1.50 | 0.29 | | 0.46 | 42.57 | | | | 0.00 | 0.10 | 0.21 | 0.06 | 0.10 | 0.21 | | | | | | 0.05 | 0.06 | | | | | | | | | | | | |
| | MIN | 21.90 | 6.17 | 120.00 | 0.71 | 438.00 | 0.88 | 0.36 | | 1.01 | 0.80 | 0.34 | 0.36 | 0.02 | 0.38 | | | | | 12.00 | 0.02 | 0.01 | | 59.00 | | | | | | | | | | |
| | MAX | 24.80 | 6.73 | 120.00 | 1.62 | 517.00 | 0.88 | 0.36 | | 1.01 | 0.99 | 0.63 | 0.46 | 0.21 | 0.67 | | | | | 12.00 | 0.11 | 0.10 | | 59.00 | | | | | | | | | | |
| PZ-E5-08 | n | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.55 | 4.49 | 2.00 | 0.60 | 642.50 | | | | 0.99 | 0.82 | 0.70 | 0.12 | 0.17 | 0.29 | | | | | 30.00 | 0.17 | 0.01 | | 290.00 | | | | | | | | | | |
| | STD. DEV. | 1.34 | 0.74 | | 0.17 | 127.99 | | | | 0.04 | 0.25 | 0.16 | 0.09 | 0.21 | 0.12 | | | | | | 0.22 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.60 | 3.96 | 2.00 | 0.48 | 552.00 | | | | 0.96 | 0.64 | 0.58 | 0.06 | 0.02 | 0.21 | | | | | 30.00 | 0.01 | 0.01 | | 290.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.01 | 2.00 | 0.72 | 733.00 | | | | 1.02 | 1.00 | 0.81 | 0.19 | 0.32 | 0.38 | | | | | 30.00 | 0.32 | 0.01 | | 290.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-E5-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.03 | 6.48 | 100.00 | 1.94 | 642.67 | 0.85 | 0.32 | | 0.89 | 0.84 | 0.61 | 0.25 | 0.04 | 0.28 | | | | | 17.00 | 0.04 | 0.01 | | 82.00 | | | | | | | | | | |
| | STD. DEV. | 1.00 | 0.34 | | 2.36 | 169.19 | | | | 0.33 | 0.27 | 0.38 | 0.06 | 0.04 | 0.05 | | | | | | 0.05 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.90 | 6.09 | 100.00 | 0.08 | 483.00 | 0.85 | 0.32 | | 0.65 | 0.56 | 0.34 | 0.22 | 0.01 | 0.24 | | | | | 17.00 | 0.01 | 0.01 | | 82.00 | | | | | | | | | | |
| | MAX | 23.80 | 6.73 | 100.00 | 4.60 | 820.00 | 0.85 | 0.32 | | 1.12 | 1.10 | 0.88 | 0.32 | 0.09 | 0.31 | | | | | 17.00 | 0.09 | 0.01 | | 82.00 | | | | | | | | | | |
| PZ-E6-08 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.13 | 4.53 | 2.00 | 31.89 | 661.67 | 0.65 | 0.01 | | 0.77 | 0.69 | 0.62 | 0.07 | 0.23 | 0.15 | | | | | 32.00 | 0.23 | 0.01 | | 0.20 | | | | | | | | | | |
| | STD. DEV. | 1.64 | 0.70 | | 51.77 | 144.24 | | | | 0.40 | 0.29 | 0.31 | 0.08 | 0.30 | 0.08 | | | | | | 0.30 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.90 | 3.73 | 2.00 | 1.67 | 501.00 | 0.65 | 0.01 | | 0.49 | 0.43 | 0.40 | 0.01 | 0.05 | 0.09 | | | | | 32.00 | 0.05 | 0.01 | | 0.20 | | | | | | | | | | |
| | MAX | 25.00 | 4.99 | 2.00 | 91.67 | 780.00 | 0.65 | 0.01 | | 1.05 | 1.00 | 0.84 | 0.16 | 0.58 | 0.21 | | | | | 32.00 | 0.58 | 0.01 | | 0.20 | | | | | | | | | | |
| PZ-E6-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 1 | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.23 | 5.20 | 12.00 | 3.48 | 345.33 | 4.60 | 1.90 | 42.00 | 2.46 | 3.13 | 1.51 | 1.23 | 0.05 | 0.95 | 0.34 | 18.00 | 17.00 | 0.05 | 12.53 | 0.04 | 0.01 | 0.01 | 81.00 | 0.09 | 29.50 | 1.50 | 11.00 | 0.006 | 1.50 | 11.00 | | | |
| | STD. DEV. | 0.60 | 0.34 | | 2.98 | 30.09 | | | | 0.47 | 1.31 | 0.13 | 0.62 | 0.04 | 0.34 | 0.00 | | | 0.06 | 17.64 | 0.04 | 0.00 | 0.00 | 1.41 | 0.00 | 2.12 | 0.00 | 0.00 | 0.001 | 0.14 | 0.00 | | | |
| | MIN | 22.60 | 4.81 | 12.00 | 0.74 | 326.00 | 4.60 | 1.90 | 42.00 | 2.12 | 2.10 | 1.41 | 0.69 | 0.02 | 0.71 | 0.34 | 18.00 | 17.00 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 80.00 | 0.09 | 28.00 | 1.50 | 11.00 | 0.005 | 1.40 | 11.00 | | | |
| | MAX | 23.80 | 5.44 | 12.00 | 6.65 | 380.00 | 4.60 | 1.90 | 42.00 | 2.79 | 4.60 | 1.60 | 1.90 | 0.09 | 1.19 | 0.34 | 18.00 | 17.00 | 0.09 | 25.00 | 0.09 | 0.01 | 0.01 | 82.00 | 0.09 | 31.00 | 1.50 | 11.00 | 0.007 | 1.60 | 11.00 | | | |
| PZ-E7-08 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 1 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 23.07 | 4.63 | 9.07 | 2.19 | 392.00 | 0.65 | 0.12 | 35.00 | 3.01 | 1.48 | 1.83 | 0.09 | 0.75 | 1.18 | 0.05 | 19.00 | 18.00 | 0.23 | 22.67 | 0.75 | 0.01 | 0.02 | 123.33 | 0.12 | 33.33 | 0.29 | 14.33 | 0.005 | 2.60 | 12.67 | | | |
| | STD. DEV. | 1.06 | 0.36 | 11.22 | 1.42 | 56.24 | | | 1.00 | 2.25 | 1.15 | 1.18 | 0.07 | 0.93 | 1.07 | 0.03 | | | 0.20 | 7.37 | 0.93 | 0.00 | 0.01 | 11.55 | 0.05 | 9.29 | 0.11 | 1.53 | 0.003 | 1.47 | 1.15 | | | |
| | MIN | 22.10 | 4.27 | 2.00 | 0.57 | 333.00 | 0.65 | 0.12 | 34.00 | 1.42 | 0.65 | 0.99 | 0.01 | 0.03 | 0.43 | 0.03 | 19.00 | 18.00 | 0.10 | 17.00 | 0.03 | 0.01 | 0.01 | 110.00 | 0.06 | 27.00 | 0.20 | 13.00 | 0.004 | 1.70 | 12.00 | | | |
| | MAX | 24.20 | 4.98 | 22.00 | 3.18 | 445.00 | 0.65 | 0.12 | 36.00 | 4.60 | 2.80 | 2.66 | 0.14 | 1.80 | 1.94 | 0.08 | 19.00 | 18.00 | 0.46 | 31.00 | 1.80 | 0.01 | 0.03 | 130.00 | 0.15 | 44.00 | 0.41 | 16.00 | 0.009 | 4.30 | 14.00 | | | |
| PZ-E7-15 | n | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.10 | 6.81 | 283.33 | 3.24 | 1423.33 | 0.50 | 0.20 | 72.67 | 1.14 | 1.06 | 0.66 | 0.42 | 0.04 | 0.48 | 0.22 | | | | 20.00 | 0.04 | 0.01 | | | | | | | | | | | | |
| | STD. DEV. | 0.69 | 0.33 | 30.55 | 2.80 | 299.35 | 0.71 | 0.28 | 19.55 | 0.26 | 0.21 | 0.25 | 0.03 | 0.02 | 0.01 | 0.06 | | | | | 0.02 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.30 | 6.49 | 250.00 | 0.16 | 1145.00 | 0.00 | 0.00 | 54.00 | 0.95 | 0.89 | 0.48 | 0.40 | 0.02 | 0.47 | 0.16 | | | | 20.00 | 0.02 | 0.01 | | | | | | | | | | | | |
| | MAX | 23.50 | 7.14 | 310.00 | 5.62 | 1740.00 | 1.00 | 0.40 | 93.00 | 1.32 | 1.30 | 0.84 | 0.46 | 0.06 | 0.48 | 0.28 | | | | 20.00 | 0.06 | 0.01 | | | | | | | | | | | | |
| PZ-F3-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-F3-15 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.07 | 6.79 | 114.33 | 4.60 | 306.33 | 0.69 | 0.33 | 41.33 | 0.74 | 0.69 | 0.43 | 0.29 | 0.04 | 0.31 | 1.03 | | | | 8.30 | 0.03 | 0.01 | | 0.73 | | | | | | | | | | |
| | STD. DEV. | 3.41 | 0.17 | 19.14 | 2.69 | 41.88 | | | 13.28 | 0.15 | 0.13 | 0.10 | 0.07 | 0.02 | 0.05 | 0.46 | | | | | 0.02 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.10 | 6.60 | 93.00 | 2.16 | 272.00 | 0.69 | 0.33 | 26.00 | 0.63 | 0.57 | 0.36 | 0.21 | 0.02 | 0.27 | 0.59 | | | | 8.30 | 0.02 | 0.01 | | 0.73 | | | | | | | | | | |
| | MAX | 28.00 | 6.93 | 130.00 | 7.49 | 353.00 | 0.69 | 0.33 | 49.00 | 0.84 | 0.82 | 0.50 | 0.33 | 0.06 | 0.34 | 1.50 | | | | 8.30 | 0.05 | 0.01 | | 0.73 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-F4-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.10 | 4.81 | 5.20 | 3.46 | 850.50 | | | 53.50 | 3.78 | 1.43 | 1.41 | 0.02 | 2.35 | 2.37 | 0.06 | 26.00 | 26.00 | 0.68 | 35.50 | 2.35 | 0.05 | 0.01 | 295.00 | 0.42 | 67.50 | 0.28 | 30.00 | 0.01 | 6.60 | 39.50 | | | |
| | STD. DEV. | 3.82 | 1.05 | 4.53 | 2.87 | 53.03 | | | 0.71 | 3.42 | 0.81 | 0.81 | 0.00 | 2.62 | 2.61 | 0.01 | | | 0.88 | 0.71 | 2.62 | 0.05 | 0.00 | 21.21 | 0.11 | 2.12 | 0.22 | 4.24 | 0.00 | 0.71 | 13.44 | | | |
| | MIN | 20.40 | 4.06 | 2.00 | 1.43 | 813.00 | | | 53.00 | 1.36 | 0.86 | 0.84 | 0.01 | 0.50 | 0.52 | 0.05 | 26.00 | 26.00 | 0.06 | 35.00 | 0.50 | 0.01 | 0.01 | 280.00 | 0.34 | 66.00 | 0.12 | 27.00 | 0.01 | 6.10 | 30.00 | | | |
| | MAX | 25.80 | 5.55 | 8.40 | 5.49 | 888.00 | | | 54.00 | 6.20 | 2.00 | 1.99 | 0.02 | 4.20 | 4.21 | 0.07 | 26.00 | 26.00 | 1.30 | 36.00 | 4.20 | 0.08 | 0.01 | 310.00 | 0.49 | 69.00 | 0.43 | 33.00 | 0.01 | 7.10 | 49.00 | | | |
| PZ-F4-15 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.80 | 6.79 | 190.00 | 2.94 | 937.50 | | | 46.50 | 1.12 | 1.03 | 0.66 | 0.37 | 0.10 | 0.46 | 0.31 | | | | 14.00 | 0.10 | 0.01 | | 78.00 | | | | | | | | | | |
| | STD. DEV. | 2.26 | 0.49 | 14.14 | 3.03 | 494.27 | | | 20.51 | 0.30 | 0.39 | 0.28 | 0.11 | 0.09 | 0.01 | 0.07 | | | | | 0.09 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.20 | 6.44 | 180.00 | 0.80 | 588.00 | | | 32.00 | 0.91 | 0.75 | 0.46 | 0.29 | 0.03 | 0.45 | 0.26 | | | | 14.00 | 0.03 | 0.01 | | 78.00 | | | | | | | | | | |
| | MAX | 25.40 | 7.14 | 200.00 | 5.08 | 1287.00 | | | 61.00 | 1.33 | 1.30 | 0.86 | 0.44 | 0.16 | 0.47 | 0.36 | | | | 14.00 | 0.16 | 0.01 | | 78.00 | | | | | | | | | | |
| PZ-G2-12.5 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.10 | 4.40 | 2.00 | 2.02 | 695.00 | 1.40 | 0.01 | | 2.06 | 1.00 | 0.77 | 0.02 | 2.04 | 1.29 | | | | | 38.00 | 2.04 | 0.01 | | 0.20 | | | | | | | | | | |
| | STD. DEV. | 1.76 | 0.30 | | 0.59 | 119.88 | | | | 0.96 | 0.35 | 0.06 | 0.02 | 1.54 | 1.02 | | | | | | 1.54 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.80 | 4.11 | 2.00 | 1.40 | 570.00 | 1.40 | 0.01 | | 1.38 | 0.74 | 0.73 | 0.01 | 0.52 | 0.57 | | | | | 38.00 | 0.52 | 0.01 | | 0.20 | | | | | | | | | | |
| | MAX | 25.10 | 4.70 | 2.00 | 2.57 | 809.00 | 1.40 | 0.01 | | 2.74 | 1.40 | 0.81 | 0.05 | 3.60 | 2.01 | | | | | 38.00 | 3.60 | 0.01 | | 0.20 | | | | | | | | | | |
| PZ-H4-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 24.05 | 4.64 | 2.00 | 3.17 | 622.00 | | | 35.50 | 2.04 | 0.44 | 0.42 | 0.02 | 1.60 | 1.62 | 0.15 | 15.00 | 14.00 | 0.01 | 32.00 | 1.60 | 0.01 | 0.01 | 240.00 | 0.39 | 56.00 | 0.41 | 27.00 | 0.01 | 8.10 | 32.00 | | | |
| | STD. DEV. | 1.48 | 0.81 | 0.00 | 1.42 | 89.10 | | | 0.71 | 0.83 | 0.40 | 0.39 | 0.01 | 0.42 | 0.44 | 0.10 | | | | | 0.42 | 0.00 | | | | | | | | | | | | |
| | MIN | 23.00 | 4.07 | 2.00 | 2.16 | 559.00 | | | 35.00 | 1.45 | 0.15 | 0.14 | 0.01 | 1.30 | 1.31 | 0.08 | 15.00 | 14.00 | 0.01 | 32.00 | 1.30 | 0.01 | 0.01 | 240.00 | 0.39 | 56.00 | 0.41 | 27.00 | 0.01 | 8.10 | 32.00 | | | |
| | MAX | 25.10 | 5.21 | 2.00 | 4.17 | 685.00 | | | 36.00 | 2.62 | 0.72 | 0.69 | 0.03 | 1.90 | 1.93 | 0.22 | 15.00 | 14.00 | 0.01 | 32.00 | 1.90 | 0.01 | 0.01 | 240.00 | 0.39 | 56.00 | 0.41 | 27.00 | 0.01 | 8.10 | 32.00 | | | |
| PZ-H4-15 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.10 | 6.65 | 173.33 | 2.05 | 694.00 | 1.10 | 0.50 | 59.67 | 1.76 | 1.43 | 1.19 | 0.44 | 0.12 | 0.57 | 5.33 | | | | 19.00 | 0.10 | 0.03 | | 140.00 | | | | | | | | | | |
| | STD. DEV. | 1.35 | 0.34 | 25.17 | 3.09 | 144.39 | | | 42.77 | 1.03 | 0.67 | 1.01 | 0.13 | 0.14 | 0.01 | 4.99 | | | | | 0.11 | 0.03 | | | | | | | | | | | | |
| | MIN | 21.60 | 6.33 | 150.00 | 0.23 | 586.00 | 1.10 | 0.50 | 13.00 | 1.03 | 1.00 | 0.47 | 0.30 | 0.03 | 0.56 | 1.60 | | | | 19.00 | 0.03 | 0.01 | | 140.00 | | | | | | | | | | |
| | MAX | 24.20 | 7.01 | 200.00 | 5.61 | 858.00 | 1.10 | 0.50 | 97.00 | 2.48 | 2.20 | 1.90 | 0.53 | 0.28 | 0.58 | 11.00 | | | | 19.00 | 0.23 | 0.05 | | 140.00 | | | | | | | | | | |
| PZ-H5-11.5 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 22.53 | 4.38 | 2.00 | 2.39 | 459.33 | 2.30 | 0.12 | | 1.53 | 1.31 | 0.63 | 0.17 | 0.58 | 0.90 | | 17.00 | 17.00 | 0.08 | 27.00 | 0.58 | 0.01 | 0.01 | 150.00 | 0.12 | 40.50 | 0.04 | 19.00 | 0.004 | 1.85 | 15.00 | | | |
| | STD. DEV. | 1.63 | 0.32 | | 0.98 | 68.37 | | | | 0.95 | 0.90 | 0.15 | 0.18 | 0.45 | 0.80 | | | | 0.03 | 2.83 | 0.45 | 0.00 | 0.00 | 28.28 | 0.04 | 10.61 | 0.00 | 4.24 | 0.002 | 0.21 | 2.83 | | | |
| | MIN | 21.10 | 4.01 | 2.00 | 1.27 | 402.00 | 2.30 | 0.12 | | 0.86 | 0.53 | 0.52 | 0.01 | 0.31 | 0.34 | | 17.00 | 17.00 | 0.06 | 25.00 | 0.31 | 0.01 | 0.01 | 130.00 | 0.09 | 33.00 | 0.04 | 16.00 | 0.003 | 1.70 | 13.00 | | | |
| | MAX | 24.30 | 4.57 | 2.00 | 3.09 | 535.00 | 2.30 | 0.12 | | 2.20 | 2.30 | 0.73 | 0.37 | 1.10 | 1.47 | | 17.00 | 17.00 | 0.10 | 29.00 | 1.10 | 0.01 | 0.01 | 170.00 | 0.15 | 48.00 | 0.05 | 22.00 | 0.005 | 2.00 | 17.00 | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-I6-08 | n | 3 | 3 | 2 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 23.13 | 4.50 | 2.60 | 1.33 | 400.00 | 1.30 | 0.44 | | 3.80 | 2.37 | 2.42 | 0.47 | 0.62 | 1.39 | | | | 0.22 | 29.50 | 0.62 | 0.01 | 0.01 | 125.00 | 0.13 | 29.00 | 1.10 | 15.00 | 0.02 | 2.60 | 14.00 | | | |
| | STD. DEV. | 1.46 | 0.59 | 0.85 | 1.17 | 79.57 | | | | 2.97 | 1.68 | 2.03 | 0.04 | 0.85 | 0.94 | | | | | 12.02 | 0.85 | 0.00 | | 21.21 | | | | | | | | | | |
| | MIN | 22.10 | 3.87 | 2.00 | 0.20 | 329.00 | 1.30 | 0.44 | | 1.70 | 1.30 | 0.98 | 0.44 | 0.06 | 0.72 | | | | 0.22 | 21.00 | 0.06 | 0.01 | 0.01 | 110.00 | 0.13 | 29.00 | 1.10 | 15.00 | 0.02 | 2.60 | 14.00 | | | |
| | MAX | 24.80 | 5.04 | 3.20 | 2.54 | 486.00 | 1.30 | 0.44 | | 5.90 | 4.30 | 3.85 | 0.52 | 1.60 | 2.05 | | | | 0.22 | 38.00 | 1.60 | 0.01 | 0.01 | 140.00 | 0.13 | 29.00 | 1.10 | 15.00 | 0.02 | 2.60 | 14.00 | | | |
| PZ-I6-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.37 | 6.69 | 160.00 | 0.68 | 1274.33 | 1.40 | 0.51 | | 1.11 | 1.17 | 0.74 | 0.38 | 0.05 | 0.38 | | | | | 20.00 | 0.05 | 0.01 | | 130.00 | | | | | | | | | | |
| | STD. DEV. | 0.45 | 0.23 | | 0.43 | 531.65 | | | | 0.01 | 0.21 | 0.02 | 0.13 | 0.04 | 0.04 | | | | | | 0.05 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.90 | 6.45 | 160.00 | 0.18 | 800.00 | 1.40 | 0.51 | | 1.10 | 1.00 | 0.72 | 0.25 | 0.02 | 0.35 | | | | | 20.00 | 0.01 | 0.01 | | 130.00 | | | | | | | | | | |
| | MAX | 23.80 | 6.90 | 160.00 | 0.95 | 1849.00 | 1.40 | 0.51 | | 1.12 | 1.40 | 0.75 | 0.51 | 0.10 | 0.40 | | | | | 20.00 | 0.10 | 0.01 | | 130.00 | | | | | | | | | | |
| PZ-I10-08 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.87 | 4.81 | 8.67 | 0.87 | 398.33 | 2.20 | 0.14 | 33.00 | 1.51 | 1.43 | 0.73 | 0.26 | 0.32 | 0.78 | 0.04 | | | | 23.00 | 0.32 | 0.01 | | 96.00 | | | | | | | | | | |
| | STD. DEV. | 1.35 | 0.48 | 5.86 | 0.75 | 58.35 | | | 9.54 | 0.04 | 0.76 | 0.13 | 0.29 | 0.47 | 0.17 | 0.01 | | | | | 0.47 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.50 | 4.33 | 2.00 | 0.37 | 344.00 | 2.20 | 0.14 | 23.00 | 1.48 | 0.68 | 0.64 | 0.05 | 0.03 | 0.66 | 0.03 | | | | 23.00 | 0.03 | 0.01 | | 96.00 | | | | | | | | | | |
| | MAX | 24.20 | 5.29 | 13.00 | 1.74 | 460.00 | 2.20 | 0.14 | 42.00 | 1.54 | 2.20 | 0.82 | 0.58 | 0.86 | 0.91 | 0.05 | | | | 23.00 | 0.86 | 0.01 | | 96.00 | | | | | | | | | | |
| PZ-I10-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.77 | 6.26 | 59.00 | 0.82 | 543.67 | 1.60 | 1.20 | | 1.09 | 1.24 | 0.48 | 0.79 | 0.02 | 0.61 | | | | | 22.00 | 0.02 | 0.01 | | 84.00 | | | | | | | | | | |
| | STD. DEV. | 0.95 | 0.51 | | 0.68 | 170.22 | | | | 0.19 | 0.34 | 0.14 | 0.36 | 0.01 | 0.05 | | | | | | 0.01 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.70 | 5.84 | 59.00 | 0.15 | 406.00 | 1.60 | 1.20 | | 0.95 | 0.93 | 0.38 | 0.55 | 0.02 | 0.57 | | | | | 22.00 | 0.01 | 0.01 | | 84.00 | | | | | | | | | | |
| | MAX | 23.50 | 6.83 | 59.00 | 1.51 | 734.00 | 1.60 | 1.20 | | 1.22 | 1.60 | 0.58 | 1.20 | 0.03 | 0.64 | | | | | 22.00 | 0.03 | 0.01 | | 84.00 | | | | | | | | | | |
| PZ-J4-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-J4-15 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.33 | 6.21 | 76.67 | 1.29 | 491.00 | 5.90 | 1.90 | 50.33 | 2.00 | 3.23 | 0.88 | 1.31 | 0.33 | 1.12 | 0.33 | | | | 28.00 | 0.33 | 0.01 | | 91.00 | | | | | | | | | | |
| | STD. DEV. | 1.53 | 0.25 | 23.01 | 1.72 | 83.37 | | | 21.22 | 0.52 | 2.34 | 0.03 | 0.63 | 0.41 | 0.49 | 0.36 | | | | | 0.41 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.00 | 5.98 | 54.00 | 0.24 | 426.00 | 5.90 | 1.90 | 26.00 | 1.63 | 1.50 | 0.86 | 0.64 | 0.06 | 0.77 | 0.10 | | | | 28.00 | 0.06 | 0.01 | | 91.00 | | | | | | | | | | |
| | MAX | 25.00 | 6.47 | 100.00 | 3.28 | 585.00 | 5.90 | 1.90 | 65.00 | 2.36 | 5.90 | 0.90 | 1.90 | 0.81 | 1.46 | 0.74 | | | | 28.00 | 0.81 | 0.01 | | 91.00 | | | | | | | | | | |
| PZ-J7-08 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 1 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 22.83 | 4.62 | 6.80 | 0.73 | 318.33 | 2.90 | 0.53 | 36.00 | 2.30 | 1.90 | 1.29 | 0.25 | 0.73 | 1.01 | 0.08 | | | 0.19 | 28.33 | 0.73 | 0.01 | 0.01 | 81.33 | 0.11 | 26.33 | 0.27 | 12.00 | 0.003 | 1.63 | 10.47 | | | |
| | STD. DEV. | 1.65 | 0.40 | 4.53 | 0.54 | 44.29 | | | 18.08 | 1.70 | 0.95 | 0.66 | 0.25 | 0.85 | 1.04 | 0.04 | | | 0.19 | 9.02 | 0.85 | 0.00 | 0.00 | 14.19 | 0.01 | 4.04 | 0.11 | 1.73 | 0.001 | 0.47 | 0.92 | | | |
| | MIN | 21.20 | 4.32 | 2.00 | 0.17 | 287.00 | 2.90 | 0.53 | 17.00 | 1.09 | 1.00 | 0.82 | 0.04 | 0.09 | 0.27 | 0.06 | | | 0.06 | 19.00 | 0.09 | 0.01 | 0.01 | 66.00 | 0.11 | 22.00 | 0.15 | 11.00 | 0.002 | 1.10 | 9.40 | | | |
| | MAX | 24.50 | 5.07 | 11.00 | 1.24 | 369.00 | 2.90 | 0.53 | 53.00 | 3.50 | 2.90 | 1.76 | 0.53 | 1.70 | 1.74 | 0.12 | | | 0.41 | 37.00 | 1.70 | 0.01 | 0.02 | 94.00 | 0.12 | 30.00 | 0.35 | 14.00 | 0.004 | 2.00 | 11.00 | | | |
| PZ-J7-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 22.87 | 5.04 | 4.90 | 1.25 | 392.00 | 4.50 | 0.67 | | 3.02 | 3.47 | 2.31 | 0.65 | 0.20 | 0.71 | 0.27 | 21.00 | 20.00 | 0.04 | 32.50 | 0.19 | 0.01 | 0.01 | 115.00 | 0.09 | 37.00 | 0.96 | 15.00 | 0.004 | 1.25 | 11.00 | | | |
| | STD. DEV. | 1.27 | 0.25 | | 0.95 | 53.36 | | | | 2.69 | 2.15 | 2.46 | 0.21 | 0.23 | 0.23 | 0.06 | | | 0.04 | 19.09 | 0.24 | 0.00 | 0.00 | 7.07 | 0.05 | 7.07 | 0.76 | 4.24 | 0.000 | 0.21 | 0.00 | | | |
| | MIN | 21.40 | 4.80 | 4.90 | 0.41 | 331.00 | 4.50 | 0.67 | | 1.11 | 1.00 | 0.57 | 0.43 | 0.02 | 0.54 | 0.23 | 21.00 | 20.00 | 0.01 | 19.00 | 0.01 | 0.01 | 0.01 | 110.00 | 0.06 | 32.00 | 0.42 | 12.00 | 0.004 | 1.10 | 11.00 | | | |
| | MAX | 23.70 | 5.30 | 4.90 | 2.29 | 430.00 | 4.50 | 0.67 | | 4.92 | 4.90 | 4.05 | 0.85 | 0.46 | 0.87 | 0.31 | 21.00 | 20.00 | 0.06 | 46.00 | 0.46 | 0.01 | 0.01 | 120.00 | 0.13 | 42.00 | 1.50 | 18.00 | 0.004 | 1.40 | 11.00 | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-N4-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.95 | 5.08 | 9.50 | 4.85 | 390.00 | | | 28.50 | 0.50 | 0.48 | 0.35 | 0.13 | 0.02 | 0.15 | 0.10 | | | | 22.00 | 0.02 | 0.01 | | 200.00 | | | | | | | | | | |
| | STD. DEV. | 1.48 | 0.84 | 10.61 | 0.82 | 155.56 | | | 7.78 | 0.01 | 0.01 | 0.07 | 0.09 | 0.00 | 0.09 | | | | | | 0.01 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.90 | 4.48 | 2.00 | 4.27 | 280.00 | | | 23.00 | 0.49 | 0.47 | 0.30 | 0.07 | 0.02 | 0.09 | 0.10 | | | | 22.00 | 0.01 | 0.01 | | 200.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.67 | 17.00 | 5.43 | 500.00 | | | 34.00 | 0.51 | 0.49 | 0.40 | 0.19 | 0.02 | 0.21 | 0.10 | | | | 22.00 | 0.02 | 0.01 | | 200.00 | | | | | | | | | | |
| PZ-N4-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.80 | 6.29 | 140.00 | 0.81 | 492.33 | 3.00 | 0.45 | | 3.19 | 3.10 | 2.71 | 0.44 | 0.04 | 0.48 | | | | | 12.00 | 0.04 | 0.01 | | 66.00 | | | | | | | | | | |
| | STD. DEV. | 0.89 | 0.37 | | 0.91 | 202.88 | | | | 2.36 | 1.65 | 2.40 | 0.05 | 0.02 | 0.04 | | | | | | 0.03 | | | | | | | | | | | | | |
| | MIN | 21.80 | 5.96 | 140.00 | 0.19 | 361.00 | 3.00 | 0.45 | | 1.52 | 1.50 | 1.01 | 0.39 | 0.02 | 0.45 | | | | | 12.00 | 0.01 | 0.01 | | 66.00 | | | | | | | | | | |
| | MAX | 23.50 | 6.69 | 140.00 | 1.86 | 726.00 | 3.00 | 0.45 | | 4.86 | 4.80 | 4.41 | 0.49 | 0.06 | 0.51 | | | | | 12.00 | 0.06 | 0.01 | | 66.00 | | | | | | | | | | |
| PZ-N7-08 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.57 | 5.65 | 3.40 | 2.69 | 459.67 | 3.00 | 2.80 | | 2.65 | 2.70 | 0.83 | 2.08 | 0.24 | 1.82 | | 18.00 | 16.00 | 0.35 | 43.00 | 0.24 | 0.01 | 0.02 | 113.00 | 0.12 | 51.00 | 3.15 | 16.00 | 0.05 | 1.38 | 11.50 | | | |
| | STD. DEV. | 1.19 | 0.79 | | 2.37 | 34.85 | | | | 1.66 | 1.28 | 0.04 | 1.42 | 0.26 | 1.70 | | | | 0.30 | 21.21 | 0.27 | 0.00 | 0.01 | 38.18 | 0.06 | 9.90 | 1.06 | 2.83 | 0.01 | 0.60 | 0.71 | | | |
| | MIN | 22.20 | 4.75 | 3.40 | 1.04 | 428.00 | 3.00 | 2.80 | | 1.47 | 1.30 | 0.80 | 0.45 | 0.02 | 0.62 | | 18.00 | 16.00 | 0.13 | 28.00 | 0.01 | 0.01 | 0.01 | 86.00 | 0.08 | 44.00 | 2.40 | 14.00 | 0.05 | 0.95 | 11.00 | | | |
| | MAX | 24.40 | 6.23 | 3.40 | 5.41 | 497.00 | 3.00 | 2.80 | | 3.82 | 3.80 | 0.85 | 3.00 | 0.53 | 3.02 | | 18.00 | 16.00 | 0.56 | 58.00 | 0.53 | 0.01 | 0.03 | 140.00 | 0.17 | 58.00 | 3.90 | 18.00 | 0.06 | 1.80 | 12.00 | | | |
| PZ-N7-15 | n | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.13 | 5.52 | 17.00 | 0.82 | 268.33 | 1.50 | 0.67 | | 1.37 | 1.31 | 0.85 | 0.47 | 0.11 | 0.53 | | | | | 13.00 | 0.11 | 0.01 | | 58.00 | | | | | | | | | | |
| | STD. DEV. | 0.93 | 0.24 | | 0.83 | 36.90 | | | | 0.69 | 0.42 | 0.36 | 0.22 | 0.13 | 0.33 | | | | | | 0.13 | | | | | | | | | | | | | |
| | MIN | 22.10 | 5.26 | 17.00 | 0.31 | 237.00 | 1.50 | 0.67 | | 0.88 | 0.83 | 0.59 | 0.24 | 0.03 | 0.29 | | | | | 13.00 | 0.03 | 0.01 | | 58.00 | | | | | | | | | | |
| | MAX | 23.90 | 5.73 | 17.00 | 1.78 | 309.00 | 1.50 | 0.67 | | 1.86 | 1.60 | 1.10 | 0.67 | 0.26 | 0.76 | | | | | 13.00 | 0.26 | 0.01 | | 58.00 | | | | | | | | | | |
| PZ-N10-08 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.07 | 5.83 | 42.67 | 0.43 | 384.33 | 2.00 | 0.96 | 36.33 | 1.60 | 1.71 | 0.89 | 0.77 | 0.03 | 0.71 | 0.19 | | | | 21.00 | 0.03 | 0.01 | | 87.00 | | | | | | | | | | |
| | STD. DEV. | 1.21 | 0.51 | 20.03 | 0.17 | 105.55 | | | 3.21 | 1.30 | 0.97 | 0.58 | 0.56 | 0.03 | 0.72 | 0.14 | | | | | 0.03 | 0.00 | | | | | | | | | | | | |
| | MIN | 21.70 | 5.40 | 22.00 | 0.33 | 298.00 | 2.00 | 0.96 | 34.00 | 0.68 | 0.62 | 0.48 | 0.14 | 0.01 | 0.20 | 0.06 | | | | 21.00 | 0.01 | 0.01 | | 87.00 | | | | | | | | | | |
| | MAX | 24.00 | 6.40 | 62.00 | 0.63 | 502.00 | 2.00 | 0.96 | 40.00 | 2.52 | 2.50 | 1.30 | 1.20 | 0.06 | 1.22 | 0.33 | | | | 21.00 | 0.06 | 0.01 | | 87.00 | | | | | | | | | | |
| PZ-N10-15 | n | 3 | 3 | 2 | 3 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.30 | 6.77 | 70.50 | 0.78 | 984.33 | 0.55 | 0.20 | | 0.95 | 0.88 | 0.54 | 0.38 | 0.04 | 0.41 | | | | | | 0.04 | 0.01 | | 0.00 | | | | | | | | | | |
| | STD. DEV. | 1.05 | 0.35 | 84.15 | 0.64 | 521.11 | | | | 0.25 | 0.20 | 0.12 | 0.11 | 0.02 | 0.13 | | | | | | | | | | | | | | | | | | | |
| | MIN | 22.20 | 6.41 | 11.00 | 0.12 | 582.00 | 0.55 | 0.20 | | 0.77 | 0.72 | 0.45 | 0.27 | 0.02 | 0.32 | | | | | | 0.02 | 0.01 | | 62.00 | | | | | | | | | | |
| | MAX | 24.30 | 7.11 | 130.00 | 1.40 | 1573.00 | 0.55 | 0.20 | | 1.12 | 1.10 | 0.62 | 0.48 | 0.05 | 0.50 | | | | | | 0.05 | 0.01 | | 0.00 | | | | | | | | | | |
| PZ-S10-08 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.57 | 5.02 | 4.25 | 1.02 | 306.00 | | | 28.00 | 0.73 | 0.64 | 0.48 | 0.20 | 0.03 | 0.25 | 0.06 | | | | 17.00 | 0.03 | 0.01 | | 62.00 | | | | | | | | | | |
| | STD. DEV. | 1.21 | 0.28 | 2.90 | 1.05 | 67.55 | | | 5.29 | 0.09 | 0.10 | 0.04 | 0.09 | 0.02 | 0.13 | 0.01 | | | | | 0.02 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.20 | 4.75 | 2.20 | 0.17 | 240.00 | | | 22.00 | 0.66 | 0.55 | 0.45 | 0.12 | 0.01 | 0.15 | 0.05 | | | | 17.00 | 0.01 | 0.01 | | 62.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.31 | 6.30 | 2.19 | 375.00 | | | 32.00 | 0.79 | 0.74 | 0.51 | 0.29 | 0.05 | 0.34 | 0.07 | | | | 17.00 | 0.05 | 0.01 | | 62.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| FB-DI | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 1 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 22.37 | 7.47 | 2.00 | 7.92 | 1.96 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| | STD. DEV. | 2.66 | 0.17 | 0.00 | 0.68 | 1.13 | | | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| | MIN | 19.30 | 7.32 | 2.00 | 7.25 | 1.20 | 0.05 | 0.01 | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| | MAX | 24.00 | 7.65 | 2.00 | 8.60 | 3.26 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| FB-TAP | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| | MAX | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| EB | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 1 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 22.37 | 7.47 | 2.00 | 8.03 | 1.96 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.02 | 0.13 | | | |
| | STD. DEV. | 2.66 | 0.17 | 0.00 | 0.52 | 1.13 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | | | |
| | MIN | 19.30 | 7.32 | 2.00 | 7.58 | 1.20 | | | 10.00 | 0.06 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| | MAX | 24.00 | 7.65 | 2.00 | 8.60 | 3.26 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.03 | 0.13 | | | |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.



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# Appendix E: Laboratory Report

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

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

September 6, 2013
Work Order: 1307180
Revised Report

# Laboratory Report

**Project Name** Hillsborough County C-HS4 SE#4

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **STE** | | | | | | |
| Matrix | | **Wastewater** | | | | | | |
| SAL Sample Number | | **1307180-01** | | | | | | |
| Date/Time Collected | | **07/25/13 11:32** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 47 | EPA 350.1 | 2.0 | 0.47 | | 08/20/13 13:47 | 50 |
| Carbonaceous BOD | mg/L | 130 | SM 5210B | 2 | 2 | 07/26/13 11:49 | 07/31/13 08:56 | 1 |
| Chloride | mg/L | 44 | EPA 300.0 | 2.0 | 0.50 | | 08/12/13 17:42 | 10 |
| Fluoride | mg/L | 2.4 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 20:29 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 20:29 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 20:29 | 1 |
| Orthophosphate as P | mg/L | 4.4 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 20:29 | 1 |
| Phosphorous - Total as P | mg/L | 16 | SM 4500P-E | 0.40 | 0.10 | 08/06/13 09:23 | 08/15/13 12:22 | 10 |
| Sulfate | mg/L | 220 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 17:42 | 10 |
| Total Alkalinity | mg/L | 460 | SM 2320B | 8.0 | 2.0 | | 07/30/13 15:34 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 55 | EPA 351.2 | 0.20 | 0.05 | 08/09/13 11:02 | 08/15/13 17:15 | 20.83 |
| Total Solids | mg/L | 780 | SM 2540B | 10 | 10 | 07/26/13 14:12 | 07/29/13 15:24 | 1 |
| Total Suspended Solids | mg/L | 36 | SM 2540D | 1 | 1 | 07/25/13 15:38 | 07/26/13 13:37 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 20:29 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.69 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 12:06 | 08/07/13 11:26 | 1 |
| Calcium | mg/L | 130 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 12:06 | 08/07/13 11:26 | 1 |
| Iron | mg/L | 0.11 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 12:06 | 08/07/13 11:26 | 1 |
| Magnesium | mg/L | 43 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 12:06 | 08/07/13 11:26 | 1 |
| Manganese | mg/L | 0.030 | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 12:06 | 08/07/13 11:26 | 1 |
| Potassium | mg/L | 22 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 12:06 | 08/07/13 11:26 | 1 |
| Sodium | mg/L | 42 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 12:06 | 08/07/13 11:26 | 1 |
| **Microbiology** | | | | | | | | |
| E. Coli | MPN/100 mL | 24,000 Z | SM 9223B | 2.0 | 2.0 | 07/25/13 15:13 | 07/26/13 09:56 | 1 |
| Sample Description | | **STE-DUP** | | | | | | |
| Matrix | | **Wastewater** | | | | | | |
| SAL Sample Number | | **1307180-02** | | | | | | |
| Date/Time Collected | | **07/25/13 11:32** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 45 | EPA 350.1 | 2.0 | 0.47 | | 08/20/13 13:49 | 50 |

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

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Tampa, FL 33619

September 6, 2013
Work Order: 1307180
Revised Report

# Laboratory Report

**Project Name** Hillsborough County C-HS4 SE#4

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **STE-DUP** | | | | | | |
| Matrix | | **Wastewater** | | | | | | |
| SAL Sample Number | | **1307180-02** | | | | | | |
| Date/Time Collected | | **07/25/13 11:32** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| Carbonaceous BOD | mg/L | 130 | SM 5210B | 2 | 2 | 07/26/13 11:49 | 07/31/13 08:56 | 1 |
| Chloride | mg/L | 45 | EPA 300.0 | 2.0 | 0.50 | | 08/12/13 17:51 | 10 |
| Fluoride | mg/L | 2.5 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 20:40 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 20:40 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 20:40 | 1 |
| Orthophosphate as P | mg/L | 4.4 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 20:40 | 1 |
| Phosphorous - Total as P | mg/L | 15 | SM 4500P-E | 0.40 | 0.10 | 08/06/13 09:23 | 08/15/13 12:23 | 10 |
| Sulfate | mg/L | 230 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 17:51 | 10 |
| Total Alkalinity | mg/L | 460 | SM 2320B | 8.0 | 2.0 | | 07/30/13 15:45 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 55 | EPA 351.2 | 0.20 | 0.05 | 08/09/13 11:02 | 08/15/13 17:17 | 20.83 |
| Total Solids | mg/L | 770 | SM 2540B | 10 | 10 | 07/26/13 14:12 | 07/29/13 15:24 | 1 |
| Total Suspended Solids | mg/L | 27 | SM 2540D | 1 | 1 | 07/25/13 15:38 | 07/26/13 13:37 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 20:40 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.69 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 12:06 | 08/07/13 11:32 | 1 |
| Calcium | mg/L | 120 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 12:06 | 08/07/13 11:32 | 1 |
| Iron | mg/L | 0.11 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 12:06 | 08/07/13 11:32 | 1 |
| Magnesium | mg/L | 41 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 12:06 | 08/07/13 11:32 | 1 |
| Manganese | mg/L | 0.029 | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 12:06 | 08/07/13 11:32 | 1 |
| Potassium | mg/L | 20 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 12:06 | 08/07/13 11:32 | 1 |
| Sodium | mg/L | 41 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 12:06 | 08/07/13 11:32 | 1 |
| **Microbiology** | | | | | | | | |
| E. Coli | MPN/100 mL | 24,000 Z | SM 9223B | 2.0 | 2.0 | 07/25/13 15:13 | 07/26/13 09:56 | 1 |

| | |
|---|---|
| Sample Description | **PZ-01** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1307180-03** |
| Date/Time Collected | **07/24/13 11:34** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **07/24/13 15:15** |

**Client Provided Field Data**

| | |
|---|---|
| pH | 5.3 |
| Temperature | 25.6 °C |
| Conductivity | 894 umhos |
| Dissolved Oxygen | 4.02 mg/L |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-01** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-03** | | | | | | |
| Date/Time Collected | | **07/24/13 11:34** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.3 | | | | | | |
| Temperature | | 25.6 °C | | | | | | |
| Conductivity | | 894 umhos | | | | | | |
| Dissolved Oxygen | | 4.02 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.13 | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 15:24 | 1 |
| Chemical Oxygen Demand | mg/L | 180 | EPA 410.4 | 25 | 10 | 07/29/13 10:47 | 07/29/13 15:00 | 1 |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 20:24 | 1 |
| Nitrate (as N) | mg/L | 1.2 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:24 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:24 | 1 |
| Phosphorous - Total as P | mg/L | 2.8 | SM 4500P-E | 0.080 | 0.020 | 08/03/13 09:23 | 08/09/13 14:45 | 2 |
| Sulfate | mg/L | 320 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 17:49 | 10 |
| Total Alkalinity | mg/L | 16 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 10:32 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 08/01/13 08:46 | 08/02/13 10:43 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.2 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 20:24 | 1 |
| Sample Description | | **PZ-01-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-04** | | | | | | |
| Date/Time Collected | | **07/24/13 11:37** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.3 | | | | | | |
| Temperature | | 25.6 °C | | | | | | |
| Conductivity | | 844 umhos | | | | | | |
| Dissolved Oxygen | | 4.02 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.033 I | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 15:26 | 1 |
| Chemical Oxygen Demand | mg/L | 88 | EPA 410.4 | 25 | 10 | 07/29/13 10:47 | 07/29/13 15:00 | 1 |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 20:35 | 1 |
| Nitrate (as N) | mg/L | 1.2 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:35 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:35 | 1 |
| Phosphorous - Total as P | mg/L | 0.18 | SM 4500P-E | 0.040 | 0.010 | 07/30/13 16:39 | 08/05/13 14:55 | 1 |
| Sulfate | mg/L | 320 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 17:59 | 10 |
| Total Alkalinity | mg/L | 16 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 10:38 | 1 |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-01-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-04** | | | | | | |
| Date/Time Collected | | **07/24/13 11:37** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.3 | | | | | | |
| Temperature | | 25.6 °C | | | | | | |
| Conductivity | | 844 umhos | | | | | | |
| Dissolved Oxygen | | 4.02 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 08/01/13 08:46 | 08/02/13 09:58 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.2 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 20:35 | 1 |
| Sample Description | | **BKG-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-07** | | | | | | |
| Date/Time Collected | | **07/25/13 10:52** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.90 | | | | | | |
| Temperature | | 26.1 °C | | | | | | |
| Conductivity | | 132 umhos | | | | | | |
| Dissolved Oxygen | | 4.74 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.054 | EPA 350.1 | 0.040 | 0.009 | | 08/22/13 12:59 | 1 |
| Carbonaceous BOD | mg/L | 2 U | SM 5210B | 2 | 2 | 07/26/13 11:49 | 07/31/13 08:56 | 1 |
| Chemical Oxygen Demand | mg/L | 45 | EPA 410.4 | 25 | 10 | 08/02/13 11:25 | 08/02/13 16:30 | 1 |
| Chloride | mg/L | 12 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 20:51 | 1 |
| Fluoride | mg/L | 0.011 I | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 20:51 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 20:51 | 1 |
| Nitrite (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 20:51 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 20:51 | 1 |
| Phosphorous - Total as P | mg/L | 0.10 | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:16 | 1 |
| Sulfate | mg/L | 16 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 20:51 | 1 |
| Total Alkalinity | mg/L | 3.8 I | SM 2320B | 8.0 | 2.0 | | 07/30/13 15:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.59 | EPA 351.2 | 0.20 | 0.05 | 08/09/13 11:02 | 08/15/13 14:39 | 1 |
| Total Organic Carbon | mg/L | 22 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Total Solids | mg/L | 20 | SM 2540B | 10 | 10 | 07/26/13 14:12 | 07/29/13 15:24 | 1 |
| Total Suspended Solids | mg/L | 99 | SM 2540D | 1 | 1 | 07/29/13 09:02 | 07/29/13 16:42 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.07 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 20:51 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **BKG-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-07** | | | | | | |
| Date/Time Collected | | **07/25/13 10:52** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.90 | | | | | | |
| Temperature | | 26.1 °C | | | | | | |
| Conductivity | | 132 umhos | | | | | | |
| Dissolved Oxygen | | 4.74 mg/L | | | | | | |
| Dissolved Organic Carbon | mg/L | 27 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7 | 0.10 | 0.050 | 07/29/13 12:06 | 08/07/13 11:37 | 1 |
| Calcium | mg/L | 3.5 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 12:06 | 08/07/13 11:37 | 1 |
| Iron | mg/L | 2.5 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 12:06 | 08/07/13 11:37 | 1 |
| Magnesium | mg/L | 0.73 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 12:06 | 08/07/13 11:37 | 1 |
| Manganese | mg/L | 0.0025 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 12:06 | 08/07/13 11:37 | 1 |
| Potassium | mg/L | 0.64 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 12:06 | 08/07/13 11:37 | 1 |
| Sodium | mg/L | 8.7 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 12:06 | 08/07/13 11:37 | 1 |
| Sample Description | | **BKG-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-08** | | | | | | |
| Date/Time Collected | | **07/25/13 11:23** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.15 | | | | | | |
| Temperature | | 24.5 °C | | | | | | |
| Conductivity | | 151 umhos | | | | | | |
| Dissolved Oxygen | | 0.11 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.56 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:22 | 1 |
| Chemical Oxygen Demand | mg/L | 130 | EPA 410.4 | 25 | 10 | 08/02/13 11:25 | 08/02/13 16:30 | 1 |
| Chloride | mg/L | 12 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 21:03 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:03 | 1 |
| Nitrite (as N) | mg/L | 0.07 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:03 | 1 |
| Phosphorous - Total as P | mg/L | 0.65 | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:17 | 1 |
| Sulfate | mg/L | 13 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 21:03 | 1 |
| Total Alkalinity | mg/L | 38 | SM 2320B | 8.0 | 2.0 | | 07/30/13 15:52 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.9 | EPA 351.2 | 0.20 | 0.05 | 08/09/13 11:02 | 08/15/13 14:41 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.13 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 21:03 | 1 |

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**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-AB4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-12** | | | | | | |
| Date/Time Collected | | **07/25/13 11:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.064 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:25 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 08/02/13 11:25 | 08/02/13 16:30 | 1 |
| Chloride | mg/L | 16 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 21:14 | 1 |
| Nitrate (as N) | mg/L | 0.12 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:14 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:14 | 1 |
| Phosphorous - Total as P | mg/L | 0.032 I | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:18 | 1 |
| Sulfate | mg/L | 130 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 18:00 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/30/13 15:56 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.08 I | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.12 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 21:14 | 1 |
| Sample Description | | **PZ-AB4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-13** | | | | | | |
| Date/Time Collected | | **07/25/13 11:44** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.94 | | | | | | |
| Temperature | | 24.7 °C | | | | | | |
| Conductivity | | 260 umhos | | | | | | |
| Dissolved Oxygen | | 6.13 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.26 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:27 | 1 |
| Chloride | mg/L | 8.0 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 21:25 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:25 | 1 |
| Nitrite (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:25 | 1 |
| Sulfate | mg/L | 6.2 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 21:25 | 1 |
| Total Alkalinity | mg/L | 120 | SM 2320B | 8.0 | 2.0 | | 07/30/13 16:02 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 4.3 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:03 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.10 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 21:25 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C1** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-14** | | | | | | |
| Date/Time Collected | | **07/25/13 10:24** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.18 | | | | | | |
| Temperature | | 27.0 °C | | | | | | |
| Conductivity | | 1076 umhos | | | | | | |
| Dissolved Oxygen | | 5.65 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.012 I | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:29 | 1 |
| Chloride | mg/L | 42 | EPA 300.0 | 2.0 | 0.50 | | 08/12/13 18:10 | 10 |
| Nitrate (as N) | mg/L | 2.7 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 21:37 | 1 |
| Sulfate | mg/L | 310 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 18:10 | 10 |
| Total Alkalinity | mg/L | 130 | SM 2320B | 8.0 | 2.0 | | 07/30/13 16:10 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.3 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:04 | 1 |
| Nitrate+Nitrite (N) | mg/L | 2.7 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 21:37 | 1 |
| Sample Description | | **PZ-C2** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-15** | | | | | | |
| Date/Time Collected | | **07/25/13 10:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.07 | | | | | | |
| Temperature | | 24.8 °C | | | | | | |
| Conductivity | | 377 umhos | | | | | | |
| Dissolved Oxygen | | 0.55 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.37 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:31 | 1 |
| Chloride | mg/L | 20 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 12:34 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 12:34 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 12:34 | 1 |
| Sulfate | mg/L | 100 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 18:27 | 10 |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | | 07/30/13 16:14 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.53 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:05 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 12:34 | 1 |

**Hazen and Sawyer**
**10002 Princess Palm Ave, Suite 200**
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**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C3-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-16** | | | | | | |
| Date/Time Collected | | **07/25/13 09:27** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.69 | | | | | | |
| Temperature | | 25.2 °C | | | | | | |
| Conductivity | | 932 umhos | | | | | | |
| Dissolved Oxygen | | 5.49 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.051 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:32 | 1 |
| Chloride | mg/L | 38 | EPA 300.0 | 2.0 | 0.50 | | 08/12/13 18:36 | 10 |
| Nitrate (as N) | mg/L | 1.7 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 12:45 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 12:45 | 1 |
| Sulfate | mg/L | 330 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 18:36 | 10 |
| Total Alkalinity | mg/L | 5.1 I | SM 2320B | 8.0 | 2.0 | | 07/30/13 16:35 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.42 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:07 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.7 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 12:45 | 1 |
| Sample Description | | **PZ-C3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-17** | | | | | | |
| Date/Time Collected | | **07/25/13 09:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.48 | | | | | | |
| Temperature | | 24.3 °C | | | | | | |
| Conductivity | | 493 umhos | | | | | | |
| Dissolved Oxygen | | 2.12 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.29 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:34 | 1 |
| Chloride | mg/L | 11 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 12:56 | 1 |
| Nitrate (as N) | mg/L | 0.09 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 12:56 | 1 |
| Nitrite (as N) | mg/L | 0.08 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 12:56 | 1 |
| Sulfate | mg/L | 48 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 12:56 | 1 |
| Total Alkalinity | mg/L | 150 | SM 2320B | 8.0 | 2.0 | | 07/30/13 16:40 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.62 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:08 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.17 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 12:56 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-C6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-18** | | | | | | |
| Date/Time Collected | | **07/25/13 09:42** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.75 | | | | | | |
| Temperature | | 24.3 °C | | | | | | |
| Conductivity | | 491 umhos | | | | | | |
| Dissolved Oxygen | | 0.26 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.074 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:36 | 1 |
| Chloride | mg/L | 20 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 13:08 | 1 |
| Nitrate (as N) | mg/L | 0.14 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:08 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:08 | 1 |
| Sulfate | mg/L | 180 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 19:22 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/30/13 16:43 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.26 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:09 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.14 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 13:08 | 1 |
| Sample Description | | **PZ-C6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-19** | | | | | | |
| Date/Time Collected | | **07/25/13 09:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.13 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |
| Conductivity | | 369 umhos | | | | | | |
| Dissolved Oxygen | | 0.08 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.8 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:37 | 1 |
| Chloride | mg/L | 37 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 13:19 | 1 |
| Nitrate (as N) | mg/L | 0.07 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:19 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:19 | 1 |
| Sulfate | mg/L | 74 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 13:19 | 1 |
| Total Alkalinity | mg/L | 24 | SM 2320B | 8.0 | 2.0 | | 07/30/13 17:07 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.6 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:10 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.07 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 13:19 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-D3-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-20** | | | | | | |
| Date/Time Collected | | **07/25/13 08:47** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.69 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 902 umhos | | | | | | |
| Dissolved Oxygen | | 3.86 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.010 I | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 16:39 | 1 |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 08/02/13 11:25 | 08/02/13 16:30 | 1 |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 13:30 | 1 |
| Nitrate (as N) | mg/L | 0.68 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:30 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:30 | 1 |
| Phosphorous - Total as P | mg/L | 0.11 | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:19 | 1 |
| Sulfate | mg/L | 330 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 19:31 | 10 |
| Total Alkalinity | mg/L | 3.6 I | SM 2320B | 8.0 | 2.0 | | 07/30/13 17:10 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.16 I | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:12 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.68 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 13:30 | 1 |
| Sample Description | | **PZ-D3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-21** | | | | | | |
| Date/Time Collected | | **07/25/13 09:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.53 | | | | | | |
| Temperature | | 24.8 °C | | | | | | |
| Conductivity | | 352 umhos | | | | | | |
| Dissolved Oxygen | | 6.31 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.28 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:21 | 1 |
| Chemical Oxygen Demand | mg/L | 56 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 10 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 13:42 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:42 | 1 |
| Nitrite (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:42 | 1 |
| Phosphorous - Total as P | mg/L | 1.3 | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:21 | 1 |
| Sulfate | mg/L | 17 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 13:42 | 1 |
| Total Alkalinity | mg/L | 120 | SM 2320B | 8.0 | 2.0 | | 07/30/13 17:16 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-D3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-21** | | | | | | |
| Date/Time Collected | | **07/25/13 09:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.53 | | | | | | |
| Temperature | | 24.8 °C | | | | | | |
| Conductivity | | 352 umhos | | | | | | |
| Dissolved Oxygen | | 6.31 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.54 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:56 | 08/19/13 16:13 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.10 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 13:42 | 1 |
| Sample Description | | **PZ-D4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-22** | | | | | | |
| Date/Time Collected | | **07/24/13 13:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.27 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 721 umhos | | | | | | |
| Dissolved Oxygen | | 2.11 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.028 I | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 15:36 | 1 |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 20:47 | 1 |
| Nitrate (as N) | mg/L | 0.36 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:47 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:47 | 1 |
| Sulfate | mg/L | 270 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 18:08 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 10:40 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.43 | EPA 351.2 | 0.20 | 0.05 | 08/01/13 08:46 | 08/02/13 10:00 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.36 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 20:47 | 1 |
| Sample Description | | **PZ-D4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-23** | | | | | | |
| Date/Time Collected | | **07/24/13 13:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-D4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-23** | | | | | | |
| Date/Time Collected | | **07/24/13 13:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.67 | | | | | | |
| Temperature | | 25.2 °C | | | | | | |
| Conductivity | | 559 umhos | | | | | | |
| Dissolved Oxygen | | 5.84 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.25 | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 15:38 | 1 |
| Chloride | mg/L | 11 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 20:58 | 1 |
| Nitrate (as N) | mg/L | 0.14 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:58 | 1 |
| Nitrite (as N) | mg/L | 0.10 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 20:58 | 1 |
| Sulfate | mg/L | 73 | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 20:58 | 1 |
| Total Alkalinity | mg/L | 180 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 10:48 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.51 | EPA 351.2 | 0.20 | 0.05 | 08/01/13 08:46 | 08/02/13 10:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.24 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 20:58 | 1 |
| Sample Description | | **PZ-E1** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-24** | | | | | | |
| Date/Time Collected | | **07/25/13 10:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.25 | | | | | | |
| Temperature | | 25.8 °C | | | | | | |
| Conductivity | | 530 umhos | | | | | | |
| Dissolved Oxygen | | 5.25 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:23 | 1 |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 13:53 | 1 |
| Nitrate (as N) | mg/L | 0.13 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:53 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 13:53 | 1 |
| Phosphorous - Total as P | mg/L | 0.069 | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:22 | 1 |
| Sulfate | mg/L | 170 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 19:41 | 10 |
| Total Alkalinity | mg/L | 17 | SM 2320B | 8.0 | 2.0 | | 07/30/13 17:20 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.67 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:20 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.13 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 13:53 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E2** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-25** | | | | | | |
| Date/Time Collected | | **07/25/13 11:09** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.11 | | | | | | |
| Temperature | | 26.6 °C | | | | | | |
| Conductivity | | 156 umhos | | | | | | |
| Dissolved Oxygen | | 7.63 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.30 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:25 | 1 |
| Chloride | mg/L | 13 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 14:04 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 14:04 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 14:04 | 1 |
| Sulfate | mg/L | 42 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 14:04 | 1 |
| Total Alkalinity | mg/L | 37 | SM 2320B | 8.0 | 2.0 | | 07/30/13 17:25 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.66 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:21 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 14:04 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E3-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-26** | | | | | | |
| Date/Time Collected | | **07/25/13 08:08** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.33 | | | | | | |
| Temperature | | 25.1 °C | | | | | | |
| Conductivity | | 886 umhos | | | | | | |
| Dissolved Oxygen | | 2.11 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.039 I | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:27 | 1 |
| Chemical Oxygen Demand | mg/L | 71 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 30 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 14:50 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 14:50 | 1 |
| Nitrate (as N) | mg/L | 0.33 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 14:50 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 14:50 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 14:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.14 | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:23 | 1 |
| Sulfate | mg/L | 330 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 19:50 | 10 |
| Total Alkalinity | mg/L | 18 | SM 2320B | 8.0 | 2.0 | | 07/31/13 10:54 | 1 |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E3-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-26** | | | | | | |
| Date/Time Collected | | **07/25/13 08:08** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.33 | | | | | | |
| Temperature | | 25.1 °C | | | | | | |
| Conductivity | | 886 umhos | | | | | | |
| Dissolved Oxygen | | 2.11 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.92 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:22 | 1 |
| Total Organic Carbon | mg/L | 36 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.33 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 14:50 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 36 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.37 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 12:06 | 08/07/13 11:48 | 1 |
| Calcium | mg/L | 86 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 12:06 | 08/07/13 11:48 | 1 |
| Iron | mg/L | 1.1 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 12:06 | 08/07/13 11:48 | 1 |
| Magnesium | mg/L | 38 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 12:06 | 08/07/13 11:48 | 1 |
| Manganese | mg/L | 0.0027 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 12:06 | 08/07/13 11:48 | 1 |
| Potassium | mg/L | 14 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 12:06 | 08/07/13 11:48 | 1 |
| Sodium | mg/L | 33 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 12:06 | 08/07/13 11:48 | 1 |
| Sample Description | | **PZ-E3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-27** | | | | | | |
| Date/Time Collected | | **07/25/13 08:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.07 | | | | | | |
| Temperature | | 24.1 °C | | | | | | |
| Conductivity | | 225 umhos | | | | | | |
| Dissolved Oxygen | | 2.75 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.25 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:29 | 1 |
| Chemical Oxygen Demand | mg/L | 170 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 11 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 15:01 | 1 |
| Nitrate (as N) | mg/L | 0.11 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:01 | 1 |
| Nitrite (as N) | mg/L | 0.12 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:01 | 1 |
| Phosphorous - Total as P | mg/L | 14 | SM 4500P-E | 0.40 | 0.10 | 08/06/13 09:23 | 08/15/13 12:24 | 10 |

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**September 6, 2013**
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**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-27** | | | | | | |
| Date/Time Collected | | **07/25/13 08:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.07 | | | | | | |
| Temperature | | 24.1 °C | | | | | | |
| Conductivity | | 225 umhos | | | | | | |
| Dissolved Oxygen | | 2.75 mg/L | | | | | | |
| Sulfate | mg/L | 22 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 15:01 | 1 |
| Total Alkalinity | mg/L | 67 | SM 2320B | 8.0 | 2.0 | | 07/31/13 11:00 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.3 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:24 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.23 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 15:01 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-28** | | | | | | |
| Date/Time Collected | | **07/24/13 12:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.03 | | | | | | |
| Temperature | | 25.9 °C | | | | | | |
| Conductivity | | 743 umhos | | | | | | |
| Dissolved Oxygen | | 2.95 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.014 I | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 15:40 | 1 |
| Chemical Oxygen Demand | mg/L | 54 | EPA 410.4 | 25 | 10 | 08/02/13 11:25 | 08/02/13 16:30 | 1 |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 21:09 | 1 |
| Nitrate (as N) | mg/L | 0.32 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:09 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:09 | 1 |
| Phosphorous - Total as P | mg/L | 0.19 | SM 4500P-E | 0.040 | 0.010 | 07/30/13 16:39 | 08/05/13 14:57 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 21:09 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 10:51 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.54 | EPA 351.2 | 0.20 | 0.05 | 08/01/13 08:46 | 08/02/13 10:08 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.32 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 21:09 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-29** | | | | | | |
| Date/Time Collected | | **07/24/13 13:04** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.17 | | | | | | |
| Temperature | | 24.8 °C | | | | | | |
| Conductivity | | 438 umhos | | | | | | |
| Dissolved Oxygen | | 0.71 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.46 | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 15:42 | 1 |
| Chloride | mg/L | 12 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 21:21 | 1 |
| Nitrate (as N) | mg/L | 0.11 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:21 | 1 |
| Nitrite (as N) | mg/L | 0.10 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:21 | 1 |
| Sulfate | mg/L | 59 | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 21:21 | 1 |
| Total Alkalinity | mg/L | 120 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 10:59 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.80 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:47 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.21 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 21:21 | 1 |
| Sample Description | | **PZ-E5-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-30** | | | | | | |
| Date/Time Collected | | **07/25/13 10:13** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.96 | | | | | | |
| Temperature | | 24.5 °C | | | | | | |
| Conductivity | | 733 umhos | | | | | | |
| Dissolved Oxygen | | 0.48 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.059 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:31 | 1 |
| Chloride | mg/L | 30 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 15:12 | 1 |
| Nitrate (as N) | mg/L | 0.32 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:12 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:12 | 1 |
| Sulfate | mg/L | 290 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 19:59 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/31/13 11:02 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.64 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:25 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.32 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 15:12 | 1 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E5-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-31** | | | | | | |
| Date/Time Collected | | **07/25/13 10:28** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.09 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 483 umhos | | | | | | |
| Dissolved Oxygen | | 0.08 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:33 | 1 |
| Chloride | mg/L | 17 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 15:24 | 1 |
| Nitrate (as N) | mg/L | 0.09 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:24 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:24 | 1 |
| Sulfate | mg/L | 82 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 15:24 | 1 |
| Total Alkalinity | mg/L | 100 | SM 2320B | 8.0 | 2.0 | | 07/31/13 11:08 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.56 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:26 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.09 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 15:24 | 1 |
| Sample Description | | **PZ-E6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-32** | | | | | | |
| Date/Time Collected | | **07/24/13 13:50** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.73 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 780 umhos | | | | | | |
| Dissolved Oxygen | | 1.67 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.030 I | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 10:49 | 1 |
| Chloride | mg/L | 32 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 21:32 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:32 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:32 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 21:32 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 11:02 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.43 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:48 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 21:32 | 1 |

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**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-33** | | | | | | |
| Date/Time Collected | | **07/24/13 14:04** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.81 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 326 umhos | | | | | | |
| Dissolved Oxygen | | 0.74 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.1 | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 10:51 | 1 |
| Chloride | mg/L | 25 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 21:43 | 1 |
| Fluoride | mg/L | 0.010 I | EPA 300.0 | 0.040 | 0.010 | | 07/25/13 21:43 | 1 |
| Nitrate (as N) | mg/L | 0.09 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:43 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:43 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/25/13 21:43 | 1 |
| Phosphorous - Total as P | mg/L | 0.34 | SM 4500P-E | 0.040 | 0.010 | 07/30/13 16:39 | 08/05/13 15:41 | 1 |
| Sulfate | mg/L | 82 | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 21:43 | 1 |
| Total Alkalinity | mg/L | 12 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 11:02 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.7 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:50 | 1 |
| Total Organic Carbon | mg/L | 18 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.09 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 21:43 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 17 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.088 I | EPA 200.7 | 0.10 | 0.050 | 07/29/13 11:53 | 07/31/13 14:42 | 1 |
| Calcium | mg/L | 31 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 11:53 | 07/31/13 14:42 | 1 |
| Iron | mg/L | 1.5 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 11:53 | 07/31/13 14:42 | 1 |
| Magnesium | mg/L | 11 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 11:53 | 07/31/13 14:42 | 1 |
| Manganese | mg/L | 0.0054 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 11:53 | 07/31/13 14:42 | 1 |
| Potassium | mg/L | 1.4 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 11:53 | 07/31/13 14:42 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 11:53 | 07/31/13 14:42 | 1 |
| Sample Description | | **PZ-E7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-34** | | | | | | |
| Date/Time Collected | | **07/25/13 09:09** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.27 | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-34** | | | | | | |
| Date/Time Collected | | **07/25/13 09:09** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.27 | | | | | | |
| Temperature | | 24.2 °C | | | | | | |
| Conductivity | | 445 umhos | | | | | | |
| Dissolved Oxygen | | 0.57 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.14 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:35 | 1 |
| Chemical Oxygen Demand | mg/L | 35 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 15:35 | 1 |
| Fluoride | mg/L | 0.46 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 15:35 | 1 |
| Nitrate (as N) | mg/L | 1.8 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:35 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:35 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 15:35 | 1 |
| Phosphorous - Total as P | mg/L | 0.038 I | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:30 | 1 |
| Sulfate | mg/L | 130 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 20:17 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/31/13 11:35 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.8 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:28 | 1 |
| Total Organic Carbon | mg/L | 19 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.8 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 15:35 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 18 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.14 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 12:06 | 08/07/13 11:51 | 1 |
| Calcium | mg/L | 44 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 12:06 | 08/07/13 11:51 | 1 |
| Iron | mg/L | 0.20 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 12:06 | 08/07/13 11:51 | 1 |
| Magnesium | mg/L | 16 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 12:06 | 08/07/13 11:51 | 1 |
| Manganese | mg/L | 0.0085 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 12:06 | 08/07/13 11:51 | 1 |
| Potassium | mg/L | 1.8 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 12:06 | 08/07/13 11:51 | 1 |
| Sodium | mg/L | 12 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 12:06 | 08/07/13 11:51 | 1 |

| | |
|---|---|
| Sample Description | **PZ-E7-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1307180-35** |
| Date/Time Collected | **07/25/13 09:25** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **07/25/13 14:40** |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-35** | | | | | | |
| Date/Time Collected | | **07/25/13 09:25** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.49 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 1145 umhos | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.41 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:38 | 1 |
| Chemical Oxygen Demand | mg/L | 54 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 20 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 15:46 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:46 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:46 | 1 |
| Phosphorous - Total as P | mg/L | 0.28 | SM 4500P-E | 0.040 | 0.010 | 08/06/13 09:23 | 08/15/13 10:32 | 1 |
| Sulfate | mg/L | 270 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 20:26 | 10 |
| Total Alkalinity | mg/L | 290 | SM 2320B | 8.0 | 2.0 | | 07/31/13 11:58 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.89 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:29 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 15:46 | 1 |
| Sample Description | | **PZ-E7-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-36** | | | | | | |
| Date/Time Collected | | **07/25/13 09:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.49 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 1145 umhos | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.40 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:40 | 1 |
| Chemical Oxygen Demand | mg/L | 58 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 21 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 15:58 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:58 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 15:58 | 1 |
| Phosphorous - Total as P | mg/L | 0.31 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:04 | 1 |
| Sulfate | mg/L | 260 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 20:35 | 10 |
| Total Alkalinity | mg/L | 270 | SM 2320B | 8.0 | 2.0 | | 07/31/13 12:17 | 1 |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-E7-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-36** | | | | | | |
| Date/Time Collected | | **07/25/13 09:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.49 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 1145 umhos | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.96 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:30 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 15:58 | 1 |
| Sample Description | | **PZ-F3-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-38** | | | | | | |
| Date/Time Collected | | **07/24/13 10:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.93 | | | | | | |
| Temperature | | 28.0 °C | | | | | | |
| Conductivity | | 272 umhos | | | | | | |
| Dissolved Oxygen | | 7.49 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.21 | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 10:53 | 1 |
| Chemical Oxygen Demand | mg/L | 26 | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 8.3 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 21:55 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:55 | 1 |
| Nitrite (as N) | mg/L | 0.01 I | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 21:55 | 1 |
| Phosphorous - Total as P | mg/L | 0.59 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:05 | 1 |
| Sulfate | mg/L | 0.73 | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 21:55 | 1 |
| Total Alkalinity | mg/L | 120 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 11:34 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.57 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:51 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 21:55 | 1 |
| Sample Description | | **PZ-F4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-39** | | | | | | |
| Date/Time Collected | | **07/24/13 11:54** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |

**Hazen and Sawyer**
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**September 6, 2013**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-F4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-39** | | | | | | |
| Date/Time Collected | | **07/24/13 11:54** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.06 | | | | | | |
| Temperature | | 25.8 °C | | | | | | |
| Conductivity | | 888 umhos | | | | | | |
| Dissolved Oxygen | | 1.43 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.018 I | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 10:55 | 1 |
| Chemical Oxygen Demand | mg/L | 54 | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 22:06 | 1 |
| Fluoride | mg/L | 1.3 | EPA 300.0 | 0.040 | 0.010 | | 07/25/13 22:06 | 1 |
| Nitrate (as N) | mg/L | 0.50 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 22:06 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 22:06 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/25/13 22:06 | 1 |
| Phosphorous - Total as P | mg/L | 0.068 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:06 | 1 |
| Sulfate | mg/L | 310 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 18:17 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 11:47 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.86 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:52 | 1 |
| Total Organic Carbon | mg/L | 26 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.50 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 22:06 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 26 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.49 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 11:53 | 07/31/13 14:52 | 1 |
| Calcium | mg/L | 69 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 11:53 | 07/31/13 14:52 | 1 |
| Iron | mg/L | 0.43 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 11:53 | 07/31/13 14:52 | 1 |
| Magnesium | mg/L | 27 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 11:53 | 07/31/13 14:52 | 1 |
| Manganese | mg/L | 0.014 | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 11:53 | 07/31/13 14:52 | 1 |
| Potassium | mg/L | 7.1 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 11:53 | 07/31/13 14:52 | 1 |
| Sodium | mg/L | 49 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 11:53 | 07/31/13 14:52 | 1 |

| | |
|---|---|
| Sample Description | **PZ-F4-08-DUP** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1307180-40** |
| Date/Time Collected | **07/24/13 12:04** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **07/24/13 15:15** |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-F4-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-40** | | | | | | |
| Date/Time Collected | | **07/24/13 12:04** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.06 | | | | | | |
| Temperature | | 25.8 °C | | | | | | |
| Conductivity | | 888 umhos | | | | | | |
| Dissolved Oxygen | | 1.43 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.012 I | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 10:57 | 1 |
| Chemical Oxygen Demand | mg/L | 51 | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 22:51 | 1 |
| Fluoride | mg/L | 1.1 | EPA 300.0 | 0.040 | 0.010 | | 07/25/13 22:51 | 1 |
| Nitrate (as N) | mg/L | 0.50 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 22:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 22:51 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/25/13 22:51 | 1 |
| Phosphorous - Total as P | mg/L | 0.073 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:07 | 1 |
| Sulfate | mg/L | 320 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 18:27 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 11:55 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.79 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:54 | 1 |
| Total Organic Carbon | mg/L | 28 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.50 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 22:51 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 27 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.50 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 11:53 | 07/31/13 15:02 | 1 |
| Calcium | mg/L | 67 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 11:53 | 07/31/13 15:02 | 1 |
| Iron | mg/L | 0.38 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 11:53 | 07/31/13 15:02 | 1 |
| Magnesium | mg/L | 27 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 11:53 | 07/31/13 15:02 | 1 |
| Manganese | mg/L | 0.012 | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 11:53 | 07/31/13 15:02 | 1 |
| Potassium | mg/L | 7.9 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 11:53 | 07/31/13 15:02 | 1 |
| Sodium | mg/L | 45 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 11:53 | 07/31/13 15:02 | 1 |

| | |
|---|---|
| Sample Description | **PZ-F4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1307180-41** |
| Date/Time Collected | **07/24/13 12:29** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **07/24/13 15:15** |

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**September 6, 2013**
**Work Order: 1307180**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-F4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-41** | | | | | | |
| Date/Time Collected | | **07/24/13 12:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.44 | | | | | | |
| Temperature | | 25.4 °C | | | | | | |
| Conductivity | | 588 umhos | | | | | | |
| Dissolved Oxygen | | 0.80 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.29 | EPA 350.1 | 0.040 | 0.009 | | 08/13/13 10:59 | 1 |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 14 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 23:02 | 1 |
| Nitrate (as N) | mg/L | 0.16 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:02 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:02 | 1 |
| Phosphorous - Total as P | mg/L | 0.26 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:08 | 1 |
| Sulfate | mg/L | 78 | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 23:02 | 1 |
| Total Alkalinity | mg/L | 180 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 12:56 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.75 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:55 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.16 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 23:02 | 1 |
| Sample Description | | **PZ-G2-12.5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-43** | | | | | | |
| Date/Time Collected | | **07/24/13 10:02** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.11 | | | | | | |
| Temperature | | 25.1 °C | | | | | | |
| Conductivity | | 809 umhos | | | | | | |
| Dissolved Oxygen | | 2.09 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 14:53 | 1 |
| Chloride | mg/L | 38 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 23:14 | 1 |
| Nitrate (as N) | mg/L | 2.0 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:14 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:14 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 23:14 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 12:59 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.74 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:56 | 1 |
| Nitrate+Nitrite (N) | mg/L | 2.0 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 23:14 | 1 |

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**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-44** | | | | | | |
| Date/Time Collected | | **07/25/13 08:17** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.07 | | | | | | |
| Temperature | | 25.1 °C | | | | | | |
| Conductivity | | 685 umhos | | | | | | |
| Dissolved Oxygen | | 2.16 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.028 I | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:50 | 1 |
| Chemical Oxygen Demand | mg/L | 35 | EPA 410.4 | 25 | 10 | 08/07/13 11:32 | 08/15/13 13:15 | 1 |
| Chloride | mg/L | 32 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 16:09 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 16:09 | 1 |
| Nitrate (as N) | mg/L | 1.9 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 16:09 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 16:09 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 16:09 | 1 |
| Phosphorous - Total as P | mg/L | 0.079 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:09 | 1 |
| Sulfate | mg/L | 240 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 20:45 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/31/13 11:11 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.72 | EPA 351.2 | 0.20 | 0.05 | 08/06/13 09:54 | 08/16/13 12:32 | 1 |
| Total Organic Carbon | mg/L | 15 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.9 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 16:09 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 14 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.39 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 12:06 | 08/07/13 11:55 | 1 |
| Calcium | mg/L | 56 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 12:06 | 08/07/13 11:55 | 1 |
| Iron | mg/L | 0.41 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 12:06 | 08/07/13 11:55 | 1 |
| Magnesium | mg/L | 27 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 12:06 | 08/07/13 11:55 | 1 |
| Manganese | mg/L | 0.0051 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 12:06 | 08/07/13 11:55 | 1 |
| Potassium | mg/L | 8.1 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 12:06 | 08/07/13 11:55 | 1 |
| Sodium | mg/L | 32 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 12:06 | 08/07/13 11:55 | 1 |

| | |
|---|---|
| Sample Description | **PZ-H4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1307180-45** |
| Date/Time Collected | **07/25/13 08:35** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **07/25/13 14:40** |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-45** | | | | | | |
| Date/Time Collected | | **07/25/13 08:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.33 | | | | | | |
| Temperature | | 24.2 °C | | | | | | |
| Conductivity | | 586 umhos | | | | | | |
| Dissolved Oxygen | | 0.23 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.30 | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:52 | 1 |
| Chemical Oxygen Demand | mg/L | 13 I | EPA 410.4 | 25 | 10 | 08/15/13 14:05 | 08/15/13 17:00 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 16:20 | 1 |
| Nitrate (as N) | mg/L | 0.23 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 16:20 | 1 |
| Nitrite (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 16:20 | 1 |
| Phosphorous - Total as P | mg/L | 11 | SM 4500P-E | 0.80 | 0.20 | 07/26/13 13:06 | 08/09/13 16:09 | 20 |
| Sulfate | mg/L | 140 | EPA 300.0 | 6.0 | 2.0 | | 08/12/13 20:54 | 10 |
| Total Alkalinity | mg/L | 170 | SM 2320B | 8.0 | 2.0 | | 07/31/13 12:25 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.2 | EPA 351.2 | 0.20 | 0.05 | 08/01/13 09:08 | 08/15/13 15:18 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.28 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 16:20 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H5-11.5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-46** | | | | | | |
| Date/Time Collected | | **07/25/13 08:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.01 | | | | | | |
| Temperature | | 24.3 °C | | | | | | |
| Conductivity | | 535 umhos | | | | | | |
| Dissolved Oxygen | | 2.80 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:54 | 1 |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 16:31 | 1 |
| Fluoride | mg/L | 0.056 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 16:31 | 1 |
| Nitrate (as N) | mg/L | 0.33 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 16:31 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 16:31 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 16:31 | 1 |
| Sulfate | mg/L | 170 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 16:31 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/31/13 12:27 | 1 |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-H5-11.5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-46** | | | | | | |
| Date/Time Collected | | **07/25/13 08:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.01 | | | | | | |
| Temperature | | 24.3 °C | | | | | | |
| Conductivity | | 535 umhos | | | | | | |
| Dissolved Oxygen | | 2.80 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.53 | EPA 351.2 | 0.20 | 0.05 | 08/01/13 09:08 | 08/15/13 15:19 | 1 |
| Total Organic Carbon | mg/L | 17 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.33 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 16:31 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 17 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.15 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 12:06 | 08/07/13 11:58 | 1 |
| Calcium | mg/L | 48 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 12:06 | 08/07/13 11:58 | 1 |
| Iron | mg/L | 0.041 I | EPA 200.7 | 0.10 | 0.020 | 07/29/13 12:06 | 08/07/13 11:58 | 1 |
| Magnesium | mg/L | 22 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 12:06 | 08/07/13 11:58 | 1 |
| Manganese | mg/L | 0.0051 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 12:06 | 08/07/13 11:58 | 1 |
| Potassium | mg/L | 2.0 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 12:06 | 08/07/13 11:58 | 1 |
| Sodium | mg/L | 17 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 12:06 | 08/07/13 11:58 | 1 |
| Sample Description | | **PZ-I6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-47** | | | | | | |
| Date/Time Collected | | **07/24/13 12:48** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.87 | | | | | | |
| Temperature | | 24.8 °C | | | | | | |
| Conductivity | | 486 umhos | | | | | | |
| Dissolved Oxygen | | 1.24 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.45 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 14:55 | 1 |
| Chloride | mg/L | 38 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 23:25 | 1 |
| Nitrate (as N) | mg/L | 1.6 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:25 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:25 | 1 |
| Sulfate | mg/L | 140 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 18:36 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 13:25 | 1 |

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**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I6-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-47** | | | | | | |
| Date/Time Collected | | **07/24/13 12:48** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.87 | | | | | | |
| Temperature | | 24.8 °C | | | | | | |
| Conductivity | | 486 umhos | | | | | | |
| Dissolved Oxygen | | 1.24 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 4.3 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:57 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.6 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 23:25 | 1 |
| Sample Description | | **PZ-I6-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-48** | | | | | | |
| Date/Time Collected | | **07/24/13 13:01** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.45 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 800 umhos | | | | | | |
| Dissolved Oxygen | | 0.95 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.25 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 14:57 | 1 |
| Chloride | mg/L | 20 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 23:36 | 1 |
| Nitrate (as N) | mg/L | 0.10 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:36 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:36 | 1 |
| Sulfate | mg/L | 130 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 18:45 | 10 |
| Total Alkalinity | mg/L | 160 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 13:42 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 07/30/13 16:46 | 08/05/13 15:59 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.10 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 23:36 | 1 |
| Sample Description | | **PZ-I6-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-49** | | | | | | |
| Date/Time Collected | | **07/24/13 13:06** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I6-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-49** | | | | | | |
| Date/Time Collected | | **07/24/13 13:06** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.45 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 800 umhos | | | | | | |
| Dissolved Oxygen | | 0.95 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.26 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 14:59 | 1 |
| Chloride | mg/L | 20 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 23:48 | 1 |
| Nitrate (as N) | mg/L | 0.10 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:48 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:48 | 1 |
| Sulfate | mg/L | 120 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 18:55 | 10 |
| Total Alkalinity | mg/L | 130 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 13:56 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:09 | 08/02/13 13:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.10 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 23:48 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-50** | | | | | | |
| Date/Time Collected | | **07/24/13 11:43** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.33 | | | | | | |
| Temperature | | 24.2 °C | | | | | | |
| Conductivity | | 344 umhos | | | | | | |
| Dissolved Oxygen | | 1.74 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.58 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 15:01 | 1 |
| Chemical Oxygen Demand | mg/L | 23 I | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 23 | EPA 300.0 | 0.20 | 0.050 | | 07/25/13 23:59 | 1 |
| Nitrate (as N) | mg/L | 0.08 | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:59 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/25/13 23:59 | 1 |
| Phosphorous - Total as P | mg/L | 0.030 I | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:11 | 1 |
| Sulfate | mg/L | 96 | EPA 300.0 | 0.60 | 0.20 | | 07/25/13 23:59 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 14:12 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:09 | 08/02/13 13:03 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.08 | EPA 300.0 | 0.08 | 0.02 | | 07/25/13 23:59 | 1 |

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**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-I10-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-51** | | | | | | |
| Date/Time Collected | | **07/24/13 11:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.84 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 406 umhos | | | | | | |
| Dissolved Oxygen | | 1.51 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.62 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 15:03 | 1 |
| Chloride | mg/L | 22 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 00:10 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 00:10 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 00:10 | 1 |
| Sulfate | mg/L | 84 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 00:10 | 1 |
| Total Alkalinity | mg/L | 59 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 14:48 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.2 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:09 | 08/02/13 13:04 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 00:10 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-53** | | | | | | |
| Date/Time Collected | | **07/24/13 13:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.98 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 426 umhos | | | | | | |
| Dissolved Oxygen | | 3.28 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.4 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 15:04 | 1 |
| Chemical Oxygen Demand | mg/L | 26 | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 00:21 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 00:21 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 00:21 | 1 |
| Phosphorous - Total as P | mg/L | 0.10 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:12 | 1 |
| Sulfate | mg/L | 91 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 00:21 | 1 |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 14:56 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.3 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:09 | 08/02/13 13:05 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 00:21 | 1 |

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**Tampa, FL 33619**

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-54** | | | | | | |
| Date/Time Collected | | **07/24/13 12:08** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.32 | | | | | | |
| Temperature | | 24.5 °C | | | | | | |
| Conductivity | | 287 umhos | | | | | | |
| Dissolved Oxygen | | 1.24 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.042 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 15:06 | 1 |
| Chemical Oxygen Demand | mg/L | 17 I | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 00:33 | 1 |
| Fluoride | mg/L | 0.41 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 00:33 | 1 |
| Nitrate (as N) | mg/L | 1.7 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 00:33 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 00:33 | 1 |
| Orthophosphate as P | mg/L | 0.016 I | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 00:33 | 1 |
| Phosphorous - Total as P | mg/L | 0.12 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:06 | 08/09/13 14:12 | 1 |
| Sulfate | mg/L | 66 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 00:33 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 15:07 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:09 | 08/02/13 13:07 | 1 |
| Total Organic Carbon | mg/L | 16 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.7 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 00:33 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 16 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.12 | EPA 200.7 | 0.10 | 0.050 | 07/29/13 11:53 | 07/31/13 15:06 | 1 |
| Calcium | mg/L | 27 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 11:53 | 07/31/13 15:06 | 1 |
| Iron | mg/L | 0.32 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 11:53 | 07/31/13 15:06 | 1 |
| Magnesium | mg/L | 11 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 11:53 | 07/31/13 15:06 | 1 |
| Manganese | mg/L | 0.0044 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 11:53 | 07/31/13 15:06 | 1 |
| Potassium | mg/L | 1.1 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 11:53 | 07/31/13 15:06 | 1 |
| Sodium | mg/L | 9.4 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 11:53 | 07/31/13 15:06 | 1 |

| | |
|---|---|
| Sample Description | **PZ-J7-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1307180-55** |
| Date/Time Collected | **07/24/13 12:24** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **07/24/13 15:15** |

**Hazen and Sawyer**
**10002 Princess Palm Ave, Suite 200**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-55** | | | | | | |
| Date/Time Collected | | **07/24/13 12:24** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.80 | | | | | | |
| Temperature | | 23.7 °C | | | | | | |
| Conductivity | | 331 umhos | | | | | | |
| Dissolved Oxygen | | 2.29 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.43 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 15:08 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 01:52 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 01:52 | 1 |
| Nitrate (as N) | mg/L | 0.11 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 01:52 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 01:52 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 01:52 | 1 |
| Phosphorous - Total as P | mg/L | 0.31 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 10:08 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 19:32 | 10 |
| Total Alkalinity | mg/L | 4.9 I | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 15:23 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:09 | 08/02/13 13:08 | 1 |
| Total Organic Carbon | mg/L | 21 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.11 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 01:52 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 20 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.057 I | EPA 200.7 | 0.10 | 0.050 | 07/29/13 11:53 | 07/31/13 15:09 | 1 |
| Calcium | mg/L | 32 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 11:53 | 07/31/13 15:09 | 1 |
| Iron | mg/L | 1.5 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 11:53 | 07/31/13 15:09 | 1 |
| Magnesium | mg/L | 12 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 11:53 | 07/31/13 15:09 | 1 |
| Manganese | mg/L | 0.0037 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 11:53 | 07/31/13 15:09 | 1 |
| Potassium | mg/L | 1.1 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 11:53 | 07/31/13 15:09 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 11:53 | 07/31/13 15:09 | 1 |
| Sample Description | | **PZ-J7-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-56** | | | | | | |
| Date/Time Collected | | **07/24/13 12:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.80 | | | | | | |

**Hazen and Sawyer**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-J7-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-56** | | | | | | |
| Date/Time Collected | | **07/24/13 12:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.80 | | | | | | |
| Temperature | | 23.7 °C | | | | | | |
| Conductivity | | 331 umhos | | | | | | |
| Dissolved Oxygen | | 2.29 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.37 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 15:09 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 02:03 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 02:03 | 1 |
| Nitrate (as N) | mg/L | 0.11 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:03 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:03 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 02:03 | 1 |
| Phosphorous - Total as P | mg/L | 0.31 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 11:08 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 19:42 | 10 |
| Total Alkalinity | mg/L | 7.0 I | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 15:36 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.94 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:09 | 08/02/13 13:09 | 1 |
| Total Organic Carbon | mg/L | 20 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.11 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 02:03 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 20 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.060 I | EPA 200.7 | 0.10 | 0.050 | 07/29/13 11:53 | 07/31/13 15:13 | 1 |
| Calcium | mg/L | 34 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 11:53 | 07/31/13 15:13 | 1 |
| Iron | mg/L | 1.5 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 11:53 | 07/31/13 15:13 | 1 |
| Magnesium | mg/L | 13 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 11:53 | 07/31/13 15:13 | 1 |
| Manganese | mg/L | 0.0043 I | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 11:53 | 07/31/13 15:13 | 1 |
| Potassium | mg/L | 1.2 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 11:53 | 07/31/13 15:13 | 1 |
| Sodium | mg/L | 12 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 11:53 | 07/31/13 15:13 | 1 |

| | |
|---|---|
| Sample Description | **PZ-N4-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1307180-57** |
| Date/Time Collected | **07/24/13 09:57** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **07/24/13 15:15** |

**Client Provided Field Data**

| | |
|---|---|
| pH | 4.48 |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N4-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-57** | | | | | | |
| Date/Time Collected | | **07/24/13 09:57** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.48 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 500 umhos | | | | | | |
| Dissolved Oxygen | | 5.43 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.068 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:35 | 1 |
| Chemical Oxygen Demand | mg/L | 23 I | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 02:14 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:14 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:14 | 1 |
| Phosphorous - Total as P | mg/L | 0.16 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 10:11 | 1 |
| Sulfate | mg/L | 200 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 19:51 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 15:43 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.47 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:18 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 02:14 | 1 |
| Sample Description | | **PZ-N4-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-58** | | | | | | |
| Date/Time Collected | | **07/24/13 10:14** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.96 | | | | | | |
| Temperature | | 23.5 °C | | | | | | |
| Conductivity | | 361 umhos | | | | | | |
| Dissolved Oxygen | | 1.86 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.39 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:37 | 1 |
| Chloride | mg/L | 12 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 02:26 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:26 | 1 |
| Sulfate | mg/L | 66 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 02:26 | 1 |
| Total Alkalinity | mg/L | 140 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 15:56 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 4.8 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:19 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 02:26 | 1 |

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**September 6, 2013**
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**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N7-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-59** | | | | | | |
| Date/Time Collected | | **07/24/13 10:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.75 | | | | | | |
| Temperature | | 24.1 °C | | | | | | |
| Conductivity | | 428 umhos | | | | | | |
| Dissolved Oxygen | | 1.62 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.45 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:39 | 1 |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 02:37 | 1 |
| Fluoride | mg/L | 0.56 | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 02:37 | 1 |
| Nitrate (as N) | mg/L | 0.17 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:37 | 1 |
| Orthophosphate as P | mg/L | 0.026 I | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 02:37 | 1 |
| Sulfate | mg/L | 140 | EPA 300.0 | 6.0 | 2.0 | | 08/05/13 20:01 | 10 |
| Total Alkalinity | mg/L | 3.4 I | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 16:01 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.3 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:20 | 1 |
| Total Organic Carbon | mg/L | 18 | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.17 | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 02:37 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 16 | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.079 I | EPA 200.7 | 0.10 | 0.050 | 07/29/13 11:53 | 07/31/13 15:16 | 1 |
| Calcium | mg/L | 44 | EPA 200.7 | 0.50 | 0.042 | 07/29/13 11:53 | 07/31/13 15:16 | 1 |
| Iron | mg/L | 3.9 | EPA 200.7 | 0.10 | 0.020 | 07/29/13 11:53 | 07/31/13 15:16 | 1 |
| Magnesium | mg/L | 14 | EPA 200.7 | 0.50 | 0.020 | 07/29/13 11:53 | 07/31/13 15:16 | 1 |
| Manganese | mg/L | 0.045 | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 11:53 | 07/31/13 15:16 | 1 |
| Potassium | mg/L | 0.95 | EPA 200.7 | 0.050 | 0.010 | 07/29/13 11:53 | 07/31/13 15:16 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 07/29/13 11:53 | 07/31/13 15:16 | 1 |
| Sample Description | | **PZ-N7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-60** | | | | | | |
| Date/Time Collected | | **07/24/13 10:46** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.26 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |

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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N7-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-60** | | | | | | |
| Date/Time Collected | | **07/24/13 10:46** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.26 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |
| Conductivity | | 237 umhos | | | | | | |
| Dissolved Oxygen | | 1.78 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.24 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:41 | 1 |
| Chloride | mg/L | 13 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 02:48 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:48 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 02:48 | 1 |
| Sulfate | mg/L | 58 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 02:48 | 1 |
| Total Alkalinity | mg/L | 17 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 16:38 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.83 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:22 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 02:48 | 1 |
| Sample Description | | **PZ-N7-15-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-61** | | | | | | |
| Date/Time Collected | | **07/24/13 10:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.26 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |
| Conductivity | | 23.7 umhos | | | | | | |
| Dissolved Oxygen | | 1.78 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.24 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:43 | 1 |
| Chloride | mg/L | 13 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 03:00 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:00 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:00 | 1 |
| Sulfate | mg/L | 58 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 03:00 | 1 |
| Total Alkalinity | mg/L | 17 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 16:43 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.89 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:23 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 03:00 | 1 |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-62** | | | | | | |
| Date/Time Collected | | **07/24/13 11:20** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.40 | | | | | | |
| Temperature | | 24.0 °C | | | | | | |
| Conductivity | | 353 umhos | | | | | | |
| Dissolved Oxygen | | 0.63 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.14 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:45 | 1 |
| Chemical Oxygen Demand | mg/L | 35 | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 21 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 03:11 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:11 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:11 | 1 |
| Phosphorous - Total as P | mg/L | 0.19 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 11:09 | 1 |
| Sulfate | mg/L | 87 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 03:11 | 1 |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 16:59 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.62 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:24 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 03:11 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-N10-15** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-63** | | | | | | |
| Date/Time Collected | | **07/24/13 11:32** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.41 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |
| Conductivity | | 582 umhos | | | | | | |
| Dissolved Oxygen | | 1.40 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.27 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:47 | 1 |
| Chloride | mg/L | 17 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 03:22 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:22 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:22 | 1 |
| Sulfate | mg/L | 92 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 03:22 | 1 |
| Total Alkalinity | mg/L | 130 | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 16:59 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.72 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:26 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 03:22 | 1 |

**Hazen and Sawyer**
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**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-S10-08** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-64** | | | | | | |
| Date/Time Collected | | **07/24/13 11:02** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.01 | | | | | | |
| Temperature | | 24.5 °C | | | | | | |
| Conductivity | | 240 umhos | | | | | | |
| Dissolved Oxygen | | 2.19 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.29 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:49 | 1 |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 08/01/13 11:59 | 08/02/13 13:55 | 1 |
| Chloride | mg/L | 17 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 03:34 | 1 |
| Nitrate (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:34 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 03:34 | 1 |
| Phosphorous - Total as P | mg/L | 0.070 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 14:48 | 1 |
| Sulfate | mg/L | 62 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 03:34 | 1 |
| Total Alkalinity | mg/L | 2.2 I | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 17:02 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.74 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:27 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 03:34 | 1 |
| Sample Description | | **PZ-S10-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-65** | | | | | | |
| Date/Time Collected | | **07/24/13 11:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.01 | | | | | | |
| Temperature | | 24.5 °C | | | | | | |
| Conductivity | | 240 umhos | | | | | | |
| Dissolved Oxygen | | 2.19 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.31 | EPA 350.1 | 0.040 | 0.009 | | 08/12/13 12:51 | 1 |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 08/02/13 11:25 | 08/02/13 16:30 | 1 |
| Chloride | mg/L | 18 | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 04:19 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 04:19 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 04:19 | 1 |
| Phosphorous - Total as P | mg/L | 0.064 | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 15:10 | 1 |
| Sulfate | mg/L | 62 | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 04:19 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 07/25/13 15:48 | 07/26/13 17:04 | 1 |

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**September 6, 2013**
**Work Order: 1307180**
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## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **PZ-S10-08-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1307180-65** | | | | | | |
| Date/Time Collected | | **07/24/13 11:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/24/13 15:15** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.01 | | | | | | |
| Temperature | | 24.5 °C | | | | | | |
| Conductivity | | 240 umhos | | | | | | |
| Dissolved Oxygen | | 2.19 mg/L | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.79 | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 12:16 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 04:19 | 1 |
| Sample Description | | **FB-DI** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1307180-73** | | | | | | |
| Date/Time Collected | | **07/25/13 11:50** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.45 | | | | | | |
| Temperature | | 24.0 °C | | | | | | |
| Conductivity | | 1.2 umhos | | | | | | |
| Dissolved Oxygen | | 7.25 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 08/21/13 08:48 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 08/15/13 14:05 | 08/15/13 17:00 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 17:51 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 17:51 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 17:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 17:51 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 17:51 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 10:15 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 17:51 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/31/13 12:30 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 12:17 | 1 |
| Total Organic Carbon | mg/L | 0.060 U | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 17:51 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 0.060 U | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7 | 0.10 | 0.050 | 07/29/13 09:35 | 07/29/13 11:55 | 1 |

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**Revised Report**

## Laboratory Report

**Project Name** **Hillsborough County C-HS4 SE#4**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **FB-DI** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1307180-73** | | | | | | |
| Date/Time Collected | | **07/25/13 11:50** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.45 | | | | | | |
| Temperature | | 24.0 °C | | | | | | |
| Conductivity | | 1.2 umhos | | | | | | |
| Dissolved Oxygen | | 7.25 mg/L | | | | | | |
| Calcium | mg/L | 0.042 U | EPA 200.7 | 0.50 | 0.042 | 07/29/13 09:35 | 07/29/13 11:55 | 1 |
| Iron | mg/L | 0.020 U | EPA 200.7 | 0.10 | 0.020 | 07/29/13 09:35 | 07/29/13 11:55 | 1 |
| Magnesium | mg/L | 0.020 U | EPA 200.7 | 0.50 | 0.020 | 07/29/13 09:35 | 07/29/13 11:55 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 09:35 | 07/29/13 11:55 | 1 |
| Potassium | mg/L | 0.010 U | EPA 200.7 | 0.050 | 0.010 | 07/29/13 09:35 | 07/29/13 11:55 | 1 |
| Sodium | mg/L | 0.13 U | EPA 200.7 | 0.50 | 0.13 | 07/29/13 09:35 | 07/29/13 11:55 | 1 |
| Sample Description | | **EB** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1307180-74** | | | | | | |
| Date/Time Collected | | **07/25/13 11:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.45 | | | | | | |
| Temperature | | 24.0 °C | | | | | | |
| Conductivity | | 1.2 umhos | | | | | | |
| Dissolved Oxygen | | 7.58 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 08/20/13 15:58 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 08/15/13 14:05 | 08/15/13 17:00 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 07/26/13 18:02 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 18:02 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 18:02 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 07/26/13 18:02 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 07/26/13 18:02 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 07/26/13 13:03 | 08/02/13 10:17 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 07/26/13 18:02 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 07/31/13 12:32 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 07/26/13 10:04 | 08/01/13 11:37 | 1 |
| Total Organic Carbon | mg/L | 0.060 U | SM 5310B | 1.0 | 0.060 | | 08/02/13 09:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 07/26/13 18:02 | 1 |

SOUTHERN ANALYTICAL LABORATORIES, INC.
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Tampa, FL 33619

September 6, 2013
Work Order: 1307180
Revised Report

## Laboratory Report

**Project Name** Hillsborough County C-HS4 SE#4

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **EB** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1307180-74** | | | | | | |
| Date/Time Collected | | **07/25/13 11:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **07/25/13 14:40** | | | | | | |
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.45 | | | | | | |
| Temperature | | 24.0 °C | | | | | | |
| Conductivity | | 1.2 umhos | | | | | | |
| Dissolved Oxygen | | 7.58 mg/L | | | | | | |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 0.060 U | SM 5310B | 1.0 | 0.060 | | 08/05/13 16:07 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7 | 0.10 | 0.050 | 07/29/13 09:35 | 07/29/13 12:11 | 1 |
| Calcium | mg/L | 0.042 U | EPA 200.7 | 0.50 | 0.042 | 07/29/13 09:35 | 07/29/13 12:11 | 1 |
| Iron | mg/L | 0.020 U | EPA 200.7 | 0.10 | 0.020 | 07/29/13 09:35 | 07/29/13 12:11 | 1 |
| Magnesium | mg/L | 0.020 U | EPA 200.7 | 0.50 | 0.020 | 07/29/13 09:35 | 07/29/13 12:11 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 07/29/13 09:35 | 07/29/13 12:11 | 1 |
| Potassium | mg/L | 0.010 U | EPA 200.7 | 0.050 | 0.010 | 07/29/13 09:35 | 07/29/13 12:11 | 1 |
| Sodium | mg/L | 0.13 U | EPA 200.7 | 0.50 | 0.13 | 07/29/13 09:35 | 07/29/13 12:11 | 1 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32509 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BG32509-BLK1)** | | | | | Prepared & Analyzed: 07/25/13 | | | | | |
| 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 | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| **LCS (BG32509-BS1)** | | | | | Prepared & Analyzed: 07/25/13 | | | | | |
| Nitrite (as N) | 1.33 | 0.04 | 0.01 | mg/L | 1.4 | | 95 | 85-115 | | |
| Sulfate | 8.92 | 0.60 | 0.20 | mg/L | 9.0 | | 99 | 85-115 | | |
| Chloride | 2.90 | 0.20 | 0.050 | mg/L | 3.0 | | 97 | 85-115 | | |
| Fluoride | 0.900 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | | |
| Orthophosphate as P | 0.896 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | | |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.09* | | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| **LCS Dup (BG32509-BSD1)** | | | | | Prepared & Analyzed: 07/25/13 | | | | | |
| Orthophosphate as P | 0.896 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | 0 | 200 |
| Sulfate | 8.96 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | 0.4 | 200 |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | 0.06 | 200 |
| Fluoride | 0.914 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | 2 | 200 |
| Chloride | 3.14 | 0.20 | 0.050 | mg/L | 3.0 | | 105 | 85-115 | 8 | 200 |
| Nitrite (as N) | 1.35 | 0.04 | 0.01 | mg/L | 1.4 | | 96 | 85-115 | 1 | 200 |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32509 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BG32509-MS1)** | | **Source: 1307180-39** | | | Prepared & Analyzed: 07/25/13 | | | | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | ND | 1000 | 85-115 | | |
| Chloride | 38.8 | 0.20 | 0.050 | mg/L | 3.0 | 35.8 | 103 | 80-120 | | |
| Nitrate (as N) | 2.21 | 0.04 | 0.01 | mg/L | 1.7 | 0.505 | 100 | 85-115 | | |
| Nitrite (as N) | 1.28 | 0.04 | 0.01 | mg/L | 1.4 | ND | 92 | 85-115 | | |
| Fluoride | 2.18 | 0.040 | 0.010 | mg/L | 0.90 | 1.26 | 102 | 85-115 | | |
| Orthophosphate as P | 0.811 | 0.040 | 0.010 | mg/L | 0.90 | ND | 90 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.975* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.975* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.975* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.975* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.975* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.975* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| **Matrix Spike (BG32509-MS2)** | | **Source: 1307180-54** | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Orthophosphate as P | 0.834 | 0.040 | 0.010 | mg/L | 0.90 | 0.0160 | 91 | 85-115 | | |
| Nitrate (as N) | 3.46 | 0.04 | 0.01 | mg/L | 1.7 | 1.67 | 105 | 85-115 | | |
| Chloride | 31.9 | 0.20 | 0.050 | mg/L | 3.0 | 28.8 | 103 | 80-120 | | |
| Sulfate | 75.1 | 0.60 | 0.20 | mg/L | 9.0 | 65.6 | 105 | 85-115 | | |
| Fluoride | 1.37 | 0.040 | 0.010 | mg/L | 0.90 | 0.409 | 106 | 85-115 | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | ND | 90 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.978* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.978* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.978* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.978* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.978* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.978* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32524 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BG32524-BLK1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| 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 | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | *0.949* | | | *mg/L* | *1.0* | | *95* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.949* | | | *mg/L* | *1.0* | | *95* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.949* | | | *mg/L* | *1.0* | | *95* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.949* | | | *mg/L* | *1.0* | | *95* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.949* | | | *mg/L* | *1.0* | | *95* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.949* | | | *mg/L* | *1.0* | | *95* | *90-115* | | |
| **LCS (BG32524-BS1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Nitrite (as N) | 1.32 | 0.04 | 0.01 | mg/L | 1.4 | | 94 | 85-115 | | |
| Sulfate | 9.21 | 0.60 | 0.20 | mg/L | 9.0 | | 102 | 85-115 | | |
| Orthophosphate as P | 0.924 | 0.040 | 0.010 | mg/L | 0.90 | | 103 | 85-115 | | |
| Fluoride | 0.984 | 0.040 | 0.010 | mg/L | 0.90 | | 109 | 85-115 | | |
| Nitrate (as N) | 1.81 | 0.04 | 0.01 | mg/L | 1.7 | | 107 | 85-115 | | |
| Chloride | 3.13 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| **LCS Dup (BG32524-BSD1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Sulfate | 9.22 | 0.60 | 0.20 | mg/L | 9.0 | | 102 | 85-115 | 0.2 | 200 |
| Orthophosphate as P | 0.933 | 0.040 | 0.010 | mg/L | 0.90 | | 104 | 85-115 | 1 | 200 |
| Nitrate (as N) | 1.82 | 0.04 | 0.01 | mg/L | 1.7 | | 107 | 85-115 | 0.3 | 200 |
| Nitrite (as N) | 1.32 | 0.04 | 0.01 | mg/L | 1.4 | | 94 | 85-115 | 0.2 | 200 |
| Fluoride | 0.985 | 0.040 | 0.010 | mg/L | 0.90 | | 109 | 85-115 | 0.1 | 200 |
| Chloride | 3.13 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | 0.06 | 200 |
| *Surrogate: Dichloroacetate* | *1.05* | | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.05* | | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.05* | | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.05* | | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.05* | | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.05* | | | *mg/L* | *1.0* | | *105* | *90-115* | | |

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**Tampa, FL 33619**

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32524 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BG32524-MS1)** | | **Source: 1307180-64** | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Fluoride | 1.11 | 0.040 | 0.010 | mg/L | 0.90 | 0.137 | 108 | 85-115 | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | ND | 91 | 85-115 | | |
| Nitrate (as N) | 1.78 | 0.04 | 0.01 | mg/L | 1.7 | 0.0540 | 102 | 85-115 | | |
| Chloride | 20.2 | 0.20 | 0.050 | mg/L | 3.0 | 17.3 | 95 | 80-120 | | |
| Orthophosphate as P | 0.890 | 0.040 | 0.010 | mg/L | 0.90 | ND | 99 | 85-115 | | |
| Sulfate | 70.7 | 0.60 | 0.20 | mg/L | 9.0 | 62.3 | 94 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *1.00* | | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.00* | | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.00* | | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.00* | | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.00* | | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.00* | | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| **Matrix Spike (BG32524-MS2)** | | **Source: 1307605-01** | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Fluoride | 0.917 | 0.040 | 0.010 | mg/L | 0.90 | 0.0530 | 96 | 85-115 | | |
| Sulfate | 26.2 | 0.60 | 0.20 | mg/L | 9.0 | 17.6 | 95 | 85-115 | | |
| Nitrite (as N) | 1.44 | 0.04 | 0.01 | mg/L | 1.4 | ND | 103 | 85-115 | | |
| Nitrate (as N) | 3.20 | 0.04 | 0.01 | mg/L | 1.7 | 1.44 | 103 | 85-115 | | |
| Chloride | 30.0 L | 0.20 | 0.050 | mg/L | 3.0 | 54.4 | NR | 80-120 | | |
| Orthophosphate as P | 5.80 | 0.040 | 0.010 | mg/L | 0.90 | 4.94 | 96 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.935* | | | *mg/L* | *1.0* | | *94* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.935* | | | *mg/L* | *1.0* | | *94* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.935* | | | *mg/L* | *1.0* | | *94* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.935* | | | *mg/L* | *1.0* | | *94* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.935* | | | *mg/L* | *1.0* | | *94* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.935* | | | *mg/L* | *1.0* | | *94* | *90-115* | | |

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**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32537 - TSS prep** | | | | | | | | | | |
| **Blank (BG32537-BLK1)** | | | | | Prepared: 07/25/13 Analyzed: 07/26/13 | | | | | |
| Total Suspended Solids | 1 U | 1 | 1 | mg/L | | | | | | |
| **LCS (BG32537-BS1)** | | | | | Prepared: 07/25/13 Analyzed: 07/26/13 | | | | | |
| Total Suspended Solids | 44.2 | 1 | 1 | mg/L | 50 | | 88 | 85-115 | | |
| **Duplicate (BG32537-DUP1)** | | **Source: 1307180-01** | | | Prepared: 07/25/13 Analyzed: 07/26/13 | | | | | |
| Total Suspended Solids | 36.0 | 1 | 1 | mg/L | | 36.0 | | | 0 | 30 |
| **Batch BG32607 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BG32607-BLK1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | 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 | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| **LCS (BG32607-BS1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Orthophosphate as P | 0.864 | 0.040 | 0.010 | mg/L | 0.90 | | 96 | 85-115 | | |
| Sulfate | 8.67 | 0.60 | 0.20 | mg/L | 9.0 | | 96 | 85-115 | | |
| Fluoride | 0.894 | 0.040 | 0.010 | mg/L | 0.90 | | 99 | 85-115 | | |
| Nitrite (as N) | 1.29 | 0.04 | 0.01 | mg/L | 1.4 | | 92 | 85-115 | | |
| Chloride | 2.88 | 0.20 | 0.050 | mg/L | 3.0 | | 96 | 85-115 | | |
| Nitrate (as N) | 1.71 | 0.04 | 0.01 | mg/L | 1.7 | | 101 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |

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**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32607 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS Dup (BG32607-BSD1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Nitrate (as N) | 1.72 | 0.04 | 0.01 | mg/L | 1.7 | | 101 | 85-115 | 0.3 | 200 |
| Nitrite (as N) | 1.32 | 0.04 | 0.01 | mg/L | 1.4 | | 94 | 85-115 | 2 | 200 |
| Orthophosphate as P | 0.868 | 0.040 | 0.010 | mg/L | 0.90 | | 96 | 85-115 | 0.5 | 200 |
| Fluoride | 0.898 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | 0.4 | 200 |
| Sulfate | 8.71 | 0.60 | 0.20 | mg/L | 9.0 | | 97 | 85-115 | 0.5 | 200 |
| Chloride | 2.88 | 0.20 | 0.050 | mg/L | 3.0 | | 96 | 85-115 | 0.2 | 200 |
| *Surrogate: Dichloroacetate* | *0.904* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.904* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.904* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.904* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.904* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.904* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| **Matrix Spike (BG32607-MS1)** | | **Source: 1307180-25** | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | ND | 91 | 85-115 | | |
| Nitrate (as N) | 1.67 | 0.04 | 0.01 | mg/L | 1.7 | 0.0610 | 95 | 85-115 | | |
| Chloride | 15.8 | 0.20 | 0.050 | mg/L | 3.0 | 12.7 | 103 | 80-120 | | |
| Sulfate | 51.4 | 0.60 | 0.20 | mg/L | 9.0 | 42.4 | 100 | 85-115 | | |
| Fluoride | 0.956 | 0.040 | 0.010 | mg/L | 0.90 | 0.0710 | 98 | 85-115 | | |
| Orthophosphate as P | 0.817 | 0.040 | 0.010 | mg/L | 0.90 | ND | 91 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.901* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.901* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.901* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.901* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.901* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.901* | | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| **Matrix Spike (BG32607-MS2)** | | **Source: 1307180-46** | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Orthophosphate as P | 0.817 | 0.040 | 0.010 | mg/L | 0.90 | ND | 91 | 85-115 | | |
| Nitrate (as N) | 2.00 | 0.04 | 0.01 | mg/L | 1.7 | 0.328 | 98 | 85-115 | | |
| Chloride | 31.9 | 0.20 | 0.050 | mg/L | 3.0 | 28.9 | 99 | 80-120 | | |
| Fluoride | 0.936 | 0.040 | 0.010 | mg/L | 0.90 | 0.0560 | 98 | 85-115 | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 172 | NR | 85-115 | | |
| Nitrite (as N) | 1.26 | 0.04 | 0.01 | mg/L | 1.4 | ND | 90 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *1.03* | | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.03* | | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.03* | | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.03* | | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.03* | | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.03* | | | *mg/L* | *1.0* | | *103* | *90-115* | | |

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**10002 Princess Palm Ave, Suite 200**
**Tampa, FL 33619**

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32608 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BG32608-BLK1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Fluoride | 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 | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | *1.02* | | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.02* | | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.02* | | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.02* | | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.02* | | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.02* | | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| **LCS (BG32608-BS1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Nitrite (as N) | 1.28 | 0.04 | 0.01 | mg/L | 1.4 | | 92 | 85-115 | | |
| Sulfate | 8.67 | 0.60 | 0.20 | mg/L | 9.0 | | 96 | 85-115 | | |
| Chloride | 2.88 | 0.20 | 0.050 | mg/L | 3.0 | | 96 | 85-115 | | |
| Nitrate (as N) | 1.71 | 0.04 | 0.01 | mg/L | 1.7 | | 101 | 85-115 | | |
| Fluoride | 0.910 | 0.040 | 0.010 | mg/L | 0.90 | | 101 | 85-115 | | |
| Orthophosphate as P | 0.843 | 0.040 | 0.010 | mg/L | 0.90 | | 94 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.12* | | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| **LCS Dup (BG32608-BSD1)** | | | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Sulfate | 8.68 | 0.60 | 0.20 | mg/L | 9.0 | | 96 | 85-115 | 0.08 | 200 |
| Nitrite (as N) | 1.29 | 0.04 | 0.01 | mg/L | 1.4 | | 92 | 85-115 | 0.2 | 200 |
| Fluoride | 0.914 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | 0.4 | 200 |
| Orthophosphate as P | 0.863 | 0.040 | 0.010 | mg/L | 0.90 | | 96 | 85-115 | 2 | 200 |
| Chloride | 2.88 | 0.20 | 0.050 | mg/L | 3.0 | | 96 | 85-115 | 0.2 | 200 |
| Nitrate (as N) | 1.71 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | 0.1 | 200 |
| *Surrogate: Dichloroacetate* | *1.07* | | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.07* | | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.07* | | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.07* | | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.07* | | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.07* | | | *mg/L* | *1.0* | | *107* | *90-115* | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32608 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BG32608-MS1)** | | **Source: 1307055-06** | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | ND | 91 | 85-115 | | |
| Sulfate | 25.7 | 0.60 | 0.20 | mg/L | 9.0 | 17.0 | 97 | 85-115 | | |
| Nitrate (as N) | 1.49 J5 | 0.04 | 0.01 | mg/L | 1.7 | 0.0760 | 83 | 85-115 | | |
| Orthophosphate as P | 0.817 | 0.040 | 0.010 | mg/L | 0.90 | ND | 91 | 85-115 | | |
| Chloride | 30.0 L | 0.20 | 0.050 | mg/L | 3.0 | 58.4 | NR | 80-120 | | |
| Fluoride | 0.952 | 0.040 | 0.010 | mg/L | 0.90 | ND | 106 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.982* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.982* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.982* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.982* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.982* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.982* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| **Matrix Spike (BG32608-MS2)** | | **Source: 1307180-14** | | | Prepared & Analyzed: 07/26/13 | | | | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 308 | NR | 85-115 | | |
| Orthophosphate as P | 0.738 J5 | 0.040 | 0.010 | mg/L | 0.90 | ND | 82 | 85-115 | | |
| Fluoride | 0.945 | 0.040 | 0.010 | mg/L | 0.90 | ND | 105 | 85-115 | | |
| Nitrite (as N) | 1.43 | 0.04 | 0.01 | mg/L | 1.4 | ND | 102 | 85-115 | | |
| Chloride | 30.0 L | 0.20 | 0.050 | mg/L | 3.0 | 41.9 | NR | 80-120 | | |
| Nitrate (as N) | 4.48 | 0.04 | 0.01 | mg/L | 1.7 | 2.68 | 106 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.969* | | | *mg/L* | *1.0* | | *97* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.969* | | | *mg/L* | *1.0* | | *97* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.969* | | | *mg/L* | *1.0* | | *97* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.969* | | | *mg/L* | *1.0* | | *97* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.969* | | | *mg/L* | *1.0* | | *97* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *0.969* | | | *mg/L* | *1.0* | | *97* | *90-115* | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32609 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BG32609-BLK1)** | | | | | Prepared: 07/26/13 Analyzed: 08/01/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BG32609-BS1)** | | | | | Prepared: 07/26/13 Analyzed: 08/01/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.70 | 0.20 | 0.05 | mg/L | 2.5 | | 107 | 90-110 | | |
| **Matrix Spike (BG32609-MS1)** | | **Source: 1307616-02** | | | Prepared: 07/26/13 Analyzed: 08/01/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.24 | 0.20 | 0.05 | mg/L | 2.5 | 0.596 | 104 | 90-110 | | |
| **Matrix Spike (BG32609-MS2)** | | **Source: 1307180-74** | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.48 | 0.20 | 0.05 | mg/L | 2.5 | ND | 98 | 90-110 | | |
| **Matrix Spike Dup (BG32609-MSD1)** | | **Source: 1307616-02** | | | Prepared: 07/26/13 Analyzed: 08/01/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.17 | 0.20 | 0.05 | mg/L | 2.5 | 0.596 | 102 | 90-110 | 2 | 20 |
| **Matrix Spike Dup (BG32609-MSD2)** | | **Source: 1307180-74** | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.58 | 0.20 | 0.05 | mg/L | 2.5 | ND | 102 | 90-110 | 4 | 20 |
| **Batch BG32610 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BG32610-BLK1)** | | | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BG32610-BS1)** | | | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.37 | 0.20 | 0.05 | mg/L | 2.5 | | 94 | 90-110 | | |
| **Matrix Spike (BG32610-MS1)** | | **Source: 1307180-53** | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.60 | 0.20 | 0.05 | mg/L | 2.5 | 2.31 | 90 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32610 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike Dup (BG32610-MSD1)** | | **Source: 1307180-53** | | | Prepared: 07/26/13 | Analyzed: 08/02/13 | | | | |
| Total Kjeldahl Nitrogen | 4.83 | 0.20 | 0.05 | mg/L | 2.5 | 2.31 | 99 | 90-110 | 5 | 20 |
| **Batch BG32613 - BOD** | | | | | | | | | | |
| **Blank (BG32613-BLK1)** | | | | | Prepared: 07/26/13 | Analyzed: 07/31/13 | | | | |
| Carbonaceous BOD | 2 U | 2 | 2 | mg/L | | | | | | |
| **LCS (BG32613-BS1)** | | | | | Prepared: 07/26/13 | Analyzed: 07/31/13 | | | | |
| Carbonaceous BOD | 209 | 2 | 2 | mg/L | 200 | | 104 | 85-115 | | |
| **LCS Dup (BG32613-BSD1)** | | | | | Prepared: 07/26/13 | Analyzed: 07/31/13 | | | | |
| Carbonaceous BOD | 207 | 2 | 2 | mg/L | 200 | | 103 | 85-115 | 1 | 200 |
| **Duplicate (BG32613-DUP1)** | | **Source: 1307180-07** | | | Prepared: 07/26/13 | Analyzed: 07/31/13 | | | | |
| Carbonaceous BOD | 2 U | 2 | 2 | mg/L | | ND | | | | 25 |
| **Batch BG32619 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BG32619-BLK1)** | | | | | Prepared: 07/26/13 | Analyzed: 08/02/13 | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BG32619-BS1)** | | | | | Prepared: 07/26/13 | Analyzed: 08/02/13 | | | | |
| Phosphorous - Total as P | 0.844 | 0.040 | 0.010 | mg/L | 0.80 | | 106 | 90-110 | | |
| **Matrix Spike (BG32619-MS1)** | | **Source: 1307180-55** | | | Prepared: 07/26/13 | Analyzed: 08/02/13 | | | | |
| Phosphorous - Total as P | 1.41 | 0.040 | 0.010 | mg/L | 1.0 | 0.315 | 109 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32619 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Matrix Spike (BG32619-MS2)** | | **Source: 1307180-65** | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Phosphorous - Total as P | 1.06 | 0.040 | 0.010 | mg/L | 1.0 | 0.0644 | 99 | 90-110 | | |
| **Matrix Spike Dup (BG32619-MSD1)** | | **Source: 1307180-55** | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Phosphorous - Total as P | 1.40 | 0.040 | 0.010 | mg/L | 1.0 | 0.315 | 108 | 90-110 | 0.9 | 25 |
| **Matrix Spike Dup (BG32619-MSD2)** | | **Source: 1307180-65** | | | Prepared: 07/26/13 Analyzed: 08/02/13 | | | | | |
| Phosphorous - Total as P | 1.14 | 0.040 | 0.010 | mg/L | 1.0 | 0.0644 | 108 | 90-110 | 7 | 25 |
| **Batch BG32620 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BG32620-BLK1)** | | | | | Prepared: 07/26/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BG32620-BS1)** | | | | | Prepared: 07/26/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 0.840 | 0.040 | 0.010 | mg/L | 0.80 | | 105 | 90-110 | | |
| **Matrix Spike (BG32620-MS1)** | | **Source: 1307180-38** | | | Prepared: 07/26/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 1.57 | 0.040 | 0.010 | mg/L | 1.0 | 0.594 | 97 | 90-110 | | |
| **Matrix Spike Dup (BG32620-MSD1)** | | **Source: 1307180-38** | | | Prepared: 07/26/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 1.56 | 0.040 | 0.010 | mg/L | 1.0 | 0.594 | 96 | 90-110 | 0.8 | 25 |
| **Batch BG32625 - TS prep** | | | | | | | | | | |
| **Blank (BG32625-BLK1)** | | | | | Prepared: 07/26/13 Analyzed: 07/29/13 | | | | | |
| Total Solids | 10 U | 10 | 10 | mg/L | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32625 - TS prep** | | | | | | | | | | |
| **Duplicate (BG32625-DUP1)** | | **Source: 1307180-01** | | | Prepared: 07/26/13 Analyzed: 07/29/13 | | | | | |
| Total Solids | 756 | 10 | 10 | mg/L | | 781 | | | 3 | 20 |
| **Batch BG32629 - alkalinity** | | | | | | | | | | |
| **Blank (BG32629-BLK1)** | | | | | Prepared & Analyzed: 07/25/13 | | | | | |
| Hydroxide Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Carbonate Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Phenolphthalein Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Bicarbonate Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BG32629-BS1)** | | | | | Prepared & Analyzed: 07/25/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 96 | 90-110 | | |
| **Matrix Spike (BG32629-MS1)** | | **Source: 1307060-05** | | | Prepared & Analyzed: 07/25/13 | | | | | |
| Total Alkalinity | 220 | 8.0 | 2.0 | mg/L | 120 | 99 | 96 | 80-120 | | |
| **Matrix Spike (BG32629-MS2)** | | **Source: 1307180-59** | | | Prepared: 07/25/13 Analyzed: 07/26/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | 3.4 | 92 | 80-120 | | |
| **Matrix Spike Dup (BG32629-MSD1)** | | **Source: 1307060-05** | | | Prepared & Analyzed: 07/25/13 | | | | | |
| Total Alkalinity | 220 | 8.0 | 2.0 | mg/L | 120 | 99 | 94 | 80-120 | 1 | 26 |
| **Matrix Spike Dup (BG32629-MSD2)** | | **Source: 1307180-59** | | | Prepared: 07/25/13 Analyzed: 07/26/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | 3.4 | 91 | 80-120 | 1 | 26 |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32907 - TSS prep** | | | | | | | | | | |
| **Blank (BG32907-BLK1)** | | | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Total Suspended Solids | 1 U | 1 | 1 | mg/L | | | | | | |
| **LCS (BG32907-BS1)** | | | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Total Suspended Solids | 51.2 | 1 | 1 | mg/L | 50 | | 102 | 85-115 | | |
| **Duplicate (BG32907-DUP1)** | | **Source: 1307180-07** | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Total Suspended Solids | 95.0 | 1 | 1 | mg/L | | 99.0 | | | 4 | 30 |
| **Batch BG32910 - alkalinity** | | | | | | | | | | |
| **Blank (BG32910-BLK1)** | | | | | Prepared & Analyzed: 07/30/13 | | | | | |
| Bicarbonate Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Carbonate Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Hydroxide Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Phenolphthalein Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **Blank (BG32910-BLK2)** | | | | | Prepared & Analyzed: 07/31/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Phenolphthalein Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Carbonate Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Hydroxide Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| Bicarbonate Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BG32910-BS1)** | | | | | Prepared & Analyzed: 07/30/13 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 102 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32910 - alkalinity** | | | | | | | | | | |
| **LCS (BG32910-BS2)** | | | | | Prepared & Analyzed: 07/31/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 96 | 90-110 | | |
| **Matrix Spike (BG32910-MS2)** | | **Source: 1307180-44** | | | Prepared & Analyzed: 07/31/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | ND | 93 | 80-120 | | |
| **Matrix Spike (BG32910-MS3)** | | **Source: 1307180-34** | | | Prepared & Analyzed: 07/31/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | ND | 96 | 80-120 | | |
| **Matrix Spike Dup (BG32910-MSD2)** | | **Source: 1307180-44** | | | Prepared & Analyzed: 07/31/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | ND | 93 | 80-120 | 0.6 | 26 |
| **Matrix Spike Dup (BG32910-MSD3)** | | **Source: 1307180-34** | | | Prepared & Analyzed: 07/31/13 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | ND | 96 | 80-120 | 0.2 | 26 |
| **Batch BG32913 - COD prep** | | | | | | | | | | |
| **Blank (BG32913-BLK1)** | | | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BG32913-BS1)** | | | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Chemical Oxygen Demand | 54 | 25 | 10 | mg/L | 50 | | 108 | 90-110 | | |
| **Matrix Spike (BG32913-MS1)** | | **Source: 1307338-24** | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Chemical Oxygen Demand | 91 | 25 | 10 | mg/L | 50 | 38 | 106 | 85-115 | | |
| **Matrix Spike Dup (BG32913-MSD1)** | | **Source: 1307338-24** | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Chemical Oxygen Demand | 91 | 25 | 10 | mg/L | 50 | 38 | 106 | 85-115 | 0 | 32 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG33041 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BG33041-BLK1)** | | | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BG33041-BS1)** | | | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Phosphorous - Total as P | 0.725 | 0.040 | 0.010 | mg/L | 0.80 | | 91 | 90-110 | | |
| **Matrix Spike (BG33041-MS1)** | | **Source: 1307720-02** | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Phosphorous - Total as P | 1.06 | 0.040 | 0.010 | mg/L | 1.0 | 0.0134 | 104 | 90-110 | | |
| **Matrix Spike Dup (BG33041-MSD1)** | | **Source: 1307720-02** | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Phosphorous - Total as P | 1.07 | 0.040 | 0.010 | mg/L | 1.0 | 0.0134 | 105 | 90-110 | 1 | 25 |
| **Batch BG33044 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BG33044-BLK1)** | | | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BG33044-BS1)** | | | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.62 | 0.20 | 0.05 | mg/L | 2.5 | | 103 | 90-110 | | |
| **Matrix Spike (BG33044-MS1)** | | **Source: 1307180-29** | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.49 | 0.20 | 0.05 | mg/L | 2.5 | 0.798 | 106 | 90-110 | | |
| **Matrix Spike Dup (BG33044-MSD1)** | | **Source: 1307180-29** | | | Prepared: 07/30/13 Analyzed: 08/05/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.50 | 0.20 | 0.05 | mg/L | 2.5 | 0.798 | 107 | 90-110 | 0.4 | 20 |
| **Batch BH30102 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BH30102-BLK1)** | | | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| 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 BH30102 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **LCS (BH30102-BS1)** | | | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.52 | 0.20 | 0.05 | mg/L | 2.5 | | 100 | 90-110 | | |
| **Matrix Spike (BH30102-MS1)** | | **Source: 1307759-01** | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.90 | 0.20 | 0.05 | mg/L | 2.5 | 0.300 | 103 | 90-110 | | |
| **Matrix Spike (BH30102-MS2)** | | **Source: 1307793-07** | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.20 | 0.20 | 0.05 | mg/L | 2.5 | 0.548 | 105 | 90-110 | | |
| **Matrix Spike Dup (BH30102-MSD1)** | | **Source: 1307759-01** | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.87 | 0.20 | 0.05 | mg/L | 2.5 | 0.300 | 101 | 90-110 | 1 | 20 |
| **Matrix Spike Dup (BH30102-MSD2)** | | **Source: 1307793-07** | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.00 | 0.20 | 0.05 | mg/L | 2.5 | 0.548 | 97 | 90-110 | 6 | 20 |
| **Batch BH30105 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BH30105-BLK1)** | | | | | Prepared: 08/01/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BH30105-BS1)** | | | | | Prepared: 08/01/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.50 | 0.20 | 0.05 | mg/L | 2.5 | | 99 | 90-110 | | |
| **Matrix Spike (BH30105-MS1)** | | **Source: 1307770-03** | | | Prepared: 08/01/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.75 | 0.20 | 0.05 | mg/L | 2.5 | 0.135 | 103 | 90-110 | | |
| **Matrix Spike Dup (BH30105-MSD1)** | | **Source: 1307770-03** | | | Prepared: 08/01/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.82 | 0.20 | 0.05 | mg/L | 2.5 | 0.135 | 106 | 90-110 | 3 | 20 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH30116 - COD prep** | | | | | | | | | | |
| **Blank (BH30116-BLK1)** | | | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BH30116-BS1)** | | | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 54 | 25 | 10 | mg/L | 50 | | 108 | 90-110 | | |
| **Matrix Spike (BH30116-MS1)** | | **Source: 1307180-39** | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 100 | 25 | 10 | mg/L | 50 | 54 | 98 | 85-115 | | |
| **Matrix Spike Dup (BH30116-MSD1)** | | **Source: 1307180-39** | | | Prepared: 08/01/13 Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 110 | 25 | 10 | mg/L | 50 | 54 | 104 | 85-115 | 3 | 32 |
| **Batch BH30209 - TOC prep** | | | | | | | | | | |
| **Blank (BH30209-BLK1)** | | | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Total Organic Carbon | 0.060 U | 1.0 | 0.060 | mg/L | | | | | | |
| **LCS (BH30209-BS1)** | | | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Total Organic Carbon | 9.62 | 1.0 | 0.060 | mg/L | 10 | | 96 | 90-110 | | |
| **Matrix Spike (BH30209-MS1)** | | **Source: 1307180-34** | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Total Organic Carbon | 28.4 | 1.0 | 0.060 | mg/L | 10 | 18.9 | 95 | 85-115 | | |
| **Matrix Spike Dup (BH30209-MSD1)** | | **Source: 1307180-34** | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Total Organic Carbon | 28.5 | 1.0 | 0.060 | mg/L | 10 | 18.9 | 96 | 85-115 | 0.2 | 10 |
| **Batch BH30214 - COD prep** | | | | | | | | | | |
| **Blank (BH30214-BLK1)** | | | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH30214 - COD prep** | | | | | | | | | | |
| **LCS (BH30214-BS1)** | | | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 45 | 25 | 10 | mg/L | 50 | | 90 | 90-110 | | |
| **Matrix Spike (BH30214-MS1)** | | **Source: 1307180-07** | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 100 | 25 | 10 | mg/L | 50 | 45 | 110 | 85-115 | | |
| **Matrix Spike Dup (BH30214-MSD1)** | | **Source: 1307180-07** | | | Prepared & Analyzed: 08/02/13 | | | | | |
| Chemical Oxygen Demand | 100 | 25 | 10 | mg/L | 50 | 45 | 114 | 85-115 | 2 | 32 |
| **Batch BH30302 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BH30302-BLK1)** | | | | | Prepared: 08/03/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BH30302-BS1)** | | | | | Prepared: 08/03/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 0.827 | 0.040 | 0.010 | mg/L | 0.80 | | 103 | 90-110 | | |
| **Matrix Spike (BH30302-MS1)** | | **Source: 1307793-07** | | | Prepared: 08/03/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 1.08 | 0.040 | 0.010 | mg/L | 1.0 | 0.0625 | 102 | 90-110 | | |
| **Matrix Spike (BH30302-MS2)** | | **Source: 1307828-07** | | | Prepared: 08/03/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 1.04 | 0.040 | 0.010 | mg/L | 1.0 | 0.0582 | 98 | 90-110 | | |
| **Matrix Spike Dup (BH30302-MSD1)** | | **Source: 1307793-07** | | | Prepared: 08/03/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 1.08 | 0.040 | 0.010 | mg/L | 1.0 | 0.0625 | 102 | 90-110 | 0.1 | 25 |
| **Matrix Spike Dup (BH30302-MSD2)** | | **Source: 1307828-07** | | | Prepared: 08/03/13 Analyzed: 08/09/13 | | | | | |
| Phosphorous - Total as P | 1.05 | 0.040 | 0.010 | mg/L | 1.0 | 0.0582 | 100 | 90-110 | 1 | 25 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH30526 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BH30526-BLK1)** | | | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | *1.01* | | | *mg/L* | *1.0* | | *101* | *90-115* | | |
| **LCS (BH30526-BS1)** | | | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Sulfate | 8.65 | 0.60 | 0.20 | mg/L | 9.0 | | 96 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.965* | | | *mg/L* | *1.0* | | *96* | *90-115* | | |
| **LCS Dup (BH30526-BSD1)** | | | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Sulfate | 8.65 | 0.60 | 0.20 | mg/L | 9.0 | | 96 | 85-115 | 0.01 | 200 |
| *Surrogate: Dichloroacetate* | *0.975* | | | *mg/L* | *1.0* | | *98* | *90-115* | | |
| **Matrix Spike (BH30526-MS1)** | | **Source: 1307180-49** | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Sulfate | 209 | 6.0 | 2.0 | mg/L | 90 | 118 | 101 | 85-115 | | |
| Chloride | 50.2 | 2.0 | 0.50 | mg/L | 30 | 19.6 | 102 | 80-120 | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.04* | | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| **Matrix Spike (BH30526-MS2)** | | **Source: 1307211-04** | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Sulfate | 99.4 | 6.0 | 2.0 | mg/L | 90 | 12.4 | 97 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *0.965* | | | *mg/L* | *1.0* | | *96* | *90-115* | | |
| **Batch BH30609 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BH30609-BLK1)** | | | | | Prepared: 08/06/13 Analyzed: 08/15/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BH30609-BS1)** | | | | | Prepared: 08/06/13 Analyzed: 08/15/13 | | | | | |
| Phosphorous - Total as P | 0.849 | 0.040 | 0.010 | mg/L | 0.80 | | 106 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH30609 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Matrix Spike (BH30609-MS1)** | | **Source: 1307882-02** | | | Prepared: 08/06/13 Analyzed: 08/15/13 | | | | | |
| Phosphorous - Total as P | 0.972 | 0.040 | 0.010 | mg/L | 1.0 | 0.0329 | 94 | 90-110 | | |
| **Matrix Spike (BH30609-MS2)** | | **Source: 1307884-02** | | | Prepared: 08/06/13 Analyzed: 08/15/13 | | | | | |
| Phosphorous - Total as P | 0.965 | 0.040 | 0.010 | mg/L | 1.0 | 0.0298 | 93 | 90-110 | | |
| **Matrix Spike Dup (BH30609-MSD1)** | | **Source: 1307882-02** | | | Prepared: 08/06/13 Analyzed: 08/15/13 | | | | | |
| Phosphorous - Total as P | 1.03 | 0.040 | 0.010 | mg/L | 1.0 | 0.0329 | 100 | 90-110 | 6 | 25 |
| **Matrix Spike Dup (BH30609-MSD2)** | | **Source: 1307884-02** | | | Prepared: 08/06/13 Analyzed: 08/15/13 | | | | | |
| Phosphorous - Total as P | 0.963 | 0.040 | 0.010 | mg/L | 1.0 | 0.0298 | 93 | 90-110 | 0.1 | 25 |
| **Batch BH30614 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BH30614-BLK1)** | | | | | Prepared: 08/06/13 Analyzed: 08/16/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BH30614-BS1)** | | | | | Prepared: 08/06/13 Analyzed: 08/16/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.45 | 0.20 | 0.05 | mg/L | 2.5 | | 97 | 90-110 | | |
| **Matrix Spike (BH30614-MS1)** | | **Source: 1307180-24** | | | Prepared: 08/06/13 Analyzed: 08/16/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.23 | 0.20 | 0.05 | mg/L | 2.5 | 0.675 | 101 | 90-110 | | |
| **Matrix Spike (BH30614-MS2)** | | **Source: 1307495-01** | | | Prepared: 08/06/13 Analyzed: 08/16/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.07 | 0.20 | 0.05 | mg/L | 2.5 | 1.51 | 101 | 90-110 | | |
| **Matrix Spike Dup (BH30614-MSD1)** | | **Source: 1307180-24** | | | Prepared: 08/06/13 Analyzed: 08/16/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.01 | 0.20 | 0.05 | mg/L | 2.5 | 0.675 | 92 | 90-110 | 7 | 20 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH30614 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike Dup (BH30614-MSD2)** | | **Source: 1307495-01** | | | Prepared: 08/06/13 Analyzed: 08/16/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.11 | 0.20 | 0.05 | mg/L | 2.5 | 1.51 | 103 | 90-110 | 1 | 20 |
| **Batch BH30615 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BH30615-BLK1)** | | | | | Prepared: 08/06/13 Analyzed: 08/19/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BH30615-BS1)** | | | | | Prepared: 08/06/13 Analyzed: 08/19/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.38 | 0.20 | 0.05 | mg/L | 2.5 | | 94 | 90-110 | | |
| **Matrix Spike (BH30615-MS1)** | | **Source: 1307180-12** | | | Prepared: 08/06/13 Analyzed: 08/20/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.37 | 0.20 | 0.05 | mg/L | 2.5 | 0.0829 | 90 | 90-110 | | |
| **Matrix Spike Dup (BH30615-MSD1)** | | **Source: 1307180-12** | | | Prepared: 08/06/13 Analyzed: 08/19/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.40 | 0.20 | 0.05 | mg/L | 2.5 | 0.0829 | 92 | 90-110 | 1 | 20 |
| **Batch BH30616 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH30616-BLK1)** | | | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BH30616-BS1)** | | | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | | 97 | 90-110 | | |
| **Matrix Spike (BH30616-MS1)** | | **Source: 1307832-01** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | ND | 102 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH30616 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike (BH30616-MS2)** | | **Source: 1307180-62** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.65 | 0.040 | 0.009 | mg/L | 0.50 | 0.14 | 102 | 90-110 | | |
| **Matrix Spike Dup (BH30616-MSD1)** | | **Source: 1307832-01** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | ND | 103 | 90-110 | 1 | 10 |
| **Matrix Spike Dup (BH30616-MSD2)** | | **Source: 1307180-62** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.67 | 0.040 | 0.009 | mg/L | 0.50 | 0.14 | 106 | 90-110 | 3 | 10 |
| **Batch BH30617 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH30617-BLK1)** | | | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BH30617-BS1)** | | | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 100 | 90-110 | | |
| **Matrix Spike (BH30617-MS1)** | | **Source: 1307180-43** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | ND | 100 | 90-110 | | |
| **Matrix Spike Dup (BH30617-MSD1)** | | **Source: 1307180-43** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Ammonia as N | 0.55 | 0.040 | 0.009 | mg/L | 0.50 | ND | 109 | 90-110 | 9 | 10 |
| **Batch BH30712 - COD prep** | | | | | | | | | | |
| **Blank (BH30712-BLK1)** | | | | | Prepared: 08/07/13 Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH30712 - COD prep** | | | | | | | | | | |
| **LCS (BH30712-BS1)** | | | | | Prepared: 08/07/13 Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 48 | 25 | 10 | mg/L | 50 | | 96 | 90-110 | | |
| **Matrix Spike (BH30712-MS1)** | | **Source: 1307180-24** | | | Prepared: 08/07/13 Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 78 | 25 | 10 | mg/L | 50 | 32 | 92 | 85-115 | | |
| **Matrix Spike Dup (BH30712-MSD1)** | | **Source: 1307180-24** | | | Prepared: 08/07/13 Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 76 | 25 | 10 | mg/L | 50 | 32 | 88 | 85-115 | 3 | 32 |
| **Batch BH30912 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BH30912-BLK1)** | | | | | Prepared: 08/09/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BH30912-BS1)** | | | | | Prepared: 08/09/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.53 | 0.20 | 0.05 | mg/L | 2.5 | | 100 | 90-110 | | |
| **Matrix Spike (BH30912-MS1)** | | **Source: 1308018-02** | | | Prepared: 08/09/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.22 | 0.20 | 0.05 | mg/L | 2.5 | 0.542 | 106 | 90-110 | | |
| **Matrix Spike (BH30912-MS2)** | | **Source: 1308031-02** | | | Prepared: 08/09/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.93 | 0.20 | 0.05 | mg/L | 2.5 | 0.220 | 107 | 90-110 | | |
| **Matrix Spike Dup (BH30912-MSD1)** | | **Source: 1308018-02** | | | Prepared: 08/09/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.17 | 0.20 | 0.05 | mg/L | 2.5 | 0.542 | 104 | 90-110 | 2 | 20 |
| **Matrix Spike Dup (BH30912-MSD2)** | | **Source: 1308031-02** | | | Prepared: 08/09/13 Analyzed: 08/15/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.88 | 0.20 | 0.05 | mg/L | 2.5 | 0.220 | 105 | 90-110 | 2 | 20 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH31224 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BH31224-BLK1)** | | | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | *1.14* | | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.14* | | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| **LCS (BH31224-BS1)** | | | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Sulfate | 9.03 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | | |
| Chloride | 3.04 | 0.20 | 0.050 | mg/L | 3.0 | | 101 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *1.13* | | | *mg/L* | *1.0* | | *113* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.13* | | | *mg/L* | *1.0* | | *113* | *90-115* | | |
| **LCS Dup (BH31224-BSD1)** | | | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Sulfate | 9.18 | 0.60 | 0.20 | mg/L | 9.0 | | 102 | 85-115 | 2 | 200 |
| Chloride | 3.09 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | 2 | 200 |
| *Surrogate: Dichloroacetate* | *1.15* | | | *mg/L* | *1.0* | | *115* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.15* | | | *mg/L* | *1.0* | | *115* | *90-115* | | |
| **Matrix Spike (BH31224-MS1)** | | **Source: 1307180-16** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Sulfate | 424 | 6.0 | 2.0 | mg/L | 90 | 330 | 105 | 85-115 | | |
| Chloride | 68.7 | 2.0 | 0.50 | mg/L | 30 | 37.7 | 103 | 80-120 | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.10* | | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| **Matrix Spike (BH31224-MS2)** | | **Source: 1307180-45** | | | Prepared & Analyzed: 08/12/13 | | | | | |
| Sulfate | 236 | 6.0 | 2.0 | mg/L | 90 | 140 | 106 | 85-115 | | |
| Chloride | 50.1 | 2.0 | 0.50 | mg/L | 30 | 20.1 | 100 | 80-120 | | |
| *Surrogate: Dichloroacetate* | *1.14* | | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *1.14* | | | *mg/L* | *1.0* | | *114* | *90-115* | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH31301 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH31301-BLK1)** | | | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BH31301-BS1)** | | | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 100 | 90-110 | | |
| **Matrix Spike (BH31301-MS1)** | | **Source: 1307180-33** | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 1.6 | 0.040 | 0.009 | mg/L | 0.50 | 1.1 | 92 | 90-110 | | |
| **Matrix Spike (BH31301-MS2)** | | **Source: 1307180-32** | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | 0.030 | 92 | 90-110 | | |
| **Matrix Spike Dup (BH31301-MSD1)** | | **Source: 1307180-33** | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 1.6 | 0.040 | 0.009 | mg/L | 0.50 | 1.1 | 93 | 90-110 | 0.2 | 10 |
| **Matrix Spike Dup (BH31301-MSD2)** | | **Source: 1307180-32** | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | 0.030 | 96 | 90-110 | 4 | 10 |
| **Batch BH31302 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH31302-BLK1)** | | | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BH31302-BS1)** | | | | | Prepared & Analyzed: 08/13/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 101 | 90-110 | | |
| **Matrix Spike (BH31302-MS1)** | | **Source: 1307060-07** | | | Prepared & Analyzed: 08/14/13 | | | | | |
| Ammonia as N | 0.76 | 0.080 | 0.019 | mg/L | 0.50 | 0.30 | 91 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH31302 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike (BH31302-MS2)** | | **Source: 1307828-07** | | | Prepared & Analyzed: 08/14/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | 0.027 | 92 | 90-110 | | |
| **Matrix Spike Dup (BH31302-MSD1)** | | **Source: 1307060-07** | | | Prepared & Analyzed: 08/14/13 | | | | | |
| Ammonia as N | 0.79 | 0.080 | 0.019 | mg/L | 0.50 | 0.30 | 98 | 90-110 | 4 | 10 |
| **Matrix Spike Dup (BH31302-MSD2)** | | **Source: 1307828-07** | | | Prepared & Analyzed: 08/14/13 | | | | | |
| Ammonia as N | 0.48 | 0.040 | 0.009 | mg/L | 0.50 | 0.027 | 91 | 90-110 | 2 | 10 |
| **Batch BH31526 - COD prep** | | | | | | | | | | |
| **Blank (BH31526-BLK1)** | | | | | Prepared & Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BH31526-BS1)** | | | | | Prepared & Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 48 | 25 | 10 | mg/L | 50 | | 96 | 90-110 | | |
| **Matrix Spike (BH31526-MS1)** | | **Source: 1307180-73** | | | Prepared & Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 43 | 25 | 10 | mg/L | 50 | ND | 86 | 85-115 | | |
| **Matrix Spike Dup (BH31526-MSD1)** | | **Source: 1307180-73** | | | Prepared & Analyzed: 08/15/13 | | | | | |
| Chemical Oxygen Demand | 45 | 25 | 10 | mg/L | 50 | ND | 90 | 85-115 | 5 | 32 |
| **Batch BH31621 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH31621-BLK1)** | | | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH31621 - Ammonia by SEAL** | | | | | | | | | | |
| **LCS (BH31621-BS1)** | | | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | | 105 | 90-110 | | |
| **Matrix Spike (BH31621-MS1)** | | **Source: 1307874-03** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.58 | 0.040 | 0.009 | mg/L | 0.50 | 0.052 | 106 | 90-110 | | |
| **Matrix Spike (BH31621-MS2)** | | **Source: 1307957-07** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.013 | 103 | 90-110 | | |
| **Matrix Spike Dup (BH31621-MSD1)** | | **Source: 1307874-03** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.60 | 0.040 | 0.009 | mg/L | 0.50 | 0.052 | 109 | 90-110 | 3 | 10 |
| **Matrix Spike Dup (BH31621-MSD2)** | | **Source: 1307957-07** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.013 | 102 | 90-110 | 1 | 10 |
| **Batch BH32025 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH32025-BLK1)** | | | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BH32025-BS1)** | | | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | | 105 | 90-110 | | |
| **Matrix Spike (BH32025-MS1)** | | **Source: 1307180-73** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | ND | 107 | 90-110 | | |
| **Matrix Spike (BH32025-MS2)** | | **Source: 1308022-01** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | ND | 107 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BH32025 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike Dup (BH32025-MSD1)** | | **Source: 1307180-73** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | ND | 104 | 90-110 | 3 | 10 |
| **Matrix Spike Dup (BH32025-MSD2)** | | **Source: 1308022-01** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | ND | 100 | 90-110 | 6 | 10 |
| **Batch BH32026 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH32026-BLK1)** | | | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BH32026-BS1)** | | | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | | 98 | 90-110 | | |
| **Matrix Spike (BH32026-MS1)** | | **Source: 1307180-12** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.55 | 0.040 | 0.009 | mg/L | 0.50 | 0.064 | 96 | 90-110 | | |
| **Matrix Spike Dup (BH32026-MSD1)** | | **Source: 1307180-12** | | | Prepared & Analyzed: 08/20/13 | | | | | |
| Ammonia as N | 0.59 | 0.040 | 0.009 | mg/L | 0.50 | 0.064 | 105 | 90-110 | 7 | 10 |
| **Batch BH32207 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BH32207-BLK1)** | | | | | Prepared & Analyzed: 08/22/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BH32207-BS1)** | | | | | Prepared & Analyzed: 08/22/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 102 | 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 BH32207 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike (BH32207-MS1)** | | **Source: 1307318-05** | | | Prepared & Analyzed: 08/23/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | 0.077 | 94 | 90-110 | | |
| **Matrix Spike (BH32207-MS2)** | | **Source: 1308183-07** | | | Prepared & Analyzed: 08/22/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.026 | 94 | 90-110 | | |
| **Matrix Spike Dup (BH32207-MSD1)** | | **Source: 1307318-05** | | | Prepared & Analyzed: 08/23/13 | | | | | |
| Ammonia as N | 0.55 | 0.040 | 0.009 | mg/L | 0.50 | 0.077 | 95 | 90-110 | 1 | 10 |
| **Matrix Spike Dup (BH32207-MSD2)** | | **Source: 1308183-07** | | | Prepared & Analyzed: 08/22/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.026 | 100 | 90-110 | 6 | 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 BH30210 - DOC prep** | | | | | | | | | | |
| **Blank (BH30210-BLK1)** | | | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Dissolved Organic Carbon | 0.060 U | 1.0 | 0.060 | mg/L | | | | | | |
| **LCS (BH30210-BS1)** | | | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Dissolved Organic Carbon | 9.20 | 1.0 | 0.060 | mg/L | 10 | | 92 | 90-110 | | |
| **Matrix Spike (BH30210-MS1)** | | **Source: 1307180-34** | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Dissolved Organic Carbon | 27.8 | 1.0 | 0.060 | mg/L | 10 | 17.8 | 100 | 85-125 | | |
| **Matrix Spike Dup (BH30210-MSD1)** | | **Source: 1307180-34** | | | Prepared & Analyzed: 08/05/13 | | | | | |
| Dissolved Organic Carbon | 28.0 | 1.0 | 0.060 | mg/L | 10 | 17.8 | 102 | 85-125 | 0.6 | 25 |

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**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32909 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BG32909-BLK1)** | | | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| **LCS (BG32909-BS1)** | | | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Manganese | 0.38 | 0.010 | 0.0010 | mg/L | 0.40 | | 95 | 85-115 | | |
| Potassium | 18 | 0.050 | 0.010 | mg/L | 20 | | 92 | 85-115 | | |
| Boron | 0.38 | 0.10 | 0.050 | mg/L | 0.40 | | 95 | 85-115 | | |
| Calcium | 19 | 0.50 | 0.042 | mg/L | 20 | | 94 | 85-115 | | |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | | 94 | 85-115 | | |
| Sodium | 19 | 0.50 | 0.13 | mg/L | 20 | | 95 | 85-115 | | |
| Iron | 7.8 | 0.10 | 0.020 | mg/L | 8.0 | | 98 | 85-115 | | |
| **Matrix Spike (BG32909-MS1)** | | **Source: 1307180-73** | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Iron | 9.4 | 0.10 | 0.020 | mg/L | 8.0 | ND | 117 | 70-130 | | |
| Potassium | 24 | 0.050 | 0.010 | mg/L | 20 | ND | 122 | 70-130 | | |
| Calcium | 26 | 0.50 | 0.042 | mg/L | 20 | ND | 130 | 70-130 | | |
| Boron | 0.50 | 0.10 | 0.050 | mg/L | 0.40 | ND | 125 | 70-130 | | |
| Magnesium | 25 | 0.50 | 0.020 | mg/L | 20 | ND | 127 | 70-130 | | |
| Manganese | 0.46 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 115 | 70-130 | | |
| Sodium | 19 | 0.50 | 0.13 | mg/L | 20 | ND | 95 | 70-130 | | |
| **Matrix Spike (BG32909-MS2)** | | **Source: 1307541-01** | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 0.26 | 105 | 70-130 | | |
| Manganese | 0.43 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 107 | 70-130 | | |
| Sodium | 32 | 0.50 | 0.13 | mg/L | 20 | 11 | 105 | 70-130 | | |
| Iron | 9.0 | 0.10 | 0.020 | mg/L | 8.0 | ND | 112 | 70-130 | | |
| Magnesium | 25 | 0.50 | 0.020 | mg/L | 20 | 4.0 | 106 | 70-130 | | |
| Calcium | 76 | 0.50 | 0.042 | mg/L | 20 | 61 | 75 | 70-130 | | |
| Boron | 0.47 | 0.10 | 0.050 | mg/L | 0.40 | ND | 118 | 70-130 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32909 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BG32909-MSD1)** | | **Source: 1307180-73** | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Magnesium | 25 | 0.50 | 0.020 | mg/L | 20 | ND | 125 | 70-130 | 2 | 20 |
| Potassium | 25 | 0.050 | 0.010 | mg/L | 20 | ND | 126 | 70-130 | 3 | 20 |
| Sodium | 20 | 0.50 | 0.13 | mg/L | 20 | ND | 100 | 70-130 | 5 | 20 |
| Iron | 9.2 | 0.10 | 0.020 | mg/L | 8.0 | ND | 115 | 70-130 | 1 | 20 |
| Boron | 0.50 | 0.10 | 0.050 | mg/L | 0.40 | ND | 125 | 70-130 | 0.7 | 20 |
| Calcium | 75 | 0.50 | 0.042 | mg/L | 20 | ND | 373 | 70-130 | 97 | 20 |
| Manganese | 0.52 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 130 | 70-130 | 12 | 20 |
| **Matrix Spike Dup (BG32909-MSD2)** | | **Source: 1307541-01** | | | Prepared & Analyzed: 07/29/13 | | | | | |
| Magnesium | 26 | 0.50 | 0.020 | mg/L | 20 | 4.0 | 108 | 70-130 | 1 | 20 |
| Iron | 9.1 | 0.10 | 0.020 | mg/L | 8.0 | ND | 114 | 70-130 | 2 | 20 |
| Sodium | 33 | 0.50 | 0.13 | mg/L | 20 | 11 | 110 | 70-130 | 3 | 20 |
| Manganese | 0.44 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 110 | 70-130 | 3 | 20 |
| Calcium | 77 | 0.50 | 0.042 | mg/L | 20 | 61 | 78 | 70-130 | 0.8 | 20 |
| Boron | 0.46 | 0.10 | 0.050 | mg/L | 0.40 | ND | 114 | 70-130 | 3 | 20 |
| Potassium | 22 | 0.050 | 0.010 | mg/L | 20 | 0.26 | 108 | 70-130 | 3 | 20 |
| **Batch BG32918 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BG32918-BLK1)** | | | | | Prepared: 07/29/13 Analyzed: 07/31/13 | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Potassium | 0.085 | 0.050 | 0.010 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32918 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **LCS (BG32918-BS1)** | | | | | Prepared: 07/29/13 Analyzed: 07/31/13 | | | | | |
| Boron | 0.39 | 0.10 | 0.050 | mg/L | 0.40 | | 97 | 85-115 | | |
| Potassium | 19 | 0.050 | 0.010 | mg/L | 20 | | 97 | 85-115 | | |
| Sodium | 20 | 0.50 | 0.13 | mg/L | 20 | | 100 | 85-115 | | |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | | 101 | 85-115 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | | 98 | 85-115 | | |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | | 94 | 85-115 | | |
| Calcium | 19 | 0.50 | 0.042 | mg/L | 20 | | 96 | 85-115 | | |
| **Matrix Spike (BG32918-MS1)** | | **Source: 1307055-01** | | | Prepared: 07/29/13 Analyzed: 07/31/13 | | | | | |
| Magnesium | 21 | 0.50 | 0.020 | mg/L | 20 | 0.80 | 103 | 70-130 | | |
| Boron | 0.45 | 0.10 | 0.050 | mg/L | 0.40 | 0.063 | 97 | 70-130 | | |
| Iron | 13 | 0.10 | 0.020 | mg/L | 8.0 | 4.5 | 108 | 70-130 | | |
| Manganese | 0.43 | 0.010 | 0.0010 | mg/L | 0.40 | 0.027 | 102 | 70-130 | | |
| Sodium | 71 | 0.50 | 0.13 | mg/L | 20 | 47 | 122 | 70-130 | | |
| Calcium | 44 | 0.50 | 0.042 | mg/L | 20 | 21 | 115 | 70-130 | | |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | 0.60 | 95 | 70-130 | | |
| **Matrix Spike (BG32918-MS2)** | | **Source: 1307180-33** | | | Prepared: 07/29/13 Analyzed: 07/31/13 | | | | | |
| Iron | 9.5 | 0.10 | 0.020 | mg/L | 8.0 | 1.5 | 100 | 70-130 | | |
| Calcium | 48 | 0.50 | 0.042 | mg/L | 20 | 31 | 83 | 70-130 | | |
| Sodium | 30 | 0.50 | 0.13 | mg/L | 20 | 11 | 93 | 70-130 | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 1.4 | 96 | 70-130 | | |
| Magnesium | 29 | 0.50 | 0.020 | mg/L | 20 | 11 | 91 | 70-130 | | |
| Boron | 0.47 | 0.10 | 0.050 | mg/L | 0.40 | 0.088 | 96 | 70-130 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0054 | 97 | 70-130 | | |
| **Matrix Spike Dup (BG32918-MSD1)** | | **Source: 1307055-01** | | | Prepared: 07/29/13 Analyzed: 07/31/13 | | | | | |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | 0.80 | 97 | 70-130 | 6 | 20 |
| Manganese | 0.43 | 0.010 | 0.0010 | mg/L | 0.40 | 0.027 | 101 | 70-130 | 0.7 | 20 |
| Calcium | 42 | 0.50 | 0.042 | mg/L | 20 | 21 | 105 | 70-130 | 4 | 20 |
| Sodium | 69 | 0.50 | 0.13 | mg/L | 20 | 47 | 114 | 70-130 | 2 | 20 |
| Iron | 12 | 0.10 | 0.020 | mg/L | 8.0 | 4.5 | 100 | 70-130 | 5 | 20 |
| Boron | 0.44 | 0.10 | 0.050 | mg/L | 0.40 | 0.063 | 94 | 70-130 | 2 | 20 |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | 0.60 | 95 | 70-130 | 0.4 | 20 |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32918 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BG32918-MSD2)** | | **Source: 1307180-33** | | | Prepared: 07/29/13 Analyzed: 07/31/13 | | | | | |
| Sodium | 33 | 0.50 | 0.13 | mg/L | 20 | 11 | 109 | 70-130 | 10 | 20 |
| Calcium | 53 | 0.50 | 0.042 | mg/L | 20 | 31 | 110 | 70-130 | 11 | 20 |
| Iron | 9.8 | 0.10 | 0.020 | mg/L | 8.0 | 1.5 | 103 | 70-130 | 3 | 20 |
| Magnesium | 32 | 0.50 | 0.020 | mg/L | 20 | 11 | 106 | 70-130 | 9 | 20 |
| Boron | 0.48 | 0.10 | 0.050 | mg/L | 0.40 | 0.088 | 98 | 70-130 | 2 | 20 |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 1.4 | 100 | 70-130 | 4 | 20 |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0054 | 101 | 70-130 | 3 | 20 |
| **Batch BG32919 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BG32919-BLK1)** | | | | | Prepared: 07/29/13 Analyzed: 08/07/13 | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Potassium | 0.014 I | 0.050 | 0.010 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| **LCS (BG32919-BS1)** | | | | | Prepared: 07/29/13 Analyzed: 08/07/13 | | | | | |
| Calcium | 21 | 0.50 | 0.042 | mg/L | 20 | | 107 | 85-115 | | |
| Potassium | 22 | 0.050 | 0.010 | mg/L | 20 | | 108 | 85-115 | | |
| Magnesium | 22 | 0.50 | 0.020 | mg/L | 20 | | 108 | 85-115 | | |
| Boron | 0.38 | 0.10 | 0.050 | mg/L | 0.40 | | 95 | 85-115 | | |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | | 100 | 85-115 | | |
| Iron | 8.4 | 0.10 | 0.020 | mg/L | 8.0 | | 105 | 85-115 | | |
| Sodium | 22 | 0.50 | 0.13 | mg/L | 20 | | 110 | 85-115 | | |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BG32919 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike (BG32919-MS1)** | | **Source: 1307055-04** | | | Prepared: 07/29/13 Analyzed: 08/07/13 | | | | | |
| Boron | 0.49 | 0.10 | 0.050 | mg/L | 0.40 | ND | 123 | 70-130 | | |
| Iron | 8.6 | 0.10 | 0.020 | mg/L | 8.0 | 0.22 | 105 | 70-130 | | |
| Calcium | 23 | 0.50 | 0.042 | mg/L | 20 | 2.7 | 102 | 70-130 | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 0.40 | 102 | 70-130 | | |
| Sodium | 26 | 0.50 | 0.13 | mg/L | 20 | 7.3 | 94 | 70-130 | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0020 | 104 | 70-130 | | |
| Magnesium | 21 | 0.50 | 0.020 | mg/L | 20 | 0.71 | 101 | 70-130 | | |
| **Matrix Spike (BG32919-MS2)** | | **Source: 1307180-07** | | | Prepared: 07/29/13 Analyzed: 08/07/13 | | | | | |
| Boron | 0.50 | 0.10 | 0.050 | mg/L | 0.40 | ND | 125 | 70-130 | | |
| Sodium | 28 | 0.50 | 0.13 | mg/L | 20 | 8.7 | 97 | 70-130 | | |
| Calcium | 24 | 0.50 | 0.042 | mg/L | 20 | 3.5 | 103 | 70-130 | | |
| Magnesium | 21 | 0.50 | 0.020 | mg/L | 20 | 0.73 | 103 | 70-130 | | |
| Iron | 11 | 0.10 | 0.020 | mg/L | 8.0 | 2.5 | 107 | 70-130 | | |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 0.64 | 103 | 70-130 | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0025 | 105 | 70-130 | | |
| **Matrix Spike Dup (BG32919-MSD1)** | | **Source: 1307055-04** | | | Prepared: 07/29/13 Analyzed: 08/07/13 | | | | | |
| Boron | 0.50 | 0.10 | 0.050 | mg/L | 0.40 | ND | 126 | 70-130 | 2 | 20 |
| Magnesium | 21 | 0.50 | 0.020 | mg/L | 20 | 0.71 | 102 | 70-130 | 0.8 | 20 |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0020 | 101 | 70-130 | 3 | 20 |
| Sodium | 27 | 0.50 | 0.13 | mg/L | 20 | 7.3 | 98 | 70-130 | 3 | 20 |
| Iron | 8.5 | 0.10 | 0.020 | mg/L | 8.0 | 0.22 | 104 | 70-130 | 2 | 20 |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 0.40 | 103 | 70-130 | 1 | 20 |
| Calcium | 23 | 0.50 | 0.042 | mg/L | 20 | 2.7 | 102 | 70-130 | 0.4 | 20 |
| **Matrix Spike Dup (BG32919-MSD2)** | | **Source: 1307180-07** | | | Prepared: 07/29/13 Analyzed: 08/07/13 | | | | | |
| Iron | 11 | 0.10 | 0.020 | mg/L | 8.0 | 2.5 | 104 | 70-130 | 2 | 20 |
| Potassium | 21 | 0.050 | 0.010 | mg/L | 20 | 0.64 | 102 | 70-130 | 0.8 | 20 |
| Calcium | 23 | 0.50 | 0.042 | mg/L | 20 | 3.5 | 97 | 70-130 | 5 | 20 |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | 0.73 | 99 | 70-130 | 4 | 20 |
| Boron | 0.52 | 0.10 | 0.050 | mg/L | 0.40 | ND | 131 | 70-130 | 4 | 20 |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0025 | 103 | 70-130 | 2 | 20 |
| Sodium | 27 | 0.50 | 0.13 | mg/L | 20 | 8.7 | 94 | 70-130 | 2 | 20 |

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

**September 6, 2013**
**Work Order: 1307180**
**Revised Report**

## * Qualifiers, Notes and Definitions

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

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

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

Test results in this report meet all the requirements of the NELAC standards. Any applicable qualifiers are shown below.

| | |
|---|---|
| Z | Too many colonies were present for accurate counting. |
| L | Off-scale high. Result exceeded highest calibration standard. |
| J5 | Matrix spike of this sample was outside typical range. All other QC criteria were acceptable. |

Questions regarding this report should be directed to :

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

Samples -03 and -04 are labeled as duplicates. The Nutrients Bottles do not look the same. Sample -03 is very dark and -04 is light colored. Several of the results do not match as duplicates. Ammonia has been run a second time to confirm the results. See attached photograph.

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-QT | 500mLP, Cool TS, TSS, Alkalinity, CBOD, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | | | WW | | X | 2 | 1 | 1 | 1 | | | | | | | | | | |
| 02 | STE-DUP | | | WW | | X | 2 | 1 | 1 | 1 | | | | | | | | | | |
| 03 | PZ-01 | 7/24 | 11:34 | GW | | X | | | | | 1 | 1 | | | | 5.3 | 25.6 | 844 | 4.02 | |
| 04 | PZ-01-DUP | 7/24 | 11:37 | GW | | X | | | | | 1 | 1 | | | | 5.3 | 25.6 | 844 | 4.02 | |
| 05 | PZ-02 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 06 | PZ-03 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 07 | BKG-10 | | | GW | | X | | 1 | | 1 | | 1 | | 2 | 1 | | | | | |
| 08 | BKG-15 | | | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 09 | PZ-04 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 10 | PZ-05 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 11 | PZ-06 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 12 | PZ-AB4-08 | | | GW | | X | | | | | 1 | 1 | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J Chambers | 7-24-13 13:00 | | |
| Relinquished: | Date/Time: 1515 7/24/13 | Received: K Mudmack | Date/Time: 1515 7/24/13 |
| 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 |

1307180

Chain of Custody.xls
Rev.Date 11/18/01

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | | | | | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 14 | PZ-C1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 15 | PZ-C2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 16 | PZ-C3-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 17 | PZ-C3-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 18 | PZ-C6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 19 | PZ-C6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 20 | PZ-D3-08 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 21 | PZ-D3-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 22 | PZ-D4-08 | 7/24 | 13:29 | GW | | X | 1 | 1 | | | | | | | | 4.27 | 25.0 | 721 | 8.11 | |
| 23 | PZ-D4-15 | 7/24 | 13:45 | GW | | X | 1 | 1 | | | | | | | | 6.67 | 25.2 | 559 | 5.84 | |
| 24 | PZ-E1 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: | Date/Time: 1400 07-12-13 | Received: | Date/Time: |
| Relinquished: | Date/Time: 1575 7/24/13 | Received: K Mudmouth | Date/Time: 1515 7/24/13 |
| 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 |

1307180

Chain of Custody.xls
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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 Id. | Sample Description | Date | Time | Matrix | Composite | Grab | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 26 | PZ-E3-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 27 | PZ-E3-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 28 | PZ-E4-08 | 7/24 | 12:45 | GW | | X | 1 | | 1 | | | | | | | 4.03 | 25.9 | 442 | 2.05 | |
| 29 | PZ-E4-15 | 7/24 | 13:04 | GW | | X | 1 | 1 | | | | | | | | 6.17 | 24.8 | 488 | .71 | |
| 30 | PZ-E5-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 31 | PZ-E5-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 32 | PZ-E6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 33 | PZ-E6-15 | | | GW | | X | | | | 1 | 2 | 1 | 1 | 1 | | | | | | |
| 34 | PZ-E7-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 35 | PZ-E7-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 36 | PZ-E7-15-DUP | | | GW | | X | 1 | | 1 | | | | | | | | | | | |

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 7-12-13 13:40 | | |
| Relinquished: | 7/24/13 1515 | K Mcdonnell | 7/24/13 1515 |
| 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 |

1307180

Chain of Custody.xls
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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11 DBAYVIEW BOULEVARD, DLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 26 | PZ-E3-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 27 | PZ-E3-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 28 | PZ-E4-08 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 29 | PZ-E4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 30 | PZ-E5-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 31 | PZ-E5-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 32 | PZ-E6-08 | 7/24/13 | 1350 | GW | | X | 1 | 1 | | | | | | | | 3.73 | 25.0 | 780 | 1.67 | |
| 33 | PZ-E6-15 | | 1404 | GW | | X | | | | 1 | 2 | 1 | 1 | 1 | | 4.81 | 23.8 | 326 | 0.74 | |
| 34 | PZ-E7-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 35 | PZ-E7-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 36 | PZ-E7-15-DUP | | | GW | | X | 1 | | 1 | | | | | | | | | | | |

| | Date/Time | Received | Date/Time |
|---|---|---|---|
| Containers Prepared/ Relinquished: J Chandler | 7-12-13 12:40 | | |
| Relinquished: | 1515 7/24/13 | Received: K Medmenh | Date/Time: 7/24/13 1515 |
| 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

1307180

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. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-F3-08 | 7/24 | DRY | GW | | X | 1 | | 1 | | | | | | | | | | 7.19 | |
| 38 | PZ-F3-15 | 7/24 | 10:56 | GW | | X | 1 | | 1 | | | | | | | 6.93 | 28.0 | 273 | [illegible] | |
| 39 | PZ-F4-08 | 7/24 | 11:54 | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | 4.06 | 25.8 | 888 | 1.213 | |
| 40 | PZ-F4-08-DUP | 7/24 | 12:04 | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | 4.06 | 25.8 | 888 | 1.93 | |
| 41 | PZ-F4-15 | 7/24 | 12:29 | GW | | X | 1 | | 1 | | | | | | | 6.44 | 25.4 | 588 | .80 | |
| 42 | PZ-G1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 43 | PZ-G2-12.5 | 7/24 | 10:09 | GW | | X | 1 | 1 | | | | | | | | 4.11 | 25.1 | 709 | 289 | |
| 44 | PZ-H4-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 45 | PZ-H4-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 46 | PZ-H5-11.5 | | | GW | | X | | 1 | | 1 | 2 | 1 | 1 | | | | | | | |
| 47 | PZ-I6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 48 | PZ-I6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J Chambers | 7-12-13 14:30 | [illegible] | |
| [illegible] | 7/24/13 1515 | K Nudmark | 7/24/13 1515 |
| | | | |
| | | | |
| | | | |

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

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-F3-08 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 38 | PZ-F3-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 39 | PZ-F4-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 40 | PZ-F4-08-DUP | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 41 | PZ-F4-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 42 | PZ-G1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 43 | PZ-G2-12.5 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 44 | PZ-H4-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 45 | PZ-H4-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 46 | PZ-H5-11.5 | | | GW | | X | | 1 | | 1 | 2 | 1 | 1 | | | | | | | |
| 47 | PZ-I6-08 | 7/24/13 | 1248 | GW | | X | 1 | 1 | | | | | | | | 3.87 | 24.8 | 486 | 1.24 | |
| 48 | PZ-I6-15 | 1 | 1301 | GW | | X | 1 | 1 | | | | | | | | 6.45 | 23.8 | 800 | 0.95 | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J Chambers | 7-12-13 14:30 | | |
| | 1515 7/24/13 | K Mudmeck | 1515 7/24/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | PZ-I6-15-DUP | 7/24/13 | 1306 | GW | | X | 1 | 1 | | | | | | | | 6.45 | 23.8 | 800 | 0.95 | |
| 50 | PZ-I10-08 | | 1143 | GW | | X | 1 | | 1 | | | | | | | 4.33 | 27.2 | 384 | 1.74 | |
| 51 | PZ-I10-15 | | 1155 | GW | | X | 1 | 1 | | | | | | | | 5.84 | 23.5 | 406 | 1.51 | |
| 52 | PZ-J4-08 | | — | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | — | — | — | — | |
| 53 | PZ-J4-15 | | 1329 | GW | | X | 1 | | 1 | | | | | | | 5.98 | 25.0 | 426 | 3.28 | |
| 54 | PZ-J7-08 | | 1208 | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | 4.32 | 24.5 | 287 | 1.24 | |
| 55 | PZ-J7-15 | | 1224 | GW | | X | | | | 1 | 2 | 1 | 1 | 1 | | 4.80 | 23.7 | 331 | 2.29 | |
| 56 | PZ-J7-15-DUP | | 1229 | GW | | X | | | | 1 | 2 | 1 | 1 | 1 | | 4.80 | 23.7 | 331 | 2.29 | |
| 57 | PZ-N4-08 | | 0931 | GW | | X | 1 | | 1 | | | | | | | 4.48 | 25.0 | 500 | 5.43 | |
| 58 | PZ-N4-15 | | 1014 | GW | | X | 1 | 1 | | | | | | | | 5.96 | 23.5 | 361 | 1.86 | |
| 59 | PZ-N7-08 | | 1029 | GW | | X | | 1 | | 1 | 2 | 1 | 1 | | | 4.75 | 24.1 | 428 | 1.62 | |
| 60 | PZ-N7-15 | | 1046 | GW | | X | 1 | 1 | | | | | | | | 5.26 | 23.4 | 237 | 1.78 | |

| | | | |
|---|---|---|---|
| Containers Prepared Relinquished: H Harville | Date/Time: 1430 07-12-13 | Received: | Date/Time: |
| Relinquished: | Date/Time: 1515 7/24/13 | Received: K Medmond | Date/Time: 1515 7/24/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | PZ-N7-15-DUP | 7/24/13 | 1051 | GW | | X | 1 | 1 | | | | | | | | 5.26 | 23.4 | 237 | 1.78 | |
| 62 | PZ-N10-08 | | 1120 | GW | | X | 1 | | 1 | | | | | | | 5.40 | 24.0 | 353 | 0.63 | |
| 63 | PZ-N10-15 | | 1132 | GW | | X | 1 | 1 | | | | | | | | 6.41 | 23.4 | 582 | 1.40 | |
| 64 | PZ-S10-08 | | 1102 | GW | | X | 1 | | 1 | | | | | | | 5.01 | 24.5 | 240 | 2.19 | |
| 65 | PZ-S10-08-DUP | | 1107 | GW | | X | 1 | | 1 | | | | | | | 5.01 | 24.5 | 240 | 2.19 | |
| 66 | DP-01 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 67 | DP-02 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 68 | DP-03 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 69 | DP-04-shallow | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 70 | DP-04-deep | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 71 | DP-05 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 72 | DP-06 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: H Hamilton | Date/Time: 1415 07-12-13 | Received: | Date/Time: |
| Relinquished: | Date/Time: 1515 7/24/13 | Received: K Mudmark | Date/Time: 1515 7/24/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-H84 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-QT | 500mLP, Cool TS, TSS, Alkalinity, CBOD, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 259mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | 7/25/13 | 1132 | WW | | X | 2 | 1 | 1 | 1 | | | | | | | | | | |
| 02 | STE-DUP | ↓ | 1132 | WW | | X | 2 | 1 | 1 | 1 | | | | | | | | | | |
| 03 | PZ-01 | | | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 04 | PZ-01-DUP | | | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 05 | PZ-02 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 06 | PZ-03 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 07 | BKG-10 | 7/25/13 | 1052 | GW | | X | | 1 | | 1 | | 1 | | 2 | 1 | 3.90 | 26.1 | 132 | 4.74 | |
| 08 | BKG-15 | ↓ | 1123 | GW | | X | | | | | 1 | 1 | | | | 5.15 | 24.5 | 151 | 0.11 | |
| 09 | PZ-04 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 10 | PZ-05 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 11 | PZ-06 | | | GW | | X | | | | | 1 | | 1 | | | | | | | |
| 12 | PZ-AB4-08 | 7-25-13 | 1129 | GW | | X | | | | | 1 | 1 | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| J Chambers | 7-22-13 13:00 | | |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| | 7/25/13 1440 | R Mudmouk | 7/25/13 1440 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| | | | |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| | | | |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| | | | |

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

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | | | | | | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-AB4-15 | 7/25 | 11:44 | GW | | X | 1 | 1 | | | | | | | | 5.94 | 24.7 | 260 | 6.13 | |
| 14 | PZ-C1 | 7/25 | 10:24 | GW | | X | 1 | 1 | | | | | | | | 6.18 | 27.0 | 1076 | 5.68 | |
| 15 | PZ-C2 | 7/25 | 10:07 | GW | | X | 1 | 1 | | | | | | | | 5.07 | 24.8 | 377 | .55 | |
| 16 | PZ-C3-08 | 7/25 | 9:27 | GW | | X | 1 | 1 | | | | | | | | 4.69 | 25.2 | 932 | 5.49 | |
| 17 | PZ-C3-15 | 7/25 | 9:45 | GW | | X | 1 | 1 | | | | | | | | 6.48 | 24.3 | 493 | 4.12 | |
| 18 | PZ-C6-08 | 7/25 | 0942 | GW | | X | 1 | 1 | | | | | | | | 3.75 | 24.3 | 491 | 0.26 | |
| 19 | PZ-C6-15 | 7/25 | 0955 | GW | | X | 1 | 1 | | | | | | | | 5.13 | 23.4 | 369 | 0.05 | |
| 20 | PZ-D3-08 | 7/25 | 8:47 | GW | | X | 1 | | 1 | | | | | | | 4.69 | 25.0 | 902 | 3.86 | |
| 21 | PZ-D3-15 | 7/25 | 9:07 | GW | | X | 1 | | 1 | | | | | | | 6.53 | 24.8 | 352 | 6.31 | |
| 22 | PZ-D4-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 23 | PZ-D4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 24 | PZ-E1 | 7/25 | 10:45 | GW | | X | 1 | | 1 | | | | | | | 5.25 | 25.8 | 530 | 5.05 | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: | Date/Time: 1400 07-12-13 | Received: | Date/Time: |
| Relinquished: | Date/Time: 1440 7/25/13 | Received: K Mudmond | Date/Time: 1440 7/25/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E2 | 7/25 | 11:09 | GW | | X | 1 | 1 | | | | | | | | 6.11 | 26.6 | 156 | 7.63 | |
| 26 | PZ-E3-08 | 7/25 | 8:08 | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | 5.33 | 25.1 | 886 | 7.11 | |
| 27 | PZ-E3-15 | 7/25 | 8:35 | GW | | X | 1 | | 1 | | | | | | | 6.07 | 24.1 | 225 | 7.25 | |
| 28 | PZ-E4-08 | 7/25 | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 29 | PZ-E4-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 30 | PZ-E5-08 | 7/25/13 | 1013 | GW | | X | 1 | 1 | | | | | | | | 3.96 | 24.5 | 933 | 0.48 | |
| 31 | PZ-E5-15 | | 1028 | GW | | X | 1 | 1 | | | | | | | | 6.09 | 23.8 | 483 | 0.08 | |
| 32 | PZ-E6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 33 | PZ-E6-15 | | | GW | | X | | | | 1 | 2 | 1 | 1 | 1 | | | | | | |
| 34 | PZ-E7-08 | 7/25/13 | 0909 | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | 4.27 | 24.2 | 445 | 0.57 | |
| 35 | PZ-E7-15 | | 0925 | GW | | X | 1 | | 1 | | | | | | | 6.49 | 23.5 | 1195 | 0.16 | |
| 36 | PZ-E7-15-DUP | | 0930 | GW | | X | 1 | | 1 | | | | | | | 6.49 | 23.5 | 1145 | 0.16 | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Chandler | 7-12-13 13:40 | | |
| Relinquished: | Date/Time: 1440 7/25/13 | Received: K Hardmark | Date/Time: 1440 7/25/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

Seal intact? N N/A

Samples intact upon arrival? N N/A

Received on ice? Temp_____ N N/A

Proper preservatives indicated? N N/A

Rec'd within holding time? N N/A

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

Proper containers used? N N/A

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-F3-08 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 38 | PZ-F3-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 39 | PZ-F4-08 | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 40 | PZ-F4-08-DUP | | | GW | | X | | | 1 | 1 | 2 | 1 | 1 | | | | | | | |
| 41 | PZ-F4-15 | | | GW | | X | 1 | | 1 | | | | | | | | | | | |
| 42 | PZ-G1 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 43 | PZ-G2-12.5 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 44 | PZ-H4-08 | 7/25/13 | 0814 | GW | | X | | | 1 | 1 | 1 | 1 | 1 | | | 4.07 | 25.1 | 685 | 2.16 | |
| 45 | PZ-H4-15 | | 0835 | GW | | X | 1 | | 1 | | | | | | | 6.33 | 24.2 | 586 | 0.23 | |
| 46 | PZ-H5-11.5 | | 0851 | GW | | X | | 1 | | 1 | 2 | 1 | 1 | | | 4.01 | 24.3 | 535 | 2.80 | |
| 47 | PZ-I6-08 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |
| 48 | PZ-I6-15 | | | GW | | X | 1 | 1 | | | | | | | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | | | |
| | 1440 7/25/13 | K Mudmack | 1440 7/25/13 |
| | | | |
| | | | |
| | | | |

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1307180

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Hillsborough County C-HS4 SE#4

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 | 500mLP, Cool Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 500mLP, Cool Alkalinity, NOx, F, Cl, OP, $SO_4$ | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | | Field pH | Field Temperature | Field Conductivity | Field DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73 | FB-DI | 7/25/13 | 1150 | R | | X | | | 1 | 1 | 2 | 1 | 1 | | | 7.45 | 24.0 | 1.2 | 7.25 | |
| 74 | EB | | 1155 | R | | X | | | 1 | 1 | 2 | 1 | 1 | | | 7.45 | 24.0 | 1.2 | 7.58 | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Chambers | 7-12-13 14:40 | | |
| | 1440 7/25/13 | K Mudmond | 1440 7/25/13 |
| | | | |
| | | | |
| | | | |

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

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Chain of Custody

1307180-03 B
Hazen and Sawyer
PZ-01
Water-125ml P, H2SO4
COD
TKN
1307180-04
Hazen and Sawyer
PZ-01-DUP
Water-125ml P, H2SO4
Ammonia
COD
TKN

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.25

## C-HS4 Monitoring Data Summary Report No. 4

## Progress Report

December 2013

HAZEN AND SAWYER
Environmental Engineers & Scientists

In association with:

AET

Otis Environmental Consultants, LLC

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

## TASK C.25
## PROGRESS REPORT

## C-HS4 Monitoring
## Data Summary Report No. 4

**Prepared for:**

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

FDOH Contract CORCL

**December 2013**

**Prepared by:**

HAZEN AND SAWYER
Environmental Engineers & Scientists

In Association With:

SCHOOL OF MINES 1874 COLORADO

# C-HS4 Monitoring
# Data Summary Report No. 4

## 1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 instrumentation report for the C-HS4 OSTDS system and plume documents the test area design, number and location of monitoring points, and preliminary field parameters from monitoring points for this Hillsborough County, Florida field site, and also includes preliminary sample collection and analyses.

## 2.0 Purpose

This report documents data that was collected in the fourth C-HS4 monitoring and sampling event which was conducted October 23 through October 25, 2013. The corresponding sample event report was submitted as C-HS4 Sample Event Report No. 4, December 2013, as a deliverable under Task C.24. The monitoring event consisted of water use measurement from the household water meter, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of effluent and groundwater samples and their analyses in a NELAC certified laboratory.

## 3.0 Materials and Methods

### 3.1 Project Site

The C-HS4 field site is also the B-HS2 passive nitrogen reduction system site located in Hillsborough County, FL adjacent to Eagle Lake and [redacted] Creek in a rural area. The Task B.6 installation report for the B-HS2 system documents the experimental system design which was installed in September 2012. The existing onsite sewage treatment and disposal system (OSTDS) consisted of a 1,050 gallon concrete septic tank located adjacent to the soil treatment unit which is a mounded drainfield (P.T.I.™ bundles). The new passive treatment system consists of a replacement 1,050 gallon two chamber con-

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crete primary tank; 300 gallon concrete recirculation tank; 900 gallon concrete Stage 1 unsaturated media filter; 300 gallon concrete pump tank; and 1,500 gallon two chamber concrete Stage 2 saturated media biofilter.

## 3.2 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the soil treatment unit as depicted in Figure 1. A 10-foot by 5-foot grid spacing was staked. Transect lines A through S run east-west, roughly parallel to the groundwater flow direction and increase (higher letter identification) moving southward from the drainfield. Transect lines 0 through 10 run north-south, roughly perpendicular to the groundwater flow direction and increase moving from the west to east. Based on initial screening data, 29 monitoring locations were chosen within the grid for standpipe piezometer installation. Groundwater monitoring points were installed in September and December 2012. Two types of monitoring point were installed using either hand or drilling methods: stainless steel drivepoints and standpipe piezometers. Stainless steel drivepoints consist of 1-foot screens with polypropylene tubing extending to the ground surface. Standpipe piezometers consist of either ¾-inch or 1-inch diameter PVC with a 1-foot or 5-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS3 Instrumentation Report for additional detail).

Each monitoring location was assigned a unique identification indicating grid location (self explanatory), and depth below ground surface (bottom of the well screen in feet). For example E03-8 is a standpipe piezometer sampler located on the grid at E03 at 8 feet below ground surface. A schematic of the C-HS4 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers and sample identification is included in Appendix A.

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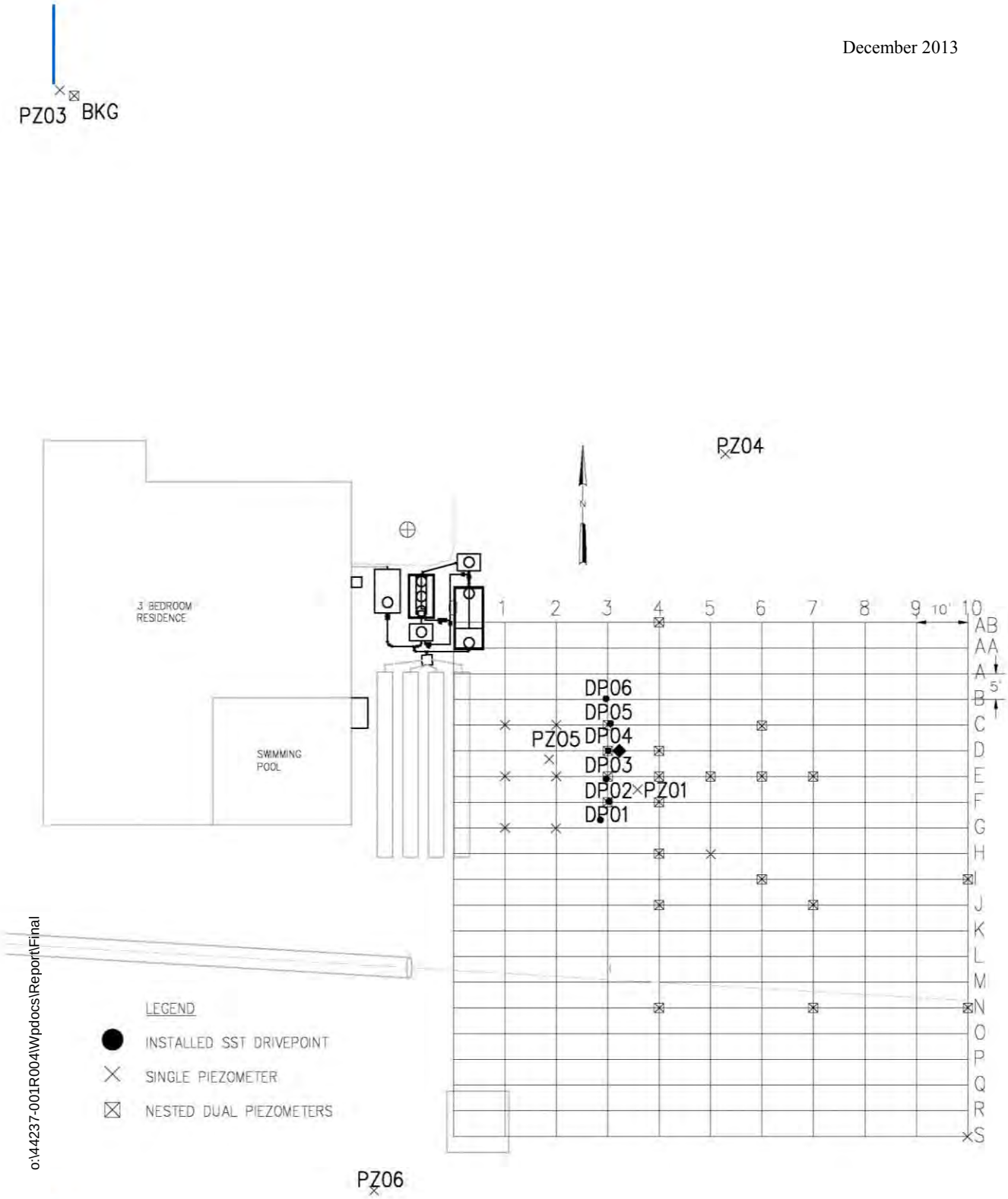


**Figure 1**
**C-HS4 Monitoring Network**

## 3.3 Operational Monitoring

A water meter for the home site was installed March 6, 2012. The water meter for the house site was read and recorded. A weather station (Balm in Wimauma, FL) is located approximately 10 miles from the site. Data from this weather station is available at the following website: http://fawn.ifas.ufl.edu/.

## 3.4 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of groundwater flow. Groundwater levels were measured by inserting into monitoring wells a hand-cranked steel tape graduated in feet, to the nearest 0.01 ft. These measurements are then converted to groundwater surface elevations by using the surveyed elevation of the top of the monitoring well casing. The groundwater level within all the sampled standpipe piezometers was measured for this sampling event.

## 3.5 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected October 23 through October 25, 2013 for water quality analysis. As previously discussed, the experimental PNRS system was installed in September 2012. Therefore, in addition to evaluating the groundwater data relative to the septic tank effluent, the treated effluent from the PNRS system (B-HS2 ST2) should be considered. The B-HS2 PNRS system has been sampled bimonthly since start-up. For this groundwater monitoring event, a sample of the treated effluent (B-HS2-ST2) collected October 7, 2013 is considered. Prior to September 25, 2012, STE was discharged directly to the drainfield. Following the September 25, 2012 construction of the PNRS system, treated effluent (B-HS2-ST2) was discharged to the drainfield.

A peristaltic pump was used to collect STE and B-HS2-ST2 directly into the analysis-specific containers. Groundwater samples were obtained using a peristaltic pump, which was attached directly to dedicated standpipe piezometer or drivepoint tubing. Samples were collected after sufficient purging (the sample was clear and pH and conductivity readings had stabilized) had occurred. Field parameters were then recorded.

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

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were used to document the transfer of samples from field personnel to the analytical laboratory.

In addition, field sample duplicates were collected immediately subsequent to the regular samples. The field duplicate samples taken include:

- STE
- PZ-E7-15
- PZ-F4-08
- PZ-I6-15
- PZ-J7-15
- PZ-N4-15
- PZ-N7-15
- PZ-S10-08

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

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**Table 1**
**Analytical Parameters, Method of Analysis, and Detection Limits**

| Analytical Parameter | Method of Analysis | Method Detection Limit (mg/L) |
|---|---|---|
| Total Alkalinity as $CaCO_3$ | SM 2320B | 2 mg/L |
| Chemical Oxygen Demand (COD) | EPA 410.4 | 10 mg/L |
| 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 |
| Anions | | |
| Fluoride | EPA 300.0 | 0.01 mg/L |
| Chloride | EPA 300.0 | 0.05 mg/L |
| Nitrate-N | EPA 300.0 | 0.01 mg/L |
| Nitrite-N | EPA 300.0 | 0.01 mg/L |
| Orthophosphate-P | EPA 300.0 | 0.01 mg/L |
| Sulfate | EPA 300.0 | 0.20 mg/L |
| Cations | | |
| Boron | EPA 200.7 | 0.05 mg/L |
| Calcium | EPA 200.7 | 0.01 mg/L |
| Iron | EPA 200.7 | 0.02 mg/L |
| Magnesium | EPA 200.7 | 0.01 mg/L |
| Manganese | EPA 200.7 | 0.001 mg/L |
| Potassium | EPA 200.7 | 0.01 mg/L |
| Sodium | EPA 200.7 | 0.01 mg/L |

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### 3.6 Data Management

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

## 4.0 Results

### 4.1 Operational Data and Site Conditions

Table 2 summarizes the water meter readings and average daily water use for the residence at site C-HS4.

**Table 2**
**Water Meter Readings and Water Usage for C-HS4**

| Residence | Date Read | Meter Reading | Gallons/day since last reading | Gallons/day since installed |
|---|---|---|---|---|
| C-HS4 Residence | 3/6/2012 | 7,790 | Installed | Installed |
| | 1/1/2013 | 43,240 | 117.8 | 117.8 |
| | 2/5/2013 | 47,741 | 128.6 | 118.9 |
| | 4/23/2013 | 54,680 | 90.1 | 113.5 |
| | 7/24/2013 | 62,422 | 84.2 | 108.2 |
| | 10/15/2013 | 69,740 | 88.2 | 105.4 |
| | 11/5/2013 | 71,600 | 88.6 | 104.8 |

Daily recorded meteorological data is provided in Appendix B. Table 3 provides the daily averages leading up to and during the sample event.

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**Table 3**
**Meteorological Data Daily Averages Measured October 18 through October 25, 2013**

| Date | Temp Avg 60 cm (°F) | Temp Avg 2m (°F) | Temp Avg 10 m (°F) | Temp Soil Avg -10 cm (°F) | Dewpoint Avg 2m (°F) | Relative Humidity Avg 2m (%) | Rain Total 2m (in) | 2m Rain max over 15min (in) | 10m Wind avg (mph) | ET (in/d) |
|---|---|---|---|---|---|---|---|---|---|---|
| 18-Oct-13 | 76.97 | 77.51 | 77.78 | 78.07 | 70.74 | 82 | 0 | 0 | 4.57 | 0.12 |
| 19-Oct-13 | 76.85 | 77.48 | 77.74 | 78.40 | 72.56 | 86 | 0 | 0 | 4.14 | 0.10 |
| 20-Oct-13 | 78.72 | 78.92 | 78.77 | 78.79 | 73.61 | 85 | 0 | 0 | 3.50 | 0.11 |
| 21-Oct-13 | 77.70 | 78.06 | 77.78 | 79.21 | 72.93 | 85 | 0 | 0 | 3.70 | 0.11 |
| 22-Oct-13 | 75.08 | 75.57 | 75.59 | 78.69 | 71.86 | 89 | 0.97 | 0.19 | 5.12 | 0.11 |
| 23-Oct-13 | 72.14 | 72.44 | 72.07 | 77.61 | 64.08 | 77 | 0 | 0 | 6.58 | 0.09 |
| 24-Oct-13 | 63.65 | 64.11 | 64.16 | 75.03 | 54.84 | 72 | 0 | 0 | 6.76 | 0.07 |
| 25-Oct-13 | 65.79 | 66.37 | 66.54 | 73.88 | 55.93 | 73 | 0 | 0 | 5.49 | 0.09 |

## 4.2 Groundwater Levels

Water levels were measured at all standpipe piezometers sampled October 23 through October 25, 2013 for this sampling event as summarized in Table 4. Figures 2, 3, 4 and 5 illustrate the surficial groundwater contours as measured within the standpipe piezometers during Sample Event 1 (January 16, 2013), Sample Event 2 (April 22, 2013), Sample Event 3 (July 24, 2013) and Sample Event 4 (October 23, 2013), respectively.

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**Table 4**
**Standpipe Piezometer Groundwater Levels October 23, 2013**

| Identification | Water Table El[1] (ft) | Identification | Water Table El[1] (ft) |
|---|---|---|---|
| PZ-01 | 11.39 | PZ-E7-15 | 11.08 |
| PZ-02 | DRY | PZ-F3-08 | 11.74 |
| PZ-03 | DRY | PZ-F3-15 | 11.72 |
| BKG-10 | 17.62 | PZ-F4-08 | 11.29 |
| BKG-15 | 17.59 | PZ-F4-15 | 11.33 |
| PZ-04 | DRY | PZ-G1 | NR |
| PZ-05 | NR | PZ-G2-12.5 | 12.19 |
| PZ-06 | 11.29 | PZ-H4-08 | 11.31 |
| PZ-AB4-08 | 11.71 | PZ-H4-15 | 11.25 |
| PZ-AB4-15 | 11.60 | PZ-H5-11.5 | 10.99 |
| PZ-C1 | 13.82 | PZ-I6-08 | 11.22 |
| PZ-C2 | 13.21 | PZ-I6-15 | 11.25 |
| PZ-C3-08 | 12.19 | PZ-I10-08 | 10.99 |
| PZ-C3-15 | 12.16 | PZ-I10-15 | 11.06 |
| PZ-C6-08 | 11.13 | PZ-J4-08 | 11.36 |
| PZ-C6-15 | 11.11 | PZ-J4-15 | 11.30 |
| PZ-D3-08 | 12.23 | PZ-J7-08 | 11.16 |
| PZ-D3-15 | 12.17 | PZ-J7-15 | 11.15 |
| PZ-D4-08 | 11.29 | PZ-N4-08 | 11.38 |
| PZ-D4-15 | 11.30 | PZ-N4-15 | 11.36 |
| PZ-E1 | 13.60 | PZ-N7-08 | 11.19 |
| PZ-E2 | 12.68 | PZ-N7-15 | 11.23 |
| PZ-E3-08 | 12.14 | PZ-N10-08 | 11.12 |
| PZ-E3-15 | 12.06 | PZ-N10-15 | 11.07 |
| PZ-E4-08 | 11.35 | PZ-S10-08 | 11.20 |
| PZ-E4-15 | 11.37 | DP-01 | DRY |
| PZ-E5-08 | 11.15 | DP-02 | DRY |
| PZ-E5-15 | 11.16 | DP-03 | DRY |
| PZ-E6-08 | 11.13 | DP-04 | DRY |
| PZ-E6-15 | 11.04 | DP-05 | DRY |
| PZ-E7-08 | 11.05 | DP-06 | DRY |

[1]Elevation above mean sea level based on NGVD 1929
NR = no reading

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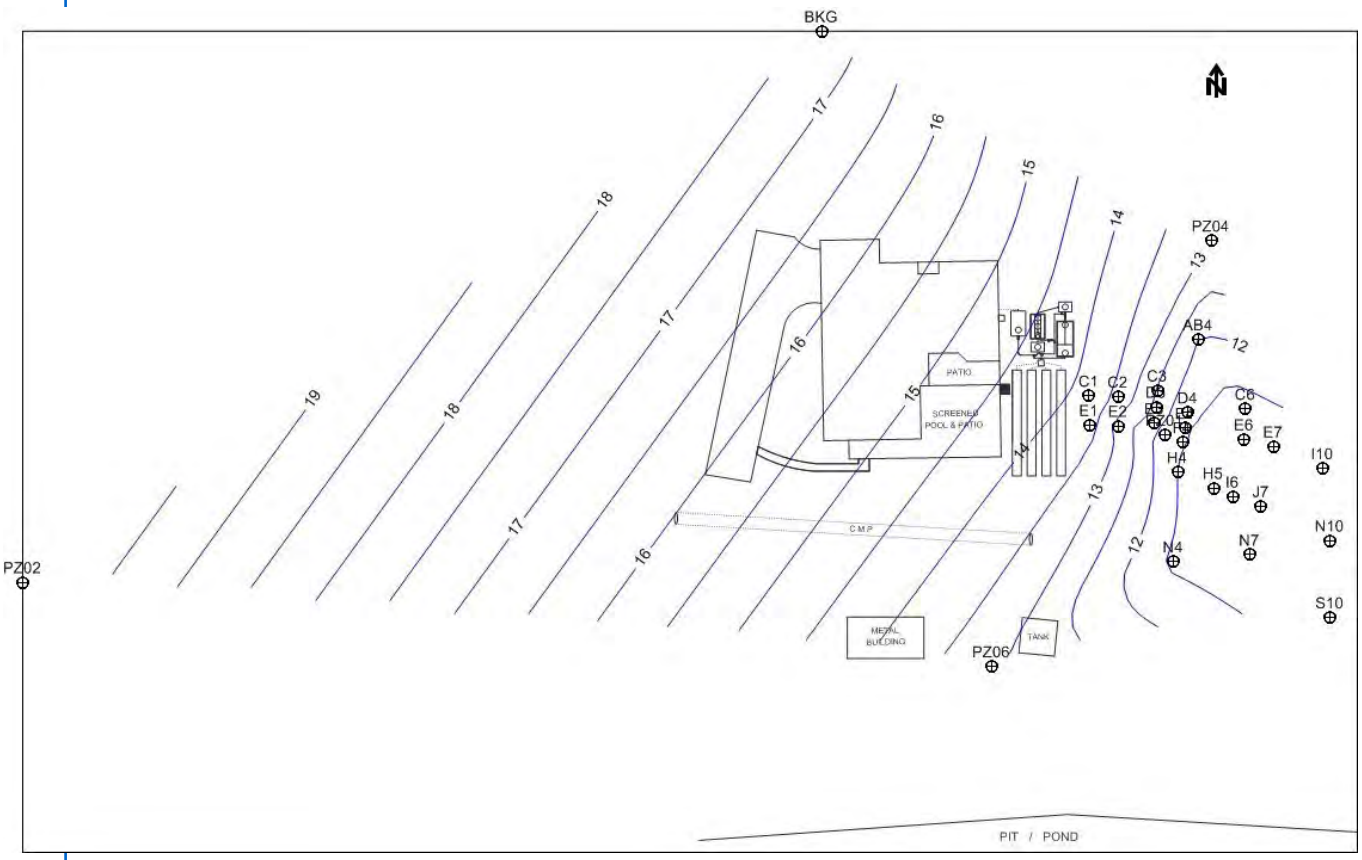


**Figure 2**
**Surficial Groundwater Contours SE1, January 16, 2013**

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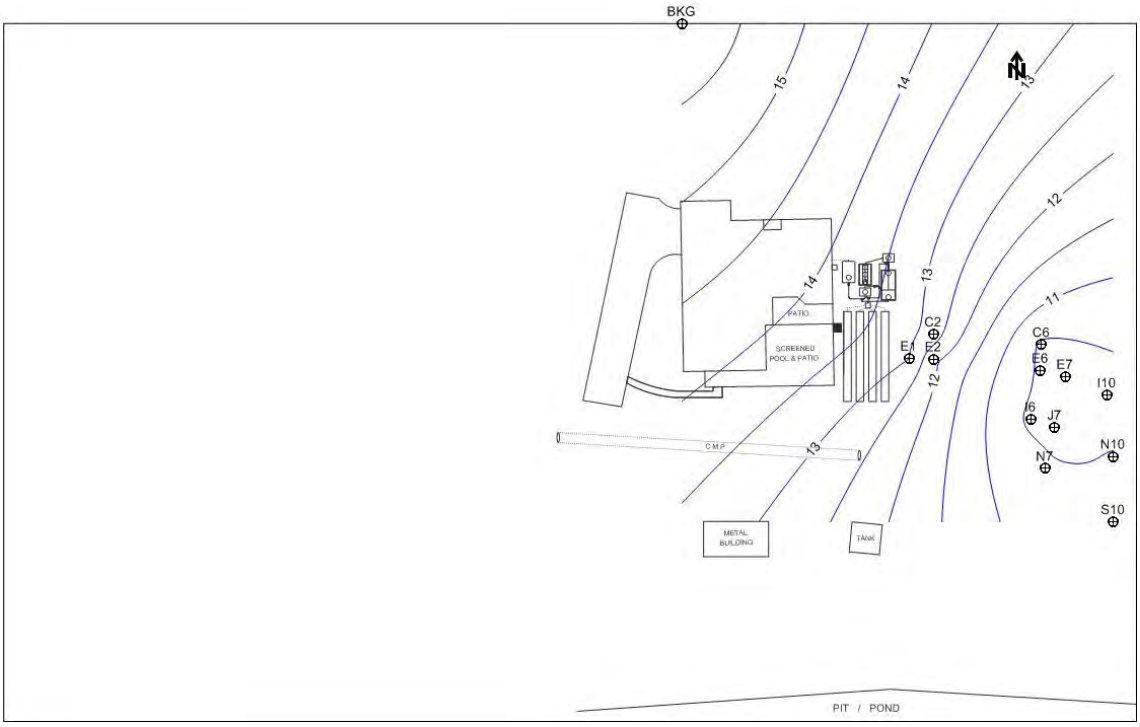


**Figure 3**
**Surficial Groundwater Contours SE2, April 22, 2013**

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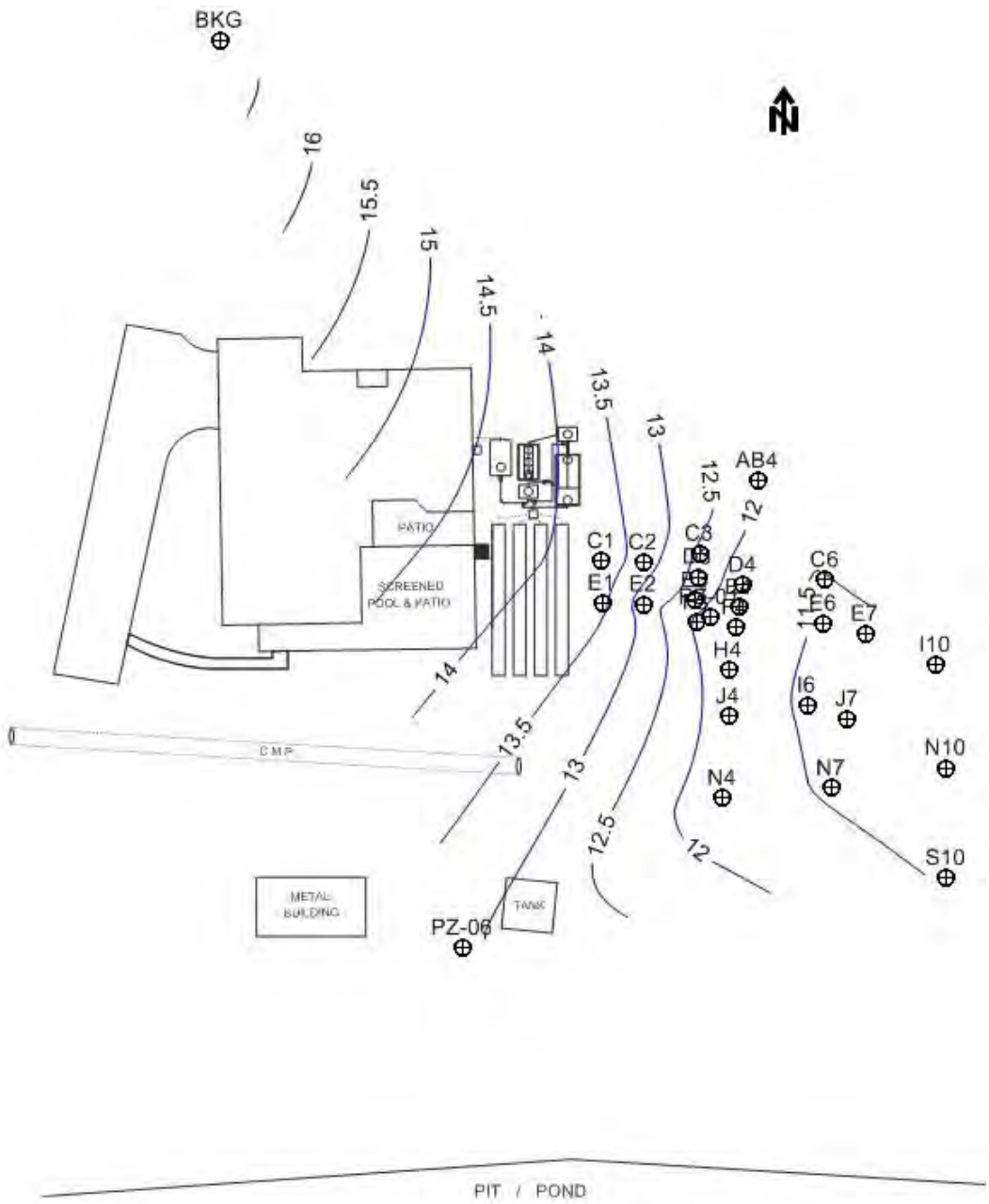


**Figure 4**
**Surficial Groundwater Contours SE3, July 24, 2013**

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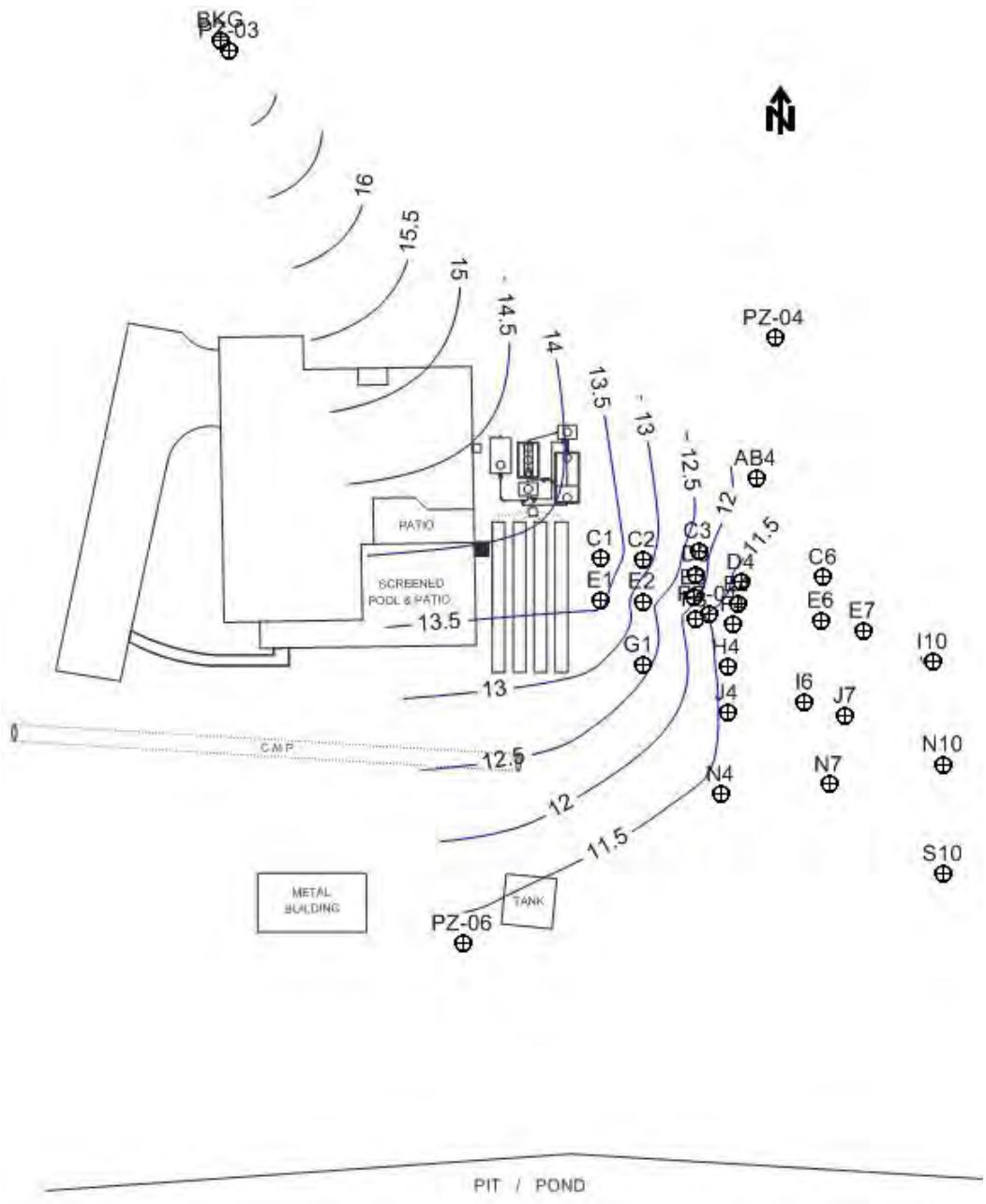


**Figure 5**
**Surficial Groundwater Contours SE4, October 23, 2013**

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## 4.3 Water Quality Analyses

The experimental PNRS system was installed in September 2012; so, in addition to evaluating the groundwater data relative to the septic tank effluent, the PNRS system treated effluent (B-HS2-ST2) should be considered. Prior to September 25, 2012, STE was discharged directly to the drainfield. Following the September 25, 2012 construction of the PNRS system, treated effluent (B-HS2-ST2) was discharged to the drainfield.

### 4.3.1 Field Parameters

Field parameters (temperature, pH, dissolved oxygen (DO), and specific conductivity) were measured at all the sampling locations prior to sample collection and are provided in Appendix C. Variations in measured values between monitoring points were expected as the chemical composition of the groundwater varied due to the discharge of STE and PNRS treated effluent (B-HS2-ST2).

### 4.3.2 Correlations

Correlations between nitrogen parameters and simple to measure field parameters were investigated. Figures 5 and 6 show scatter plots of nitrogen vs conductivity and chloride, respectively, for groundwater samples. A strong linear correlation is not observed for either conductivity or chloride. This is probably because the PNRS is still discharging conductivity and chloride, with a lower nitrogen concentration (1.52 mg/L). However, the downgradient groundwater samples could still be influenced by STE (53 mg/L) depending on the travel time.

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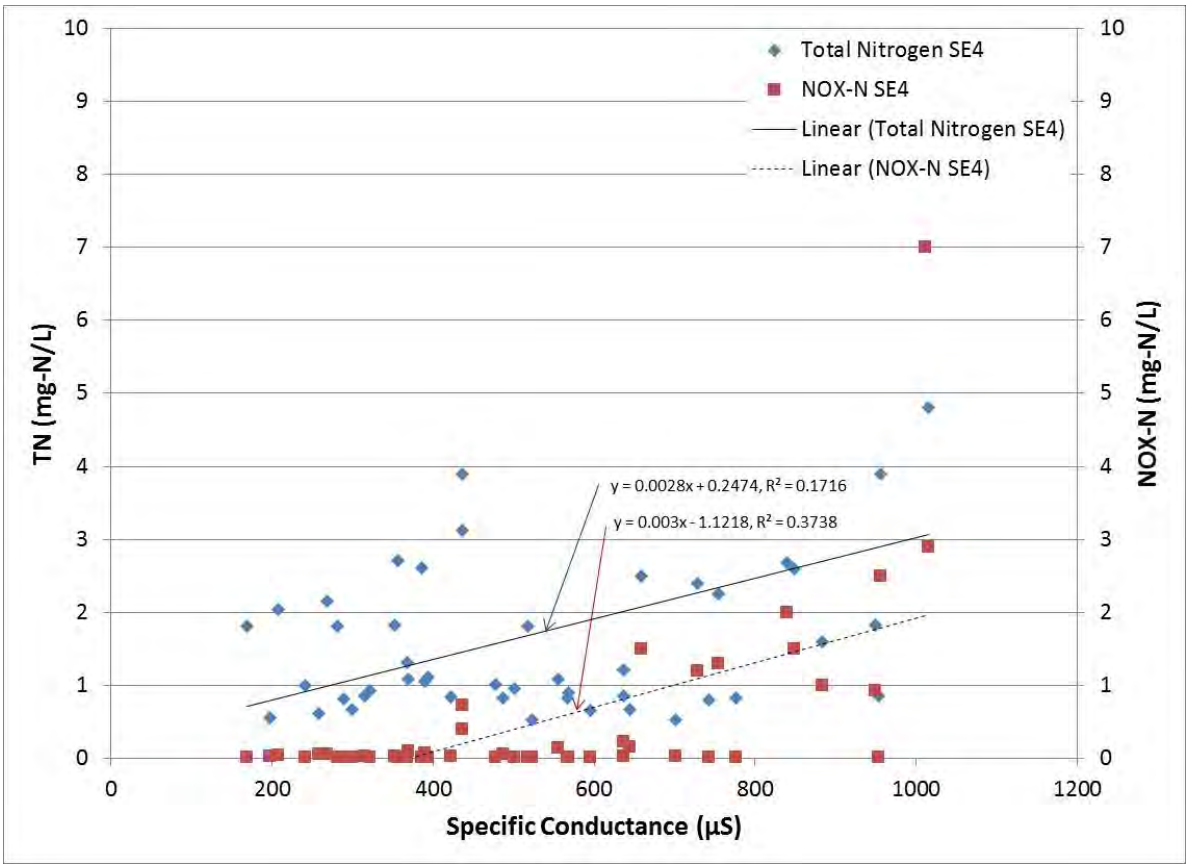


**Figure 5**
**Correlation Between the Specific Conductance (uS) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)**

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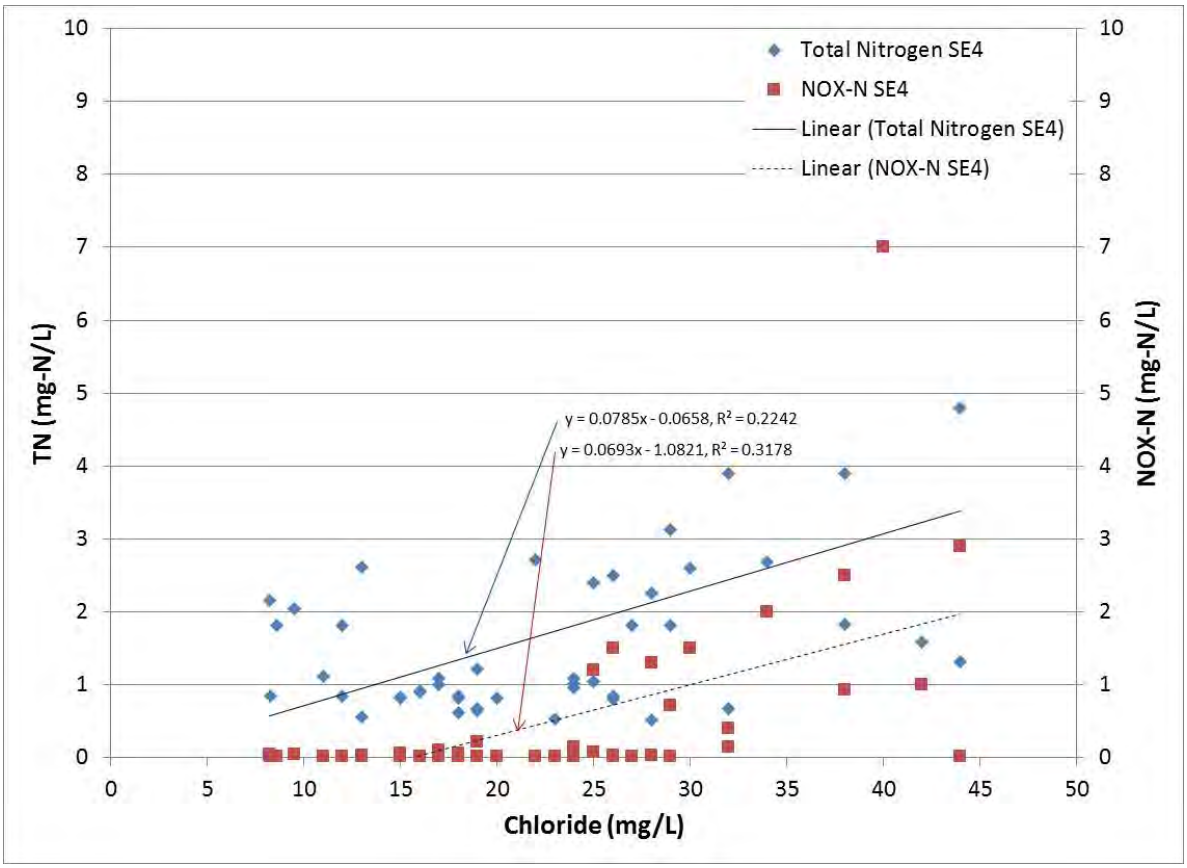


**Figure 6**
**Correlation Between the Chloride (mg/L) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)**

### 4.3.3 Analytical Parameters

In addition to measuring field parameters, all samples were analyzed for total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH3-N), nitrate/nitrite nitrogen (NOX-N), chloride (CL) and sulfate (SO4). At some of the locations, total alkalinity (as $CaCO_3$), chemical oxygen demand (COD), total phosphorus (TP), anions, and cations were included. By analyzing for the different nitrogen species, a clearer picture is gained on the transformation of nitrogen within the plume. The complete water quality analytical results for Sample Event No. 4 are listed in Table C.1 of Appendix C. The summary of the water quality is presented in Table D.1 of Appendix D. The laboratory report containing the raw analytical data is included in Appendix E which includes the chain of custody forms.

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### 4.3.4 Nitrate/Nitrite Concentrations with Groundwater Depth

The general trend of the nitrogen plume at the site can be somewhat determined with the data collected to date. The piezometers installed at different locations and depths below the ground surface were mapped in **Surfer**. Although **Surfer** is an informative tool for mapping the information from the site, it cannot project a 3-dimensional view of concentrations with depth. Based on the distribution of points with depth, two "slices" were chosen for the groundwater data surrounding the system. A **Surfer** schematic illustrating the "slices" of NOX concentration with depth from October 2013 are presented in Figures 7 and 8. The two slices were separated by groundwater elevation above sea level (NGVD29 datum). Similar slices of TKN concentration with depth are presented in Figures 9 and 10. The maps show contours of the concentrations as estimated using the "natural neighbor" gridding method in **Surfer™**. This method was used because it did not extend results past data points, as was noted on previous project results.

The shallow and deep piezometer NOX results are very low concentrations (Figures 7 and 8). The plots continue to indicate that the NOX concentration downgradient of the drainfield has significantly decreased following the installation of the passive nitrogen reduction system. The shallow and deep piezometer TKN results (Figures 9 and 10) and NOX results appear to show the plume to be confined in a south-southeast direction from the drainfield. The deeper piezometers (Figure 8) indicate relatively low NOX concentrations at this point in time, similar to background levels. However, as evident in the comparison of the NOX and TKN plots of the deeper piezometers (Figures 8 and 10) there seems to be a background concentration of TKN. The specific conductance, chloride and sulfate plots (Figures 11 through 16) also appear to show the plume to be confined in a south-southeast direction from the drainfield.

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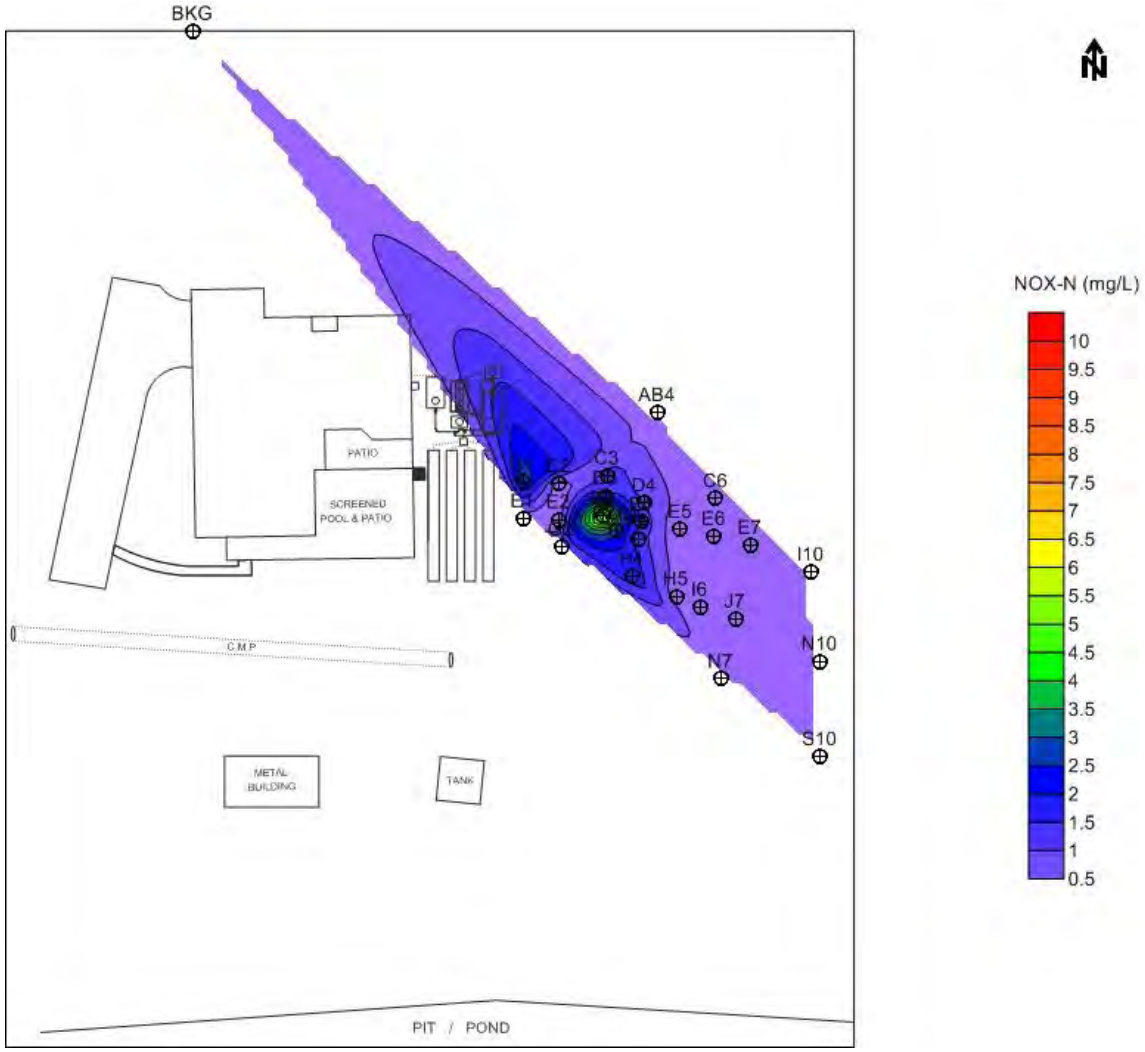


**Figure 7**
**Shallow GW Elev 7.9-17.6 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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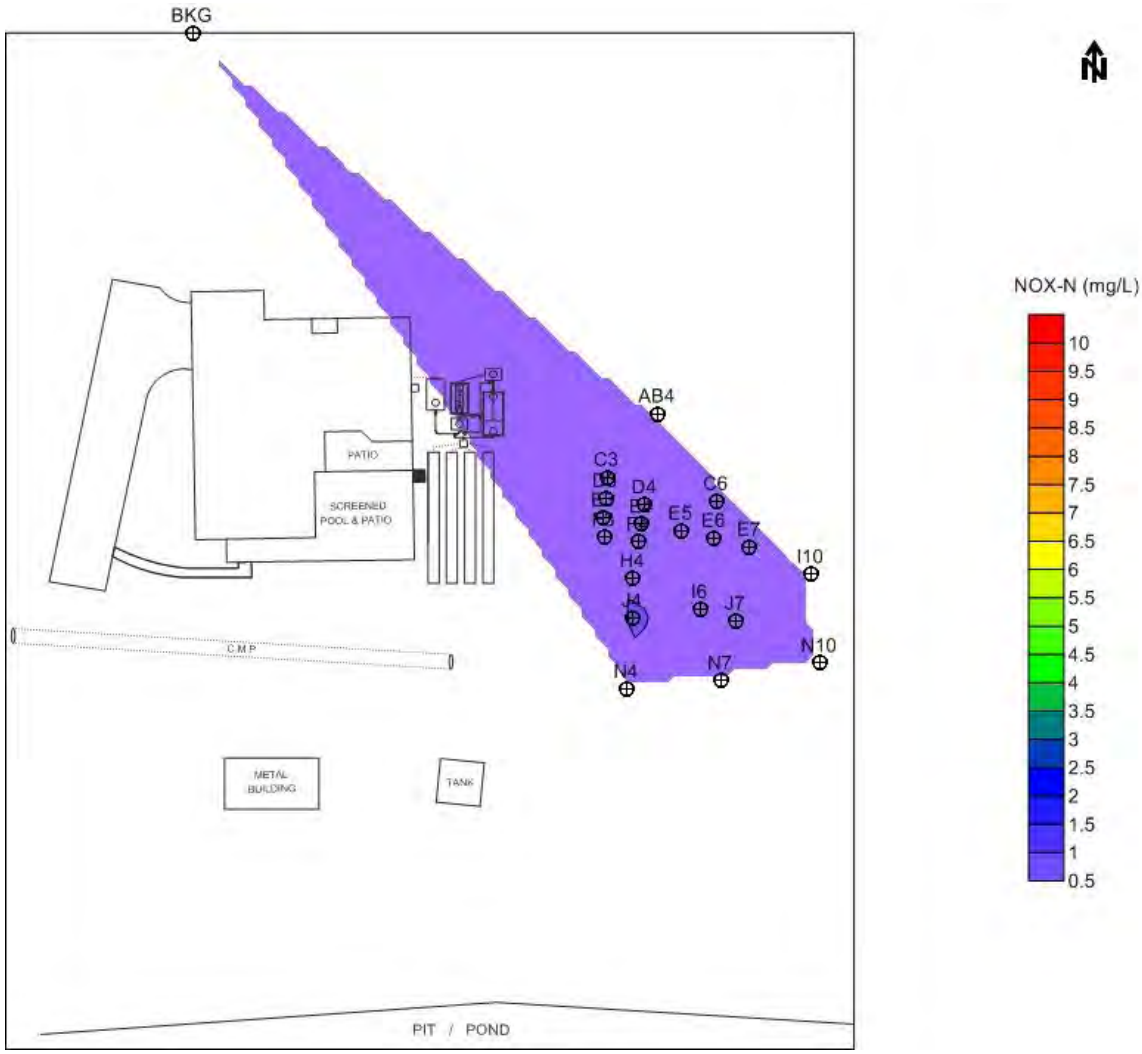


**Figure 8**
**Deep GW Elev 2.6-6.1 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating NOX concentrations in the subsurface**

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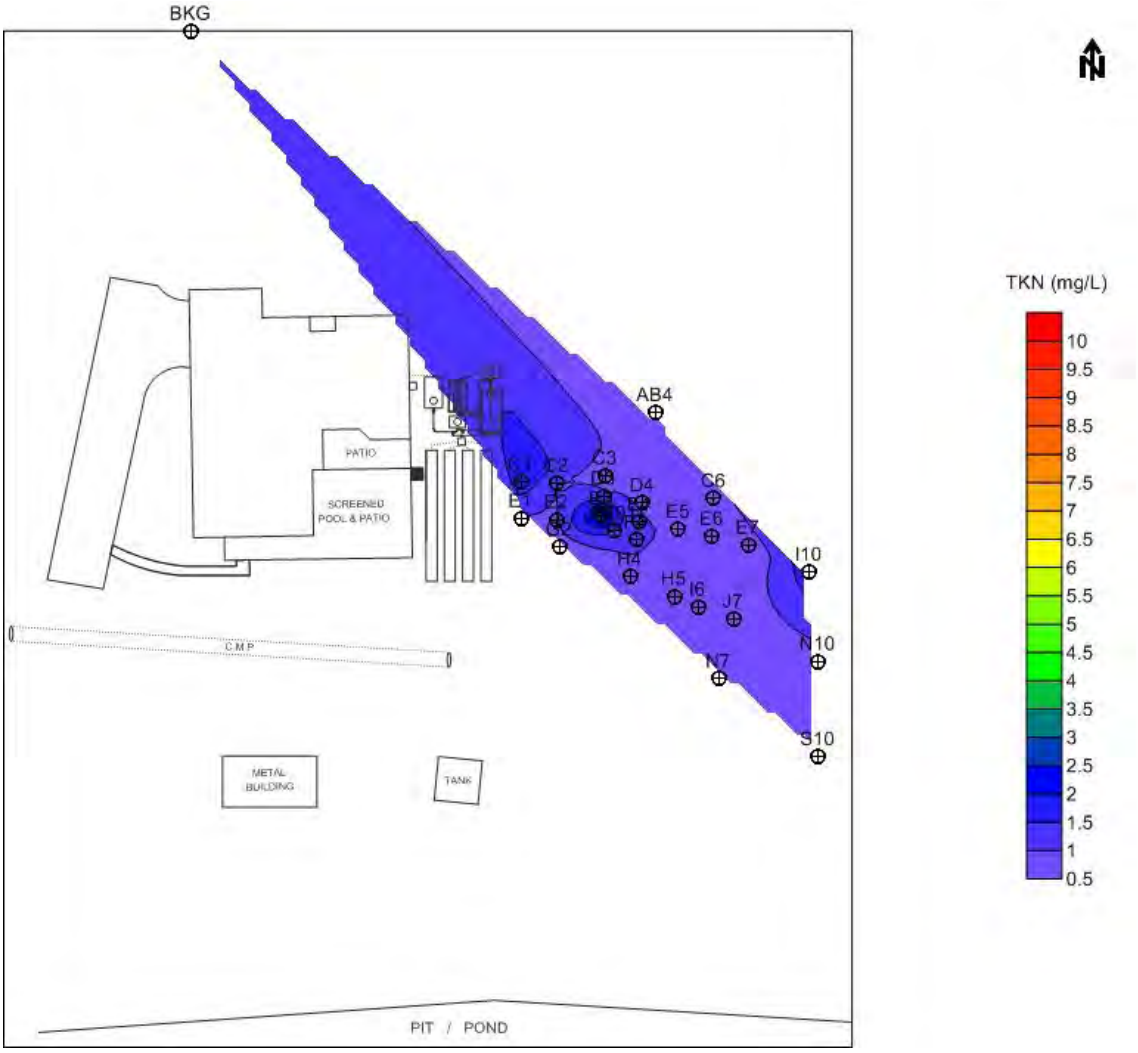


**Figure 9**
**Shallow GW Elev 7.9-17.6 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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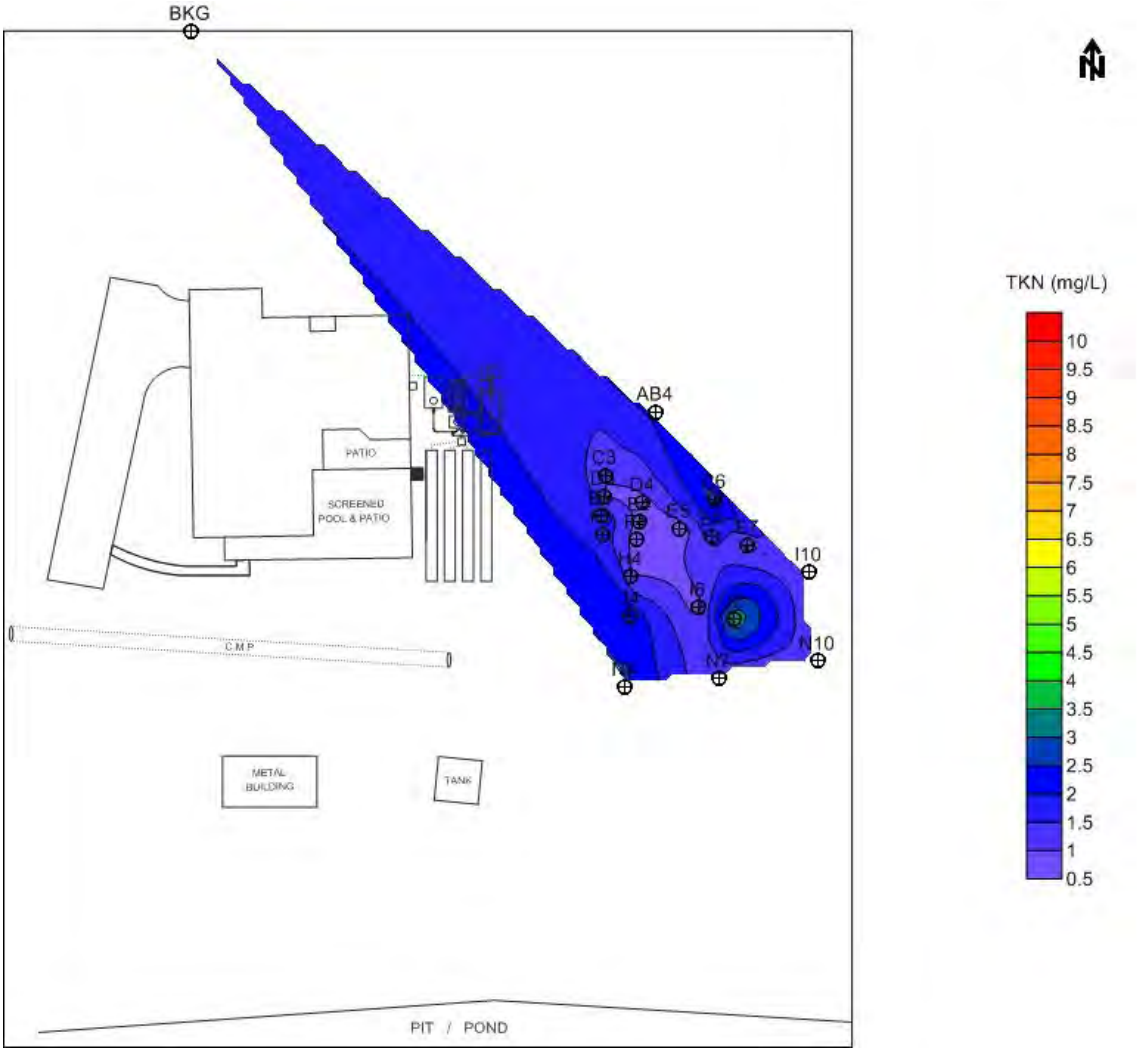


**Figure 10**
**Deep GW Elev 2.6-6.1 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating TKN concentrations in the subsurface**

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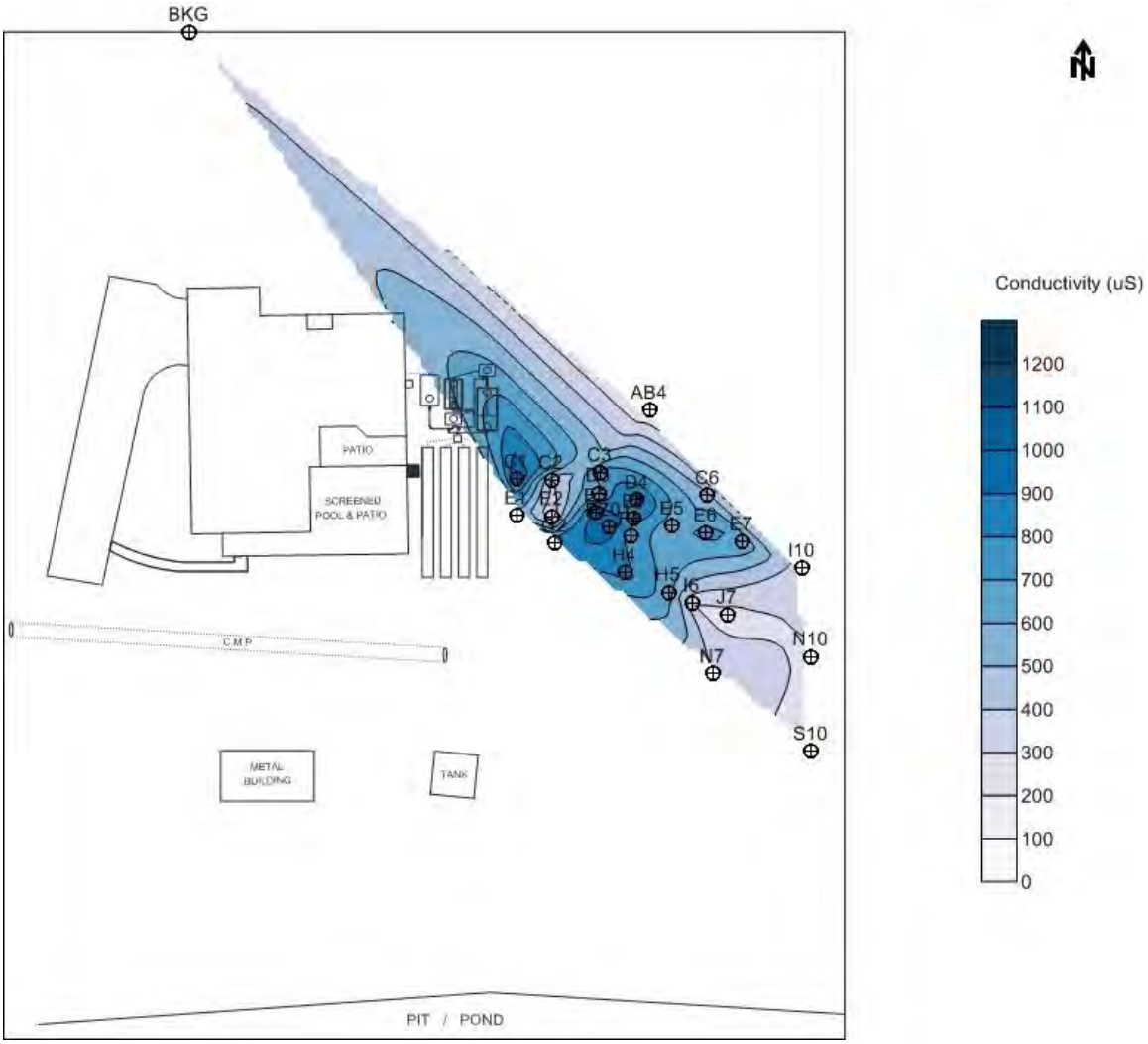


**Figure 11**
**Shallow GW Elev 7.9-17.6 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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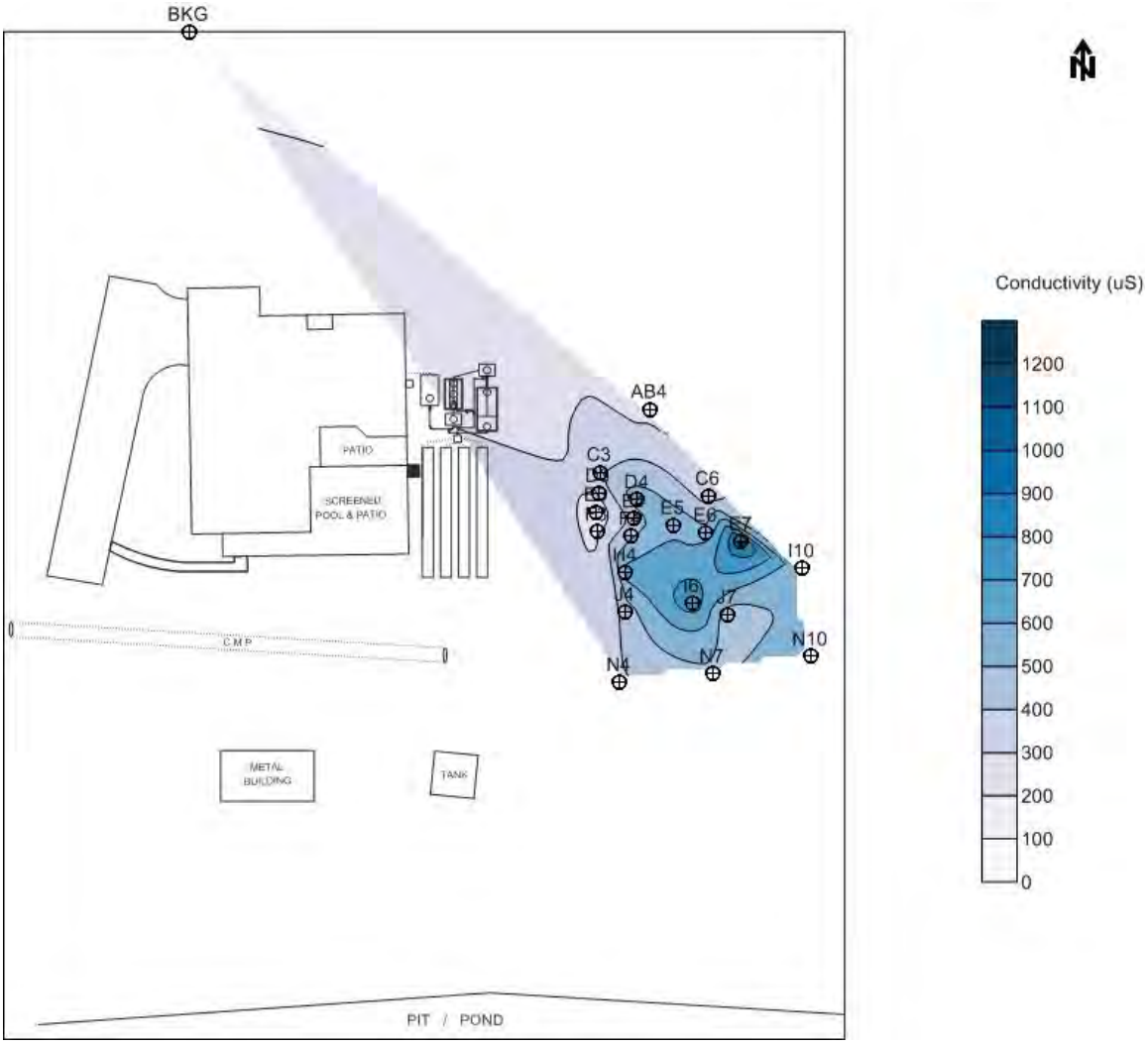


**Figure 12**
**Deep GW Elev 2.6-6.1 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating Specific Conductance concentrations in the subsurface**

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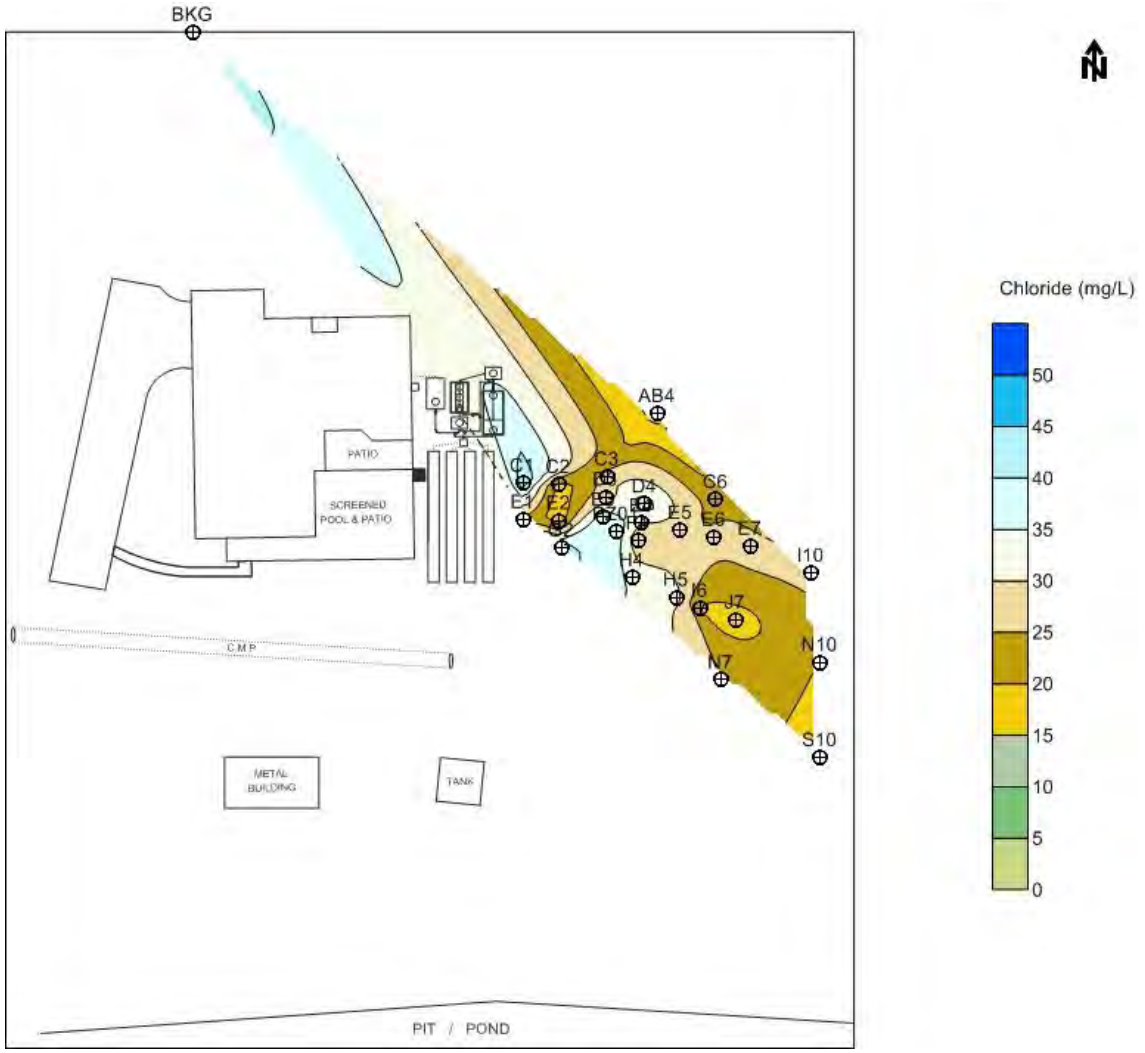


**Figure 13**
**Shallow GW Elev 7.9-17.6 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating Chloride concentrations in the subsurface**

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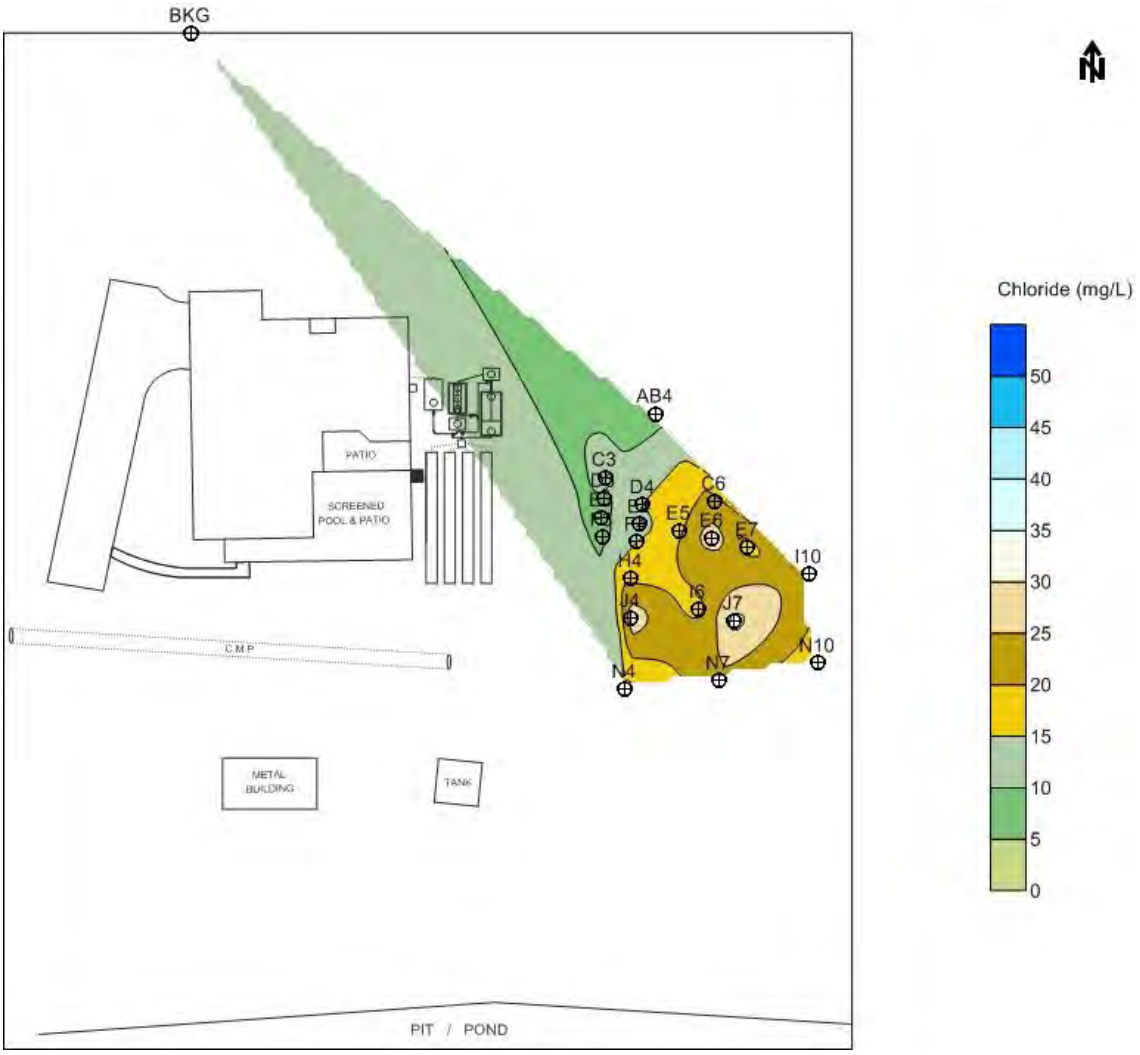


**Figure 14**
**Deep GW Elev 2.6-6.1 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating Chloride concentrations in the subsurface**

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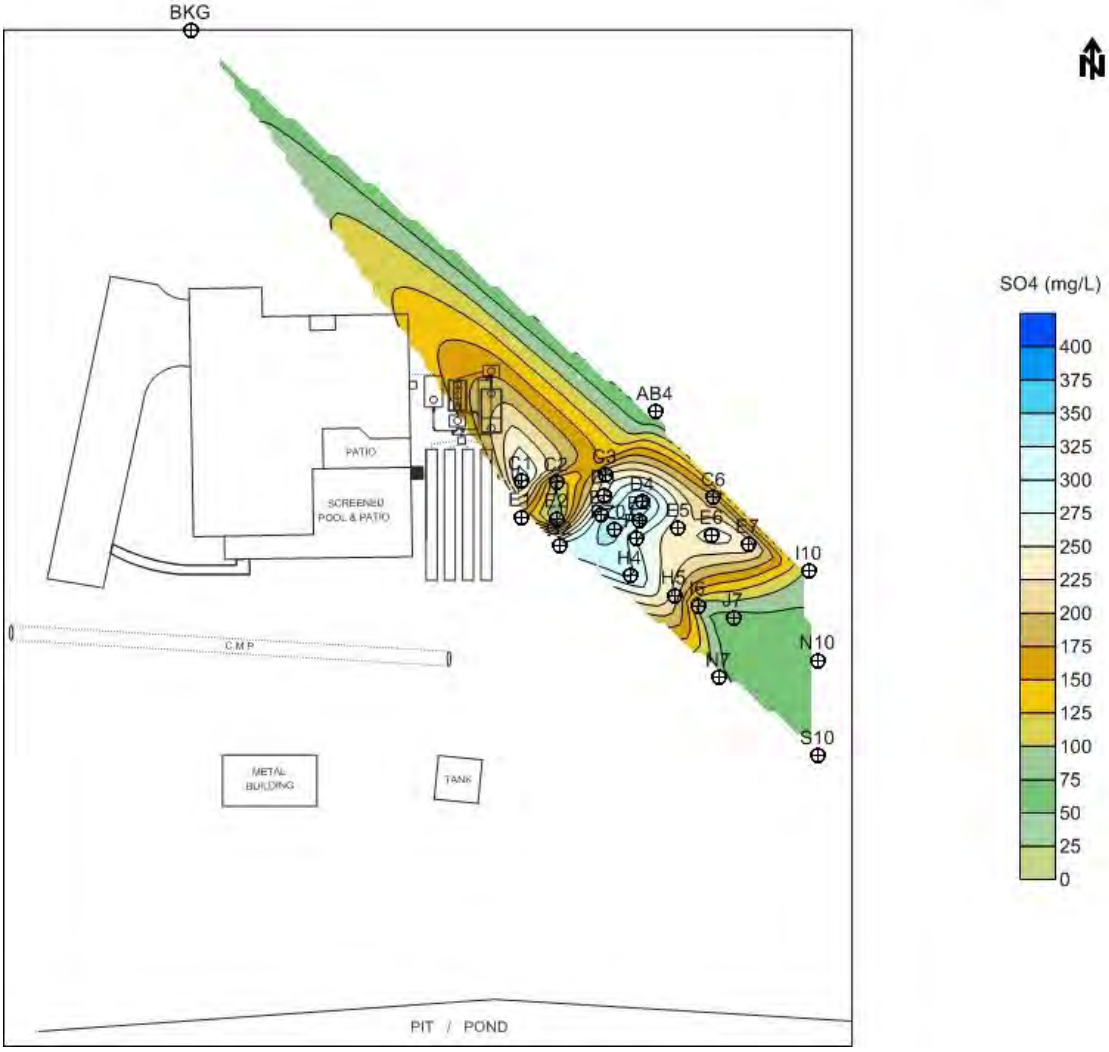


**Figure 15**
**Shallow GW Elev 7.9-17.6 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating Sulfate concentrations in the subsurface**

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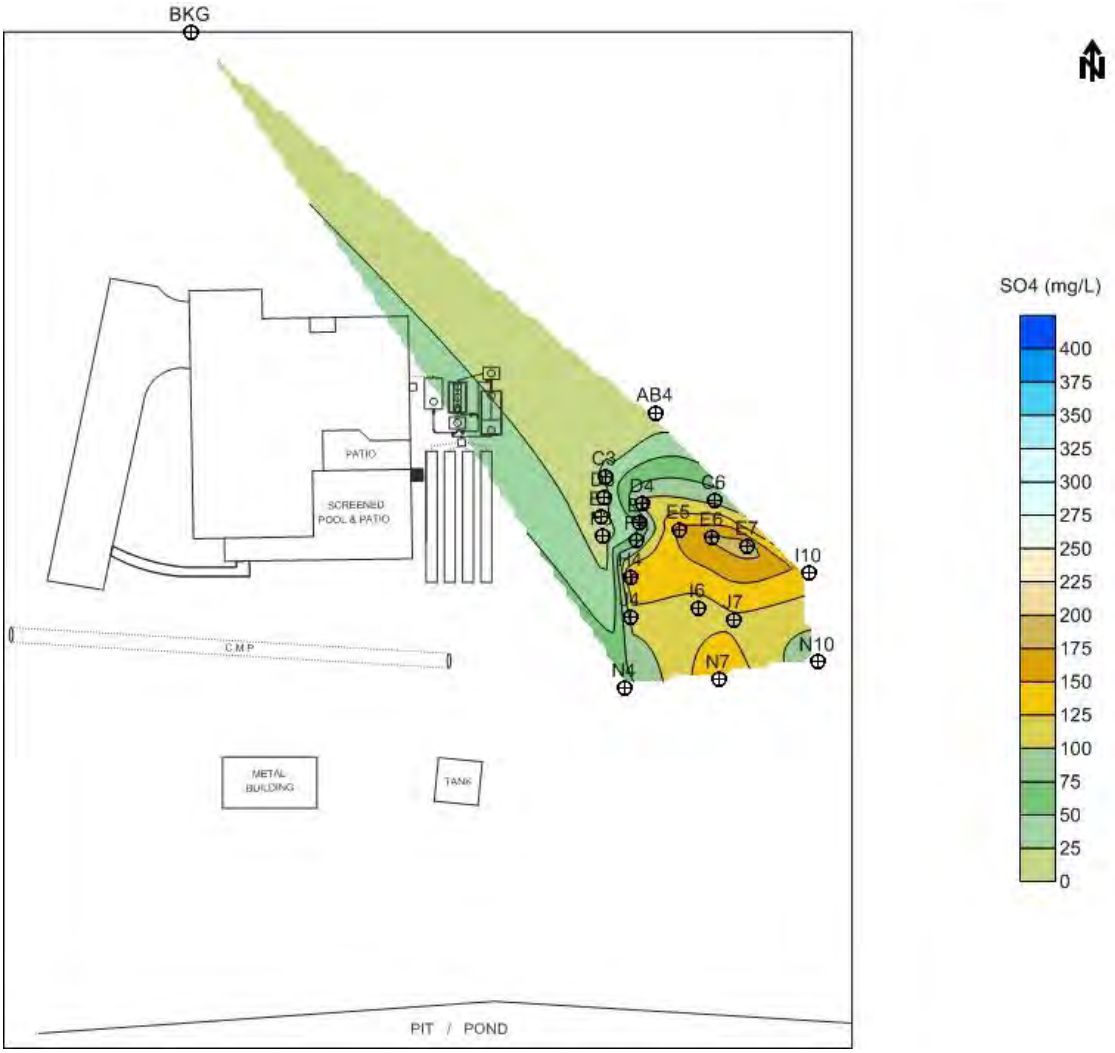


**Figure 16**
**Deep GW Elev 2.6-6.1 ft above MSL (October 2013 Sample Event 4)**
**Schematic (using Surfer) illustrating Sulfate concentrations in the subsurface**

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# 5.0 C-HS4 Data Summary Report No. 4: Summary and Recommendations

## 5.1 Summary

The results of the data collected to date have allowed for estimations of groundwater flow, gradient, and velocity, and provided additional insights into the general trend of the NOX plume. In addition, the results assist in determining any impacts of the passive nitrogen reduction system (PNRS) NOX in the groundwater. Results of Sample Event No. 4 indicate that:

- Although the groundwater levels fluctuate, the direction of flow remains relatively constant.
- The nitrogen plume appears to be flowing in a south-southeast direction and similar to the groundwater contours.
- As expected, the plots indicate that the NOX concentration in the area downgradient of the drainfield has decreased following the installation of the PNRS.

## 5.2 Conclusions

Sample Event 4 was the last funded sample event for the C-HS4 monitoring network. Further analysis of the results obtained at this site will occur as Task C results are compiled and summarized for use in Task D. The insight gained from monitoring the C-HS4 plume will provide information needed for the development of the groundwater model in Task D.

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# Appendix A: C-HS4 Sample Identification

**Table A.1**

**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 1a | C-HS4-STE | Wastewater | N/A | N/A |
| 1b | B-HS2-ST2 | Treated effluent from PNRS | N/A | N/A |
| 2 | PZ01 | 1" Standpipe Piezometer, 5' screen | 19.08 | 9.48 |
| 3 | PZ02 | 1" Standpipe Piezometer, 5' screen | 28.72 | 16.54 |
| 4 | PZ03 | 1" Standpipe Piezometer, 5' screen | 24.85 | 19.00 |
| 5 | PZ04 | 1" Standpipe Piezometer, 5' screen | 18.82 | 13.02 |
| 6 | PZ05 | 1" Standpipe Piezometer, 5' screen | 20.79 | NR |
| 7 | PZ06 | 1" Standpipe Piezometer, 5' screen | 22.17 | 11.02 |
| 8 | BKG-10 | 1" Standpipe Piezometer, 5' screen | 24.60 | 15.22 |
| 9 | BKG-15 | 3/4" Standpipe Piezometer, 1' screen | 24.60 | 10.17 |
| 10 | PZ-AB4-08 | 1" Standpipe Piezometer, 5' screen | 18.65 | 10.27 |
| 11 | PZ-AB4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.59 | 4.09 |
| 12 | PZ-C1 | 1" Standpipe Piezometer, 5' screen | 22.85 | 12.70 |
| 13 | PZ-C2 | 1" Standpipe Piezometer, 5' screen | 21.23 | 9.73 |
| 14 | PZ-C3-08 | 1" Standpipe Piezometer, 5' screen | 19.63 | 11.83 |
| 15 | PZ-C3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.09 |
| 16 | PZ-C6-08 | 1" Standpipe Piezometer, 5' screen | 17.53 | 9.03 |
| 17 | PZ-C6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.53 | 3.13 |
| 18 | PZ-D3-08 | 1" Standpipe Piezometer, 5' screen | 19.62 | 11.63 |
| 19 | PZ-D3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 5.08 |
| 20 | PZ-D4-08 | 1" Standpipe Piezometer, 5' screen | 18.77 | 10.89 |
| 21 | PZ-D4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.76 | 4.21 |
| 22 | PZ-E1 | 1" Standpipe Piezometer, 5' screen | 22.92 | 11.42 |
| 23 | PZ-E2 | 1" Standpipe Piezometer, 5' screen | 21.03 | 9.33 |
| 24 | PZ-E3-08 | 1" Standpipe Piezometer, 5' screen | 19.66 | 11.41 |
| 25 | PZ-E3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.64 | 4.98 |
| 26 | PZ-E4-08 | 1" Standpipe Piezometer, 5' screen | 18.70 | 10.80 |
| 27 | PZ-E4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.69 | 4.31 |
| 28 | PZ-E5-08 | 1" Standpipe Piezometer, 5' screen | 18.15 | 10.25 |
| 29 | PZ-E5-15 | 3/4" Standpipe Piezometer, 1' screen | 18.13 | 3.56 |
| 30 | PZ-E6-08 | 1" Standpipe Piezometer, 5' screen | 17.83 | 9.95 |

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**Table A.1 (continued)**
**Site C-HS4 Sample Identification**

| | Identification | Type of Monitoring Point | Top Elev[1] (feet) | Bottom Elev[1] (feet) |
|---|---|---|---|---|
| 31 | PZ-E6-15 | 3/4" Standpipe Piezometer, 1' screen | 17.85 | 3.45 |
| 32 | PZ-E7-08 | 1" Standpipe Piezometer, 5' screen | 17.55 | 8.87 |
| 33 | PZ-E7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.55 | 3.05 |
| 34 | PZ-F3-08 | 1" Standpipe Piezometer, 5' screen | 19.54 | 11.59 |
| 35 | PZ-F3-15 | 3/4" Standpipe Piezometer, 1' screen | 19.55 | 5.05 |
| 36 | PZ-F4-08 | 1" Standpipe Piezometer, 5' screen | 18.83 | 11.13 |
| 37 | PZ-F4-15 | 3/4" Standpipe Piezometer, 1' screen | 18.88 | 4.48 |
| 38 | PZ-G1 | 1" Standpipe Piezometer, 5' screen | 20.72 | 12.82 |
| 39 | PZ-G2-12.5 | 2" Standpipe Piezometer, 7.5' screen | 21.03 | 8.88 |
| 40 | PZ-H4-08 | 1" Standpipe Piezometer, 5' screen | 19.19 | 10.91 |
| 41 | PZ-H4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.22 | 4.45 |
| 42 | PZ-H5-11.5 | 2" Standpipe Piezometer, 7.5' screen | 18.58 | 7.86 |
| 43 | PZ-I6-08 | 1" Standpipe Piezometer,5' screen | 18.42 | 9.37 |
| 44 | PZ-I6-15 | 3/4" Standpipe Piezometer, 1' screen | 18.42 | 3.87 |
| 45 | PZ-I10-08 | 1" Standpipe Piezometer, 5' screen | 16.87 | 8.95 |
| 46 | PZ-I10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.92 | 4.42 |
| 47 | PZ-J4-08 | 1" Standpipe Piezometer, 5' screen | 19.26 | 11.32 |
| 48 | PZ-J4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.25 | 4.73 |
| 49 | PZ-J7-08 | 1" Standpipe Piezometer, 5' screen | 17.86 | 9.41 |
| 50 | PZ-J7-15 | 3/4" Standpipe Piezometer, 1' screen | 17.87 | 3.45 |
| 51 | PZ-N4-08 | 1" Standpipe Piezometer, 5' screen | 19.28 | 11.00 |
| 52 | PZ-N4-15 | 3/4" Standpipe Piezometer, 1' screen | 19.30 | 4.82 |
| 53 | PZ-N7-08 | 1" Standpipe Piezometer, 5' screen | 18.01 | 9.46 |
| 54 | PZ-N7-15 | 3/4" Standpipe Piezometer, 1' screen | 18.03 | 3.23 |
| 55 | PZ-N10-08 | 1" Standpipe Piezometer, 5' screen | 16.92 | 9.17 |
| 56 | PZ-N10-15 | 3/4" Standpipe Piezometer, 1' screen | 16.83 | 2.59 |
| 57 | PZ-S10-08 | 1" Standpipe Piezometer, 5' screen | 17.03 | 8.78 |
| 58 | DP01 | SST Drivepoint | 19.25 | |
| 59 | DP02 | SST Drivepoint | 19.24 | |
| 60 | DP03 | SST Drivepoint | 19.49 | |
| 61 | DP04 | SST Drivepoint | 19.22 | |
| 62 | DP05 | SST Drivepoint | 19.25 | |
| 63 | DP06 | SST Drivepoint | 19.38 | |

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

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# Appendix B: Weather Station Data

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# Table B.1
# Daily Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26-Jul-13 | 80.09 | 72.73 | 89.06 | 80.53 | 73.83 | 87.60 | 80.24 | 74.70 | 86.90 | 81.75 | 80.46 | 82.99 | 76.11 | 87 | 0 | 0 | 187.38 | 4.19 | 0 | 19.97 | 296 | 0.14 |
| 27-Jul-13 | 81.99 | 71.24 | 92.16 | 82.39 | 72.77 | 91.35 | 82.08 | 74.91 | 90.09 | 82.36 | 80.67 | 84.38 | 75.10 | 80 | 0 | 0 | 253.09 | 4.45 | 0 | 15.17 | 301 | 0.18 |
| 28-Jul-13 | 76.48 | 70.54 | 90.46 | 77.06 | 71.74 | 88.05 | 77.11 | 73.38 | 87.39 | 81.52 | 80.60 | 82.69 | 74.12 | 91 | 0.46 | 0.27 | 137.94 | 3.64 | 0 | 19.93 | 162 | 0.12 |
| 29-Jul-13 | 80.04 | 68.52 | 94.60 | 80.14 | 69.69 | 92.84 | 80.19 | 71.65 | 92.43 | 81.46 | 79.14 | 84.09 | 73.19 | 82 | 0 | 0 | 288.14 | 3.61 | 0 | 75.40 | 113 | 0.20 |
| 30-Jul-13 | 80.21 | 70.86 | 93.18 | 80.55 | 71.92 | 92.62 | 80.45 | 72.93 | 91.42 | 82.24 | 80.42 | 84.29 | 74.77 | 84 | 0.12 | 0.06 | 242.32 | 4.28 | 0.07 | 44.80 | 89 | 0.18 |
| 31-Jul-13 | 80.52 | 71.80 | 93.76 | 80.75 | 72.81 | 92.28 | 80.44 | 74.19 | 91.42 | 82.81 | 80.98 | 84.92 | 74.56 | 83 | 0 | 0 | 245.54 | 4.85 | 0 | 25.13 | 86 | 0.18 |
| 1-Aug-13 | 80.34 | 70.90 | 92.62 | 80.56 | 72.34 | 91.24 | 80.27 | 73.11 | 90.41 | 83.07 | 81.18 | 84.96 | 73.98 | 82 | 0.04 | 0.02 | 237.19 | 6.60 | 0.1 | 46.37 | 131 | 0.18 |
| 2-Aug-13 | 79.60 | 71.10 | 92.82 | 79.77 | 71.96 | 91.42 | 79.48 | 72.75 | 89.78 | 82.76 | 81.12 | 84.29 | 74.03 | 84 | 0.02 | 0.01 | 228.38 | 4.79 | 0.13 | 65.10 | 135 | 0.17 |
| 3-Aug-13 | 78.25 | 71.80 | 92.79 | 78.64 | 73.27 | 91.87 | 78.46 | 74.16 | 90.45 | 82.24 | 81.07 | 83.26 | 75.27 | 90 | 0.01 | 0.01 | 154.96 | 4.39 | 0 | 22.00 | 161 | 0.13 |
| 4-Aug-13 | 79.04 | 71.83 | 90.21 | 79.65 | 73.47 | 88.72 | 79.43 | 74.28 | 87.53 | 81.71 | 80.60 | 82.62 | 76.16 | 90 | 0.06 | 0.05 | 139.66 | 4.59 | 0.13 | 37.00 | 223 | 0.12 |
| 5-Aug-13 | 82.15 | 72.32 | 91.71 | 82.58 | 73.80 | 91.17 | 82.48 | 75.40 | 89.82 | 82.11 | 80.24 | 84.11 | 76.87 | 84 | 0.01 | 0.01 | 230.82 | 4.45 | 0 | 31.70 | 258 | 0.17 |
| 6-Aug-13 | 79.88 | 72.23 | 93.94 | 80.29 | 73.26 | 92.32 | 80.13 | 74.10 | 91.27 | 83.14 | 81.27 | 86.07 | 75.64 | 87 | 0.78 | 0.45 | 195.04 | 3.90 | 0.1 | 22.93 | 92 | 0.15 |
| 7-Aug-13 | 80.83 | 72.59 | 94.37 | 81.08 | 73.51 | 93.49 | 80.76 | 74.05 | 92.37 | 83.56 | 80.91 | 86.83 | 75.69 | 85 | 0 | 0 | 243.34 | 4.89 | 0.13 | 21.60 | 92 | 0.18 |
| 8-Aug-13 | 79.70 | 72.77 | 91.87 | 80.11 | 73.72 | 91.06 | 79.68 | 74.12 | 89.69 | 84.17 | 82.18 | 86.85 | 75.66 | 87 | 0.47 | 0.2 | 227.58 | 6.70 | 0.2 | 24.43 | 106 | 0.17 |
| 9-Aug-13 | 78.50 | 71.65 | 92.10 | 78.86 | 72.57 | 91.40 | 78.54 | 72.90 | 89.94 | 83.72 | 81.48 | 86.63 | 74.37 | 88 | 0.1 | 0.05 | 215.58 | 5.75 | 0.33 | 37.30 | 106 | 0.16 |
| 10-Aug-13 | 80.44 | 69.82 | 91.67 | 81.08 | 70.66 | 91.72 | 81.10 | 71.29 | 90.77 | 83.80 | 81.09 | 86.79 | 74.48 | 82 | 0 | 0 | 269.03 | 6.31 | 0.9 | 18.13 | 111 | 0.19 |
| 11-Aug-13 | 81.72 | 71.24 | 93.16 | 82.41 | 72.63 | 92.43 | 82.38 | 73.67 | 91.42 | 84.70 | 81.99 | 87.64 | 75.51 | 81 | 0 | 0 | 263.60 | 5.27 | 0.17 | 36.07 | 112 | 0.19 |
| 12-Aug-13 | 81.25 | 71.04 | 92.50 | 82.08 | 72.23 | 92.37 | 82.39 | 73.81 | 91.40 | 85.03 | 82.71 | 87.42 | 74.52 | 80 | 0.02 | 0.02 | 257.80 | 4.92 | 0 | 16.53 | 87 | 0.19 |
| 13-Aug-13 | 82.75 | 70.61 | 94.98 | 83.02 | 71.87 | 94.01 | 82.85 | 73.35 | 93.29 | 85.22 | 82.81 | 87.66 | 74.73 | 78 | 0 | 0 | 249.31 | 3.91 | 0 | 14.20 | 136 | 0.18 |
| 14-Aug-13 | 80.62 | 72.28 | 92.28 | 81.05 | 73.35 | 90.90 | 80.68 | 75.02 | 89.65 | 85.32 | 83.71 | 86.68 | 75.83 | 85 | 0 | 0 | 196.36 | 4.75 | 0 | 16.63 | 194 | 0.15 |
| 15-Aug-13 | 78.97 | 70.14 | 90.57 | 79.45 | 71.47 | 89.51 | 79.00 | 72.18 | 87.91 | 84.41 | 82.69 | 86.05 | 74.69 | 86 | 0.01 | 0.01 | 177.25 | 5.24 | 0.07 | 18.63 | 166 | 0.14 |
| 16-Aug-13 | 81.94 | 74.12 | 92.66 | 82.31 | 75.13 | 91.92 | 81.87 | 75.61 | 91.02 | 84.74 | 82.92 | 86.74 | 75.65 | 82 | 0.01 | 0.01 | 199.82 | 4.12 | 0 | 17.40 | 171 | 0.16 |
| 17-Aug-13 | 78.86 | 71.44 | 93.02 | 79.37 | 72.12 | 92.16 | 79.10 | 73.24 | 90.55 | 84.34 | 83.07 | 85.69 | 75.08 | 88 | 0.04 | 0.03 | 151.78 | 5.45 | 0 | 30.70 | 107 | 0.13 |
| 18-Aug-13 | 78.48 | 72.81 | 91.35 | 78.85 | 73.51 | 90.48 | 78.39 | 73.29 | 88.95 | 83.38 | 81.28 | 85.84 | 75.47 | 90 | 2.08 | 0.58 | 201.77 | 6.41 | 0.2 | 25.87 | 96 | 0.15 |
| 19-Aug-13 | 78.95 | 71.82 | 92.80 | 79.23 | 72.61 | 91.65 | 78.73 | 73.08 | 90.43 | 82.47 | 80.17 | 85.33 | 74.95 | 88 | 0.03 | 0.01 | 237.37 | 5.25 | 0 | 24.20 | 100 | 0.17 |
| 20-Aug-13 | 79.00 | 71.01 | 93.24 | 79.36 | 71.80 | 92.57 | 78.88 | 72.45 | 91.40 | 83.15 | 81.16 | 85.57 | 74.56 | 87 | 0.19 | 0.09 | 222.24 | 5.95 | 0.5 | 32.50 | 84 | 0.17 |
| 21-Aug-13 | 79.28 | 73.36 | 91.51 | 79.67 | 74.08 | 91.26 | 79.11 | 74.08 | 89.85 | 83.39 | 81.59 | 85.57 | 75.27 | 87 | 0 | 0 | 220.81 | 7.43 | 1.63 | 33.53 | 81 | 0.17 |
| 22-Aug-13 | 76.98 | 72.30 | 88.79 | 77.32 | 73.15 | 87.89 | 76.98 | 73.36 | 85.98 | 82.56 | 81.90 | 84.54 | 75.25 | 94 | 0.01 | 0.01 | 136.86 | 5.10 | 0 | 16.77 | 88 | N/A |
| 23-Aug-13 | 79.56 | 70.75 | 92.62 | 79.63 | 71.35 | 91.35 | 79.27 | 71.38 | 90.55 | 82.85 | 81.05 | 85.41 | 74.64 | 87 | 0.45 | 0.25 | 216.97 | 5.06 | 0.1 | 30.07 | 82 | 0.16 |
| 24-Aug-13 | 78.80 | 71.20 | 93.87 | 78.85 | 71.73 | 92.43 | 78.78 | 72.77 | 91.38 | 82.16 | 80.40 | 85.64 | 74.50 | 88 | 2.2 | 1.04 | 228.05 | 4.99 | 0.03 | 31.73 | 102 | 0.17 |
| 25-Aug-13 | 77.52 | 72.34 | 88.95 | 77.81 | 73.09 | 88.11 | 77.41 | 73.35 | 86.36 | 81.14 | 79.92 | 82.80 | 74.68 | 91 | 0.01 | 0.01 | 150.86 | 5.43 | 0.07 | 24.77 | 52 | N/A |
| 26-Aug-13 | 78.17 | 71.80 | 89.92 | 78.34 | 72.34 | 88.72 | 77.83 | 71.98 | 87.40 | 81.90 | 80.33 | 83.64 | 74.12 | 88 | 0.23 | 0.1 | 177.53 | 5.55 | 0.43 | 24.07 | 42 | N/A |
| 27-Aug-13 | 78.64 | 70.81 | 89.55 | 79.08 | 71.62 | 89.01 | 78.90 | 72.32 | 87.75 | 81.91 | 80.08 | 83.93 | 73.03 | 84 | 0 | 0 | 226.21 | 6.88 | 0.1 | 21.00 | 75 | 0.16 |
| 28-Aug-13 | 77.75 | 68.07 | 91.09 | 78.09 | 69.30 | 90.23 | 78.09 | 70.21 | 89.10 | 82.35 | 80.10 | 84.74 | 71.61 | 82 | 0 | 0 | 239.88 | 4.76 | 0.07 | 20.57 | 74 | 0.17 |
| 29-Aug-13 | 79.54 | 69.40 | 92.61 | 79.77 | 70.54 | 91.18 | 79.64 | 71.76 | 89.85 | 82.98 | 80.83 | 85.46 | 72.70 | 81 | 0 | 0 | 238.27 | 3.48 | 0 | 16.03 | 16 | 0.17 |
| 30-Aug-13 | 78.05 | 70.56 | 89.51 | 78.63 | 72.05 | 88.83 | 78.63 | 73.17 | 88.18 | 82.83 | 81.45 | 83.86 | 74.68 | 88 | 0.19 | 0.08 | 156.05 | 3.27 | 0 | 18.40 | 228 | 0.12 |
| 31-Aug-13 | 78.26 | 71.98 | 88.97 | 78.62 | 72.66 | 87.98 | 78.47 | 72.95 | 86.77 | 82.57 | 80.92 | 84.13 | 74.34 | 88 | 0.02 | 0.01 | 182.78 | 4.16 | 0.03 | 21.47 | 200 | 0.14 |

# Table B.1 (continued)
# Monthly Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Sep-13 | 78.17 | 69.71 | 91.38 | 78.57 | 71.10 | 90.59 | 78.34 | 71.62 | 89.20 | 82.61 | 80.44 | 84.94 | 73.22 | 85 | 0 | 0 | 215.83 | 4.65 | 0.07 | 17.67 | 173 | N/A |
| 2-Sep-13 | 77.31 | 68.94 | 88.02 | 77.91 | 69.76 | 88.05 | 77.83 | 71.40 | 87.08 | 82.25 | 80.78 | 83.66 | 73.71 | 88 | 0 | 0 | 152.25 | 4.38 | 0.17 | 17.57 | 180 | N/A |
| 3-Sep-13 | 77.96 | 70.34 | 88.66 | 78.56 | 71.64 | 87.30 | 78.63 | 72.68 | 86.23 | 81.86 | 80.49 | 83.10 | 75.07 | 90 | 0.01 | 0.01 | 152.52 | 3.65 | 0.07 | 13.83 | 175 | 0.12 |
| 4-Sep-13 | 77.99 | 71.31 | 91.80 | 78.39 | 72.54 | 90.81 | 78.23 | 72.25 | 89.67 | 82.20 | 80.44 | 84.47 | 74.13 | 88 | 0.21 | 0.09 | 185.67 | 4.44 | 0.53 | 26.70 | 83 | 0.14 |
| 5-Sep-13 | 79.78 | 71.33 | 92.57 | 80.15 | 72.00 | 91.85 | 79.81 | 72.09 | 90.34 | 82.59 | 80.60 | 84.78 | 74.63 | 85 | 0 | 0 | 205.87 | 4.77 | 0 | 14.47 | 70 | 0.15 |
| 6-Sep-13 | 78.92 | 70.74 | 94.95 | 78.95 | 71.28 | 93.67 | 78.59 | 71.40 | 93.18 | 83.15 | 81.32 | 85.62 | 73.24 | 85 | 0.22 | 0.07 | 216.83 | 4.55 | 0 | 36.93 | 76 | N/A |
| 7-Sep-13 | 77.42 | 69.19 | 89.85 | 77.61 | 69.71 | 89.26 | 77.24 | 69.67 | 88.54 | 82.42 | 80.56 | 84.25 | 72.28 | 85 | 0 | 0 | 210.02 | 5.13 | 0.13 | 47.77 | 51 | N/A |
| 8-Sep-13 | 78.91 | 69.53 | 91.47 | 79.21 | 70.41 | 90.55 | 78.91 | 70.75 | 89.37 | 82.39 | 80.53 | 84.29 | 72.11 | 81 | 0 | 0 | 223.99 | 5.29 | 0.27 | 17.67 | 44 | 0.16 |
| 9-Sep-13 | 79.78 | 70.54 | 91.49 | 80.27 | 71.69 | 91.02 | 80.08 | 72.50 | 89.47 | 82.64 | 80.83 | 84.60 | 72.68 | 80 | 0 | 0 | 240.30 | 6.39 | 0.4 | 17.90 | 72 | 0.17 |
| 10-Sep-13 | 79.65 | 70.90 | 90.43 | 80.18 | 71.78 | 90.34 | 79.84 | 72.66 | 88.43 | 82.72 | 81.18 | 84.34 | 72.07 | 79 | 0 | 0 | 243.06 | 8.50 | 1.17 | 23.20 | 68 | 0.17 |
| 11-Sep-13 | 79.46 | 71.35 | 89.22 | 80.04 | 72.25 | 89.06 | 79.56 | 72.86 | 87.64 | 82.70 | 81.23 | 84.34 | 72.63 | 80 | 0 | 0 | 232.64 | 8.37 | 1.03 | 23.17 | 81 | 0.16 |
| 12-Sep-13 | 76.85 | 70.23 | 90.39 | 77.39 | 71.56 | 89.40 | 77.00 | 72.07 | 88.25 | 82.36 | 81.18 | 83.52 | 73.78 | 90 | 0.47 | 0.17 | 159.19 | 4.25 | 0 | 37.37 | 84 | 0.12 |
| 13-Sep-13 | 77.88 | 67.24 | 90.10 | 78.50 | 68.65 | 88.84 | 78.48 | 70.07 | 87.67 | 81.58 | 79.72 | 83.21 | 73.18 | 85 | 0.01 | 0.01 | 204.26 | 2.99 | 0 | 13.00 | 12 | 0.14 |
| 14-Sep-13 | 79.88 | 69.96 | 93.24 | 80.44 | 71.80 | 91.76 | 80.55 | 72.72 | 90.93 | 81.84 | 80.17 | 83.44 | 73.41 | 81 | 0.01 | 0.01 | 187.15 | 3.45 | 0 | 22.37 | 40 | 0.14 |
| 15-Sep-13 | 76.13 | 69.49 | 92.59 | 76.70 | 70.18 | 92.01 | 76.36 | 70.02 | 90.03 | 81.36 | 80.22 | 83.32 | 73.12 | 90 | 0.85 | 0.22 | 156.90 | 7.13 | 0.2 | 37.80 | 82 | 0.13 |
| 16-Sep-13 | 76.38 | 69.78 | 90.99 | 76.86 | 70.88 | 90.43 | 76.42 | 71.29 | 88.30 | 80.65 | 79.14 | 82.49 | 73.48 | 90 | 0 | 0 | 182.14 | 6.64 | 0.87 | 31.03 | 75 | 0.14 |
| 17-Sep-13 | 76.62 | 69.49 | 88.25 | 77.04 | 70.52 | 87.73 | 76.59 | 71.26 | 85.84 | 80.79 | 79.41 | 82.24 | 73.42 | 89 | 0.03 | 0.03 | 190.97 | 7.19 | 1.37 | 29.33 | 72 | 0.14 |
| 18-Sep-13 | 76.54 | 71.56 | 87.33 | 77.02 | 72.50 | 87.22 | 76.56 | 72.77 | 85.62 | 80.87 | 79.75 | 81.95 | 74.06 | 91 | 0.05 | 0.03 | 158.65 | 6.97 | 0.67 | 24.03 | 66 | 0.12 |
| 19-Sep-13 | 77.15 | 71.13 | 87.40 | 77.70 | 71.78 | 86.79 | 77.37 | 71.67 | 85.39 | 80.70 | 79.54 | 81.90 | 74.13 | 89 | 0.17 | 0.09 | 135.71 | 6.18 | 0.07 | 19.27 | 82 | 0.11 |
| 20-Sep-13 | 77.12 | 69.46 | 87.04 | 77.71 | 70.29 | 86.88 | 77.64 | 70.92 | 85.77 | 80.78 | 79.29 | 82.31 | 71.18 | 82 | 0 | 0 | 214.46 | 6.05 | 0.4 | 17.57 | 80 | 0.14 |
| 21-Sep-13 | 76.78 | 66.13 | 88.83 | 77.27 | 67.35 | 87.69 | 77.60 | 69.17 | 86.81 | 80.60 | 78.78 | 82.33 | 70.00 | 80 | 0 | 0 | 216.21 | 4.32 | 0.3 | 17.00 | 147 | 0.14 |
| 22-Sep-13 | 77.95 | 70.16 | 88.56 | 78.74 | 71.60 | 87.66 | 78.87 | 72.48 | 86.86 | 80.84 | 79.61 | 82.08 | 74.23 | 87 | 0 | 0 | 158.39 | 5.43 | 0.13 | 21.47 | 182 | 0.12 |
| 23-Sep-13 | 75.38 | 71.98 | 80.33 | 76.00 | 72.90 | 80.74 | 75.80 | 73.92 | 79.92 | 80.05 | 79.54 | 80.98 | 75.16 | 97 | 1.11 | 0.35 | 54.21 | 5.96 | 0 | 18.87 | 135 | 0.06 |
| 24-Sep-13 | 74.09 | 72.61 | 75.96 | 74.60 | 73.38 | 76.23 | 74.31 | 73.31 | 75.61 | 78.81 | 78.30 | 79.50 | 73.97 | 98 | 0.72 | 0.06 | 34.33 | 6.08 | 0.43 | 14.67 | 194 | 0.04 |
| 25-Sep-13 | 73.47 | 69.44 | 79.00 | 74.31 | 70.43 | 79.63 | 73.99 | 69.98 | 78.87 | 77.48 | 76.48 | 78.58 | 72.69 | 95 | 1.6 | 0.34 | 52.02 | 6.64 | 0.07 | 23.73 | 242 | 0.06 |
| 26-Sep-13 | 79.21 | 72.18 | 87.73 | 79.87 | 73.08 | 87.66 | 79.47 | 73.18 | 86.49 | 78.39 | 77.09 | 80.11 | 74.52 | 85 | 0.01 | 0.01 | 173.33 | 6.46 | 1.07 | 21.57 | 286 | 0.13 |
| 27-Sep-13 | 74.60 | 68.22 | 84.81 | 74.94 | 68.85 | 84.52 | 74.52 | 68.74 | 83.01 | 78.55 | 77.49 | 79.68 | 70.68 | 87 | 0 | 0 | 165.02 | 6.37 | 0.93 | 20.73 | 25 | 0.12 |
| 28-Sep-13 | 76.50 | 68.67 | 87.82 | 76.71 | 69.39 | 86.99 | 76.07 | 69.42 | 85.03 | 79.15 | 77.77 | 80.71 | 71.65 | 86 | 0 | 0 | 222.65 | 7.32 | 0.73 | 21.63 | 43 | 0.14 |
| 29-Sep-13 | 76.35 | 67.57 | 88.50 | 76.82 | 68.18 | 87.55 | 76.62 | 68.31 | 86.41 | 79.56 | 78.17 | 80.96 | 69.22 | 80 | 0 | 0 | 215.22 | 5.54 | 0.4 | 13.90 | 53 | 0.14 |
| 30-Sep-13 | 76.88 | 65.93 | 89.80 | 77.41 | 68.07 | 88.65 | 77.30 | 68.54 | 87.37 | 79.63 | 78.04 | 81.30 | 70.74 | 82 | 0 | 0 | 201.41 | 4.94 | 0.2 | 20.00 | 83 | 0.13 |

# Table B.1 (continued)
# Monthly Recorded Meteorological Data
# Wimauma, FL

| Period | 60cm T avg (F) | 60cm T min (F) | 60cm T max (F) | 2m T avg (F) | 2m T min (F) | 2m T max (F) | 10m T avg (F) | 10m T min (F) | 10m T max (F) | Tsoil avg - 10cm (F) | Tsoil min(avg) - 10cm (F) | Tsoil max(avg) -10cm (F) | 2m DewPt avg (F) | RelHum avg 2m (pct) | 2m Rain tot (in) | 2m Rain max over 15min(in) | SolRad avg 2m (w/m^2) | 10m Wind avg (mph) | 10m Wind min (mph) | 10m Wind max (mph) | WDir avg 10m (deg) | ET (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Oct-13 | 78.02 | 68.02 | 89.11 | 78.46 | 69.04 | 88.99 | 78.32 | 70.47 | 87.76 | 80.05 | 78.58 | 81.46 | 71.52 | 81 | 0 | 0 | 209.65 | 6.48 | 1.6 | 17.47 | 89 | 0.14 |
| 2-Oct-13 | 77.19 | 69.19 | 87.89 | 77.71 | 69.87 | 87.58 | 77.47 | 70.11 | 86.00 | 80.06 | 78.85 | 81.27 | 71.53 | 83 | 0 | 0 | 199.31 | 7.87 | 2.3 | 42.83 | 78 | 0.13 |
| 3-Oct-13 | 77.53 | 68.11 | 88.14 | 78.03 | 69.31 | 87.76 | 77.92 | 70.29 | 86.85 | 80.16 | 78.75 | 81.59 | 71.66 | 82 | 0 | 0 | 207.04 | 5.60 | 0.87 | 17.00 | 93 | 0.13 |
| 4-Oct-13 | 78.14 | 70.43 | 88.95 | 78.79 | 71.31 | 88.30 | 78.84 | 71.92 | 86.88 | 80.60 | 79.34 | 81.91 | 72.03 | 81 | 0 | 0 | 195.89 | 4.93 | 0 | 15.17 | 94 | 0.13 |
| 5-Oct-13 | 77.31 | 67.17 | 89.31 | 77.92 | 68.27 | 88.93 | 78.23 | 70.30 | 87.76 | 80.34 | 79.02 | 81.55 | 71.12 | 81 | 0 | 0 | 197.01 | 5.89 | 1.1 | 17.67 | 78 | 0.13 |
| 6-Oct-13 | 77.60 | 67.73 | 88.84 | 77.98 | 68.63 | 88.11 | 78.17 | 70.92 | 86.79 | 80.13 | 78.71 | 81.48 | 72.32 | 84 | 0 | 0 | 194.95 | 4.17 | 0 | 29.43 | 145 | 0.13 |
| 7-Oct-13 | 75.69 | 68.68 | 84.88 | 76.36 | 70.43 | 84.97 | 76.31 | 72.19 | 83.95 | 79.68 | 79.07 | 80.53 | 73.98 | 93 | 0.81 | 0.3 | 125.55 | 7.09 | 0.2 | 26.27 | 207 | 0.10 |
| 8-Oct-13 | 78.61 | 71.71 | 86.32 | 78.97 | 72.30 | 85.78 | 78.62 | 72.41 | 84.38 | 79.68 | 78.53 | 80.98 | 73.84 | 85 | 0 | 0 | 204.18 | 6.67 | 0.2 | 18.57 | 270 | 0.13 |
| 9-Oct-13 | 72.54 | 65.28 | 80.73 | 72.79 | 66.00 | 79.88 | 72.52 | 66.07 | 78.98 | 78.93 | 78.24 | 79.75 | 68.86 | 88 | 0 | 0 | 95.71 | 6.14 | 0.57 | 16.03 | 25 | N/A |
| 10-Oct-13 | 72.18 | 63.01 | 85.08 | 72.80 | 63.63 | 84.42 | 73.08 | 63.88 | 83.44 | 77.87 | 76.62 | 79.14 | 66.66 | 83 | 0 | 0 | 188.64 | 4.80 | 0.57 | 13.97 | 49 | 0.11 |
| 11-Oct-13 | 73.56 | 60.26 | 87.75 | 74.23 | 61.88 | 86.32 | 74.52 | 64.74 | 86.00 | 77.51 | 75.94 | 78.96 | 66.16 | 78 | 0 | 0 | 186.58 | 3.61 | 0.1 | 13.00 | 27 | N/A |
| 12-Oct-13 | 72.75 | 59.54 | 86.05 | 73.80 | 62.20 | 85.41 | 74.39 | 64.99 | 84.61 | 77.28 | 75.72 | 78.78 | 63.77 | 74 | 0 | 0 | 215.44 | 3.43 | 0 | 16.13 | 4 | 0.12 |
| 13-Oct-13 | 72.51 | 60.98 | 85.06 | 73.59 | 63.27 | 84.40 | 74.37 | 64.99 | 83.41 | 76.79 | 75.38 | 78.03 | 63.20 | 73 | 0 | 0 | 180.50 | 4.46 | 0.27 | 14.83 | 47 | 0.11 |
| 14-Oct-13 | 72.98 | 63.57 | 84.79 | 73.58 | 64.36 | 84.06 | 73.42 | 64.63 | 82.94 | 76.73 | 75.42 | 78.06 | 65.64 | 78 | 0 | 0 | 199.34 | 5.80 | 1.2 | 14.57 | 27 | 0.11 |
| 15-Oct-13 | 70.80 | 63.84 | 82.44 | 71.03 | 64.47 | 81.50 | 70.66 | 64.53 | 80.13 | 76.82 | 75.67 | 78.15 | 67.81 | 90 | 0 | 0 | 169.31 | 4.96 | 0.2 | 31.03 | 18 | 0.10 |
| 16-Oct-13 | 74.82 | 67.03 | 86.74 | 74.99 | 68.04 | 85.21 | 74.62 | 68.83 | 83.41 | 77.45 | 76.32 | 78.75 | 69.31 | 84 | 0 | 0 | 158.85 | 3.43 | 0.13 | 10.87 | 358 | 0.10 |
| 17-Oct-13 | 75.65 | 64.74 | 88.66 | 76.16 | 66.11 | 87.28 | 76.19 | 67.95 | 85.84 | 77.62 | 76.19 | 79.12 | 69.63 | 82 | 0 | 0 | 186.51 | 3.68 | 0.1 | 13.17 | 354 | 0.11 |
| 18-Oct-13 | 76.97 | 65.62 | 89.37 | 77.51 | 67.57 | 88.47 | 77.78 | 69.78 | 87.49 | 78.07 | 76.62 | 79.50 | 70.74 | 82 | 0 | 0 | 195.79 | 4.57 | 0.13 | 15.87 | 134 | 0.12 |
| 19-Oct-13 | 76.85 | 68.52 | 90.28 | 77.48 | 69.91 | 89.29 | 77.74 | 71.94 | 87.93 | 78.40 | 77.23 | 79.66 | 72.56 | 86 | 0 | 0 | 140.23 | 4.14 | 0 | 14.27 | 165 | 0.10 |
| 20-Oct-13 | 78.72 | 70.09 | 88.59 | 78.92 | 71.29 | 87.76 | 78.77 | 72.46 | 86.97 | 78.79 | 77.67 | 79.97 | 73.61 | 85 | 0 | 0 | 155.20 | 3.50 | 0 | 12.63 | 280 | 0.11 |
| 21-Oct-13 | 77.70 | 70.61 | 89.01 | 78.06 | 72.32 | 87.73 | 77.78 | 72.45 | 86.14 | 79.21 | 78.31 | 80.40 | 72.93 | 85 | 0 | 0 | 153.46 | 3.70 | 0.17 | 14.03 | 333 | 0.11 |
| 22-Oct-13 | 75.08 | 65.75 | 88.36 | 75.57 | 67.44 | 87.87 | 75.59 | 68.67 | 86.70 | 78.69 | 77.58 | 80.04 | 71.86 | 89 | 0.97 | 0.19 | 162.81 | 5.12 | 0 | 18.93 | 244 | 0.11 |
| 23-Oct-13 | 72.14 | 64.87 | 81.09 | 72.44 | 65.68 | 80.24 | 72.07 | 65.97 | 78.80 | 77.61 | 76.57 | 78.15 | 64.08 | 77 | 0 | 0 | 149.25 | 6.58 | 0.63 | 19.23 | 337 | 0.09 |
| 24-Oct-13 | 63.65 | 58.68 | 70.92 | 64.11 | 59.05 | 70.74 | 64.16 | 59.32 | 69.93 | 75.03 | 74.19 | 76.53 | 54.84 | 72 | 0 | 0 | 97.16 | 6.76 | 1.8 | 16.07 | 26 | 0.07 |
| 25-Oct-13 | 65.79 | 54.93 | 80.33 | 66.37 | 55.58 | 79.88 | 66.54 | 55.78 | 78.66 | 73.88 | 72.81 | 75.00 | 55.93 | 73 | 0 | 0 | 185.64 | 5.49 | 0.53 | 17.17 | 18 | 0.09 |

# Appendix C: Sample Event 4 Water Quality Analytical Results

o:\44237-001\Wpdocs\Report

Table C.2
Water Quality Analytical Results
(October 23 through October 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | | |
| **STE Sample** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STE | 10/24/2013 1:40:00 PM | 26.3 | 7.07 | 570 | 0.04 | 1345 | | 12 | 120 | | 53.02 | 53 | 14 | 39 | 0.02 | 39.02 | 8.9 | | | 1.1 | 48 | 0.01 | 0.01 | 2.6 | 2.3 | 0.9 | 120 | 0.09 | 41 | 0.02 | 16 | 61 | 12 | 780 | 82,000 | 24,000 |
| STE-DUP | 10/24/2013 1:45:00 PM | 26.3 | 7.07 | 570 | 0.04 | 1345 | | 14 | 120 | | 56.02 | 56 | 15 | 41 | 0.02 | 41.02 | 9 | | | 1.1 | 47 | 0.01 | 0.01 | 2.1 | 2.9 | 0.86 | 110 | 0.092 | 40 | 0.019 | 16 | 59 | 14 | 780 | 72,000 | 17,000 |
| **Treated Effluent from PNRS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BHS2-ST2 | 10/7/13 10:15 | 25.8 | 7.05 | 350 | 0.07 | 1134 | | 1 | 110 | 130 | 1.52 | 1.5 | 0.94 | 0.56 | 0.02 | 0.58 | 6.5 | | | | | | | 2.1 | 190 | | | | | | | | | | | | |
| **Groundwater Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-01 | 10/23/2013 11:44:00 AM | 25.5 | 5.34 | 29 | 4.57 | 956 | | | | 54 | 3.9 | 1.4 | 1.388 | 0.012 | 2.5 | 2.512 | 0.029 | 38 | 37 | 0.017 | 38 | 2.5 | 0.01 | 0.01 | 340 | 0.49 | 82 | 0.1 | 39 | 0.007 | 16 | 38 | | | | |
| BKG-10 | 10/25/13 10:35 | 23.1 | 3.57 | 2 | 6.38 | 368 | | | | 74 | 1.32 | 1.3 | 1.282 | 0.018 | 0.02 | 0.038 | 0.15 | 70 | 69 | 0.67 | 44 | 0.01 | 0.01 | 0.085 | 53 | 0.073 | 7.1 | 0.26 | 0.58 | 0.001 | 0.12 | 27 | | | | |
| BKG-15 | 10/25/2013 10:55:00 AM | 24.1 | 5.54 | 40 | 0.29 | 168.4 | | | | | 1.82 | 1.8 | 1.41 | 0.39 | 0.02 | 0.41 | 0.5 | | | | 12 | 0.01 | 0.01 | | 13 | | | | | | | | | | | |
| PZ-AB4-08 | 10/25/2013 10:06:00 AM | 23.6 | 4.54 | 6.1 | 1.6 | 198 | | | | | 0.56 | 0.53 | 0.487 | 0.043 | 0.03 | 0.073 | 0.35 | | | | 13 | 0.01 | 0.03 | | 39 | | | | | | | | | | | |
| PZ-AB4-15 | 10/25/2013 10:20:00 AM | 23.6 | 6.39 | 110 | 0.76 | 269 | | | | | 2.15 | 2.1 | 1.66 | 0.44 | 0.05 | 0.49 | | | | | 8.2 | 0.01 | 0.05 | | 6 | | | | | | | | | | | |
| PZ-C1 | 10/23/2013 8:54:00 AM | 24.6 | 5.99 | 140 | 3.58 | 1015 | | | | | 4.8 | 1.9 | 1.76 | 0.14 | 2.9 | 3.04 | 1.3 | | | 0.011 | 44 | 2.9 | 0.01 | 0.01 | 300 | 0.63 | 100 | 0.4 | 40 | 0.012 | 23 | 40 | | | | |
| PZ-C2 | 10/23/2013 9:10:00 AM | 24.9 | 5.23 | 17 | 0.56 | 369 | | | | | 1.08 | 0.98 | 0.62 | 0.36 | 0.1 | 0.46 | | | | | 17 | 0.1 | 0.01 | | 92 | | | | | | | | | | | |
| PZ-C3-08 | 10/23/2013 9:54:00 AM | 24.7 | 5.27 | 22 | 0.81 | 754 | | | | | 2.25 | 0.95 | 0.912 | 0.038 | 1.3 | 1.338 | 0.24 | 33 | 32 | | 28 | 1.3 | 0.01 | | 230 | | | | | | | | | | | |
| PZ-C3-15 | 10/23/2013 10:10:00 AM | 24.6 | 6.48 | 150 | 0.56 | 394 | | | | | 1.12 | 1.1 | 0.85 | 0.25 | 0.02 | 0.27 | | | | | 11 | 0.01 | 0.01 | | 29 | | | | | | | | | | | |
| PZ-C6-08 | 10/24/2013 8:40:00 AM | 23.6 | 3.97 | 2 | 0.19 | 523 | | | | | 0.54 | 0.52 | 0.474 | 0.046 | 0.02 | 0.066 | | | | | 23 | 0.01 | 0.01 | | 180 | | | | | | | | | | | |
| PZ-C6-15 | 10/24/2013 8:52:00 AM | 23.6 | 5.4 | 24 | 0.32 | 356 | | | | | 2.72 | 2.7 | 1.2 | 1.5 | 0.02 | 1.52 | | | | | 22 | 0.01 | 0.01 | | 92 | | | | | | | | | | | |
| PZ-D3-08 | 10/23/2013 10:27:00 AM | 24.8 | 5.48 | 12 | 2.4 | 659 | | | | | 2.5 | 1 | 0.985 | 0.015 | 1.5 | 1.515 | 0.15 | | | | 26 | 1.5 | 0.01 | | 240 | | | | | | | | | | | |
| PZ-D3-15 | 10/23/2013 10:39:00 AM | 24.9 | 6.37 | 120 | 1.02 | 315 | | | | | 0.93 | 0.83 | 0.6 | 0.23 | 0.1 | 0.33 | 0.8 | | | | 8.3 | 0.02 | 0.08 | | 7.4 | | | | | | | | | | | |
| PZ-D4-08 | 10/23/2013 12:01:00 PM | 25 | 4.55 | 2 | 2.24 | 949 | | | | | 1.83 | 0.9 | 0.887 | 0.013 | 0.93 | 0.943 | | | | | 38 | 0.93 | 0.01 | | 350 | | | | | | | | | | | |
| PZ-D4-15 | 10/23/2013 12:15:00 PM | 24.7 | 6.47 | 130 | 0.24 | 567 | | | | | 0.84 | 0.82 | 0.6 | 0.22 | 0.02 | 0.24 | | | | | 15 | 0.01 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-E1 | 10/23/2013 8:40:00 AM | 25.4 | 5.01 | 31 | 1.39 | 555 | | | | | 1.08 | 0.94 | 0.7 | 0.24 | 0.14 | 0.38 | 0.13 | | | | 24 | 0.14 | 0.01 | | 160 | | | | | | | | | | | |
| PZ-E2 | 10/23/2013 9:23:00 AM | 24.9 | 5.69 | 37 | 3.91 | 321 | | | | | 0.93 | 0.91 | 0.63 | 0.28 | 0.02 | 0.3 | | | | | 16 | 0.01 | 0.01 | | 68 | | | | | | | | | | | |
| PZ-E3-08 | 10/23/2013 10:53:00 AM | 25.2 | 5.74 | 57 | 0.97 | 1011 | | | | 80 | 10.2 | 3.2 | 2.94 | 0.26 | 7 | 7.26 | 0.15 | 50 | 47 | 0.02 | 40 | 7 | 0.01 | 0.01 | 330 | 0.56 | 100 | 1.5 | 47 | 0.002 | 25 | 39 | | | | |
| PZ-E3-15 | 10/23/2013 11:11:00 AM | 25.1 | 6.04 | 57 | 0.31 | 208 | | | | 10 | 2.04 | 2 | 1.8 | 0.2 | 0.04 | 0.24 | 5.4 | | | | 9.5 | 0.04 | 0.01 | | 21 | | | | | | | | | | | |
| PZ-E4-08 | 10/23/2013 12:30:00 PM | 25.2 | 4.73 | 2 | 0.95 | 849 | | | | 43 | 2.6 | 1.1 | 1.091 | 0.009 | 1.5 | 1.509 | 0.13 | | | | 30 | 1.5 | 0.01 | | 320 | | | | | | | | | | | |
| PZ-E4-15 | 10/23/2013 12:43:00 PM | 24.9 | 6.42 | 130 | 0.16 | 422 | | | | | 0.84 | 0.82 | 0.56 | 0.26 | 0.02 | 0.28 | | | | | 12 | 0.02 | 0.01 | | 42 | | | | | | | | | | | |
| PZ-E5-08 | 10/24/2013 8:14:00 AM | 24 | 4.31 | 2 | 0.84 | 637 | | | | | 0.85 | 0.82 | 0.787 | 0.033 | 0.03 | 0.063 | | | | | 26 | 0.03 | 0.01 | | 230 | | | | | | | | | | | |
| PZ-E5-15 | 10/24/2013 8:27:00 AM | 24.1 | 6.19 | 90 | 0.18 | 595 | | | | | 0.66 | 0.64 | 0.42 | 0.22 | 0.02 | 0.24 | | | | | 19 | 0.01 | 0.01 | | 160 | | | | | | | | | | | |
| PZ-E6-08 | 10/24/2013 8:59:00 AM | 23.7 | 4.17 | 2 | 0.94 | 743 | | | | | 0.81 | 0.79 | 0.726 | 0.064 | 0.02 | 0.084 | | | | | 26 | 0.01 | 0.01 | | 270 | | | | | | | | | | | |
| PZ-E6-15 | 10/24/2013 9:13:00 AM | 23.7 | 4.84 | 6.9 | 0.29 | 518 | | | | | 1.82 | 1.8 | 0.87 | 0.93 | 0.02 | 0.95 | | | | | 29 | 0.01 | 0.01 | | 180 | | | | | | | | | | | |
| PZ-E7-08 | 10/24/2013 9:53:00 AM | 23.9 | 4.48 | 2 | 0.29 | 702 | | | | 10 | 0.52 | 0.49 | 0.475 | 0.015 | 0.03 | 0.045 | 0.077 | 24 | 22 | 0.15 | 28 | 0.03 | 0.01 | 0.01 | 250 | 0.36 | 56 | 0.69 | 26 | 0.009 | 9.2 | 33 | | | | |
| PZ-E7-15 | 10/24/2013 10:07:00 AM | 23.8 | 6.61 | 240 | 0.3 | 953 | | | | 24 | 0.86 | 0.84 | 0.51 | 0.33 | 0.02 | 0.35 | 0.29 | | | | 18 | 0.01 | 0.01 | | 190 | | | | | | | | | | | |
| PZ-E7-15-DUP | 10/24/2013 10:12:00 AM | 23.8 | 6.61 | 250 | 0.3 | 953 | | | | 43 | 0.86 | 0.84 | 0.52 | 0.32 | 0.02 | 0.34 | 0.29 | | | | 17 | 0.01 | 0.01 | | 190 | | | | | | | | | | | |
| PZ-F3-15 | 10/23/2013 11:39:00 AM | 25.1 | 6.31 | 110 | 1.52 | 281 | | | | 10 | 1.88 | 1.8 | 1.57 | 0.23 | 0.08 | 0.31 | 5.7 | | | | 8.6 | 0.01 | 0.08 | | 4.2 | | | | | | | | | | | |
| PZ-F4-08 | 10/23/2013 12:57:00 PM | 25.4 | 4.78 | 4.2 | 1.2 | 728 | | | | 65 | 2.4 | 1.2 | 1.191 | 0.009 | 1.2 | 1.209 | 0.17 | 43 | 42 | 0.14 | 25 | 1.2 | 0.01 | 0.027 | 270 | 0.28 | 66 | 0.31 | 30 | 0.004 | 6.9 | 30 | | | | |
| PZ-F4-15 | 10/23/2013 1:14:00 PM | 25 | 6.54 | 150 | 0.07 | 487 | | | | 28 | 0.82 | 0.76 | 0.54 | 0.22 | 0.06 | 0.28 | 0.19 | | | | 15 | 0.06 | 0.01 | | 62 | | | | | | | | | | | |
| PZ-G2-12.5 | 10/23/2013 9:40:00 AM | 25.6 | 4.29 | 2 | 0.56 | 884 | | | | 21 | 1.59 | 0.59 | 0.581 | 0.009 | 1 | 1.009 | | | | | 42 | 1 | 0.01 | | 320 | | | | | | | | | | | |
| PZ-H4-08 | 10/23/2013 1:29:00 PM | 25.3 | 4.52 | 2 | 1.39 | 840 | | | | 26 | 2.68 | 0.68 | 0.671 | 0.009 | 2 | 2.009 | 0.022 | 19 | 19 | 0.077 | 34 | 2 | 0.01 | 0.01 | 310 | 0.43 | 75 | 0.27 | 38 | 0.003 | 10 | 36 | | | | |
| PZ-H4-15 | 10/23/2013 1:48:00 PM | 25 | 6.52 | 150 | 0.41 | 637 | | | | 39 | 1.21 | 0.99 | 0.62 | 0.37 | 0.22 | 0.59 | 1.6 | | | | 19 | 0.22 | 0.01 | | 160 | | | | | | | | | | | |
| PZ-H5-11.5 | 10/24/2013 1:23:00 PM | 24.2 | 4.4 | 2 | 2.35 | 645 | | | | 35 | 0.67 | 0.52 | 0.511 | 0.009 | 0.15 | 0.159 | 0.052 | | | | 32 | 0.15 | 0.01 | | 220 | | | | | | | | | | | |

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Table C.2 (con't)
Water Quality Analytical Results
(October 23 through October 25, 2013)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity (mg/L) | DO (mg/L) | Specific Conductance (µS) | TDS (mg/L) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TSS (mg/L) | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | | |
| PZ-I6-08 | 10/24/2013 12:47:00 PM | 23.7 | 4.36 | 2 | 2.31 | 300 | | | | 37 | 0.68 | 0.66 | 0.59 | 0.07 | 0.02 | 0.09 | 0.56 | 31 | 31 | 0.42 | 19 | 0.01 | 0.01 | 0.24 | 80 | 0.12 | 28 | 1.8 | 12 | 0.008 | 1.4 | 13 | | | | |
| PZ-I6-15 | 10/24/2013 1:05:00 PM | 23.9 | 6.62 | 160 | 0.1 | 776 | | | | | 0.83 | 0.81 | 0.51 | 0.3 | 0.02 | 0.32 | | | | | 18 | 0.01 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-I6-15-DUP | 10/24/2013 1:10:00 PM | 23.9 | 6.62 | 180 | 0.1 | 776 | | | | | 0.92 | 0.9 | 0.61 | 0.29 | 0.02 | 0.31 | | | | | 18 | 0.01 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-I10-08 | 10/24/2013 10:23:00 AM | 23.8 | 4.87 | 6.4 | 0.46 | 353 | | | | 21 | 1.82 | 1.8 | 1.63 | 0.17 | 0.02 | 0.19 | 0.048 | | | | 27 | 0.02 | 0.01 | | 95 | | | | | | | | | | | |
| PZ-I10-15 | 10/24/2013 10:35:00 AM | 23.8 | 5.87 | 50 | 0.13 | 501 | | | | | 0.97 | 0.95 | 0.55 | 0.4 | 0.02 | 0.42 | | | | | 24 | 0.01 | 0.01 | | 140 | | | | | | | | | | | |
| PZ-J4-15 | 10/25/2013 9:52:00 AM | 24.1 | 6.12 | 51 | 0.69 | 437 | | | | 19 | 3.12 | 2.4 | 1.6 | 0.8 | 0.72 | 1.52 | 0.33 | | | | 29 | 0.72 | 0.01 | | 110 | | | | | | | | | | | |
| PZ-J7-08 | 10/24/2013 12:10:00 PM | 23.3 | 4.61 | 2.7 | 3.25 | 258 | | | | 28 | 0.61 | 0.55 | 0.521 | 0.029 | 0.06 | 0.089 | 0.05 | 28 | 27 | 0.098 | 18 | 0.06 | 0.01 | 0.01 | 62 | 0.096 | 22 | 0.54 | 8.8 | 0.002 | 0.84 | 9.3 | | | | |
| PZ-J7-15 | 10/24/2013 12:25:00 PM | 23.9 | 5.03 | 9.1 | 0.16 | 437 | | | | 63 | 3.9 | 3.5 | 3.24 | 0.26 | 0.4 | 0.66 | 0.27 | 34 | 33 | 0.018 | 32 | 0.4 | 0.01 | 0.01 | 120 | 0.15 | 46 | 0.34 | 13 | 0.003 | 1.5 | 11 | | | | |
| PZ-J7-15-DUP | 10/24/2013 12:30:00 PM | 23.9 | 5.03 | 8.3 | 0.16 | 437 | | | | 10 | 3.9 | 3.5 | 3.25 | 0.25 | 0.4 | 0.65 | 0.26 | 34 | 33 | 0.014 | 33 | 0.4 | 0.01 | 0.01 | 120 | 0.16 | 46 | 0.26 | 13 | 0.003 | 1.6 | 11 | | | | |
| PZ-N4-15 | 10/25/2013 9:39:00 AM | 22.3 | 6.31 | 110 | 0.53 | 386 | | | | 91 | 2.62 | 2.6 | 2.1 | 0.5 | 0.02 | 0.52 | 7.3 | | | | 13 | 0.01 | 0.01 | | 64 | | | | | | | | | | | |
| PZ-N4-15-DUP | 10/25/2013 9:34:00 AM | 22.3 | 6.31 | 100 | 0.53 | 386 | | | | | 2.82 | 2.8 | 2.28 | 0.52 | 0.02 | 0.54 | | | | | 13 | 0.01 | 0.01 | | 62 | | | | | | | | | | | |
| PZ-N7-08 | 10/24/2013 11:41:00 AM | 23.4 | 5.63 | 37 | 1.98 | 390 | | | | | 1.05 | 0.98 | 0.67 | 0.31 | 0.07 | 0.38 | | | | | 25 | 0.07 | 0.01 | | 78 | | | | | | | | | | | |
| PZ-N7-15 | 10/24/2013 11:54:00 AM | 23.8 | 5.42 | 18 | 0.9 | 478 | | | | | 1.02 | 1 | 0.66 | 0.34 | 0.02 | 0.36 | | | | | 24 | 0.01 | 0.01 | | 150 | | | | | | | | | | | |
| PZ-N7-15-DUP | 10/24/2013 11:59:00 AM | 23.8 | 5.42 | 18 | 0.9 | 478 | | | | | 1.02 | 1 | 0.66 | 0.34 | 0.02 | 0.36 | | | | | 24 | 0.01 | 0.01 | | 150 | | | | | | | | | | | |
| PZ-N10-08 | 10/24/2013 10:58:00 AM | 23.7 | 5.52 | 26 | 1.03 | 289 | | | | 48 | 0.82 | 0.8 | 0.723 | 0.077 | 0.02 | 0.097 | 0.14 | 40 | 40 | 0.13 | 20 | 0.01 | 0.01 | 0.026 | 48 | 0.05 | 25 | 0.33 | 6.5 | 0.01 | 0.59 | 11 | | | | |
| PZ-N10-15 | 10/24/2013 11:12:00 AM | 23.6 | 6.55 | 150 | 0.11 | 568 | | | | | 0.91 | 0.89 | 0.55 | 0.34 | 0.02 | 0.36 | | | | | 16 | 0.01 | 0.01 | | 76 | | | | | | | | | | | |
| PZ-S10-08 | 10/24/2013 11:25:00 AM | 23.9 | 4.96 | 3.3 | 0.16 | 242 | | | | 21 | 1.01 | 0.99 | 0.58 | 0.41 | 0.02 | 0.43 | 0.023 | | | | 17 | 0.01 | 0.01 | | 59 | | | | | | | | | | | |
| PZ-S10-08-DUP | 10/24/2013 11:30:00 AM | 23.9 | 4.96 | 3.1 | 0.16 | 242 | | | | 19 | 1.02 | 1 | 0.6 | 0.4 | 0.02 | 0.42 | 0.025 | | | | 17 | 0.01 | 0.01 | | 60 | | | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-DI | 10/24/2013 1:35:00 PM | 20.1 | 5.73 | 2 | 8.37 | 86.2 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.02 | 0.024 | 0.2 | 0.05 | 0.042 | 0.02 | 0.022 | 0.001 | 0.27 | 0.51 | | | | |
| EB | 10/24/2013 1:25:00 PM | 20.1 | 5.73 | 2 | 8.37 | 86.2 | | | | 10 | 0.07 | 0.05 | 0.041 | 0.009 | 0.02 | 0.029 | 0.01 | 0.06 | 0.06 | 0.01 | 0.067 | 0.01 | 0.01 | 0.01 | 0.2 | 0.05 | 0.042 | 0.02 | 0.02 | 0.001 | 0.25 | 0.28 | | | | |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.
Orange - shaded data points indicate too many colonies were present. The numeric value represents the dilution factor times the maximum reportable number of colonies.

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# Appendix D: Summary of Water Quality Data

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Table D.1
Summary of Water Quality Data

| Sample ID | Statistical Parameter | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| STE | n | 5 | 5 | 2 | 5 | 5 | 3 | 4 | 1 | 5 | 4 | 5 | 4 | 5 | 5 | 2 | 0 | 0 | 2 | 2 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 |
| | MEAN | 24.58 | 7.12 | 515.00 | 0.20 | 1367.40 | 35.33 | 97.75 | 120.00 | 57.44 | 54.75 | 12.80 | 42.00 | 0.04 | 44.64 | 12.45 | | | 1.75 | 46.00 | 0.04 | 0.01 | 3.50 | 111.15 | 0.80 | 125.00 | 0.10 | 42.00 | 0.03 | 19.00 | 51.50 | 780.00 | 82,000 | 24,000 |
| | STD. DEV. | 1.90 | | 77.78 | 0.19 | 54.80 | | 39.84 | | 6.27 | 2.36 | 3.27 | 3.46 | 0.01 | 6.54 | 5.02 | | | 0.92 | 2.83 | 0.02 | 0.00 | 1.27 | 153.94 | 0.15 | 7.07 | 0.01 | 1.41 | 0.01 | 4.24 | 13.44 | 0.00 | | |
| | MIN | 22.40 | 6.96 | 460.00 | 0.04 | 1327.00 | 12.00 | 41.00 | 120.00 | 53.02 | 53.00 | 8.00 | 39.00 | 0.02 | 39.02 | 8.90 | | | 1.10 | 44.00 | 0.01 | 0.01 | 2.60 | 2.30 | 0.69 | 120.00 | 0.09 | 41.00 | 0.02 | 16.00 | 42.00 | 780.00 | 82,000 | 24,000 |
| | MAX | 26.80 | 7.38 | 570.00 | 0.40 | 1463.00 | 58.00 | 130.00 | 120.00 | 68.03 | 58.00 | 17.00 | 47.00 | 0.05 | 55.03 | 16.00 | | | 2.40 | 48.00 | 0.05 | 0.01 | 4.40 | 220.00 | 0.90 | 130.00 | 0.11 | 43.00 | 0.03 | 22.00 | 61.00 | 780.00 | 82,000 | 24,000 |
| BHS2-ST2 (treated effluent) | n | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |
| | MEAN | 23.05 | 6.86 | 336.67 | 0.13 | 1207.33 | 5.83 | 74.67 | 163.33 | 3.14 | 3.12 | 1.22 | 1.89 | 0.02 | 1.91 | 5.18 | | | | | | | 2.41 | 191.67 | | | | | | | | | 112.50 | 29.00 |
| | STD. DEV. | 3.54 | | 68.90 | 0.06 | 68.75 | 5.19 | 33.70 | 92.45 | 2.30 | 2.30 | 0.25 | 2.09 | 0.00 | 2.09 | 3.21 | | | | | | | 1.14 | 24.83 | | | | | | | | | | |
| | MIN | 16.50 | 6.51 | 220.00 | 0.07 | 1134.00 | 1.00 | 32.00 | 10.00 | 1.42 | 1.40 | 0.94 | 0.37 | 0.02 | 0.39 | 2.40 | | | | | | | 0.85 | 170.00 | | | | | | | | | 10.00 | 29.00 |
| | MAX | 26.10 | 7.05 | 410.00 | 0.24 | 1303.00 | 15.00 | 110.00 | 260.00 | 6.52 | 6.50 | 1.50 | 5.00 | 0.02 | 5.02 | 11.00 | | | | | | | 4.10 | 240.00 | | | | | | | | | 200.00 | 29.00 |
| PZ-01 | n | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 1 | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 24.80 | 5.12 | 17.50 | 3.31 | 740.00 | | | 81.25 | 5.28 | 2.00 | 1.95 | 0.05 | 3.28 | 3.33 | 8.23 | 38.00 | 37.00 | 0.02 | 33.00 | 1.34 | 0.01 | 0.01 | 330.00 | 0.49 | 82.00 | 0.10 | 39.00 | 0.01 | 16.00 | 38.00 | | | |
| | STD. DEV. | 2.41 | | 11.62 | 1.67 | 203.73 | | | 66.11 | 5.50 | 1.54 | 1.57 | 0.05 | 3.98 | 3.95 | 14.57 | | | | 4.36 | 1.09 | 0.00 | | 14.14 | | | | | | | | | | |
| | MIN | 21.30 | 4.30 | 2.00 | 0.86 | 491.00 | | | 40.00 | 1.53 | 1.10 | 0.97 | 0.01 | 0.33 | 0.38 | 0.03 | 38.00 | 37.00 | 0.02 | 30.00 | 0.33 | 0.01 | 0.01 | 320.00 | 0.49 | 82.00 | 0.10 | 39.00 | 0.01 | 16.00 | 38.00 | | | |
| | MAX | 26.80 | 5.65 | 29.00 | 4.57 | 956.00 | | | 180.00 | 13.40 | 4.30 | 4.28 | 0.13 | 9.10 | 9.12 | 30.00 | 38.00 | 37.00 | 0.02 | 38.00 | 2.50 | 0.01 | 0.01 | 340.00 | 0.49 | 82.00 | 0.10 | 39.00 | 0.01 | 16.00 | 38.00 | | | |
| PZ-02 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-03 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| | MAX | 26.60 | 3.50 | 2.00 | 1.20 | 210.00 | | | 56.00 | 1.22 | 1.20 | 1.15 | 0.05 | 0.02 | 0.07 | 11.00 | | | | 11.00 | | | | | | | | | | | | | | |
| PZ-04 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| | MAX | 27.80 | 3.90 | 2.00 | 7.07 | 801.00 | | | 44.00 | 1.00 | 0.95 | 0.94 | 0.01 | 0.05 | 0.06 | 25.00 | | | | 25.00 | | | | | | | | | | | | | | |
| PZ-06 | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |
| | MAX | 26.10 | 4.80 | 8.40 | 4.00 | 380.00 | | | 67.00 | 2.11 | 2.00 | 1.84 | 0.16 | 0.11 | 0.27 | 14.00 | | | | 14.00 | | | | | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| BKG-10 | n | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 23.60 | 4.05 | 2.60 | 5.92 | 278.00 | 99.00 | 2.00 | 64.67 | 1.30 | 1.26 | 1.19 | 0.08 | 0.04 | 0.11 | 0.42 | 46.00 | 48.00 | 0.30 | 29.67 | 0.03 | 0.01 | 0.06 | 40.33 | 0.06 | 5.97 | 1.16 | 1.14 | 0.002 | 0.39 | 17.57 | | | |
| | STD. DEV. | 2.29 | | 1.04 | 1.03 | 127.58 | | | 17.04 | 0.63 | 0.66 | 0.61 | 0.07 | 0.03 | 0.07 | 0.51 | 33.94 | 29.70 | 0.34 | 16.26 | 0.03 | 0.01 | 0.04 | 21.08 | 0.01 | 2.14 | 1.18 | 0.84 | 0.00 | 0.26 | 9.16 | | | |
| | MIN | 21.60 | 3.57 | 2.00 | 4.74 | 132.00 | 99.00 | 2.00 | 45.00 | 0.66 | 0.59 | 0.54 | 0.02 | 0.02 | 0.04 | 0.10 | 22.00 | 27.00 | 0.01 | 12.00 | 0.01 | 0.01 | 0.01 | 16.00 | 0.05 | 3.50 | 0.26 | 0.58 | 0.001 | 0.12 | 8.70 | | | |
| | MAX | 26.10 | 4.76 | 3.80 | 6.63 | 368.00 | 99.00 | 2.00 | 75.00 | 1.92 | 1.90 | 1.74 | 0.16 | 0.07 | 0.18 | 1.00 | 70.00 | 69.00 | 0.67 | 44.00 | 0.06 | 0.02 | 0.09 | 53.00 | 0.07 | 7.30 | 2.50 | 2.10 | 0.003 | 0.64 | 27.00 | | | |
| BKG-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 2 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.45 | 5.59 | 36.25 | 0.21 | 143.70 | 1.80 | 0.64 | 108.50 | 2.29 | 2.13 | 1.74 | 0.53 | 0.05 | 0.55 | 1.56 | | | | 12.00 | 0.03 | 0.03 | | 13.00 | | | | | | | | | | |
| | STD. DEV. | 1.15 | | 3.30 | 0.07 | 20.02 | | | 30.41 | 0.64 | 0.59 | 0.63 | 0.10 | 0.05 | 0.14 | 1.26 | | | | 0.00 | 0.02 | 0.03 | | 0.00 | | | | | | | | | | |
| | MIN | 21.90 | 5.15 | 33.00 | 0.11 | 124.00 | 1.80 | 0.64 | 87.00 | 1.82 | 1.80 | 1.34 | 0.39 | 0.02 | 0.41 | 0.50 | | | | 12.00 | 0.01 | 0.01 | | 13.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.89 | 40.00 | 0.29 | 168.40 | 1.80 | 0.64 | 130.00 | 3.02 | 3.00 | 2.46 | 0.64 | 0.13 | 0.69 | 3.20 | | | | 12.00 | 0.06 | 0.07 | | 13.00 | | | | | | | | | | |
| PZ-AB4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.83 | 4.84 | 4.10 | 1.92 | 312.00 | | | 22.00 | 0.58 | 0.52 | 0.33 | 0.20 | 0.06 | 0.26 | 0.27 | | | | 14.50 | 0.05 | 0.02 | | 84.50 | | | | | | | | | | |
| | STD. DEV. | 0.87 | | 2.05 | 0.40 | 105.79 | | | 16.97 | 0.40 | 0.44 | 0.27 | 0.25 | 0.05 | 0.23 | 0.21 | | | | 2.12 | 0.06 | 0.01 | | 64.35 | | | | | | | | | | |
| | MIN | 23.10 | 4.09 | 2.00 | 1.60 | 198.00 | | | 10.00 | 0.20 | 0.08 | 0.02 | 0.04 | 0.03 | 0.07 | 0.03 | | | | 13.00 | 0.01 | 0.01 | | 39.00 | | | | | | | | | | |
| | MAX | 24.80 | 6.09 | 6.10 | 2.37 | 407.00 | | | 34.00 | 0.99 | 0.96 | 0.49 | 0.48 | 0.12 | 0.51 | 0.43 | | | | 16.00 | 0.12 | 0.03 | | 130.00 | | | | | | | | | | |
| PZ-AB4-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.33 | 6.51 | 115.00 | 2.73 | 317.75 | 1.90 | 0.33 | | 2.47 | 2.27 | 2.00 | 0.38 | 0.08 | 0.47 | | | | | 8.10 | 0.05 | 0.04 | | 6.10 | | | | | | | | | | |
| | STD. DEV. | 1.33 | | 7.07 | 2.78 | 92.80 | | | | 1.80 | 1.47 | 1.90 | 0.11 | 0.02 | 0.10 | | | | | 0.14 | 0.04 | 0.02 | | 0.14 | | | | | | | | | | |
| | MIN | 21.50 | 5.94 | 110.00 | 0.19 | 260.00 | 1.90 | 0.33 | | 0.85 | 0.79 | 0.29 | 0.26 | 0.05 | 0.36 | | | | | 8.00 | 0.01 | 0.01 | | 6.00 | | | | | | | | | | |
| | MAX | 24.70 | 7.24 | 120.00 | 6.13 | 456.00 | 1.90 | 0.33 | | 4.40 | 4.30 | 4.04 | 0.50 | 0.10 | 0.56 | | | | | 8.20 | 0.09 | 0.05 | | 6.20 | | | | | | | | | | |
| PZ-C1 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 0 | 0 | 1 | 2 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 24.73 | 5.95 | 135.00 | 4.71 | 967.00 | | | | 3.57 | 1.39 | 1.34 | 0.05 | 2.18 | 2.23 | 1.30 | | | 0.01 | 43.00 | 2.18 | 0.01 | 0.01 | 305.00 | 0.63 | 100.00 | 0.40 | 40.00 | 0.01 | 23.00 | 40.00 | | | |
| | STD. DEV. | 2.20 | | 7.07 | 1.05 | 139.34 | | | | 1.49 | 0.47 | 0.40 | 0.07 | 1.08 | 1.13 | | | | | 1.41 | 1.08 | 0.00 | | 7.07 | | | | | | | | | | |
| | MIN | 22.60 | 5.69 | 130.00 | 3.58 | 810.00 | | | | 1.91 | 0.98 | 0.97 | 0.01 | 0.93 | 0.94 | 1.30 | | | 0.01 | 42.00 | 0.93 | 0.01 | 0.01 | 300.00 | 0.63 | 100.00 | 0.40 | 40.00 | 0.01 | 23.00 | 40.00 | | | |
| | MAX | 27.00 | 6.18 | 140.00 | 5.65 | 1076.00 | | | | 4.80 | 1.90 | 1.76 | 0.14 | 2.90 | 3.04 | 1.30 | | | 0.01 | 44.00 | 2.90 | 0.01 | 0.01 | 310.00 | 0.63 | 100.00 | 0.40 | 40.00 | 0.01 | 23.00 | 40.00 | | | |
| PZ-C2 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 19.56 | 7.63 | 19.50 | 0.53 | 282.08 | 1.00 | 0.44 | | 0.90 | 0.88 | 0.45 | 0.40 | 0.05 | 0.45 | | | | | 18.50 | 0.05 | 0.01 | | 96.00 | | | | | | | | | | |
| | STD. DEV. | 9.40 | | 3.54 | 0.17 | 108.62 | | | | 0.27 | 0.23 | 0.25 | 0.04 | 0.04 | 0.02 | | | | | 2.12 | 0.04 | 0.00 | | 5.66 | | | | | | | | | | |
| | MIN | 5.52 | 5.07 | 17.00 | 0.30 | 157.30 | 1.00 | 0.44 | | 0.59 | 0.53 | 0.16 | 0.36 | 0.02 | 0.43 | | | | | 17.00 | 0.01 | 0.01 | | 92.00 | | | | | | | | | | |
| | MAX | 24.90 | 21.70 | 22.00 | 0.71 | 377.00 | 1.00 | 0.44 | | 1.08 | 1.00 | 0.62 | 0.44 | 0.10 | 0.46 | | | | | 20.00 | 0.10 | 0.01 | | 100.00 | | | | | | | | | | |
| PZ-C3-08 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.30 | 5.03 | 13.55 | 2.45 | 708.00 | | | | 1.77 | 0.74 | 0.63 | 0.11 | 1.03 | 1.14 | 0.24 | 33.00 | 32.00 | | 33.00 | 1.03 | 0.01 | | 280.00 | | | | | | | | | | |
| | STD. DEV. | 1.15 | | 11.95 | 2.64 | 250.19 | | | | 0.72 | 0.28 | 0.27 | 0.11 | 0.84 | 0.74 | | | | | 7.07 | 0.84 | 0.00 | | 70.71 | | | | | | | | | | |
| | MIN | 23.00 | 4.69 | 5.10 | 0.81 | 438.00 | | | | 0.94 | 0.42 | 0.37 | 0.04 | 0.08 | 0.32 | 0.24 | 33.00 | 32.00 | | 28.00 | 0.08 | 0.01 | | 230.00 | | | | | | | | | | |
| | MAX | 25.20 | 5.27 | 22.00 | 5.49 | 932.00 | | | | 2.25 | 0.95 | 0.91 | 0.24 | 1.70 | 1.75 | 0.24 | 33.00 | 32.00 | | 38.00 | 1.70 | 0.01 | | 330.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-C3-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.70 | 6.62 | 150.00 | 1.25 | 460.50 | 1.10 | 0.43 | | 0.84 | 0.85 | 0.47 | 0.33 | 0.06 | 0.36 | | | | | 11.00 | 0.04 | 0.03 | | 38.50 | | | | | | | | | | |
| | STD. DEV. | 1.17 | | 0.00 | 0.67 | 53.61 | | | | 0.26 | 0.29 | 0.33 | 0.08 | 0.07 | 0.10 | | | | | | 0.03 | 0.04 | | 13.44 | | | | | | | | | | |
| | MIN | 22.00 | 6.48 | 150.00 | 0.56 | 394.00 | 1.10 | 0.43 | | 0.60 | 0.57 | 0.24 | 0.25 | 0.02 | 0.27 | | | | | 11.00 | 0.01 | 0.01 | | 29.00 | | | | | | | | | | |
| | MAX | 24.60 | 6.82 | 150.00 | 2.12 | 516.00 | 1.10 | 0.43 | | 1.12 | 1.10 | 0.85 | 0.43 | 0.17 | 0.46 | | | | | 11.00 | 0.09 | 0.08 | | 48.00 | | | | | | | | | | |
| PZ-C6-08 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.05 | 4.08 | 2.00 | 1.29 | 516.00 | 0.77 | 0.12 | | 0.63 | 0.62 | 0.47 | 0.10 | 0.06 | 0.16 | | | | | 21.50 | 0.05 | 0.01 | | 180.00 | | | | | | | | | | |
| | STD. DEV. | 1.12 | | 0.00 | 1.23 | 102.61 | | | | 0.29 | 0.29 | 0.29 | 0.05 | 0.06 | 0.08 | | | | | 2.12 | 0.06 | 0.00 | | 0.00 | | | | | | | | | | |
| | MIN | 21.80 | 3.75 | 2.00 | 0.19 | 401.00 | 0.77 | 0.12 | | 0.40 | 0.26 | 0.19 | 0.05 | 0.02 | 0.07 | | | | | 20.00 | 0.01 | 0.01 | | 180.00 | | | | | | | | | | |
| | MAX | 24.30 | 4.40 | 2.00 | 2.36 | 649.00 | 0.77 | 0.12 | | 0.95 | 0.93 | 0.76 | 0.17 | 0.14 | 0.21 | | | | | 23.00 | 0.14 | 0.01 | | 180.00 | | | | | | | | | | |
| PZ-C6-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.05 | 5.46 | 24.00 | 1.71 | 366.75 | 0.71 | 0.32 | | 2.40 | 1.95 | 1.20 | 0.95 | 0.04 | 1.20 | | | | | 29.50 | 0.03 | 0.01 | | 83.00 | | | | | | | | | | |
| | STD. DEV. | 0.72 | | 0.00 | 2.01 | 17.86 | | | | 1.46 | 1.44 | 0.60 | 0.82 | 0.02 | 0.88 | | | | | 10.61 | 0.03 | 0.00 | | 12.73 | | | | | | | | | | |
| | MIN | 22.00 | 5.13 | 24.00 | 0.08 | 351.00 | 0.71 | 0.32 | | 0.80 | 0.71 | 0.60 | 0.18 | 0.02 | 0.20 | | | | | 22.00 | 0.01 | 0.01 | | 74.00 | | | | | | | | | | |
| | MAX | 23.60 | 5.77 | 24.00 | 4.45 | 391.00 | 0.71 | 0.32 | | 3.67 | 3.60 | 1.80 | 1.80 | 0.07 | 1.87 | | | | | 37.00 | 0.07 | 0.01 | | 92.00 | | | | | | | | | | |
| PZ-D3-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.27 | 5.15 | 8.87 | 2.35 | 648.67 | | | 37.00 | 1.58 | 0.68 | 0.64 | 0.04 | 0.90 | 0.94 | 0.24 | | | | 31.00 | 0.90 | 0.01 | | 285.00 | | | | | | | | | | |
| | STD. DEV. | 1.10 | | 4.59 | 1.54 | 258.65 | | | 7.07 | 0.85 | 0.45 | 0.44 | 0.05 | 0.53 | 0.50 | 0.19 | | | | 7.07 | 0.53 | 0.00 | | 63.64 | | | | | | | | | | |
| | MIN | 23.00 | 4.69 | 3.60 | 0.78 | 385.00 | | | 32.00 | 0.84 | 0.16 | 0.15 | 0.01 | 0.51 | 0.61 | 0.11 | | | | 26.00 | 0.51 | 0.01 | | 240.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.48 | 12.00 | 3.86 | 902.00 | | | 42.00 | 2.50 | 1.00 | 0.99 | 0.10 | 1.50 | 1.52 | 0.46 | | | | 36.00 | 1.50 | 0.01 | | 330.00 | | | | | | | | | | |
| PZ-D3-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 3 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.88 | 6.59 | 140.00 | 3.25 | 476.25 | 1.00 | 0.41 | 64.00 | 1.16 | 1.07 | 0.62 | 0.46 | 0.07 | 0.55 | 2.35 | | | | 9.15 | 0.03 | 0.05 | | 12.20 | | | | | | | | | | |
| | STD. DEV. | 1.35 | | 23.09 | 2.40 | 227.98 | | | 11.36 | 0.67 | 0.59 | 0.37 | 0.31 | 0.04 | 0.33 | 2.14 | | | | 1.20 | 0.02 | 0.04 | | 6.79 | | | | | | | | | | |
| | MIN | 22.00 | 6.37 | 120.00 | 1.02 | 315.00 | 1.00 | 0.41 | 56.00 | 0.64 | 0.54 | 0.26 | 0.23 | 0.02 | 0.33 | 0.80 | | | | 8.30 | 0.01 | 0.01 | | 7.40 | | | | | | | | | | |
| | MAX | 24.90 | 6.74 | 160.00 | 6.31 | 811.00 | 1.00 | 0.41 | 77.00 | 1.92 | 1.90 | 0.99 | 0.91 | 0.10 | 0.93 | 5.50 | | | | 10.00 | 0.05 | 0.08 | | 17.00 | | | | | | | | | | |
| PZ-D4-08 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.97 | 4.67 | 2.00 | 1.68 | 726.67 | | | | 1.11 | 0.67 | 0.61 | 0.06 | 0.44 | 0.50 | | | | | 33.50 | 0.44 | 0.01 | | 310.00 | | | | | | | | | | |
| | STD. DEV. | 1.79 | | 0.00 | 0.85 | 219.55 | | | | 0.62 | 0.24 | 0.25 | 0.07 | 0.46 | 0.40 | | | | | 6.36 | 0.46 | 0.00 | | 56.57 | | | | | | | | | | |
| | MIN | 21.90 | 4.27 | 2.00 | 0.70 | 510.00 | | | | 0.72 | 0.43 | 0.40 | 0.01 | 0.03 | 0.17 | | | | | 29.00 | 0.03 | 0.01 | | 270.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.25 | 2.00 | 2.24 | 949.00 | | | | 1.83 | 0.90 | 0.89 | 0.14 | 0.93 | 0.94 | | | | | 38.00 | 0.93 | 0.01 | | 350.00 | | | | | | | | | | |
| PZ-D4-15 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.30 | 6.67 | 155.00 | 2.38 | 692.00 | | | | 0.84 | 0.75 | 0.47 | 0.27 | 0.09 | 0.37 | | | | | 13.00 | 0.06 | 0.04 | | 91.50 | | | | | | | | | | |
| | STD. DEV. | 1.15 | | 35.36 | 3.03 | 223.47 | | | | 0.09 | 0.21 | 0.19 | 0.07 | 0.13 | 0.13 | | | | | 2.83 | 0.07 | 0.05 | | 26.16 | | | | | | | | | | |
| | MIN | 23.00 | 6.47 | 130.00 | 0.24 | 559.00 | | | | 0.75 | 0.51 | 0.26 | 0.22 | 0.02 | 0.24 | | | | | 11.00 | 0.01 | 0.01 | | 73.00 | | | | | | | | | | |
| | MAX | 25.20 | 6.87 | 180.00 | 5.84 | 950.00 | | | | 0.93 | 0.91 | 0.60 | 0.35 | 0.24 | 0.49 | | | | | 15.00 | 0.14 | 0.10 | | 110.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-E1 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 3 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.73 | 5.32 | 22.00 | 3.59 | 405.65 | 0.85 | 0.36 | 32.67 | 0.97 | 0.87 | 0.57 | 0.32 | 0.09 | 0.40 | 0.51 | | | | 26.00 | 0.08 | 0.01 | | 165.00 | | | | | | | | | | |
| | STD. DEV. | 2.26 | | 6.38 | 1.58 | 175.33 | | | 9.02 | 0.15 | 0.14 | 0.13 | 0.11 | 0.06 | 0.06 | 0.79 | | | | 2.83 | 0.06 | 0.00 | | 7.07 | | | | | | | | | | |
| | MIN | 21.10 | 5.01 | 17.00 | 1.39 | 176.60 | 0.85 | 0.36 | 24.00 | 0.80 | 0.67 | 0.45 | 0.22 | 0.02 | 0.35 | 0.07 | | | | 24.00 | 0.01 | 0.01 | | 160.00 | | | | | | | | | | |
| | MAX | 25.80 | 5.70 | 31.00 | 5.05 | 555.00 | 0.85 | 0.36 | 42.00 | 1.08 | 1.00 | 0.70 | 0.45 | 0.14 | 0.47 | 1.70 | | | | 28.00 | 0.14 | 0.01 | | 170.00 | | | | | | | | | | |
| PZ-E2 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.58 | 5.89 | 37.00 | 5.32 | 215.90 | 1.10 | 0.37 | | 0.88 | 0.91 | 0.51 | 0.35 | 0.04 | 0.37 | | | | | 14.50 | 0.03 | 0.01 | | 55.00 | | | | | | | | | | |
| | STD. DEV. | 2.62 | | 0.00 | 1.61 | 72.25 | | | | 0.15 | 0.19 | 0.14 | 0.07 | 0.02 | 0.08 | | | | | 2.12 | 0.02 | 0.00 | | 18.38 | | | | | | | | | | |
| | MIN | 21.10 | 5.69 | 37.00 | 3.91 | 156.00 | 1.10 | 0.37 | | 0.72 | 0.66 | 0.36 | 0.28 | 0.02 | 0.30 | | | | | 13.00 | 0.01 | 0.01 | | 42.00 | | | | | | | | | | |
| | MAX | 26.60 | 6.11 | 37.00 | 7.63 | 321.00 | 1.10 | 0.37 | | 1.00 | 1.10 | 0.63 | 0.43 | 0.06 | 0.45 | | | | | 16.00 | 0.06 | 0.01 | | 68.00 | | | | | | | | | | |
| PZ-E3-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 24.33 | 5.56 | 35.00 | 1.27 | 875.00 | | | 70.00 | 4.47 | 1.69 | 1.54 | 0.15 | 2.78 | 2.92 | 0.39 | 43.00 | 41.50 | 0.02 | 35.00 | 2.78 | 0.01 | 0.01 | 330.00 | 0.47 | 93.00 | 1.30 | 42.50 | 0.00 | 19.50 | 36.00 | | | |
| | STD. DEV. | 1.42 | | 19.97 | 0.74 | 141.82 | | | 10.54 | 4.98 | 1.31 | 1.21 | 0.11 | 3.67 | 3.78 | 0.42 | 9.90 | 7.78 | 0.01 | 7.07 | 3.67 | 0.00 | 0.00 | 0.00 | 0.13 | 9.90 | 0.28 | 6.36 | 0.00 | 7.78 | 4.24 | | | |
| | MIN | 22.70 | 5.33 | 18.00 | 0.73 | 728.00 | | | 59.00 | 1.25 | 0.92 | 0.81 | 0.04 | 0.33 | 0.37 | 0.14 | 36.00 | 36.00 | 0.01 | 30.00 | 0.33 | 0.01 | 0.01 | 330.00 | 0.37 | 86.00 | 1.10 | 38.00 | 0.002 | 14.00 | 33.00 | | | |
| | MAX | 25.20 | 5.74 | 57.00 | 2.11 | 1011.00 | | | 80.00 | 10.20 | 3.20 | 2.94 | 0.26 | 7.00 | 7.26 | 0.88 | 50.00 | 47.00 | 0.02 | 40.00 | 7.00 | 0.01 | 0.01 | 330.00 | 0.56 | 100.00 | 1.50 | 47.00 | 0.003 | 25.00 | 39.00 | | | |
| PZ-E3-15 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.60 | 6.22 | 69.00 | 2.43 | 254.67 | | | 81.00 | 1.93 | 1.83 | 1.57 | 0.27 | 0.10 | 0.37 | 7.70 | | | | 10.25 | 0.06 | 0.05 | | 21.50 | | | | | | | | | | |
| | STD. DEV. | 0.50 | | 13.11 | 1.98 | 66.65 | | | 81.50 | 0.66 | 0.57 | 0.63 | 0.08 | 0.11 | 0.12 | 5.52 | | | | 1.06 | 0.04 | 0.06 | | 0.71 | | | | | | | | | | |
| | MIN | 24.10 | 6.04 | 57.00 | 0.31 | 208.00 | | | 10.00 | 1.23 | 1.20 | 0.85 | 0.20 | 0.03 | 0.24 | 3.70 | | | | 9.50 | 0.03 | 0.01 | | 21.00 | | | | | | | | | | |
| | MAX | 25.10 | 6.57 | 83.00 | 4.23 | 331.00 | | | 170.00 | 2.53 | 2.30 | 2.05 | 0.35 | 0.23 | 0.48 | 14.00 | | | | 11.00 | 0.11 | 0.12 | | 22.00 | | | | | | | | | | |
| PZ-E4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 1 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 24.23 | 4.65 | 2.73 | 1.55 | 747.67 | | | 47.00 | 1.41 | 0.73 | 0.71 | 0.02 | 0.68 | 0.70 | 0.13 | | | 0.26 | 29.33 | 0.68 | 0.01 | 0.01 | 176.73 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| | STD. DEV. | 2.31 | | 1.27 | 1.22 | 109.21 | | | 6.08 | 1.03 | 0.32 | 0.33 | 0.01 | 0.72 | 0.71 | 0.06 | | | | 0.58 | 0.72 | 0.00 | | 162.47 | | | | | | | | | | |
| | MIN | 21.60 | 4.03 | 2.00 | 0.74 | 632.00 | | | 43.00 | 0.76 | 0.54 | 0.52 | 0.01 | 0.21 | 0.24 | 0.07 | | | 0.26 | 29.00 | 0.21 | 0.01 | 0.01 | 0.20 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| | MAX | 25.90 | 5.29 | 4.20 | 2.95 | 849.00 | | | 54.00 | 2.60 | 1.10 | 1.09 | 0.03 | 1.50 | 1.51 | 0.19 | | | 0.26 | 30.00 | 1.50 | 0.01 | 0.01 | 320.00 | 0.16 | 46.00 | 0.16 | 26.00 | 0.005 | 4.00 | 16.00 | | | |
| PZ-E4-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.58 | 6.47 | 125.00 | 0.95 | 470.50 | 0.88 | 0.36 | | 0.95 | 0.87 | 0.51 | 0.36 | 0.08 | 0.44 | | | | | 12.00 | 0.05 | 0.04 | | 50.50 | | | | | | | | | | |
| | STD. DEV. | 1.51 | | 7.07 | 0.64 | 47.47 | | | | 0.10 | 0.09 | 0.15 | 0.08 | 0.09 | 0.20 | | | | | 0.00 | 0.04 | 0.05 | | 12.02 | | | | | | | | | | |
| | MIN | 21.90 | 6.17 | 120.00 | 0.16 | 422.00 | 0.88 | 0.36 | | 0.84 | 0.80 | 0.34 | 0.26 | 0.02 | 0.28 | | | | | 12.00 | 0.02 | 0.01 | | 42.00 | | | | | | | | | | |
| | MAX | 24.90 | 6.73 | 130.00 | 1.62 | 517.00 | 0.88 | 0.36 | | 1.01 | 0.99 | 0.63 | 0.46 | 0.21 | 0.67 | | | | | 12.00 | 0.11 | 0.10 | | 59.00 | | | | | | | | | | |
| PZ-E5-08 | n | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.70 | 4.41 | 2.00 | 0.68 | 640.67 | | | | 0.94 | 0.82 | 0.73 | 0.09 | 0.12 | 0.22 | | | | | 28.00 | 0.12 | 0.01 | | 260.00 | | | | | | | | | | |
| | STD. DEV. | 0.98 | | 0.00 | 0.18 | 90.56 | | | | 0.09 | 0.18 | 0.13 | 0.08 | 0.17 | 0.16 | | | | | 2.83 | 0.17 | 0.00 | | 42.43 | | | | | | | | | | |
| | MIN | 22.60 | 3.96 | 2.00 | 0.48 | 552.00 | | | | 0.85 | 0.64 | 0.58 | 0.03 | 0.02 | 0.06 | | | | | 26.00 | 0.01 | 0.01 | | 230.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.01 | 2.00 | 0.84 | 733.00 | | | | 1.02 | 1.00 | 0.81 | 0.19 | 0.32 | 0.38 | | | | | 30.00 | 0.32 | 0.01 | | 290.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-E5-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.30 | 6.40 | 95.00 | 1.50 | 630.75 | 0.85 | 0.32 | | 0.81 | 0.79 | 0.55 | 0.25 | 0.04 | 0.26 | | | | | 18.00 | 0.03 | 0.01 | | 121.00 | | | | | | | | | | |
| | STD. DEV. | 0.98 | | 7.07 | 2.12 | 140.19 | | | | 0.27 | 0.24 | 0.29 | 0.05 | 0.04 | 0.04 | | | | | 1.41 | 0.04 | 0.00 | | 55.15 | | | | | | | | | | |
| | MIN | 21.90 | 6.09 | 90.00 | 0.08 | 483.00 | 0.85 | 0.32 | | 0.65 | 0.56 | 0.34 | 0.22 | 0.02 | 0.24 | | | | | 17.00 | 0.01 | 0.01 | | 82.00 | | | | | | | | | | |
| | MAX | 24.10 | 6.73 | 100.00 | 4.60 | 820.00 | 0.85 | 0.32 | | 1.12 | 1.10 | 0.88 | 0.32 | 0.09 | 0.31 | | | | | 19.00 | 0.09 | 0.01 | | 160.00 | | | | | | | | | | |
| PZ-E6-08 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.28 | 4.41 | 2.00 | 24.15 | 682.00 | 0.65 | 0.01 | | 0.78 | 0.72 | 0.66 | 0.07 | 0.18 | 0.13 | | | | | 29.00 | 0.18 | 0.01 | | 135.10 | | | | | | | | | | |
| | STD. DEV. | 1.37 | | 0.00 | 45.02 | 124.59 | | | | 0.28 | 0.24 | 0.23 | 0.07 | 0.27 | 0.07 | | | | | 4.24 | 0.27 | 0.00 | | 190.78 | | | | | | | | | | |
| | MIN | 21.90 | 3.73 | 2.00 | 0.94 | 501.00 | 0.65 | 0.01 | | 0.49 | 0.43 | 0.40 | 0.01 | 0.02 | 0.08 | | | | | 26.00 | 0.01 | 0.01 | | 0.20 | | | | | | | | | | |
| | MAX | 25.00 | 4.99 | 2.00 | 91.67 | 780.00 | 0.65 | 0.01 | | 1.05 | 1.00 | 0.84 | 0.16 | 0.58 | 0.21 | | | | | 32.00 | 0.58 | 0.01 | | 270.00 | | | | | | | | | | |
| PZ-E6-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 2 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.35 | 5.10 | 9.45 | 2.68 | 388.50 | 4.60 | 1.90 | 42.00 | 2.24 | 2.80 | 1.29 | 1.16 | 0.04 | 0.95 | 0.34 | 18.00 | 17.00 | 0.05 | 18.02 | 0.04 | 0.01 | 0.01 | 114.00 | 0.09 | 29.50 | 1.50 | 11.00 | 0.006 | 1.50 | 11.00 | | | |
| | STD. DEV. | 0.54 | | 3.61 | 2.91 | 89.76 | | | | 0.50 | 1.26 | 0.38 | 0.52 | 0.03 | 0.24 | 0.00 | | | 0.06 | 15.69 | 0.04 | 0.00 | 0.00 | 57.17 | 0.00 | 2.12 | 0.00 | 0.00 | 0.001 | 0.14 | 0.00 | | | |
| | MIN | 22.60 | 4.81 | 6.90 | 0.29 | 326.00 | 4.60 | 1.90 | 42.00 | 1.82 | 1.80 | 0.87 | 0.69 | 0.02 | 0.71 | 0.34 | 18.00 | 17.00 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 80.00 | 0.09 | 28.00 | 1.50 | 11.00 | 0.005 | 1.40 | 11.00 | | | |
| | MAX | 23.80 | 5.44 | 12.00 | 6.65 | 518.00 | 4.60 | 1.90 | 42.00 | 2.79 | 4.60 | 1.60 | 1.90 | 0.09 | 1.19 | 0.34 | 18.00 | 17.00 | 0.09 | 29.00 | 0.09 | 0.01 | 0.01 | 180.00 | 0.09 | 31.00 | 1.50 | 11.00 | 0.007 | 1.60 | 11.00 | | | |
| PZ-E7-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 23.28 | 4.59 | 7.30 | 1.72 | 469.50 | 0.65 | 0.12 | 28.75 | 2.18 | 1.24 | 1.38 | 0.07 | 0.57 | 0.80 | 0.06 | 21.50 | 20.00 | 0.21 | 24.00 | 0.57 | 0.01 | 0.02 | 155.00 | 0.18 | 39.00 | 0.39 | 17.25 | 0.006 | 4.25 | 17.75 | | | |
| | STD. DEV. | 0.96 | | 9.82 | 1.50 | 161.66 | | | 12.53 | 2.14 | 1.06 | 1.14 | 0.07 | 0.84 | 1.00 | 0.03 | 3.54 | 2.83 | 0.17 | 6.58 | 0.84 | 0.00 | 0.01 | 64.03 | 0.13 | 13.64 | 0.22 | 5.97 | 0.003 | 3.51 | 10.21 | | | |
| | MIN | 22.10 | 4.27 | 2.00 | 0.29 | 333.00 | 0.65 | 0.12 | 10.00 | 0.52 | 0.49 | 0.48 | 0.01 | 0.03 | 0.05 | 0.03 | 19.00 | 18.00 | 0.10 | 17.00 | 0.03 | 0.01 | 0.01 | 110.00 | 0.06 | 27.00 | 0.20 | 13.00 | 0.004 | 1.70 | 12.00 | | | |
| | MAX | 24.20 | 4.98 | 22.00 | 3.18 | 702.00 | 0.65 | 0.12 | 36.00 | 4.60 | 2.80 | 2.66 | 0.14 | 1.80 | 1.94 | 0.08 | 24.00 | 22.00 | 0.46 | 31.00 | 1.80 | 0.01 | 0.03 | 250.00 | 0.36 | 56.00 | 0.69 | 26.00 | 0.009 | 9.20 | 33.00 | | | |
| PZ-E7-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.28 | 6.76 | 272.50 | 2.50 | 1305.75 | 1.00 | 0.40 | 60.50 | 1.04 | 1.01 | 0.61 | 0.40 | 0.03 | 0.43 | 0.24 | | | | 19.00 | 0.03 | 0.01 | | 230.00 | | | | | | | | | | |
| | STD. DEV. | 0.67 | | 33.04 | 2.71 | 339.18 | | | 29.10 | 0.24 | 0.21 | 0.20 | 0.05 | 0.02 | 0.07 | 0.06 | | | | 1.41 | 0.02 | 0.00 | | 56.57 | | | | | | | | | | |
| | MIN | 22.30 | 6.49 | 240.00 | 0.16 | 953.00 | 1.00 | 0.40 | 24.00 | 0.86 | 0.84 | 0.48 | 0.33 | 0.02 | 0.35 | 0.16 | | | | 18.00 | 0.01 | 0.01 | | 190.00 | | | | | | | | | | |
| | MAX | 23.80 | 7.14 | 310.00 | 5.62 | 1740.00 | 1.00 | 0.40 | 93.00 | 1.32 | 1.30 | 0.84 | 0.46 | 0.06 | 0.48 | 0.29 | | | | 20.00 | 0.06 | 0.01 | | 270.00 | | | | | | | | | | |
| PZ-F3-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-F3-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.33 | 6.67 | 113.25 | 3.83 | 300.00 | 0.69 | 0.33 | 33.50 | 1.12 | 0.97 | 0.81 | 0.27 | 0.05 | 0.31 | 2.20 | | | | 8.45 | 0.03 | 0.03 | | 2.47 | | | | | | | | | | |
| | STD. DEV. | 2.83 | | 15.78 | 2.68 | 36.47 | | | 19.05 | 0.67 | 0.56 | 0.66 | 0.06 | 0.03 | 0.04 | 2.36 | | | | 0.21 | 0.02 | 0.04 | | 2.45 | | | | | | | | | | |
| | MIN | 22.10 | 6.31 | 93.00 | 1.52 | 272.00 | 0.69 | 0.33 | 10.00 | 0.63 | 0.57 | 0.36 | 0.21 | 0.02 | 0.27 | 0.59 | | | | 8.30 | 0.01 | 0.01 | | 0.73 | | | | | | | | | | |
| | MAX | 28.00 | 6.93 | 130.00 | 7.49 | 353.00 | 0.69 | 0.33 | 49.00 | 1.88 | 1.80 | 1.57 | 0.33 | 0.08 | 0.34 | 5.70 | | | | 8.60 | 0.05 | 0.08 | | 4.20 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-F4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 23.87 | 4.76 | 4.87 | 2.71 | 809.67 | | | 57.33 | 3.35 | 1.35 | 1.34 | 0.01 | 2.00 | 2.01 | 0.10 | 34.50 | 34.00 | 0.50 | 32.00 | 1.97 | 0.03 | 0.02 | 286.67 | 0.37 | 67.00 | 0.29 | 30.00 | 0.01 | 6.70 | 36.33 | | | |
| | STD. DEV. | 3.01 | | 3.25 | 2.41 | 80.05 | | | 6.66 | 2.60 | 0.59 | 0.59 | 0.00 | 2.02 | 2.02 | 0.07 | 12.02 | 11.31 | 0.69 | 6.08 | 1.97 | 0.04 | 0.01 | 20.82 | 0.11 | 1.73 | 0.16 | 3.00 | 0.01 | 0.53 | 10.97 | | | |
| | MIN | 20.40 | 4.06 | 2.00 | 1.20 | 728.00 | | | 53.00 | 1.36 | 0.86 | 0.84 | 0.01 | 0.50 | 0.52 | 0.05 | 26.00 | 26.00 | 0.06 | 25.00 | 0.50 | 0.01 | 0.01 | 270.00 | 0.28 | 66.00 | 0.12 | 27.00 | 0.00 | 6.10 | 30.00 | | | |
| | MAX | 25.80 | 5.55 | 8.40 | 5.49 | 888.00 | | | 65.00 | 6.30 | 2.00 | 1.99 | 0.02 | 4.30 | 4.31 | 0.17 | 43.00 | 42.00 | 1.30 | 36.00 | 4.20 | 0.08 | 0.03 | 310.00 | 0.49 | 69.00 | 0.43 | 33.00 | 0.01 | 7.10 | 49.00 | | | |
| PZ-F4-15 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.20 | 6.70 | 176.67 | 1.98 | 787.33 | | | 40.33 | 1.02 | 0.94 | 0.62 | 0.32 | 0.08 | 0.40 | 0.27 | | | | 14.50 | 0.08 | 0.01 | | 70.00 | | | | | | | | | | |
| | STD. DEV. | 1.74 | | 25.17 | 2.71 | 435.66 | | | 18.01 | 0.27 | 0.31 | 0.21 | 0.11 | 0.07 | 0.10 | 0.09 | | | | 0.71 | 0.07 | 0.00 | | 11.31 | | | | | | | | | | |
| | MIN | 22.20 | 6.44 | 150.00 | 0.07 | 487.00 | | | 28.00 | 0.82 | 0.75 | 0.46 | 0.22 | 0.03 | 0.28 | 0.19 | | | | 14.00 | 0.03 | 0.01 | | 62.00 | | | | | | | | | | |
| | MAX | 25.40 | 7.14 | 200.00 | 5.08 | 1287.00 | | | 61.00 | 1.33 | 1.30 | 0.86 | 0.44 | 0.16 | 0.47 | 0.36 | | | | 15.00 | 0.16 | 0.01 | | 78.00 | | | | | | | | | | |
| PZ-G2-12.5 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.73 | 4.37 | 2.00 | 1.66 | 742.25 | 1.40 | 0.01 | 21.00 | 1.90 | 0.90 | 0.71 | 0.02 | 1.78 | 1.19 | | | | | 40.00 | 1.78 | 0.01 | | 160.10 | | | | | | | | | | |
| | STD. DEV. | 1.90 | | 0.00 | 0.87 | 136.05 | | | | 0.73 | 0.35 | 0.12 | 0.02 | 1.36 | 0.74 | | | | | 2.83 | 1.36 | 0.00 | | 226.13 | | | | | | | | | | |
| | MIN | 21.80 | 4.11 | 2.00 | 0.56 | 570.00 | 1.40 | 0.01 | 21.00 | 1.38 | 0.59 | 0.58 | 0.01 | 0.52 | 0.57 | | | | | 38.00 | 0.52 | 0.01 | | 0.20 | | | | | | | | | | |
| | MAX | 25.60 | 4.70 | 2.00 | 2.57 | 884.00 | 1.40 | 0.01 | 21.00 | 2.74 | 1.40 | 0.81 | 0.05 | 3.60 | 2.01 | | | | | 42.00 | 3.60 | 0.01 | | 320.00 | | | | | | | | | | |
| PZ-H4-08 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 24.47 | 4.58 | 2.00 | 2.57 | 694.67 | | | 32.33 | 2.25 | 0.52 | 0.50 | 0.02 | 1.73 | 1.75 | 0.11 | 17.00 | 16.50 | 0.04 | 33.00 | 1.73 | 0.01 | 0.01 | 275.00 | 0.41 | 65.50 | 0.34 | 32.50 | 0.00 | 9.05 | 34.00 | | | |
| | STD. DEV. | 1.27 | | 0.00 | 1.44 | 140.75 | | | 5.51 | 0.69 | 0.32 | 0.31 | 0.01 | 0.38 | 0.38 | 0.10 | 2.83 | 3.54 | 0.05 | 1.41 | 0.38 | 0.00 | 0.00 | 49.50 | 0.03 | 13.44 | 0.10 | 7.78 | 0.00 | 1.34 | 2.83 | | | |
| | MIN | 23.00 | 4.07 | 2.00 | 1.39 | 559.00 | | | 26.00 | 1.45 | 0.15 | 0.14 | 0.01 | 1.30 | 1.31 | 0.02 | 15.00 | 14.00 | 0.01 | 32.00 | 1.30 | 0.01 | 0.01 | 240.00 | 0.39 | 56.00 | 0.27 | 27.00 | 0.00 | 8.10 | 32.00 | | | |
| | MAX | 25.30 | 5.21 | 2.00 | 4.17 | 840.00 | | | 36.00 | 2.68 | 0.72 | 0.69 | 0.03 | 2.00 | 2.01 | 0.22 | 19.00 | 19.00 | 0.08 | 34.00 | 2.00 | 0.01 | 0.01 | 310.00 | 0.43 | 75.00 | 0.41 | 38.00 | 0.01 | 10.00 | 36.00 | | | |
| PZ-H4-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.58 | 6.61 | 167.50 | 1.64 | 679.75 | 1.10 | 0.50 | 54.50 | 1.57 | 1.32 | 1.00 | 0.43 | 0.14 | 0.58 | 4.40 | | | | 19.00 | 0.13 | 0.02 | | 150.00 | | | | | | | | | | |
| | STD. DEV. | 1.45 | | 23.63 | 2.65 | 121.29 | | | 36.42 | 0.79 | 0.59 | 0.79 | 0.11 | 0.13 | 0.02 | 4.48 | | | | 0.00 | 0.11 | 0.02 | | 14.14 | | | | | | | | | | |
| | MIN | 21.60 | 6.33 | 150.00 | 0.23 | 586.00 | 1.10 | 0.50 | 13.00 | 1.03 | 0.99 | 0.47 | 0.30 | 0.03 | 0.56 | 1.60 | | | | 19.00 | 0.03 | 0.01 | | 140.00 | | | | | | | | | | |
| | MAX | 25.00 | 7.01 | 200.00 | 5.61 | 858.00 | 1.10 | 0.50 | 97.00 | 2.48 | 2.20 | 1.90 | 0.53 | 0.28 | 0.59 | 11.00 | | | | 19.00 | 0.23 | 0.05 | | 160.00 | | | | | | | | | | |
| PZ-H5-11.5 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 1 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 22.95 | 4.38 | 2.00 | 2.38 | 505.75 | 2.30 | 0.12 | 35.00 | 1.24 | 1.11 | 0.59 | 0.13 | 0.47 | 0.66 | 0.05 | 17.00 | 17.00 | 0.08 | 28.67 | 0.47 | 0.01 | 0.01 | 173.33 | 0.12 | 40.50 | 0.04 | 19.00 | 0.004 | 1.85 | 15.00 | | | |
| | STD. DEV. | 1.57 | | 0.00 | 0.80 | 108.32 | | | | 0.83 | 0.84 | 0.12 | 0.17 | 0.43 | 0.71 | | | | 0.03 | 3.51 | 0.43 | 0.00 | 0.00 | 45.09 | 0.04 | 10.61 | 0.00 | 4.24 | 0.002 | 0.21 | 2.83 | | | |
| | MIN | 21.10 | 4.01 | 2.00 | 1.27 | 402.00 | 2.30 | 0.12 | 35.00 | 0.67 | 0.52 | 0.51 | 0.01 | 0.15 | 0.16 | 0.05 | 17.00 | 17.00 | 0.06 | 25.00 | 0.15 | 0.01 | 0.01 | 130.00 | 0.09 | 33.00 | 0.04 | 16.00 | 0.003 | 1.70 | 13.00 | | | |
| | MAX | 24.30 | 4.57 | 2.00 | 3.09 | 645.00 | 2.30 | 0.12 | 35.00 | 2.20 | 2.30 | 0.73 | 0.37 | 1.10 | 1.47 | 0.05 | 17.00 | 17.00 | 0.10 | 32.00 | 1.10 | 0.01 | 0.01 | 220.00 | 0.15 | 48.00 | 0.05 | 22.00 | 0.005 | 2.00 | 17.00 | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-I6-08 | n | 4 | 4 | 3 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 1 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.28 | 4.44 | 2.40 | 1.57 | 375.00 | 1.30 | 0.44 | | 2.76 | 1.94 | 1.81 | 0.37 | 0.47 | 0.95 | 0.56 | 31.00 | 31.00 | 0.32 | 26.00 | 0.47 | 0.01 | 0.13 | 110.00 | 0.13 | 28.50 | 1.45 | 13.50 | 0.01 | 2.00 | 13.50 | | | |
| | STD. DEV. | 1.22 | | 0.69 | 1.08 | 81.98 | | | | 2.77 | 1.61 | 1.78 | 0.20 | 0.76 | 1.00 | | | | 0.14 | 10.44 | 0.76 | 0.00 | 0.16 | 30.00 | 0.01 | 0.71 | 0.49 | 2.12 | 0.01 | 0.85 | 0.71 | | | |
| | MIN | 22.10 | 3.87 | 2.00 | 0.20 | 300.00 | 1.30 | 0.44 | | 0.68 | 0.66 | 0.59 | 0.07 | 0.02 | 0.09 | 0.56 | 31.00 | 31.00 | 0.22 | 19.00 | 0.01 | 0.01 | 0.01 | 80.00 | 0.12 | 28.00 | 1.10 | 12.00 | 0.01 | 1.40 | 13.00 | | | |
| | MAX | 24.80 | 5.04 | 3.20 | 2.54 | 486.00 | 1.30 | 0.44 | | 5.90 | 4.30 | 3.85 | 0.52 | 1.60 | 2.05 | 0.56 | 31.00 | 31.00 | 0.42 | 38.00 | 1.60 | 0.01 | 0.24 | 140.00 | 0.13 | 29.00 | 1.80 | 15.00 | 0.02 | 2.60 | 14.00 | | | |
| PZ-I6-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.50 | 6.67 | 160.00 | 0.53 | 1149.75 | 1.40 | 0.51 | | 1.02 | 1.08 | 0.66 | 0.36 | 0.04 | 0.36 | | | | | 19.00 | 0.04 | 0.01 | | 120.00 | | | | | | | | | | |
| | STD. DEV. | 0.45 | | 0.00 | 0.45 | 500.52 | | | | 0.16 | 0.25 | 0.13 | 0.11 | 0.04 | 0.04 | | | | | 1.41 | 0.04 | 0.00 | | 14.14 | | | | | | | | | | |
| | MIN | 22.90 | 6.45 | 160.00 | 0.10 | 776.00 | 1.40 | 0.51 | | 0.83 | 0.81 | 0.51 | 0.25 | 0.02 | 0.32 | | | | | 18.00 | 0.01 | 0.01 | | 110.00 | | | | | | | | | | |
| | MAX | 23.90 | 6.90 | 160.00 | 0.95 | 1849.00 | 1.40 | 0.51 | | 1.12 | 1.40 | 0.75 | 0.51 | 0.10 | 0.40 | | | | | 20.00 | 0.10 | 0.01 | | 130.00 | | | | | | | | | | |
| PZ-I10-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.10 | 4.81 | 8.10 | 0.77 | 387.00 | 2.20 | 0.14 | 30.00 | 1.61 | 1.52 | 1.03 | 0.23 | 0.25 | 0.59 | 0.04 | | | | 25.00 | 0.25 | 0.01 | | 95.50 | | | | | | | | | | |
| | STD. DEV. | 1.20 | | 4.92 | 0.65 | 52.76 | | | 9.83 | 0.18 | 0.65 | 0.53 | 0.24 | 0.41 | 0.36 | 0.01 | | | | 2.83 | 0.41 | 0.00 | | 0.71 | | | | | | | | | | |
| | MIN | 21.50 | 4.33 | 2.00 | 0.37 | 344.00 | 2.20 | 0.14 | 21.00 | 1.48 | 0.68 | 0.64 | 0.05 | 0.02 | 0.19 | 0.03 | | | | 23.00 | 0.02 | 0.01 | | 95.00 | | | | | | | | | | |
| | MAX | 24.20 | 5.29 | 13.00 | 1.74 | 460.00 | 2.20 | 0.14 | 42.00 | 1.82 | 2.20 | 1.63 | 0.58 | 0.86 | 0.91 | 0.05 | | | | 27.00 | 0.86 | 0.01 | | 96.00 | | | | | | | | | | |
| PZ-I10-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.03 | 6.15 | 54.50 | 0.65 | 533.00 | 1.60 | 1.20 | | 1.05 | 1.17 | 0.50 | 0.69 | 0.02 | 0.54 | | | | | 23.00 | 0.02 | 0.01 | | 112.00 | | | | | | | | | | |
| | STD. DEV. | 0.93 | | 6.36 | 0.65 | 140.62 | | | | 0.15 | 0.31 | 0.11 | 0.35 | 0.00 | 0.11 | | | | | 1.41 | 0.01 | 0.00 | | 39.60 | | | | | | | | | | |
| | MIN | 21.70 | 5.84 | 50.00 | 0.13 | 406.00 | 1.60 | 1.20 | | 0.95 | 0.93 | 0.38 | 0.40 | 0.02 | 0.42 | | | | | 22.00 | 0.01 | 0.01 | | 84.00 | | | | | | | | | | |
| | MAX | 23.80 | 6.83 | 59.00 | 1.51 | 734.00 | 1.60 | 1.20 | | 1.22 | 1.60 | 0.58 | 1.20 | 0.03 | 0.64 | | | | | 24.00 | 0.03 | 0.01 | | 140.00 | | | | | | | | | | |
| PZ-J4-08 | n | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PZ-J4-15 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.53 | 6.19 | 70.25 | 1.14 | 477.50 | 5.90 | 1.90 | 42.50 | 2.37 | 3.03 | 1.12 | 1.19 | 0.43 | 1.25 | 0.33 | | | | 28.50 | 0.43 | 0.01 | | 100.50 | | | | | | | | | | |
| | STD. DEV. | 1.30 | | 22.75 | 1.44 | 73.23 | | | 23.36 | 0.75 | 1.96 | 0.42 | 0.58 | 0.39 | 0.42 | 0.29 | | | | | 0.39 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.00 | 5.98 | 51.00 | 0.24 | 426.00 | 5.90 | 1.90 | 19.00 | 1.63 | 1.50 | 0.86 | 0.64 | 0.06 | 0.77 | 0.10 | | | | 28.00 | 0.06 | 0.01 | | 91.00 | | | | | | | | | | |
| | MAX | 25.00 | 6.47 | 100.00 | 3.28 | 585.00 | 5.90 | 1.90 | 65.00 | 3.12 | 5.90 | 1.60 | 1.90 | 0.81 | 1.52 | 0.74 | | | | 29.00 | 0.81 | 0.01 | | 110.00 | | | | | | | | | | |
| PZ-J7-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 22.95 | 4.61 | 5.78 | 1.36 | 303.25 | 2.90 | 0.53 | 34.00 | 1.73 | 1.56 | 1.03 | 0.20 | 0.56 | 0.70 | 0.07 | 22.00 | 21.50 | 0.17 | 25.75 | 0.56 | 0.01 | 0.01 | 76.50 | 0.11 | 25.25 | 0.34 | 11.20 | 0.003 | 1.44 | 10.18 | | | |
| | STD. DEV. | 1.37 | | 4.23 | 1.33 | 47.09 | | | 15.30 | 1.55 | 1.03 | 0.65 | 0.23 | 0.77 | 0.91 | 0.03 | 8.49 | 7.78 | 0.16 | 9.00 | 0.77 | 0.00 | 0.00 | 15.09 | 0.01 | 3.95 | 0.16 | 2.14 | 0.001 | 0.55 | 0.95 | | | |
| | MIN | 21.20 | 4.32 | 2.00 | 0.17 | 258.00 | 2.90 | 0.53 | 17.00 | 0.61 | 0.55 | 0.52 | 0.03 | 0.06 | 0.09 | 0.05 | 16.00 | 16.00 | 0.06 | 18.00 | 0.06 | 0.01 | 0.01 | 62.00 | 0.10 | 22.00 | 0.15 | 8.80 | 0.002 | 0.84 | 9.30 | | | |
| | MAX | 24.50 | 5.07 | 11.00 | 3.25 | 369.00 | 2.90 | 0.53 | 53.00 | 3.50 | 2.90 | 1.76 | 0.53 | 1.70 | 1.74 | 0.12 | 28.00 | 27.00 | 0.41 | 37.00 | 1.70 | 0.01 | 0.02 | 94.00 | 0.12 | 30.00 | 0.54 | 14.00 | 0.004 | 2.00 | 11.00 | | | |
| PZ-J7-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 3 | 2 | 2 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 |
| | MEAN | 23.13 | 5.04 | 7.00 | 0.98 | 403.25 | 4.50 | 0.67 | 63.00 | 3.31 | 3.48 | 2.62 | 0.55 | 0.25 | 0.69 | 0.27 | 27.50 | 26.50 | 0.03 | 32.33 | 0.25 | 0.01 | 0.01 | 116.67 | 0.11 | 40.00 | 0.75 | 14.33 | 0.003 | 1.33 | 11.00 | | | |
| | STD. DEV. | 1.16 | | 2.97 | 0.95 | 49.03 | | | | 1.97 | 1.75 | 1.82 | 0.26 | 0.22 | 0.17 | 0.04 | 9.19 | 9.19 | 0.03 | 13.50 | 0.22 | 0.00 | 0.00 | 5.77 | 0.05 | 7.21 | 0.65 | 3.21 | 0.000 | 0.21 | 0.00 | | | |
| | MIN | 21.40 | 4.80 | 4.90 | 0.16 | 331.00 | 4.50 | 0.67 | 63.00 | 1.11 | 1.00 | 0.57 | 0.26 | 0.02 | 0.54 | 0.23 | 21.00 | 20.00 | 0.01 | 19.00 | 0.01 | 0.01 | 0.01 | 110.00 | 0.06 | 32.00 | 0.34 | 12.00 | 0.003 | 1.10 | 11.00 | | | |
| | MAX | 23.90 | 5.30 | 9.10 | 2.29 | 437.00 | 4.50 | 0.67 | 63.00 | 4.92 | 4.90 | 4.05 | 0.85 | 0.46 | 0.87 | 0.31 | 34.00 | 33.00 | 0.06 | 46.00 | 0.46 | 0.01 | 0.01 | 120.00 | 0.15 | 46.00 | 1.50 | 18.00 | 0.004 | 1.50 | 11.00 | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| PZ-N4-08 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.95 | 5.04 | 9.50 | 4.85 | 390.00 | | | 28.50 | 0.50 | 0.48 | 0.35 | 0.13 | 0.02 | 0.15 | 0.10 | | | | 22.00 | 0.02 | 0.01 | | 200.00 | | | | | | | | | | |
| | STD. DEV. | 1.48 | | 10.61 | 0.82 | 155.56 | | | 7.78 | 0.01 | 0.01 | 0.07 | 0.09 | 0.00 | 0.09 | | | | | | 0.01 | 0.00 | | | | | | | | | | | | |
| | MIN | 22.90 | 4.48 | 2.00 | 4.27 | 280.00 | | | 23.00 | 0.49 | 0.47 | 0.30 | 0.07 | 0.02 | 0.09 | 0.10 | | | | 22.00 | 0.01 | 0.01 | | 200.00 | | | | | | | | | | |
| | MAX | 25.00 | 5.67 | 17.00 | 5.43 | 500.00 | | | 34.00 | 0.51 | 0.49 | 0.40 | 0.19 | 0.02 | 0.21 | 0.10 | | | | 22.00 | 0.02 | 0.01 | | 200.00 | | | | | | | | | | |
| PZ-N4-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 1 | 3 | 4 | 3 | 4 | 4 | 3 | 1 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 22.68 | 6.29 | 125.00 | 0.74 | 465.75 | 3.00 | 0.45 | 91.00 | 3.00 | 2.98 | 2.51 | 0.46 | 0.04 | 0.49 | 7.30 | | | | 12.50 | 0.03 | 0.01 | | 65.00 | | | | | | | | | | |
| | STD. DEV. | 0.77 | | 21.21 | 0.76 | 173.97 | | | | 1.70 | 1.37 | 1.74 | 0.05 | 0.02 | 0.04 | | | | | 0.71 | 0.02 | 0.00 | | 1.41 | | | | | | | | | | |
| | MIN | 21.80 | 5.96 | 110.00 | 0.19 | 361.00 | 3.00 | 0.45 | 91.00 | 1.52 | 1.50 | 1.01 | 0.39 | 0.02 | 0.45 | 7.30 | | | | 12.00 | 0.01 | 0.01 | | 64.00 | | | | | | | | | | |
| | MAX | 23.50 | 6.69 | 140.00 | 1.86 | 726.00 | 3.00 | 0.45 | 91.00 | 4.86 | 4.80 | 4.41 | 0.50 | 0.06 | 0.52 | 7.30 | | | | 13.00 | 0.06 | 0.01 | | 66.00 | | | | | | | | | | |
| PZ-N7-08 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 1 | 1 | 2 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 |
| | MEAN | 23.53 | 5.61 | 20.20 | 2.51 | 442.25 | 3.00 | 2.80 | | 2.11 | 2.27 | 0.77 | 1.64 | 0.20 | 1.34 | | 18.00 | 16.00 | 0.35 | 37.00 | 0.20 | 0.01 | 0.02 | 101.33 | 0.12 | 51.00 | 3.15 | 16.00 | 0.05 | 1.38 | 11.50 | | | |
| | STD. DEV. | 0.98 | | 23.76 | 1.97 | 44.98 | | | | 1.49 | 1.35 | 0.09 | 1.46 | 0.23 | 1.46 | | | | 0.30 | 18.25 | 0.23 | 0.00 | 0.01 | 33.72 | 0.06 | 9.90 | 1.06 | 2.83 | 0.01 | 0.60 | 0.71 | | | |
| | MIN | 22.20 | 4.75 | 3.40 | 1.04 | 390.00 | 3.00 | 2.80 | | 1.05 | 0.98 | 0.67 | 0.31 | 0.02 | 0.38 | | 18.00 | 16.00 | 0.13 | 25.00 | 0.01 | 0.01 | 0.01 | 78.00 | 0.08 | 44.00 | 2.40 | 14.00 | 0.05 | 0.95 | 11.00 | | | |
| | MAX | 24.40 | 6.23 | 37.00 | 5.41 | 497.00 | 3.00 | 2.80 | | 3.82 | 3.80 | 0.85 | 3.00 | 0.53 | 3.02 | | 18.00 | 16.00 | 0.56 | 58.00 | 0.53 | 0.01 | 0.03 | 140.00 | 0.17 | 58.00 | 3.90 | 18.00 | 0.06 | 1.80 | 12.00 | | | |
| PZ-N7-15 | n | 4 | 4 | 2 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.30 | 5.49 | 17.50 | 0.84 | 320.75 | 1.50 | 0.67 | | 1.25 | 1.23 | 0.78 | 0.44 | 0.09 | 0.47 | | | | | 18.50 | 0.09 | 0.01 | | 104.00 | | | | | | | | | | |
| | STD. DEV. | 0.83 | | 0.71 | 0.68 | 109.08 | | | | 0.53 | 0.38 | 0.28 | 0.19 | 0.11 | 0.25 | | | | | 7.78 | 0.12 | 0.00 | | 65.05 | | | | | | | | | | |
| | MIN | 22.10 | 5.26 | 17.00 | 0.31 | 237.00 | 1.50 | 0.67 | | 0.88 | 0.83 | 0.59 | 0.24 | 0.02 | 0.29 | | | | | 13.00 | 0.01 | 0.01 | | 58.00 | | | | | | | | | | |
| | MAX | 23.90 | 5.73 | 18.00 | 1.78 | 478.00 | 1.50 | 0.67 | | 1.86 | 1.60 | 1.10 | 0.67 | 0.26 | 0.76 | | | | | 24.00 | 0.26 | 0.01 | | 150.00 | | | | | | | | | | |
| PZ-N10-08 | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 1 | 1 | 1 | 2 | 4 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | MEAN | 23.23 | 5.74 | 38.50 | 0.58 | 360.50 | 2.00 | 0.96 | 39.25 | 1.34 | 1.48 | 0.83 | 0.59 | 0.03 | 0.51 | 0.18 | 40.00 | 40.00 | 0.13 | 20.50 | 0.02 | 0.01 | 0.03 | 67.50 | 0.05 | 25.00 | 0.33 | 6.50 | 0.01 | 0.59 | 11.00 | | | |
| | STD. DEV. | 1.04 | | 18.36 | 0.33 | 98.48 | | | 6.40 | 1.02 | 0.92 | 0.42 | 0.57 | 0.02 | 0.62 | 0.11 | | | | 0.71 | 0.03 | 0.00 | | 27.58 | | | | | | | | | | |
| | MIN | 21.70 | 5.40 | 22.00 | 0.33 | 289.00 | 2.00 | 0.96 | 34.00 | 0.68 | 0.62 | 0.48 | 0.08 | 0.02 | 0.10 | 0.06 | 40.00 | 40.00 | 0.13 | 20.00 | 0.01 | 0.01 | 0.03 | 48.00 | 0.05 | 25.00 | 0.33 | 6.50 | 0.01 | 0.59 | 11.00 | | | |
| | MAX | 24.00 | 6.40 | 62.00 | 1.03 | 502.00 | 2.00 | 0.96 | 48.00 | 2.52 | 2.50 | 1.30 | 1.20 | 0.06 | 1.22 | 0.33 | 40.00 | 40.00 | 0.13 | 21.00 | 0.06 | 0.01 | 0.03 | 87.00 | 0.05 | 25.00 | 0.33 | 6.50 | 0.01 | 0.59 | 11.00 | | | |
| PZ-N10-15 | n | 4 | 4 | 3 | 4 | 4 | 1 | 1 | 0 | 3 | 4 | 3 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.38 | 6.71 | 97.00 | 0.61 | 880.25 | 0.55 | 0.20 | | 0.93 | 0.89 | 0.54 | 0.37 | 0.04 | 0.39 | | | | | | 0.03 | 0.01 | | 84.00 | | | | | | | | | | |
| | STD. DEV. | 0.87 | | 75.15 | 0.62 | 473.68 | | | | 0.18 | 0.16 | 0.09 | 0.09 | 0.02 | 0.09 | | | | | 0.71 | 0.02 | 0.00 | | 11.31 | | | | | | | | | | |
| | MIN | 22.20 | 6.41 | 11.00 | 0.11 | 568.00 | 0.55 | 0.20 | | 0.77 | 0.72 | 0.45 | 0.27 | 0.02 | 0.32 | | | | | | 0.01 | 0.01 | | 76.00 | | | | | | | | | | |
| | MAX | 24.30 | 7.11 | 150.00 | 1.40 | 1573.00 | 0.55 | 0.20 | | 1.12 | 1.10 | 0.62 | 0.48 | 0.05 | 0.50 | | | | | | 0.05 | 0.01 | | 92.00 | | | | | | | | | | |
| PZ-S10-08 | n | 4 | 4 | 3 | 4 | 4 | 0 | 0 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.65 | 5.00 | 3.93 | 0.81 | 290.00 | | | 26.25 | 0.82 | 0.73 | 0.51 | 0.26 | 0.03 | 0.31 | 0.05 | | | | 17.00 | 0.03 | 0.01 | | 60.50 | | | | | | | | | | |
| | STD. DEV. | 1.00 | | 2.12 | 0.96 | 63.77 | | | 5.56 | 0.18 | 0.19 | 0.07 | 0.12 | 0.01 | 0.14 | 0.02 | | | | 0.00 | 0.02 | 0.00 | | 2.12 | | | | | | | | | | |
| | MIN | 22.20 | 4.75 | 2.20 | 0.16 | 240.00 | | | 21.00 | 0.66 | 0.55 | 0.45 | 0.12 | 0.02 | 0.15 | 0.02 | | | | 17.00 | 0.01 | 0.01 | | 59.00 | | | | | | | | | | |
| | MAX | 24.50 | 5.31 | 6.30 | 2.19 | 375.00 | | | 32.00 | 1.01 | 0.99 | 0.58 | 0.41 | 0.05 | 0.43 | 0.07 | | | | 17.00 | 0.05 | 0.01 | | 62.00 | | | | | | | | | | |



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Table D.1 (continued)
Summary of Water Quality Data

| Sample ID | | Temp | pH | Total Alkalinity | DO | Specific Conductance (µS) | TSS (mg/L) | $CBOD_5$ (mg/L) | COD (mg/L) | TN (mg/L N)[1] | TKN (mg/L N) | Organic N (mg/L N)[2] | $NH_3$-N (mg/L N) | NOx (mg/L N) | TIN (mg/L N)[3] | TP (mg/L) | TOC (mg/L) | DOC (mg/L) | Anions | | | | | | Cations | | | | | | | TS (mg/L) | Fecal Coliform | e-coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na | | | |
| FB-DI | n | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 21.80 | 6.99 | 2.00 | 8.04 | 23.02 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.08 | 0.23 | | | |
| | STD. DEV. | 2.45 | | 0.00 | 0.59 | 42.13 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.19 | | | |
| | MIN | 19.30 | 5.73 | 2.00 | 7.25 | 1.20 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| | MAX | 24.00 | 7.65 | 2.00 | 8.60 | 86.20 | 0.05 | 0.01 | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.02 | 0.02 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.27 | 0.51 | | | |
| FB-TAP | n | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| | STD. DEV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| | MAX | 21.60 | 7.54 | 160.00 | 4.41 | 846.00 | | | 14.00 | 0.32 | 0.16 | 0.13 | 0.03 | 0.16 | 0.19 | 0.04 | | | | | 0.16 | 0.01 | | | | | | | | | | | | |
| EB | n | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| | MEAN | 21.80 | 6.99 | 2.00 | 8.12 | 23.02 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.08 | 0.17 | | | |
| | STD. DEV. | 2.45 | | 0.00 | 0.46 | 42.13 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.08 | | | |
| | MIN | 19.30 | 5.73 | 2.00 | 7.58 | 1.20 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.05 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.01 | 0.13 | | | |
| | MAX | 24.00 | 7.65 | 2.00 | 8.60 | 86.20 | | | 10.00 | 0.07 | 0.05 | 0.04 | 0.01 | 0.02 | 0.03 | 0.01 | 0.06 | 0.06 | 0.01 | 0.07 | 0.01 | 0.01 | 0.01 | 0.20 | 0.05 | 0.04 | 0.02 | 0.02 | 0.00 | 0.25 | 0.28 | | | |

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and $NO_x$
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and $NH_3$
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of $NH_3$ and $NO_x$
D.O. - Dissolved oxygen
G - Grab sample
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.



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# Appendix E: Laboratory Report

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

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

**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **STE** |
| Matrix | **Wastewater** |
| SAL Sample Number | **1311076-01** |
| Date/Time Collected | **10/24/13 13:40** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.07 | | | | | | |
| Temperature | | 26.3 °C | | | | | | |
| Conductivity | | 1345 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.04 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 39 | EPA 350.1 | 2.0 | 0.47 | | 11/01/13 14:32 | 50 |
| Carbonaceous BOD | mg/L | 120 | SM 5210B | 2 | 2 | 10/25/13 11:46 | 10/30/13 15:18 | 1 |
| Chloride | mg/L | 48 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 14:42 | 10 |
| Fluoride | mg/L | 1.1 | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 17:05 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:05 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 17:05 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:05 | 1 |
| Orthophosphate as P | mg/L | 2.6 | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 17:05 | 1 |
| Phosphorous - Total as P | mg/L | 8.9 | SM 4500P-E | 0.20 | 0.050 | 10/31/13 11:42 | 11/07/13 10:37 | 5 |
| Sulfate | mg/L | 2.3 | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 17:05 | 1 |
| Total Alkalinity | mg/L | 570 | SM 2320B | 8.0 | 2.0 | | 10/29/13 14:38 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 53 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 12:08 | 20.83 |
| Total Solids | mg/L | 780 | SM 2540B | 10 | 10 | 10/28/13 14:50 | 10/29/13 11:54 | 1 |
| Total Suspended Solids | mg/L | 12 | SM 2540D | 1 | 1 | 10/30/13 09:03 | 10/30/13 16:28 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.90 | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 15:39 | 1 |
| Calcium | mg/L | 120 | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 15:39 | 1 |
| Iron | mg/L | 0.090 I | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 15:39 | 1 |
| Magnesium | mg/L | 41 | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 15:39 | 1 |
| Manganese | mg/L | 0.020 | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 15:39 | 1 |
| Potassium | mg/L | 16 | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 10/31/13 15:39 | 1 |
| Sodium | mg/L | 61 | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 15:39 | 1 |
| **Microbiology** | | | | | | | | |
| E. Coli | MPN/100 mL | 24,000 | SM 9223B | 2.0 | 2.0 | 10/24/13 16:16 | 10/25/13 10:31 | 1 |
| Fecal Coliforms | CFU/100 ml | 82,000 | SM 9222D | 1 | 1 | 10/24/13 16:14 | 10/25/13 14:14 | 1 |

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

November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | STE-DUP |
| Matrix | Wastewater |
| SAL Sample Number | 1311076-02 |
| Date/Time Collected | 10/24/13 13:45 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 7.07 | | | | | | |
| Temperature | | 26.3 °C | | | | | | |
| Conductivity | | 1345 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.04 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 41 | EPA 350.1 | 2.0 | 0.47 | | 11/01/13 14:34 | 50 |
| Carbonaceous BOD | mg/L | 120 | SM 5210B | 2 | 2 | 10/25/13 11:46 | 10/30/13 15:18 | 1 |
| Chloride | mg/L | 47 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 14:56 | 10 |
| Fluoride | mg/L | 1.1 | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 17:15 | 1 |
| Nitrate (as N) | mg/L | 0.01 I | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:15 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 17:15 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:15 | 1 |
| Orthophosphate as P | mg/L | 2.1 | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 17:15 | 1 |
| Phosphorous - Total as P | mg/L | 9.0 | SM 4500P-E | 0.20 | 0.050 | 10/31/13 11:42 | 11/07/13 10:38 | 5 |
| Sulfate | mg/L | 2.9 | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 17:15 | 1 |
| Total Alkalinity | mg/L | 570 | SM 2320B | 8.0 | 2.0 | | 10/29/13 14:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 56 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 12:09 | 20.83 |
| Total Solids | mg/L | 780 | SM 2540B | 10 | 10 | 10/28/13 14:50 | 10/29/13 11:54 | 1 |
| Total Suspended Solids | mg/L | 14 | SM 2540D | 1 | 1 | 10/31/13 08:44 | 10/31/13 14:30 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.86 | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 15:44 | 1 |
| Calcium | mg/L | 110 | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 15:44 | 1 |
| Iron | mg/L | 0.092 I | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 15:44 | 1 |
| Magnesium | mg/L | 40 | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 15:44 | 1 |
| Manganese | mg/L | 0.019 | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 15:44 | 1 |
| Potassium | mg/L | 16 | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 10/31/13 15:44 | 1 |
| Sodium | mg/L | 59 | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 15:44 | 1 |
| **Microbiology** | | | | | | | | |
| E. Coli | MPN/100 mL | 17,000 | SM 9223B | 2.0 | 2.0 | 10/24/13 16:16 | 10/25/13 10:31 | 1 |
| Fecal Coliforms | CFU/100 ml | 72,000 | SM 9222D | 1 | 1 | 10/24/13 16:14 | 10/25/13 14:14 | 1 |

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Tampa, FL 33619

November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-01 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-03 |
| Date/Time Collected | 10/23/13 11:44 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/23/13 14:55 |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 5.34 | | | | | | | |
| Temperature | | 25.5 °C | | | | | | | |
| Conductivity | | 956 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 4.57 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.012 | I | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 12:52 | 1 |
| Chemical Oxygen Demand | mg/L | 54 | | EPA 410.4 | 25 | 10 | 10/28/13 12:00 | 10/28/13 17:00 | 1 |
| Chloride | mg/L | 38 | | EPA 300.0 | 2.0 | 0.50 | | 10/28/13 23:38 | 10 |
| Fluoride | mg/L | 0.017 | I | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 12:43 | 1 |
| Nitrate (as N) | mg/L | 2.5 | | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 12:43 | 1 |
| Nitrate+Nitrite (N) | mg/L | 2.5 | | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 12:43 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 12:43 | 1 |
| Orthophosphate as P | mg/L | 0.010 | U | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 12:43 | 1 |
| Phosphorous - Total as P | mg/L | 0.029 | I | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:27 | 1 |
| Sulfate | mg/L | 340 | | EPA 300.0 | 6.0 | 2.0 | | 10/28/13 23:38 | 10 |
| Total Alkalinity | mg/L | 29 | | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:31 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:34 | 1 |
| Total Organic Carbon | mg/L | 38 | | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Inorganic, Dissolved** | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 37 | | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Metals** | | | | | | | | | |
| Boron | mg/L | 0.49 | | EPA 200.7 | 0.10 | 0.050 | 10/30/13 10:50 | 10/30/13 15:38 | 1 |
| Calcium | mg/L | 82 | | EPA 200.7 | 0.50 | 0.042 | 10/30/13 10:50 | 10/30/13 15:38 | 1 |
| Iron | mg/L | 0.10 | | EPA 200.7 | 0.10 | 0.020 | 10/30/13 10:50 | 10/30/13 15:38 | 1 |
| Magnesium | mg/L | 39 | | EPA 200.7 | 0.50 | 0.020 | 10/30/13 10:50 | 10/30/13 15:38 | 1 |
| Manganese | mg/L | 0.0072 | I | EPA 200.7 | 0.010 | 0.0010 | 10/30/13 10:50 | 10/30/13 15:38 | 1 |
| Potassium | mg/L | 16 | | EPA 200.7 | 0.050 | 0.010 | 10/30/13 10:50 | 10/30/13 15:38 | 1 |
| Sodium | mg/L | 38 | | EPA 200.7 | 0.50 | 0.13 | 10/30/13 10:50 | 10/30/13 15:38 | 1 |

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November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | BKG-10 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-06 |
| Date/Time Collected | 10/25/13 10:35 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/25/13 12:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.57 | | | | | | |
| Temperature | | 23.1 °C | | | | | | |
| Conductivity | | 368 umhos/cm | | | | | | |
| Dissolved Oxygen | | 6.38 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.018 I | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:03 | 1 |
| Chemical Oxygen Demand | mg/L | 74 | EPA 410.4 | 25 | 10 | 11/07/13 10:54 | 11/07/13 16:46 | 1 |
| Chloride | mg/L | 44 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 21:00 | 10 |
| Fluoride | mg/L | 0.67 | EPA 300.0 | 0.040 | 0.010 | | 10/26/13 01:13 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 01:13 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/26/13 01:13 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 01:13 | 1 |
| Orthophosphate as P | mg/L | 0.085 | EPA 300.0 | 0.040 | 0.010 | | 10/26/13 01:13 | 1 |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 10/31/13 11:42 | 11/07/13 09:30 | 1 |
| Sulfate | mg/L | 53 | EPA 300.0 | 0.60 | 0.20 | | 10/26/13 01:13 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:17 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.3 | EPA 351.2 | 0.20 | 0.05 | 11/08/13 10:50 | 11/12/13 14:54 | 1 |
| Total Organic Carbon | mg/L | 70 | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 69 | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.073 I | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 15:57 | 1 |
| Calcium | mg/L | 7.1 | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 15:57 | 1 |
| Iron | mg/L | 0.26 | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 15:57 | 1 |
| Magnesium | mg/L | 0.58 | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 15:57 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 15:57 | 1 |
| Potassium | mg/L | 0.12 | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 11/01/13 10:46 | 1 |
| Sodium | mg/L | 27 | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 15:57 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **BKG-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-07** |
| Date/Time Collected | **10/25/13 10:55** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/25/13 12:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.54 | | | | | | |
| Temperature | | 24.1 °C | | | | | | |
| Conductivity | | 168.4 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.59 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.39 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:05 | 1 |
| Chloride | mg/L | 12 | EPA 300.0 | 0.20 | 0.050 | | 10/26/13 01:41 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 01:41 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/26/13 01:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 01:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.50 | SM 4500P-E | 0.040 | 0.010 | 11/06/13 13:13 | 11/07/13 15:31 | 1 |
| Sulfate | mg/L | 13 | EPA 300.0 | 0.60 | 0.20 | | 10/26/13 01:41 | 1 |
| Total Alkalinity | mg/L | 40 | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:22 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 11/08/13 10:50 | 11/12/13 14:56 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-AB4-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-11** |
| Date/Time Collected | **10/25/13 10:06** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/25/13 12:00** |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 4.54 | | | | | | | |
| Temperature | | 23.6 °C | | | | | | | |
| Conductivity | | 198 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 1.60 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.043 | | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:07 | 1 |
| Chloride | mg/L | 13 | | EPA 300.0 | 0.20 | 0.050 | | 10/26/13 01:50 | 1 |
| Nitrate (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 01:50 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 | I | EPA 300.0 | 0.08 | 0.02 | | 10/26/13 01:50 | 1 |
| Nitrite (as N) | mg/L | 0.03 | I | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 01:50 | 1 |
| Phosphorous - Total as P | mg/L | 0.35 | | SM 4500P-E | 0.040 | 0.010 | 11/06/13 13:13 | 11/07/13 15:32 | 1 |
| Sulfate | mg/L | 39 | | EPA 300.0 | 0.60 | 0.20 | | 10/26/13 01:50 | 1 |
| Total Alkalinity | mg/L | 6.1 | I | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:25 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.53 | | EPA 351.2 | 0.20 | 0.05 | 11/08/13 10:50 | 11/12/13 14:57 | 1 |

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**November 13, 2013**
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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-AB4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-12** |
| Date/Time Collected | **10/25/13 10:20** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/25/13 12:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.39 | | | | | | |
| Temperature | | 23.6 °C | | | | | | |
| Conductivity | | 269 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.26 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.44 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:09 | 1 |
| Chloride | mg/L | 8.2 | EPA 300.0 | 0.20 | 0.050 | | 10/26/13 02:00 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 02:00 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.05 I | EPA 300.0 | 0.08 | 0.02 | | 10/26/13 02:00 | 1 |
| Nitrite (as N) | mg/L | 0.05 | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 02:00 | 1 |
| Sulfate | mg/L | 6.0 | EPA 300.0 | 0.60 | 0.20 | | 10/26/13 02:00 | 1 |
| Total Alkalinity | mg/L | 110 | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:30 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.1 | EPA 351.2 | 0.20 | 0.05 | 11/08/13 10:50 | 11/12/13 14:59 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-C1** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-13** |
| Date/Time Collected | **10/23/13 08:54** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.99 | | | | | | |
| Temperature | | 24.6 °C | | | | | | |
| Conductivity | | 1015 umhos/cm | | | | | | |
| Dissolved Oxygen | | 3.58 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.14 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 12:54 | 1 |
| Chloride | mg/L | 44 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 00:16 | 10 |
| Fluoride | mg/L | 0.011 I | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 13:28 | 1 |
| Nitrate (as N) | mg/L | 2.9 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:28 | 1 |
| Nitrate+Nitrite (N) | mg/L | 2.9 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 13:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:28 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 13:28 | 1 |
| Phosphorous - Total as P | mg/L | 1.3 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:28 | 1 |
| Sulfate | mg/L | 300 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 00:16 | 10 |
| Total Alkalinity | mg/L | 140 | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:27 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.9 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:35 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.63 | EPA 200.7 | 0.10 | 0.050 | 10/30/13 10:50 | 10/30/13 15:47 | 1 |
| Calcium | mg/L | 100 | EPA 200.7 | 0.50 | 0.042 | 10/30/13 10:50 | 10/30/13 15:47 | 1 |
| Iron | mg/L | 0.40 | EPA 200.7 | 0.10 | 0.020 | 10/30/13 10:50 | 10/30/13 15:47 | 1 |
| Magnesium | mg/L | 40 | EPA 200.7 | 0.50 | 0.020 | 10/30/13 10:50 | 10/30/13 15:47 | 1 |
| Manganese | mg/L | 0.012 | EPA 200.7 | 0.010 | 0.0010 | 10/30/13 10:50 | 10/30/13 15:47 | 1 |
| Potassium | mg/L | 23 | EPA 200.7 | 0.050 | 0.010 | 10/30/13 10:50 | 10/30/13 15:47 | 1 |
| Sodium | mg/L | 40 | EPA 200.7 | 0.50 | 0.13 | 10/30/13 10:50 | 10/30/13 15:47 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-C2** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-14** |
| Date/Time Collected | **10/23/13 09:10** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.23 | | | | | | |
| Temperature | | 24.9 °C | | | | | | |
| Conductivity | | 369 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.56 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.36 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 12:56 | 1 |
| Chloride | mg/L | 17 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 13:38 | 1 |
| Nitrate (as N) | mg/L | 0.10 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:38 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.10 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 13:38 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:38 | 1 |
| Sulfate | mg/L | 92 | EPA 300.0 | 0.60 | 0.20 | | 10/24/13 13:38 | 1 |
| Total Alkalinity | mg/L | 17 | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:35 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.98 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:37 | 1 |

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November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-C3-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-15 |
| Date/Time Collected | 10/23/13 09:54 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/23/13 14:55 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.27 | | | | | | |
| Temperature | | 24.7 °C | | | | | | |
| Conductivity | | 754 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.81 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.038 I | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 12:58 | 1 |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 13:47 | 1 |
| Nitrate (as N) | mg/L | 1.3 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:47 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.3 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 13:47 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:47 | 1 |
| Phosphorous - Total as P | mg/L | 0.24 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:30 | 1 |
| Sulfate | mg/L | 230 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 00:25 | 10 |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:39 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.95 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:39 | 1 |
| Total Organic Carbon | mg/L | 33 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 32 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-C3-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-16** |
| Date/Time Collected | **10/23/13 10:10** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.48 | | | | | | |
| Temperature | | 24.6 °C | | | | | | |
| Conductivity | | 394 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.56 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.25 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:00 | 1 |
| Chloride | mg/L | 11 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 13:56 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:56 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 13:56 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 13:56 | 1 |
| Sulfate | mg/L | 29 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 00:35 | 10 |
| Total Alkalinity | mg/L | 150 | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:45 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:40 | 1 |

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November 13, 2013
Work Order: 1311076

## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-C6-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-17 |
| Date/Time Collected | 10/24/13 08:40 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 3.97 | | | | | | |
| Temperature | | 23.6 °C | | | | | | |
| Conductivity | | 523 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.19 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.046 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:36 | 1 |
| Chloride | mg/L | 23 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 17:24 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:24 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 17:24 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:24 | 1 |
| Sulfate | mg/L | 180 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 15:09 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 10/29/13 14:53 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.52 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:04 | 1 |

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November 13, 2013
Work Order: 1311076

## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-C6-15 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-18 |
| Date/Time Collected | 10/24/13 08:52 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.40 | | | | | | |
| Temperature | | 23.6 °C | | | | | | |
| Conductivity | | 356 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.32 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.5 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:38 | 1 |
| Chloride | mg/L | 22 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 17:33 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:33 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 17:33 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:33 | 1 |
| Sulfate | mg/L | 92 | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 17:33 | 1 |
| Total Alkalinity | mg/L | 24 | SM 2320B | 8.0 | 2.0 | | 10/29/13 14:57 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.7 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:06 | 1 |

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November 13, 2013
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# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-D3-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-19 |
| Date/Time Collected | 10/23/13 10:27 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/23/13 14:55 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.48 | | | | | | |
| Temperature | | 24.8 °C | | | | | | |
| Conductivity | | 659 umhos/cm | | | | | | |
| Dissolved Oxygen | | 2.40 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.015 I | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:02 | 1 |
| Chloride | mg/L | 26 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 14:06 | 1 |
| Nitrate (as N) | mg/L | 1.5 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:06 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.5 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 14:06 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:06 | 1 |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:31 | 1 |
| Sulfate | mg/L | 240 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 00:44 | 10 |
| Total Alkalinity | mg/L | 12 | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:49 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:49 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-D3-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-20** |
| Date/Time Collected | **10/23/13 10:39** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.37 | | | | | | |
| Temperature | | 24.9 °C | | | | | | |
| Conductivity | | 315 umhos/cm | | | | | | |
| Dissolved Oxygen | | 1.02 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.23 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:04 | 1 |
| Chloride | mg/L | 8.3 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 14:23 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:23 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.10 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 14:23 | 1 |
| Nitrite (as N) | mg/L | 0.08 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:23 | 1 |
| Phosphorous - Total as P | mg/L | 0.80 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:32 | 1 |
| Sulfate | mg/L | 7.4 | EPA 300.0 | 0.60 | 0.20 | | 10/24/13 14:23 | 1 |
| Total Alkalinity | mg/L | 120 | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:55 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.83 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:50 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

| **Project Name** | **C-HS4 SE#4** |
|---|---|
| Sample Description | **PZ-D4-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-21** |
| Date/Time Collected | **10/23/13 12:01** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.55 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 949 umhos/cm | | | | | | |
| Dissolved Oxygen | | 2.24 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.013 I | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:06 | 1 |
| Chloride | mg/L | 38 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 00:53 | 10 |
| Nitrate (as N) | mg/L | 0.93 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:32 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.93 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 14:32 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:32 | 1 |
| Sulfate | mg/L | 350 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 00:53 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 10/25/13 10:57 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.90 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:52 | 1 |

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## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | **PZ-D4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-22** |
| Date/Time Collected | **10/23/13 12:15** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.47 | | | | | | |
| Temperature | | 24.7 °C | | | | | | |
| Conductivity | | 567 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.24 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:12 | 1 |
| Chloride | mg/L | 15 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 01:03 | 10 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:42 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 14:42 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:42 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 01:03 | 10 |
| Total Alkalinity | mg/L | 130 | SM 2320B | 8.0 | 2.0 | | 10/25/13 11:02 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.82 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:54 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E1** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-23** |
| Date/Time Collected | **10/23/13 08:40** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.01 | | | | | | |
| Temperature | | 25.4 °C | | | | | | |
| Conductivity | | 555 umhos/cm | | | | | | |
| Dissolved Oxygen | | 1.39 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.24 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:14 | 1 |
| Chloride | mg/L | 24 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 14:51 | 1 |
| Nitrate (as N) | mg/L | 0.14 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:51 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.14 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 14:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 14:51 | 1 |
| Phosphorous - Total as P | mg/L | 0.13 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:33 | 1 |
| Sulfate | mg/L | 160 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 01:12 | 10 |
| Total Alkalinity | mg/L | 31 | SM 2320B | 8.0 | 2.0 | | 10/25/13 11:06 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.94 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:55 | 1 |

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**November 13, 2013**
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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E2** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-24** |
| Date/Time Collected | **10/23/13 09:23** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.69 | | | | | | |
| Temperature | | 24.9 °C | | | | | | |
| Conductivity | | 321 umhos/cm | | | | | | |
| Dissolved Oxygen | | 3.91 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.28 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:16 | 1 |
| Chloride | mg/L | 16 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 15:01 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 15:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 15:01 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 15:01 | 1 |
| Sulfate | mg/L | 68 | EPA 300.0 | 0.60 | 0.20 | | 10/24/13 15:01 | 1 |
| Total Alkalinity | mg/L | 37 | SM 2320B | 8.0 | 2.0 | | 10/25/13 11:16 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.91 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:57 | 1 |

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# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-E3-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-25 |
| Date/Time Collected | 10/23/13 10:53 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/23/13 14:55 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.74 | | | | | | |
| Temperature | | 25.2 °C | | | | | | |
| Conductivity | | 1011 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.97 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.26 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:18 | 1 |
| Chemical Oxygen Demand | mg/L | 80 | EPA 410.4 | 25 | 10 | 10/28/13 12:00 | 10/28/13 17:00 | 1 |
| Chloride | mg/L | 40 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 01:22 | 10 |
| Fluoride | mg/L | 0.020 I | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 16:22 | 1 |
| Nitrate (as N) | mg/L | 7.0 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:22 | 1 |
| Nitrate+Nitrite (N) | mg/L | 7.0 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 16:22 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:22 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 16:22 | 1 |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:34 | 1 |
| Sulfate | mg/L | 330 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 01:22 | 10 |
| Total Alkalinity | mg/L | 57 | SM 2320B | 8.0 | 2.0 | | 10/25/13 11:21 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.2 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 10:59 | 1 |
| Total Organic Carbon | mg/L | 50 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 47 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.56 | EPA 200.7 | 0.10 | 0.050 | 10/30/13 10:50 | 10/30/13 15:53 | 1 |
| Calcium | mg/L | 100 | EPA 200.7 | 0.50 | 0.042 | 10/30/13 10:50 | 10/30/13 15:53 | 1 |
| Iron | mg/L | 1.5 | EPA 200.7 | 0.10 | 0.020 | 10/30/13 10:50 | 10/30/13 15:53 | 1 |
| Magnesium | mg/L | 47 | EPA 200.7 | 0.50 | 0.020 | 10/30/13 10:50 | 10/30/13 15:53 | 1 |
| Manganese | mg/L | 0.0024 I | EPA 200.7 | 0.010 | 0.0010 | 10/30/13 10:50 | 10/30/13 15:53 | 1 |
| Potassium | mg/L | 25 | EPA 200.7 | 0.050 | 0.010 | 10/30/13 10:50 | 10/30/13 15:53 | 1 |
| Sodium | mg/L | 39 | EPA 200.7 | 0.50 | 0.13 | 10/30/13 10:50 | 10/30/13 15:53 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E3-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-26** |
| Date/Time Collected | **10/23/13 11:11** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.04 | | | | | | |
| Temperature | | 25.1 °C | | | | | | |
| Conductivity | | 208 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.31 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.20 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:19 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 10/28/13 12:00 | 10/28/13 17:00 | 1 |
| Chloride | mg/L | 9.5 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 16:32 | 1 |
| Nitrate (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:32 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.04 I | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 16:32 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:32 | 1 |
| Phosphorous - Total as P | mg/L | 5.4 | SM 4500P-E | 0.20 | 0.050 | 10/24/13 10:05 | 10/30/13 14:34 | 5 |
| Sulfate | mg/L | 21 | EPA 300.0 | 0.60 | 0.20 | | 10/24/13 16:32 | 1 |
| Total Alkalinity | mg/L | 57 | SM 2320B | 8.0 | 2.0 | | 10/25/13 11:25 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.0 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 11:00 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E4-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-27** |
| Date/Time Collected | **10/23/13 12:30** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.73 | | | | | | |
| Temperature | | 25.2 °C | | | | | | |
| Conductivity | | 849 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.95 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:21 | 1 |
| Chemical Oxygen Demand | mg/L | 43 | EPA 410.4 | 25 | 10 | 10/28/13 12:00 | 10/28/13 17:00 | 1 |
| Chloride | mg/L | 30 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 16:41 | 1 |
| Nitrate (as N) | mg/L | 1.5 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:41 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.5 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 16:41 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:41 | 1 |
| Phosphorous - Total as P | mg/L | 0.13 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 10:05 | 10/30/13 13:37 | 1 |
| Sulfate | mg/L | 320 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 01:31 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 10/25/13 11:28 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 11:04 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-28** |
| Date/Time Collected | **10/23/13 12:43** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.42 | | | | | | |
| Temperature | | 24.9 °C | | | | | | |
| Conductivity | | 422 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.26 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:23 | 1 |
| Chloride | mg/L | 12 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 16:51 | 1 |
| Nitrate (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:51 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 16:51 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 16:51 | 1 |
| Sulfate | mg/L | 42 | EPA 300.0 | 0.60 | 0.20 | | 10/24/13 16:51 | 1 |
| Total Alkalinity | mg/L | 130 | SM 2320B | 8.0 | 2.0 | | 10/25/13 11:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.82 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 11:05 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E5-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-29** |
| Date/Time Collected | **10/24/13 08:14** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.31 | | | | | | |
| Temperature | | 24.0 °C | | | | | | |
| Conductivity | | 637 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.84 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.033 I | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:40 | 1 |
| Chloride | mg/L | 26 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 17:43 | 1 |
| Nitrate (as N) | mg/L | 0.03 I | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:43 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 17:43 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:43 | 1 |
| Sulfate | mg/L | 230 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 15:23 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 10/29/13 14:59 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.82 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:07 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E5-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-30** |
| Date/Time Collected | **10/24/13 08:27** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.19 | | | | | | |
| Temperature | | 24.1 °C | | | | | | |
| Conductivity | | 545 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.18 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:42 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 17:52 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:52 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 17:52 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 17:52 | 1 |
| Sulfate | mg/L | 160 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 15:36 | 10 |
| Total Alkalinity | mg/L | 90 | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:04 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.64 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:09 | 1 |

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## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-E6-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-31 |
| Date/Time Collected | 10/24/13 08:59 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.17 | | | | | | |
| Temperature | | 23.7 °C | | | | | | |
| Conductivity | | 743 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.94 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.064 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:44 | 1 |
| Chloride | mg/L | 26 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 18:01 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 18:01 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 18:01 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 18:01 | 1 |
| Sulfate | mg/L | 270 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 15:50 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:15 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.79 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:10 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E6-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-32** |
| Date/Time Collected | **10/24/13 09:13** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.84 | | | | | | |
| Temperature | | 23.7 °C | | | | | | |
| Conductivity | | 518 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.28 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.93 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:46 | 1 |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 19:07 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:07 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 19:07 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:07 | 1 |
| Sulfate | mg/L | 180 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 16:27 | 10 |
| Total Alkalinity | mg/L | 6.9 I | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:19 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:12 | 1 |

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# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-E7-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-33 |
| Date/Time Collected | 10/24/13 09:53 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 4.48 | | | | | | | |
| Temperature | | 23.9 °C | | | | | | | |
| Conductivity | | 702 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 0.29 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.015 | I | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:56 | 1 |
| Chemical Oxygen Demand | mg/L | 10 | U | EPA 410.4 | 25 | 10 | 11/04/13 13:47 | 11/04/13 13:49 | 1 |
| Chloride | mg/L | 28 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 19:16 | 1 |
| Fluoride | mg/L | 0.15 | | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 19:16 | 1 |
| Nitrate (as N) | mg/L | 0.03 | I | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:16 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.03 | I | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 19:16 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:16 | 1 |
| Orthophosphate as P | mg/L | 0.010 | U | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 19:16 | 1 |
| Phosphorous - Total as P | mg/L | 0.077 | | SM 4500P-E | 0.040 | 0.010 | 10/31/13 11:42 | 11/07/13 09:31 | 1 |
| Sulfate | mg/L | 250 | | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 16:37 | 10 |
| Total Alkalinity | mg/L | 2.0 | U | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:26 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.49 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:14 | 1 |
| Total Organic Carbon | mg/L | 24 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 22 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | | |
| Boron | mg/L | 0.36 | | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 16:07 | 1 |
| Calcium | mg/L | 56 | | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 16:07 | 1 |
| Iron | mg/L | 0.69 | | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 16:07 | 1 |
| Magnesium | mg/L | 26 | | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 16:07 | 1 |
| Manganese | mg/L | 0.0094 | I | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 16:07 | 1 |
| Potassium | mg/L | 9.2 | | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 10/31/13 16:07 | 1 |
| Sodium | mg/L | 33 | | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 16:07 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E7-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-34** |
| Date/Time Collected | **10/24/13 10:07** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 6.61 | | | | | | | |
| Temperature | | 23.8 °C | | | | | | | |
| Conductivity | | 953 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 0.30 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.33 | | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:58 | 1 |
| Chemical Oxygen Demand | mg/L | 24 | I | EPA 410.4 | 25 | 10 | 11/04/13 13:47 | 11/04/13 13:49 | 1 |
| Chloride | mg/L | 18 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 19:26 | 1 |
| Nitrate (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:26 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 | U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 19:26 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:26 | 1 |
| Phosphorous - Total as P | mg/L | 0.29 | | SM 4500P-E | 0.040 | 0.010 | 10/31/13 11:42 | 11/07/13 09:33 | 1 |
| Sulfate | mg/L | 190 | | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 16:50 | 10 |
| Total Alkalinity | mg/L | 240 | | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.84 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:15 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-E7-15-DUP** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-35** |
| Date/Time Collected | **10/24/13 10:12** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.61 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 953 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.30 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.32 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 11:00 | 1 |
| Chemical Oxygen Demand | mg/L | 43 | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 17 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 19:35 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:35 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 19:35 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:35 | 1 |
| Phosphorous - Total as P | mg/L | 0.29 | SM 4500P-E | 0.040 | 0.010 | 10/31/13 11:42 | 11/07/13 09:34 | 1 |
| Sulfate | mg/L | 190 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 17:04 | 10 |
| Total Alkalinity | mg/L | 250 | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:40 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.84 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:24 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-F3-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-37** |
| Date/Time Collected | **10/23/13 11:39** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.31 | | | | | | |
| Temperature | | 25.1 °C | | | | | | |
| Conductivity | | 281 umhos/cm | | | | | | |
| Dissolved Oxygen | | 1.52 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.23 | EPA 350.1 | 0.040 | 0.009 | | 10/25/13 13:24 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 10/28/13 12:00 | 10/28/13 17:00 | 1 |
| Chloride | mg/L | 8.6 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 17:08 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:08 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.08 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 17:08 | 1 |
| Nitrite (as N) | mg/L | 0.08 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:08 | 1 |
| Phosphorous - Total as P | mg/L | 5.7 | SM 4500P-E | 0.20 | 0.050 | 10/24/13 10:05 | 10/30/13 14:35 | 5 |
| Sulfate | mg/L | 4.2 | EPA 300.0 | 0.60 | 0.20 | | 10/24/13 17:08 | 1 |
| Total Alkalinity | mg/L | 110 | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:46 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 10/31/13 11:31 | 11/11/13 11:06 | 1 |

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# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-F4-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-38 |
| Date/Time Collected | 10/23/13 12:57 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/23/13 14:55 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.78 | | | | | | |
| Temperature | | 25.4 °C | | | | | | |
| Conductivity | | 728 umhos/cm | | | | | | |
| Dissolved Oxygen | | 1.2 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:00 | 1 |
| Chemical Oxygen Demand | mg/L | 65 | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 25 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 17:17 | 1 |
| Fluoride | mg/L | 0.14 | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 17:17 | 1 |
| Nitrate (as N) | mg/L | 1.2 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:17 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.2 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 17:17 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:17 | 1 |
| Orthophosphate as P | mg/L | 0.027 I | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 17:17 | 1 |
| Phosphorous - Total as P | mg/L | 0.17 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 14:24 | 10/30/13 14:04 | 1 |
| Sulfate | mg/L | 270 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 01:40 | 10 |
| Total Alkalinity | mg/L | 4.2 I | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:49 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.2 | EPA 351.2 | 0.20 | 0.05 | 10/29/13 08:41 | 10/31/13 13:33 | 1 |
| Total Organic Carbon | mg/L | 43 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 42 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.28 | EPA 200.7 | 0.10 | 0.050 | 10/30/13 10:50 | 10/30/13 15:56 | 1 |
| Calcium | mg/L | 66 | EPA 200.7 | 0.50 | 0.042 | 10/30/13 10:50 | 10/30/13 15:56 | 1 |
| Iron | mg/L | 0.31 | EPA 200.7 | 0.10 | 0.020 | 10/30/13 10:50 | 10/30/13 15:56 | 1 |
| Magnesium | mg/L | 30 | EPA 200.7 | 0.50 | 0.020 | 10/30/13 10:50 | 10/30/13 15:56 | 1 |
| Manganese | mg/L | 0.0039 I | EPA 200.7 | 0.010 | 0.0010 | 10/30/13 10:50 | 10/30/13 15:56 | 1 |
| Potassium | mg/L | 6.9 | EPA 200.7 | 0.050 | 0.010 | 10/30/13 10:50 | 10/30/13 15:56 | 1 |
| Sodium | mg/L | 30 | EPA 200.7 | 0.50 | 0.13 | 10/30/13 10:50 | 10/30/13 15:56 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

| **Project Name** | **C-HS4 SE#4** |
|---|---|
| Sample Description | **PZ-F4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-39** |
| Date/Time Collected | **10/23/13 13:14** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.54 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 487 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.07 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:02 | 1 |
| Chemical Oxygen Demand | mg/L | 28 | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 15 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 17:27 | 1 |
| Nitrate (as N) | mg/L | 0.06 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:27 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 I | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 17:27 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:27 | 1 |
| Phosphorous - Total as P | mg/L | 0.19 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 14:24 | 10/30/13 14:05 | 1 |
| Sulfate | mg/L | 62 | EPA 300.0 | 0.60 | 0.20 | | 10/24/13 17:27 | 1 |
| Total Alkalinity | mg/L | 150 | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:55 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.76 | EPA 351.2 | 0.20 | 0.05 | 10/29/13 08:41 | 10/31/13 13:35 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-G2-12.5** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-41** |
| Date/Time Collected | **10/23/13 09:40** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.29 | | | | | | |
| Temperature | | 25.6 °C | | | | | | |
| Conductivity | | 884 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.56 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 11:29 | 1 |
| Chemical Oxygen Demand | mg/L | 21 I | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 42 | EPA 300.0 | 2.0 | 0.50 | | 10/29/13 14:02 | 10 |
| Nitrate (as N) | mg/L | 1.0 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:36 | 1 |
| Nitrate+Nitrite (N) | mg/L | 1.0 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 17:36 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:36 | 1 |
| Sulfate | mg/L | 320 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 14:02 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:57 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.59 | EPA 351.2 | 0.20 | 0.05 | 10/29/13 08:41 | 10/31/13 13:36 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-H4-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-42** |
| Date/Time Collected | **10/23/13 13:29** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.52 | | | | | | |
| Temperature | | 25.3 °C | | | | | | |
| Conductivity | | 840 umhos/cm | | | | | | |
| Dissolved Oxygen | | 1.39 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:06 | 1 |
| Chemical Oxygen Demand | mg/L | 26 | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 34 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 17:46 | 1 |
| Fluoride | mg/L | 0.077 | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 17:46 | 1 |
| Nitrate (as N) | mg/L | 2.0 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:46 | 1 |
| Nitrate+Nitrite (N) | mg/L | 2.0 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 17:46 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 17:46 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 10/24/13 17:46 | 1 |
| Phosphorous - Total as P | mg/L | 0.022 I | SM 4500P-E | 0.040 | 0.010 | 10/24/13 14:24 | 10/30/13 14:06 | 1 |
| Sulfate | mg/L | 310 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 14:15 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 10/29/13 15:59 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.68 | EPA 351.2 | 0.20 | 0.05 | 10/29/13 08:41 | 10/31/13 13:38 | 1 |
| Total Organic Carbon | mg/L | 19 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 19 | SM 5310B | 1.0 | 0.060 | | 10/24/13 10:38 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.43 | EPA 200.7 | 0.10 | 0.050 | 10/30/13 10:50 | 10/30/13 16:06 | 1 |
| Calcium | mg/L | 75 | EPA 200.7 | 0.50 | 0.042 | 10/30/13 10:50 | 10/30/13 16:06 | 1 |
| Iron | mg/L | 0.27 | EPA 200.7 | 0.10 | 0.020 | 10/30/13 10:50 | 10/30/13 16:06 | 1 |
| Magnesium | mg/L | 38 | EPA 200.7 | 0.50 | 0.020 | 10/30/13 10:50 | 10/30/13 16:06 | 1 |
| Manganese | mg/L | 0.0029 I | EPA 200.7 | 0.010 | 0.0010 | 10/30/13 10:50 | 10/30/13 16:06 | 1 |
| Potassium | mg/L | 10 | EPA 200.7 | 0.050 | 0.010 | 10/30/13 10:50 | 10/30/13 16:06 | 1 |
| Sodium | mg/L | 36 | EPA 200.7 | 0.50 | 0.13 | 10/30/13 10:50 | 10/30/13 16:06 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-H4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-43** |
| Date/Time Collected | **10/23/13 13:48** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/23/13 14:55** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.52 | | | | | | |
| Temperature | | 25.0 °C | | | | | | |
| Conductivity | | 637 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.41 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.37 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 10:08 | 1 |
| Chemical Oxygen Demand | mg/L | 39 | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 10/24/13 18:03 | 1 |
| Nitrate (as N) | mg/L | 0.22 | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 18:03 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.22 | EPA 300.0 | 0.08 | 0.02 | | 10/24/13 18:03 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/24/13 18:03 | 1 |
| Phosphorous - Total as P | mg/L | 1.6 | SM 4500P-E | 0.040 | 0.010 | 10/24/13 14:24 | 10/30/13 14:07 | 1 |
| Sulfate | mg/L | 160 | EPA 300.0 | 6.0 | 2.0 | | 10/30/13 11:30 | 10 |
| Total Alkalinity | mg/L | 150 | SM 2320B | 8.0 | 2.0 | | 10/29/13 16:05 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.99 | EPA 351.2 | 0.20 | 0.05 | 10/29/13 08:41 | 10/31/13 13:40 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-H5-11.5** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-44** |
| Date/Time Collected | **10/24/13 13:23** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.40 | | | | | | |
| Temperature | | 24.2 °C | | | | | | |
| Conductivity | | 645 umhos/cm | | | | | | |
| Dissolved Oxygen | | 2.35 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 11:02 | 1 |
| Chemical Oxygen Demand | mg/L | 35 | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 32 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 19:45 | 1 |
| Nitrate (as N) | mg/L | 0.15 | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:45 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.15 | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 19:45 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:45 | 1 |
| Phosphorous - Total as P | mg/L | 0.052 | SM 4500P-E | 0.040 | 0.010 | 10/31/13 11:42 | 11/07/13 09:35 | 1 |
| Sulfate | mg/L | 220 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 17:17 | 10 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:33 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.52 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:26 | 1 |

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## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-I6-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-45 |
| Date/Time Collected | 10/24/13 12:47 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 4.36 | | | | | | |
| Temperature | | 23.7 °C | | | | | | |
| Conductivity | | 300 umhos/cm | | | | | | |
| Dissolved Oxygen | | 2.31 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.070 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 13:34 | 1 |
| Chemical Oxygen Demand | mg/L | 37 | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 19:54 | 1 |
| Fluoride | mg/L | 0.42 | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 19:54 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:54 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 19:54 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 19:54 | 1 |
| Orthophosphate as P | mg/L | 0.24 | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 19:54 | 1 |
| Phosphorous - Total as P | mg/L | 0.56 | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 10:35 | 1 |
| Sulfate | mg/L | 80 | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 19:54 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:35 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.66 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:27 | 1 |
| Total Organic Carbon | mg/L | 31 | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 31 | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.12 | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 16:17 | 1 |
| Calcium | mg/L | 28 | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 16:17 | 1 |
| Iron | mg/L | 1.8 | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 16:17 | 1 |
| Magnesium | mg/L | 12 | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 16:17 | 1 |
| Manganese | mg/L | 0.0077 I | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 16:17 | 1 |
| Potassium | mg/L | 1.4 | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 10/31/13 16:17 | 1 |
| Sodium | mg/L | 13 | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 16:17 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-I6-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-46** |
| Date/Time Collected | **10/24/13 13:05** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.62 | | | | | | |
| Temperature | | 23.9 °C | | | | | | |
| Conductivity | | 776 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.10 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.30 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 11:06 | 1 |
| Chloride | mg/L | 18 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 20:03 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:03 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 20:03 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:03 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 17:31 | 10 |
| Total Alkalinity | mg/L | 160 | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:41 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.81 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:29 | 1 |

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## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-I6-15-DUP |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-47 |
| Date/Time Collected | 10/24/13 13:10 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.62 | | | | | | |
| Temperature | | 23.9 °C | | | | | | |
| Conductivity | | 776 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.10 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.29 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 11:08 | 1 |
| Chloride | mg/L | 18 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 20:13 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:13 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 20:13 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:13 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 17:44 | 10 |
| Total Alkalinity | mg/L | 180 | SM 2320B | 8.0 | 2.0 | | 11/01/13 09:43 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.90 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:31 | 1 |

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**Work Order: 1311076**

## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-I10-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-48** |
| Date/Time Collected | **10/24/13 10:23** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 4.87 | | | | | | | |
| Temperature | | 23.8 °C | | | | | | | |
| Conductivity | | 353 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 0.46 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.17 | | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 11:10 | 1 |
| Chemical Oxygen Demand | mg/L | 21 | I | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 27 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 20:22 | 1 |
| Nitrate (as N) | mg/L | 0.02 | I | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:22 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 | I | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 20:22 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:22 | 1 |
| Phosphorous - Total as P | mg/L | 0.048 | | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 10:36 | 1 |
| Sulfate | mg/L | 95 | | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 20:22 | 1 |
| Total Alkalinity | mg/L | 6.4 | I | SM 2320B | 8.0 | 2.0 | | 11/01/13 09:46 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:32 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-I10-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-49** |
| Date/Time Collected | **10/24/13 10:35** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.87 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 501 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.13 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.40 | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 11:16 | 1 |
| Chloride | mg/L | 24 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 20:32 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:32 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 20:32 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 20:32 | 1 |
| Sulfate | mg/L | 140 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 17:58 | 10 |
| Total Alkalinity | mg/L | 50 | SM 2320B | 8.0 | 2.0 | | 11/01/13 09:51 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.95 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:34 | 1 |

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## Laboratory Report

| **Project Name** | **C-HS4 SE#4** |
|---|---|
| Sample Description | **PZ-J4-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-51** |
| Date/Time Collected | **10/25/13 09:52** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/25/13 12:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.12 | | | | | | |
| Temperature | | 24.1 °C | | | | | | |
| Conductivity | | 437 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.69 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.80 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:11 | 1 |
| Chemical Oxygen Demand | mg/L | 19 I | EPA 410.4 | 25 | 10 | 11/07/13 10:54 | 11/07/13 16:46 | 1 |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 10/26/13 02:09 | 1 |
| Nitrate (as N) | mg/L | 0.72 | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 02:09 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.72 | EPA 300.0 | 0.08 | 0.02 | | 10/26/13 02:09 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 02:09 | 1 |
| Phosphorous - Total as P | mg/L | 0.33 | SM 4500P-E | 0.040 | 0.010 | 11/06/13 13:13 | 11/07/13 15:33 | 1 |
| Sulfate | mg/L | 110 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 21:10 | 10 |
| Total Alkalinity | mg/L | 51 | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:45 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.4 | EPA 351.2 | 0.20 | 0.05 | 11/08/13 10:50 | 11/12/13 15:01 | 1 |

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November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-J7-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-52 |
| Date/Time Collected | 10/24/13 12:10 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.029 | I | EPA 350.1 | 0.040 | 0.009 | | 11/01/13 13:36 | 1 |
| Chemical Oxygen Demand | mg/L | 28 | | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 18 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 21:09 | 1 |
| Fluoride | mg/L | 0.098 | | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 21:09 | 1 |
| Nitrate (as N) | mg/L | 0.06 | | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:09 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.06 | I | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 21:09 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:09 | 1 |
| Orthophosphate as P | mg/L | 0.010 | U | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 21:09 | 1 |
| Phosphorous - Total as P | mg/L | 0.050 | | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 10:37 | 1 |
| Sulfate | mg/L | 62 | | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 21:09 | 1 |
| Total Alkalinity | mg/L | 2.7 | I | SM 2320B | 8.0 | 2.0 | | 11/01/13 09:54 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.55 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:41 | 11/11/13 16:35 | 1 |
| Total Organic Carbon | mg/L | 28 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 27 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | | |
| Boron | mg/L | 0.096 | I | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 16:21 | 1 |
| Calcium | mg/L | 22 | | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 16:21 | 1 |
| Iron | mg/L | 0.54 | | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 16:21 | 1 |
| Magnesium | mg/L | 8.8 | | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 16:21 | 1 |
| Manganese | mg/L | 0.0019 | I | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 16:21 | 1 |
| Potassium | mg/L | 0.84 | | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 11/01/13 10:49 | 1 |
| Sodium | mg/L | 9.3 | | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 16:21 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-J7-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-53** |
| Date/Time Collected | **10/24/13 12:25** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 5.03 | | | | | | | |
| Temperature | | 23.9 °C | | | | | | | |
| Conductivity | | 437 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.26 | | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:13 | 1 |
| Chemical Oxygen Demand | mg/L | 63 | | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 32 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 21:18 | 1 |
| Fluoride | mg/L | 0.018 | I | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 21:18 | 1 |
| Nitrate (as N) | mg/L | 0.40 | | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:18 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.40 | | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 21:18 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:18 | 1 |
| Orthophosphate as P | mg/L | 0.010 | U | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 21:18 | 1 |
| Phosphorous - Total as P | mg/L | 0.27 | | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 11:31 | 1 |
| Sulfate | mg/L | 120 | | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 18:11 | 10 |
| Total Alkalinity | mg/L | 9.1 | | SM 2320B | 8.0 | 2.0 | | 11/01/13 09:58 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.5 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 10:48 | 1 |
| Total Organic Carbon | mg/L | 34 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 33 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | | |
| Boron | mg/L | 0.15 | | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 16:24 | 1 |
| Calcium | mg/L | 46 | | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 16:24 | 1 |
| Iron | mg/L | 0.34 | | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 16:24 | 1 |
| Magnesium | mg/L | 13 | | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 16:24 | 1 |
| Manganese | mg/L | 0.0029 | I | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 16:24 | 1 |
| Potassium | mg/L | 1.5 | | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 10/31/13 16:24 | 1 |
| Sodium | mg/L | 11 | | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 16:24 | 1 |

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November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-J7-15-DUP |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-54 |
| Date/Time Collected | 10/24/13 12:30 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.03 | | | | | | |
| Temperature | | 23.9 °C | | | | | | |
| Conductivity | | 437 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.25 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:15 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 11/04/13 13:47 | 11/04/13 13:49 | 1 |
| Chloride | mg/L | 33 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 21:28 | 1 |
| Fluoride | mg/L | 0.014 I | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 21:28 | 1 |
| Nitrate (as N) | mg/L | 0.40 | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:28 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.40 | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 21:28 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:28 | 1 |
| Orthophosphate as P | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 21:28 | 1 |
| Phosphorous - Total as P | mg/L | 0.26 | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 10:40 | 1 |
| Sulfate | mg/L | 120 | EPA 300.0 | 6.0 | 2.0 | | 10/30/13 11:44 | 10 |
| Total Alkalinity | mg/L | 8.3 | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:01 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 3.5 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 10:49 | 1 |
| Total Organic Carbon | mg/L | 34 | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 33 | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.16 | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 16:28 | 1 |
| Calcium | mg/L | 46 | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 16:28 | 1 |
| Iron | mg/L | 0.26 | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 16:28 | 1 |
| Magnesium | mg/L | 13 | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 16:28 | 1 |
| Manganese | mg/L | 0.0032 I | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 16:28 | 1 |
| Potassium | mg/L | 1.6 | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 10/31/13 16:28 | 1 |
| Sodium | mg/L | 11 | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 16:28 | 1 |

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**November 13, 2013**
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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-N4-08-DUP** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-56** |
| Date/Time Collected | **10/25/13 09:39** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/25/13 12:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.50 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:17 | 1 |
| Chemical Oxygen Demand | mg/L | 91 | EPA 410.4 | 25 | 10 | 11/07/13 10:54 | 11/07/13 16:46 | 1 |
| Chloride | mg/L | 13 | EPA 300.0 | 0.20 | 0.050 | | 10/26/13 02:19 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 02:19 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/26/13 02:19 | 1 |
| Nitrite (as N) | mg/L | 0.01 I | EPA 300.0 | 0.04 | 0.01 | | 10/26/13 02:19 | 1 |
| Phosphorous - Total as P | mg/L | 7.3 | SM 4500P-E | 0.20 | 0.050 | 11/06/13 13:13 | 11/07/13 17:08 | 5 |
| Sulfate | mg/L | 64 | EPA 300.0 | 0.60 | 0.20 | | 10/26/13 02:19 | 1 |
| Total Alkalinity | mg/L | 110 | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:50 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.6 | EPA 351.2 | 0.20 | 0.05 | 11/08/13 10:50 | 11/12/13 15:02 | 1 |

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November 13, 2013
Work Order: 1311076

## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-N4-15 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-57 |
| Date/Time Collected | 10/25/13 09:34 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/25/13 12:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.31 | | | | | | |
| Temperature | | 22.3 °C | | | | | | |
| Conductivity | | 386 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.53 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.52 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:27 | 1 |
| Chloride | mg/L | 13 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 10:37 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 10:37 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 10:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 10:37 | 1 |
| Sulfate | mg/L | 62 | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 10:37 | 1 |
| Total Alkalinity | mg/L | 100 | SM 2320B | 8.0 | 2.0 | | 11/05/13 13:56 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 2.8 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:43 | 11/12/13 13:44 | 1 |

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November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-N7-08 |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-58 |
| Date/Time Collected | 10/24/13 11:41 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.63 | | | | | | |
| Temperature | | 23.4 °C | | | | | | |
| Conductivity | | 390 umhos/cm | | | | | | |
| Dissolved Oxygen | | 1.98 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.31 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:29 | 1 |
| Chloride | mg/L | 25 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 21:37 | 1 |
| Nitrate (as N) | mg/L | 0.07 | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:37 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.07 I | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 21:37 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:37 | 1 |
| Sulfate | mg/L | 78 | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 21:37 | 1 |
| Total Alkalinity | mg/L | 37 | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:06 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.98 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 10:51 | 1 |

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Tampa, FL 33619

November 13, 2013
Work Order: 1311076

## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | **PZ-N7-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-59** |
| Date/Time Collected | **10/24/13 11:54** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.42 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 478 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.90 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.34 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:31 | 1 |
| Chloride | mg/L | 24 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 21:47 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:47 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 21:47 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:47 | 1 |
| Sulfate | mg/L | 150 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 20:00 | 10 |
| Total Alkalinity | mg/L | 18 | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:10 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 10:53 | 1 |

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November 13, 2013
Work Order: 1311076

## Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | PZ-N7-15-DUP |
| Matrix | Groundwater |
| SAL Sample Number | 1311076-60 |
| Date/Time Collected | 10/24/13 11:59 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.42 | | | | | | |
| Temperature | | 23.8 °C | | | | | | |
| Conductivity | | 478 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.90 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.34 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:33 | 1 |
| Chloride | mg/L | 24 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 21:56 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:56 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 21:56 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 21:56 | 1 |
| Sulfate | mg/L | 150 | EPA 300.0 | 6.0 | 2.0 | | 10/29/13 20:13 | 10 |
| Total Alkalinity | mg/L | 18 | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:14 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 10:54 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-N10-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-61** |
| Date/Time Collected | **10/24/13 10:58** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 5.52 | | | | | | | |
| Temperature | | 23.7 °C | | | | | | | |
| Conductivity | | 289 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 1.03 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.077 | | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:35 | 1 |
| Chemical Oxygen Demand | mg/L | 48 | | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 20 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 22:05 | 1 |
| Fluoride | mg/L | 0.13 | | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 22:05 | 1 |
| Nitrate (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:05 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 | U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 22:05 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:05 | 1 |
| Orthophosphate as P | mg/L | 0.026 | I | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 22:05 | 1 |
| Phosphorous - Total as P | mg/L | 0.14 | | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 10:41 | 1 |
| Sulfate | mg/L | 48 | | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 22:05 | 1 |
| Total Alkalinity | mg/L | 26 | | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:18 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.80 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 10:56 | 1 |
| Total Organic Carbon | mg/L | 40 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 40 | | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | | |
| Boron | mg/L | 0.050 | I | EPA 200.7 | 0.10 | 0.050 | 10/31/13 10:45 | 10/31/13 16:32 | 1 |
| Calcium | mg/L | 25 | | EPA 200.7 | 0.50 | 0.042 | 10/31/13 10:45 | 10/31/13 16:32 | 1 |
| Iron | mg/L | 0.33 | | EPA 200.7 | 0.10 | 0.020 | 10/31/13 10:45 | 10/31/13 16:32 | 1 |
| Magnesium | mg/L | 6.5 | | EPA 200.7 | 0.50 | 0.020 | 10/31/13 10:45 | 10/31/13 16:32 | 1 |
| Manganese | mg/L | 0.0098 | I | EPA 200.7 | 0.010 | 0.0010 | 10/31/13 10:45 | 10/31/13 16:32 | 1 |
| Potassium | mg/L | 0.59 | | EPA 200.7 | 0.050 | 0.010 | 10/31/13 10:45 | 11/01/13 10:53 | 1 |
| Sodium | mg/L | 11 | | EPA 200.7 | 0.50 | 0.13 | 10/31/13 10:45 | 10/31/13 16:32 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

## Laboratory Report

| **Project Name** | **C-HS4 SE#4** |
|---|---|
| Sample Description | **PZ-N10-15** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-62** |
| Date/Time Collected | **10/24/13 11:12** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 6.55 | | | | | | |
| Temperature | | 23.6 °C | | | | | | |
| Conductivity | | 568 umhos/cm | | | | | | |
| Dissolved Oxygen | | 0.11 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.34 | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:37 | 1 |
| Chloride | mg/L | 16 | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 22:15 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:15 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 22:15 | 1 |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:15 | 1 |
| Sulfate | mg/L | 76 | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 22:15 | 1 |
| Total Alkalinity | mg/L | 150 | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:29 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.89 | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 10:58 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-S10-08** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-63** |
| Date/Time Collected | **10/24/13 11:25** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 4.96 | | | | | | | |
| Temperature | | 23.9 °C | | | | | | | |
| Conductivity | | 242 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.41 | | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:39 | 1 |
| Chemical Oxygen Demand | mg/L | 21 | I | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 17 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 22:24 | 1 |
| Nitrate (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:24 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 | U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 22:24 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:24 | 1 |
| Phosphorous - Total as P | mg/L | 0.023 | I | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 12:26 | 1 |
| Sulfate | mg/L | 59 | | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 22:24 | 1 |
| Total Alkalinity | mg/L | 3.3 | I | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:32 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.99 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 11:06 | 1 |

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## Laboratory Report

**Project Name** **C-HS4 SE#4**

| | |
|---|---|
| Sample Description | **PZ-S10-08-DUP** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1311076-64** |
| Date/Time Collected | **10/24/13 11:30** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **10/24/13 15:00** |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 4.96 | | | | | | | |
| Temperature | | 23.9 °C | | | | | | | |
| Conductivity | | 242 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 0.16 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.40 | | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:41 | 1 |
| Chemical Oxygen Demand | mg/L | 19 | I | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 17 | | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 22:34 | 1 |
| Nitrate (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:34 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 | U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 22:34 | 1 |
| Nitrite (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 22:34 | 1 |
| Phosphorous - Total as P | mg/L | 0.025 | I | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 12:27 | 1 |
| Sulfate | mg/L | 60 | | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 22:34 | 1 |
| Total Alkalinity | mg/L | 3.1 | I | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:36 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 11:08 | 1 |

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November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | FB-DI |
| Matrix | Reagent Water |
| SAL Sample Number | 1311076-72 |
| Date/Time Collected | 10/24/13 13:35 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | |
| pH | | 5.73 | | | | | | |
| Temperature | | 20.1 °C | | | | | | |
| Conductivity | | 1.25 umhos/cm | | | | | | |
| Dissolved Oxygen | | 8.37 mg/L | | | | | | |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:47 | 1 |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 23:39 | 1 |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 23:39 | 1 |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 23:39 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 23:39 | 1 |
| Nitrite (as N) | mg/L | 0.02 I | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 23:39 | 1 |
| Orthophosphate as P | mg/L | 0.024 I | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 23:39 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 13:27 | 1 |
| Sulfate | mg/L | 0.20 U | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 23:39 | 1 |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:39 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 11:56 | 1 |
| Total Organic Carbon | mg/L | 0.060 U | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 0.060 U | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7 | 0.10 | 0.050 | 10/28/13 13:56 | 10/29/13 12:11 | 1 |
| Calcium | mg/L | 0.042 U | EPA 200.7 | 0.50 | 0.042 | 10/28/13 13:56 | 10/29/13 12:11 | 1 |
| Iron | mg/L | 0.020 U | EPA 200.7 | 0.10 | 0.020 | 10/28/13 13:56 | 10/29/13 12:11 | 1 |
| Magnesium | mg/L | 0.022 I | EPA 200.7 | 0.50 | 0.020 | 10/28/13 13:56 | 10/29/13 12:11 | 1 |
| Manganese | mg/L | 0.0010 U | EPA 200.7 | 0.010 | 0.0010 | 10/28/13 13:56 | 10/29/13 12:11 | 1 |
| Potassium | mg/L | 0.27 I | EPA 200.7 | 0.50 | 0.10 | 10/28/13 13:56 | 10/29/13 12:11 | 1 |
| Sodium | mg/L | 0.51 | EPA 200.7 | 0.50 | 0.13 | 10/28/13 13:56 | 10/29/13 12:11 | 1 |

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November 13, 2013
Work Order: 1311076

# Laboratory Report

**Project Name** C-HS4 SE#4

| | |
|---|---|
| Sample Description | EB |
| Matrix | Reagent Water |
| SAL Sample Number | 1311076-73 |
| Date/Time Collected | 10/24/13 13:25 |
| Collected by | Sean Schmidt |
| Date/Time Received | 10/24/13 15:00 |

| Parameters | Units | Results * | | Method | PQL | MDL | Prepared | Analyzed | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| **Client Provided Field Data** | | | | | | | | | |
| pH | | 5.78 | | | | | | | |
| Temperature | | 20.1 °C | | | | | | | |
| Conductivity | | 1.25 umhos/cm | | | | | | | |
| Dissolved Oxygen | | 8037 mg/L | | | | | | | |
| **Inorganics** | | | | | | | | | |
| Ammonia as N | mg/L | 0.009 | U | EPA 350.1 | 0.040 | 0.009 | | 11/05/13 15:48 | 1 |
| Chemical Oxygen Demand | mg/L | 10 | U | EPA 410.4 | 25 | 10 | | 11/05/13 09:30 | 1 |
| Chloride | mg/L | 0.067 | I | EPA 300.0 | 0.20 | 0.050 | | 10/25/13 23:49 | 1 |
| Fluoride | mg/L | 0.010 | U | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 23:49 | 1 |
| Nitrate (as N) | mg/L | 0.01 | U | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 23:49 | 1 |
| Nitrate+Nitrite (N) | mg/L | 0.02 | U | EPA 300.0 | 0.08 | 0.02 | | 10/25/13 23:49 | 1 |
| Nitrite (as N) | mg/L | 0.01 | I | EPA 300.0 | 0.04 | 0.01 | | 10/25/13 23:49 | 1 |
| Orthophosphate as P | mg/L | 0.010 | U | EPA 300.0 | 0.040 | 0.010 | | 10/25/13 23:49 | 1 |
| Phosphorous - Total as P | mg/L | 0.010 | U | SM 4500P-E | 0.040 | 0.010 | 10/26/13 08:44 | 10/31/13 13:28 | 1 |
| Sulfate | mg/L | 0.20 | U | EPA 300.0 | 0.60 | 0.20 | | 10/25/13 23:49 | 1 |
| Total Alkalinity | mg/L | 2.0 | U | SM 2320B | 8.0 | 2.0 | | 11/01/13 10:42 | 1 |
| Total Kjeldahl Nitrogen | mg/L | 0.05 | U | EPA 351.2 | 0.20 | 0.05 | 11/07/13 13:37 | 11/12/13 11:57 | 1 |
| Total Organic Carbon | mg/L | 0.060 | U | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Inorganic, Dissolved** | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 0.060 | U | SM 5310B | 1.0 | 0.060 | | 10/30/13 10:10 | 1 |
| **Metals** | | | | | | | | | |
| Boron | mg/L | 0.050 | U | EPA 200.7 | 0.10 | 0.050 | 10/28/13 13:56 | 10/29/13 12:14 | 1 |
| Calcium | mg/L | 0.042 | U | EPA 200.7 | 0.50 | 0.042 | 10/28/13 13:56 | 10/29/13 12:14 | 1 |
| Iron | mg/L | 0.020 | U | EPA 200.7 | 0.10 | 0.020 | 10/28/13 13:56 | 10/29/13 12:14 | 1 |
| Magnesium | mg/L | 0.020 | U | EPA 200.7 | 0.50 | 0.020 | 10/28/13 13:56 | 10/29/13 12:14 | 1 |
| Manganese | mg/L | 0.0010 | U | EPA 200.7 | 0.010 | 0.0010 | 10/28/13 13:56 | 10/29/13 12:14 | 1 |
| Potassium | mg/L | 0.25 | I | EPA 200.7 | 0.50 | 0.10 | 10/28/13 13:56 | 10/29/13 12:14 | 1 |
| Sodium | mg/L | 0.28 | I | EPA 200.7 | 0.50 | 0.13 | 10/28/13 13:56 | 10/29/13 12:14 | 1 |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32331 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32331-BLK1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| 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 | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | *Result:* | *0.997* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *0.997* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *0.997* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *0.997* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *0.997* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *0.997* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| **LCS (BJ32331-BS1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Nitrate (as N) | 1.82 | 0.04 | 0.01 | mg/L | 1.7 | | 107 | 85-115 | | |
| Chloride | 3.19 | 0.20 | 0.050 | mg/L | 3.0 | | 106 | 85-115 | | |
| Orthophosphate as P | 0.935 | 0.040 | 0.010 | mg/L | 0.90 | | 104 | 85-115 | | |
| Nitrite (as N) | 1.54 | 0.04 | 0.01 | mg/L | 1.4 | | 110 | 85-115 | | |
| Sulfate | 9.71 | 0.60 | 0.20 | mg/L | 9.0 | | 108 | 85-115 | | |
| Fluoride | 0.966 | 0.040 | 0.010 | mg/L | 0.90 | | 107 | 85-115 | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| **LCS Dup (BJ32331-BSD1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Nitrate (as N) | 1.78 | 0.04 | 0.01 | mg/L | 1.7 | | 105 | 85-115 | 2 | 200 |
| Orthophosphate as P | 0.915 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | 2 | 200 |
| Sulfate | 9.48 | 0.60 | 0.20 | mg/L | 9.0 | | 105 | 85-115 | 2 | 200 |
| Nitrite (as N) | 1.49 | 0.04 | 0.01 | mg/L | 1.4 | | 107 | 85-115 | 3 | 200 |
| Chloride | 3.12 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | 2 | 200 |
| Fluoride | 0.921 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | 5 | 200 |
| *Surrogate: Dichloroacetate* | *Result:* | *1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | *Result:* | *1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |

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

**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32331 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BJ32331-MS1)** | | **Source: 1311076-03** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Nitrite (as N) | 1.54 | 0.04 | 0.01 | mg/L | 1.4 | ND | 110 | 85-115 | | |
| Orthophosphate as P | 0.851 | 0.040 | 0.010 | mg/L | 0.90 | ND | 95 | 85-115 | | |
| Nitrate (as N) | 4.09 | 0.04 | 0.01 | mg/L | 1.7 | 2.49 | 94 | 85-115 | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 344 | NR | 85-115 | | |
| Fluoride | 0.952 | 0.040 | 0.010 | mg/L | 0.90 | 0.0170 | 104 | 85-115 | | |
| Chloride | 30.0 L | 0.20 | 0.050 | mg/L | 3.0 | 37.5 | NR | 80-120 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| **Matrix Spike (BJ32331-MS2)** | | **Source: 1311076-24** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Nitrite (as N) | 1.55 | 0.04 | 0.01 | mg/L | 1.4 | ND | 110 | 85-115 | | |
| Orthophosphate as P | 0.815 | 0.040 | 0.010 | mg/L | 0.90 | ND | 91 | 85-115 | | |
| Fluoride | 0.959 | 0.040 | 0.010 | mg/L | 0.90 | 0.0400 | 102 | 85-115 | | |
| Chloride | 19.1 | 0.20 | 0.050 | mg/L | 3.0 | 16.3 | 91 | 80-120 | | |
| Nitrate (as N) | 1.76 | 0.04 | 0.01 | mg/L | 1.7 | ND | 104 | 85-115 | | |
| Sulfate | 72.9 J5 | 0.60 | 0.20 | mg/L | 9.0 | 68.3 | 51 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32332 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32332-BLK1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | 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 | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| **LCS (BJ32332-BS1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Orthophosphate as P | 0.894 | 0.040 | 0.010 | mg/L | 0.90 | | 99 | 85-115 | | |
| Sulfate | 9.74 | 0.60 | 0.20 | mg/L | 9.0 | | 108 | 85-115 | | |
| Fluoride | 0.948 | 0.040 | 0.010 | mg/L | 0.90 | | 105 | 85-115 | | |
| Chloride | 3.20 | 0.20 | 0.050 | mg/L | 3.0 | | 107 | 85-115 | | |
| Nitrate (as N) | 1.83 | 0.04 | 0.01 | mg/L | 1.7 | | 107 | 85-115 | | |
| Nitrite (as N) | 1.53 | 0.04 | 0.01 | mg/L | 1.4 | | 109 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| **LCS Dup (BJ32332-BSD1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Orthophosphate as P | 0.901 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | 0.8 | 200 |
| Fluoride | 0.944 | 0.040 | 0.010 | mg/L | 0.90 | | 105 | 85-115 | 0.4 | 200 |
| Chloride | 3.19 | 0.20 | 0.050 | mg/L | 3.0 | | 106 | 85-115 | 0.09 | 200 |
| Nitrate (as N) | 1.83 | 0.04 | 0.01 | mg/L | 1.7 | | 108 | 85-115 | 0.4 | 200 |
| Nitrite (as N) | 1.54 | 0.04 | 0.01 | mg/L | 1.4 | | 110 | 85-115 | 0.5 | 200 |
| Sulfate | 9.78 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | 0.4 | 200 |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32332 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BJ32332-MS1)** | | **Source: 1311076-43** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 156 | NR | 85-115 | | |
| Fluoride | 1.09 | 0.040 | 0.010 | mg/L | 0.90 | 0.116 | 108 | 85-115 | | |
| Nitrate (as N) | 1.83 | 0.04 | 0.01 | mg/L | 1.7 | 0.218 | 95 | 85-115 | | |
| Nitrite (as N) | 1.50 | 0.04 | 0.01 | mg/L | 1.4 | ND | 107 | 85-115 | | |
| Orthophosphate as P | 0.843 | 0.040 | 0.010 | mg/L | 0.90 | ND | 94 | 85-115 | | |
| Chloride | 26.1 J5 | 0.20 | 0.050 | mg/L | 3.0 | 19.1 | 235 | 80-120 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| **Matrix Spike (BJ32332-MS2)** | | **Source: 1311394-01** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Orthophosphate as P | 0.928 | 0.040 | 0.010 | mg/L | 0.90 | ND | 103 | 85-115 | | |
| Nitrite (as N) | 1.43 | 0.04 | 0.01 | mg/L | 1.4 | ND | 102 | 85-115 | | |
| Nitrate (as N) | 2.21 | 0.04 | 0.01 | mg/L | 1.7 | 0.362 | 109 | 85-115 | | |
| Fluoride | 1.61 | 0.040 | 0.010 | mg/L | 0.90 | 0.633 | 108 | 85-115 | | |
| Sulfate | 87.1 | 0.60 | 0.20 | mg/L | 9.0 | 78.7 | 94 | 85-115 | | |
| Chloride | 17.9 | 0.20 | 0.050 | mg/L | 3.0 | 14.7 | 107 | 80-120 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.09* | | *mg/L* | *1.0* | | *109* | *90-115* | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32417 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BJ32417-BLK1)** | | | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BJ32417-BS1)** | | | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 0.774 | 0.040 | 0.010 | mg/L | 0.80 | | 97 | 90-110 | | |
| **Matrix Spike (BJ32417-MS1)** | | **Source: 1311395-07** | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 1.01 | 0.040 | 0.010 | mg/L | 1.0 | 0.0563 | 95 | 90-110 | | |
| **Matrix Spike (BJ32417-MS2)** | | **Source: 1311413-02** | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 0.983 | 0.040 | 0.010 | mg/L | 1.0 | 0.0276 | 96 | 90-110 | | |
| **Matrix Spike Dup (BJ32417-MSD1)** | | **Source: 1311395-07** | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 0.988 | 0.040 | 0.010 | mg/L | 1.0 | 0.0563 | 93 | 90-110 | 2 | 25 |
| **Matrix Spike Dup (BJ32417-MSD2)** | | **Source: 1311413-02** | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 1.04 | 0.040 | 0.010 | mg/L | 1.0 | 0.0276 | 101 | 90-110 | 5 | 25 |
| **Batch BJ32424 - TOC prep** | | | | | | | | | | |
| **Blank (BJ32424-BLK1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Total Organic Carbon | 0.060 U | 1.0 | 0.060 | mg/L | | | | | | |
| **LCS (BJ32424-BS1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Total Organic Carbon | 10.3 | 1.0 | 0.060 | mg/L | 10 | | 103 | 90-110 | | |
| **Matrix Spike (BJ32424-MS1)** | | **Source: 1311302-03** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Total Organic Carbon | 10.1 | 1.0 | 0.060 | mg/L | 10 | ND | 101 | 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 BJ32424 - TOC prep** | | | | | | | | | | |
| **Matrix Spike Dup (BJ32424-MSD1)** | | **Source: 1311302-03** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Total Organic Carbon | 10.3 | 1.0 | 0.060 | mg/L | 10 | ND | 103 | 85-115 | 2 | 10 |
| **Batch BJ32441 - alkalinity** | | | | | | | | | | |
| **Blank (BJ32441-BLK1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BJ32441-BS1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 102 | 90-110 | | |
| **Matrix Spike (BJ32441-MS1)** | | **Source: 1311387-03** | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Total Alkalinity | 200 | 8.0 | 2.0 | mg/L | 120 | 74 | 105 | 80-120 | | |
| **Matrix Spike Dup (BJ32441-MSD1)** | | **Source: 1311387-03** | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Total Alkalinity | 200 | 8.0 | 2.0 | mg/L | 120 | 74 | 100 | 80-120 | 3 | 26 |
| **Batch BJ32444 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BJ32444-BLK1)** | | | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BJ32444-BS1)** | | | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 0.785 | 0.040 | 0.010 | mg/L | 0.80 | | 98 | 90-110 | | |
| **Matrix Spike (BJ32444-MS1)** | | **Source: 1311452-07** | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 1.00 | 0.040 | 0.010 | mg/L | 1.0 | 0.0642 | 94 | 90-110 | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32444 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Matrix Spike Dup (BJ32444-MSD1)** | | **Source: 1311452-07** | | | Prepared: 10/24/13 Analyzed: 10/30/13 | | | | | |
| Phosphorous - Total as P | 1.04 | 0.040 | 0.010 | mg/L | 1.0 | 0.0642 | 97 | 90-110 | 3 | 25 |
| **Batch BJ32448 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BJ32448-BLK1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BJ32448-BS1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 100 | 90-110 | | |
| **Matrix Spike (BJ32448-MS1)** | | **Source: 1311076-03** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.012 | 101 | 90-110 | | |
| **Matrix Spike (BJ32448-MS2)** | | **Source: 1311452-07** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | 0.039 | 91 | 90-110 | | |
| **Matrix Spike Dup (BJ32448-MSD1)** | | **Source: 1311076-03** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.012 | 98 | 90-110 | 2 | 10 |
| **Matrix Spike Dup (BJ32448-MSD2)** | | **Source: 1311452-07** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Ammonia as N | 0.52 | 0.040 | 0.009 | mg/L | 0.50 | 0.039 | 96 | 90-110 | 5 | 10 |
| **Batch BJ32501 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32501-BLK1)** | | | | | Prepared & Analyzed: 10/26/13 | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |

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**Tampa, FL 33619**

**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32501 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BJ32501-BS1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Nitrite (as N) | 1.53 | 0.04 | 0.01 | mg/L | 1.4 | | 109 | 85-115 | | |
| Nitrate (as N) | 1.83 | 0.04 | 0.01 | mg/L | 1.7 | | 108 | 85-115 | | |
| Orthophosphate as P | 0.939 | 0.040 | 0.010 | mg/L | 0.90 | | 104 | 85-115 | | |
| Fluoride | 0.964 | 0.040 | 0.010 | mg/L | 0.90 | | 107 | 85-115 | | |
| Chloride | 3.21 | 0.20 | 0.050 | mg/L | 3.0 | | 107 | 85-115 | | |
| Sulfate | 9.84 | 0.60 | 0.20 | mg/L | 9.0 | | 109 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.14* | | *mg/L* | *1.0* | | *114* | *90-115* | | |
| **LCS Dup (BJ32501-BSD1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Fluoride | 0.943 | 0.040 | 0.010 | mg/L | 0.90 | | 105 | 85-115 | 2 | 200 |
| Nitrite (as N) | 1.41 | 0.04 | 0.01 | mg/L | 1.4 | | 101 | 85-115 | 8 | 200 |
| Chloride | 3.09 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | 4 | 200 |
| Nitrate (as N) | 1.80 | 0.04 | 0.01 | mg/L | 1.7 | | 106 | 85-115 | 2 | 200 |
| Orthophosphate as P | 0.922 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | 2 | 200 |
| Sulfate | 9.29 | 0.60 | 0.20 | mg/L | 9.0 | | 103 | 85-115 | 6 | 200 |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| **Matrix Spike (BJ32501-MS1)** | | **Source: 1311442-01** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Nitrite (as N) | 1.47 | 0.04 | 0.01 | mg/L | 1.4 | 0.0510 | 101 | 85-115 | | |
| Fluoride | 0.961 | 0.040 | 0.010 | mg/L | 0.90 | 0.0760 | 98 | 85-115 | | |
| Chloride | 8.47 | 0.20 | 0.050 | mg/L | 3.0 | 5.24 | 108 | 80-120 | | |
| Nitrate (as N) | 1.92 | 0.04 | 0.01 | mg/L | 1.7 | 0.0700 | 109 | 85-115 | | |
| Orthophosphate as P | 0.796 | 0.040 | 0.010 | mg/L | 0.90 | 0.0260 | 86 | 85-115 | | |
| Sulfate | 10.9 | 0.60 | 0.20 | mg/L | 9.0 | 1.55 | 104 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.05* | | *mg/L* | *1.0* | | *105* | *90-115* | | |

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**November 13, 2013**
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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32501 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BJ32501-MS2)** | | **Source: 1311076-31** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Chloride | 29.1 | 0.20 | 0.050 | mg/L | 3.0 | 26.0 | 103 | 80-120 | | |
| Nitrate (as N) | 1.78 | 0.04 | 0.01 | mg/L | 1.7 | ND | 105 | 85-115 | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 266 | NR | 85-115 | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | ND | 91 | 85-115 | | |
| Fluoride | 0.901 | 0.040 | 0.010 | mg/L | 0.90 | 0.123 | 86 | 85-115 | | |
| Orthophosphate as P | 0.431 J5 | 0.040 | 0.010 | mg/L | 0.90 | ND | 48 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.922* | | *mg/L* | *1.0* | | *92* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.922* | | *mg/L* | *1.0* | | *92* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.922* | | *mg/L* | *1.0* | | *92* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.922* | | *mg/L* | *1.0* | | *92* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.922* | | *mg/L* | *1.0* | | *92* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.922* | | *mg/L* | *1.0* | | *92* | *90-115* | | |
| **Batch BJ32502 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32502-BLK1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | 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 | | | | | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32502 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BJ32502-BS1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Chloride | 3.12 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | | |
| Nitrate (as N) | 1.78 | 0.04 | 0.01 | mg/L | 1.7 | | 104 | 85-115 | | |
| Sulfate | 9.54 | 0.60 | 0.20 | mg/L | 9.0 | | 106 | 85-115 | | |
| Orthophosphate as P | 0.873 | 0.040 | 0.010 | mg/L | 0.90 | | 97 | 85-115 | | |
| Nitrite (as N) | 1.48 | 0.04 | 0.01 | mg/L | 1.4 | | 105 | 85-115 | | |
| Fluoride | 0.915 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| **LCS Dup (BJ32502-BSD1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Sulfate | 8.81 | 0.60 | 0.20 | mg/L | 9.0 | | 98 | 85-115 | 8 | 200 |
| Chloride | 2.88 | 0.20 | 0.050 | mg/L | 3.0 | | 96 | 85-115 | 8 | 200 |
| Fluoride | 0.849 | 0.040 | 0.010 | mg/L | 0.90 | | 94 | 85-115 | 7 | 200 |
| Nitrite (as N) | 1.38 | 0.04 | 0.01 | mg/L | 1.4 | | 99 | 85-115 | 7 | 200 |
| Orthophosphate as P | 0.918 | 0.040 | 0.010 | mg/L | 0.90 | | 102 | 85-115 | 5 | 200 |
| Nitrate (as N) | 1.74 | 0.04 | 0.01 | mg/L | 1.7 | | 102 | 85-115 | 2 | 200 |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| **Matrix Spike (BJ32502-MS1)** | | **Source: 1311076-49** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Nitrite (as N) | 1.37 | 0.04 | 0.01 | mg/L | 1.4 | ND | 98 | 85-115 | | |
| Sulfate | 90.0 L | 0.60 | 0.20 | mg/L | 9.0 | 141 | NR | 85-115 | | |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | ND | 99 | 85-115 | | |
| Chloride | 26.9 | 0.20 | 0.050 | mg/L | 3.0 | 24.0 | 97 | 80-120 | | |
| Fluoride | 0.882 | 0.040 | 0.010 | mg/L | 0.90 | 0.0690 | 90 | 85-115 | | |
| Orthophosphate as P | 0.677 J5 | 0.040 | 0.010 | mg/L | 0.90 | 0.0460 | 70 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |

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**November 13, 2013**
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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32502 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BJ32502-MS2)** | | **Source: 1311076-64** | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Nitrate (as N) | 1.78 | 0.04 | 0.01 | mg/L | 1.7 | ND | 104 | 85-115 | | |
| Fluoride | 0.993 | 0.040 | 0.010 | mg/L | 0.90 | 0.0620 | 103 | 85-115 | | |
| Chloride | 20.4 | 0.20 | 0.050 | mg/L | 3.0 | 17.4 | 101 | 80-120 | | |
| Nitrite (as N) | 1.33 | 0.04 | 0.01 | mg/L | 1.4 | ND | 95 | 85-115 | | |
| Sulfate | 68.8 | 0.60 | 0.20 | mg/L | 9.0 | 60.1 | 97 | 85-115 | | |
| Orthophosphate as P | 0.825 | 0.040 | 0.010 | mg/L | 0.90 | ND | 92 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| **Batch BJ32503 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32503-BLK1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.12* | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.12* | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.12* | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.12* | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.12* | | *mg/L* | *1.0* | | *112* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.12* | | *mg/L* | *1.0* | | *112* | *90-115* | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32503 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BJ32503-BS1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Sulfate | 8.92 | 0.60 | 0.20 | mg/L | 9.0 | | 99 | 85-115 | | |
| Fluoride | 0.852 | 0.040 | 0.010 | mg/L | 0.90 | | 95 | 85-115 | | |
| Nitrate (as N) | 1.70 | 0.04 | 0.01 | mg/L | 1.7 | | 100 | 85-115 | | |
| Chloride | 2.90 | 0.20 | 0.050 | mg/L | 3.0 | | 97 | 85-115 | | |
| Nitrite (as N) | 1.40 | 0.04 | 0.01 | mg/L | 1.4 | | 100 | 85-115 | | |
| Orthophosphate as P | 0.812 | 0.040 | 0.010 | mg/L | 0.90 | | 90 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.904* | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.904* | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.904* | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.904* | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.904* | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 0.904* | | *mg/L* | *1.0* | | *90* | *90-115* | | |
| **LCS Dup (BJ32503-BSD1)** | | | | | Prepared & Analyzed: 10/25/13 | | | | | |
| Fluoride | 0.897 | 0.040 | 0.010 | mg/L | 0.90 | | 100 | 85-115 | 5 | 200 |
| Nitrite (as N) | 1.40 | 0.04 | 0.01 | mg/L | 1.4 | | 100 | 85-115 | 0.2 | 200 |
| Chloride | 2.95 | 0.20 | 0.050 | mg/L | 3.0 | | 98 | 85-115 | 2 | 200 |
| Nitrate (as N) | 1.68 | 0.04 | 0.01 | mg/L | 1.7 | | 99 | 85-115 | 1 | 200 |
| Orthophosphate as P | 0.811 | 0.040 | 0.010 | mg/L | 0.90 | | 90 | 85-115 | 0.1 | 200 |
| Sulfate | 9.02 | 0.60 | 0.20 | mg/L | 9.0 | | 100 | 85-115 | 1 | 200 |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| **Matrix Spike (BJ32503-MS1)** | | **Source: 1311478-03** | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Nitrate (as N) | 1.74 | 0.04 | 0.01 | mg/L | 1.7 | ND | 102 | 85-115 | | |
| Chloride | 18.0 | 0.20 | 0.050 | mg/L | 3.0 | 15.0 | 99 | 80-120 | | |
| Nitrite (as N) | 1.37 | 0.04 | 0.01 | mg/L | 1.4 | ND | 98 | 85-115 | | |
| Orthophosphate as P | 0.616 J5 | 0.040 | 0.010 | mg/L | 0.90 | ND | 68 | 85-115 | | |
| Fluoride | 1.28 | 0.040 | 0.010 | mg/L | 0.90 | 0.299 | 108 | 85-115 | | |
| Sulfate | 11.6 | 0.60 | 0.20 | mg/L | 9.0 | 2.93 | 96 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.03* | | *mg/L* | *1.0* | | *103* | *90-115* | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32503 - Ion Chromatography 300.0 Prep** | | | | | | | | | | | |
| **Matrix Spike (BJ32503-MS2)** | | | **Source: 1311076-57** | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Nitrate (as N) | 1.70 | | 0.04 | 0.01 | mg/L | 1.7 | ND | 100 | 85-115 | | |
| Orthophosphate as P | 0.615 | J5 | 0.040 | 0.010 | mg/L | 0.90 | 0.0260 | 65 | 85-115 | | |
| Chloride | 15.6 | | 0.20 | 0.050 | mg/L | 3.0 | 12.9 | 89 | 80-120 | | |
| Sulfate | 70.7 | | 0.60 | 0.20 | mg/L | 9.0 | 62.3 | 94 | 85-115 | | |
| Fluoride | 0.861 | | 0.040 | 0.010 | mg/L | 0.90 | 0.0390 | 91 | 85-115 | | |
| Nitrite (as N) | 1.52 | | 0.04 | 0.01 | mg/L | 1.4 | ND | 108 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result:* | *1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result:* | *1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result:* | *1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result:* | *1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result:* | *1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result:* | *1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| **Batch BJ32523 - BOD** | | | | | | | | | | | |
| **Blank (BJ32523-BLK1)** | | | | | | Prepared: 10/25/13 Analyzed: 10/30/13 | | | | | |
| Carbonaceous BOD | 2 | U | 2 | 2 | mg/L | | | | | | |
| **LCS (BJ32523-BS1)** | | | | | | Prepared: 10/25/13 Analyzed: 10/30/13 | | | | | |
| Carbonaceous BOD | 175 | | 2 | 2 | mg/L | 200 | | 87 | 85-115 | | |
| **LCS Dup (BJ32523-BSD1)** | | | | | | Prepared: 10/25/13 Analyzed: 10/30/13 | | | | | |
| Carbonaceous BOD | 176 | | 2 | 2 | mg/L | 200 | | 88 | 85-115 | 0.9 | 200 |
| **Duplicate (BJ32523-DUP1)** | | | **Source: 1311076-02** | | | Prepared: 10/25/13 Analyzed: 10/30/13 | | | | | |
| Carbonaceous BOD | 120 | | 2 | 2 | mg/L | | 120 | | | 0.3 | 25 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32525 - alkalinity** | | | | | | | | | | |
| **Blank (BJ32525-BLK1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BJ32525-BS1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 105 | 90-110 | | |
| **Matrix Spike (BJ32525-MS1)** | | **Source: 1311076-30** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Total Alkalinity | 200 | 8.0 | 2.0 | mg/L | 120 | 90 | 90 | 80-120 | | |
| **Matrix Spike Dup (BJ32525-MSD1)** | | **Source: 1311076-30** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Total Alkalinity | 200 | 8.0 | 2.0 | mg/L | 120 | 90 | 91 | 80-120 | 0.9 | 26 |
| **Batch BJ32601 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BJ32601-BLK1)** | | | | | Prepared: 10/26/13 Analyzed: 10/31/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BJ32601-BS1)** | | | | | Prepared: 10/26/13 Analyzed: 10/31/13 | | | | | |
| Phosphorous - Total as P | 0.872 | 0.040 | 0.010 | mg/L | 0.80 | | 109 | 90-110 | | |
| **Matrix Spike (BJ32601-MS1)** | | **Source: 1311076-72** | | | Prepared: 10/26/13 Analyzed: 10/31/13 | | | | | |
| Phosphorous - Total as P | 0.921 | 0.040 | 0.010 | mg/L | 1.0 | ND | 92 | 90-110 | | |
| **Matrix Spike (BJ32601-MS2)** | | **Source: 1311076-73** | | | Prepared: 10/26/13 Analyzed: 10/31/13 | | | | | |
| Phosphorous - Total as P | 0.996 | 0.040 | 0.010 | mg/L | 1.0 | ND | 100 | 90-110 | | |
| **Matrix Spike Dup (BJ32601-MSD1)** | | **Source: 1311076-72** | | | Prepared: 10/26/13 Analyzed: 10/31/13 | | | | | |
| Phosphorous - Total as P | 1.10 | 0.040 | 0.010 | mg/L | 1.0 | ND | 110 | 90-110 | 18 | 25 |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32601 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Matrix Spike Dup (BJ32601-MSD2)** | | **Source: 1311076-73** | | | Prepared: 10/26/13 Analyzed: 10/31/13 | | | | | |
| Phosphorous - Total as P | 1.09 | 0.040 | 0.010 | mg/L | 1.0 | ND | 109 | 90-110 | 9 | 25 |
| **Batch BJ32806 - COD prep** | | | | | | | | | | |
| **Blank (BJ32806-BLK1)** | | | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BJ32806-BS1)** | | | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Chemical Oxygen Demand | 50 | 25 | 10 | mg/L | 50 | | 100 | 90-110 | | |
| **Matrix Spike (BJ32806-MS1)** | | **Source: 1311302-01** | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Chemical Oxygen Demand | 56 | 25 | 10 | mg/L | 50 | ND | 112 | 85-115 | | |
| **Matrix Spike Dup (BJ32806-MSD1)** | | **Source: 1311302-01** | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Chemical Oxygen Demand | 45 | 25 | 10 | mg/L | 50 | ND | 90 | 85-115 | 22 | 32 |
| **Batch BJ32808 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32808-BLK1)** | | | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| **LCS (BJ32808-BS1)** | | | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Sulfate | 9.41 | 0.60 | 0.20 | mg/L | 9.0 | | 105 | 85-115 | | |
| Chloride | 3.09 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.08* | | *mg/L* | *1.0* | | *108* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.08* | | *mg/L* | *1.0* | | *108* | *90-115* | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32808 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS Dup (BJ32808-BSD1)** | | | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Chloride | 3.11 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | 0.7 | 200 |
| Sulfate | 9.52 | 0.60 | 0.20 | mg/L | 9.0 | | 106 | 85-115 | 1 | 200 |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| **Matrix Spike (BJ32808-MS1)** | | **Source: 1311076-03** | | | Prepared & Analyzed: 10/28/13 | | | | | |
| Chloride | 68.4 | 2.0 | 0.50 | mg/L | 30 | 37.5 | 103 | 80-120 | | |
| Nitrite (as N) | 13.1 | 0.40 | 0.10 | mg/L | 14 | 0.201 | 92 | 85-115 | | |
| Nitrate (as N) | 19.9 | 0.40 | 0.10 | mg/L | 17 | 2.03 | 105 | 85-115 | | |
| Sulfate | 429 | 6.0 | 2.0 | mg/L | 90 | 344 | 94 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| **Matrix Spike (BJ32808-MS2)** | | **Source: 1311076-38** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Nitrite (as N) | 13.7 | 0.40 | 0.10 | mg/L | 14 | 0.298 | 96 | 85-115 | | |
| Nitrate (as N) | 18.9 | 0.40 | 0.10 | mg/L | 17 | 1.10 | 105 | 85-115 | | |
| Chloride | 56.2 | 2.0 | 0.50 | mg/L | 30 | 24.7 | 105 | 80-120 | | |
| Sulfate | 363 | 6.0 | 2.0 | mg/L | 90 | 271 | 102 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| **Batch BJ32821 - TS prep** | | | | | | | | | | |
| **Blank (BJ32821-BLK1)** | | | | | Prepared: 10/28/13 Analyzed: 10/29/13 | | | | | |
| Total Solids | 10 U | 10 | 10 | mg/L | | | | | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32821 - TS prep** | | | | | | | | | | |
| **Duplicate (BJ32821-DUP1)** | | **Source: 1311076-01** | | | Prepared: 10/28/13 Analyzed: 10/29/13 | | | | | |
| Total Solids | 775 | 10 | 10 | mg/L | | 777 | | | 0.2 | 20 |
| **Batch BJ32901 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32901-BLK1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.06* | | *mg/L* | *1.0* | | *106* | *90-115* | | |
| **LCS (BJ32901-BS1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Sulfate | 9.27 | 0.60 | 0.20 | mg/L | 9.0 | | 103 | 85-115 | | |
| Chloride | 3.03 | 0.20 | 0.050 | mg/L | 3.0 | | 101 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.02* | | *mg/L* | *1.0* | | *102* | *90-115* | | |
| **LCS Dup (BJ32901-BSD1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Chloride | 3.05 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | 0.5 | 200 |
| Sulfate | 9.35 | 0.60 | 0.20 | mg/L | 9.0 | | 104 | 85-115 | 0.9 | 200 |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.04* | | *mg/L* | *1.0* | | *104* | *90-115* | | |
| **Matrix Spike (BJ32901-MS1)** | | **Source: 1311076-31** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Sulfate | 360 | 6.0 | 2.0 | mg/L | 90 | 266 | 104 | 85-115 | | |
| Chloride | 63.6 | 2.0 | 0.50 | mg/L | 30 | 30.2 | 111 | 80-120 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.10* | | *mg/L* | *1.0* | | *110* | *90-115* | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32901 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BJ32901-MS2)** | | **Source: 1311076-54** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Sulfate | 215 | 6.0 | 2.0 | mg/L | 90 | 117 | 109 | 85-115 | | |
| Nitrate (as N) | 17.9 | 0.40 | 0.10 | mg/L | 17 | 0.270 | 104 | 85-115 | | |
| Chloride | 68.2 | 2.0 | 0.50 | mg/L | 30 | 35.2 | 110 | 80-120 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.08* | | *mg/L* | *1.0* | | *108* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.08* | | *mg/L* | *1.0* | | *108* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.08* | | *mg/L* | *1.0* | | *108* | *90-115* | | |
| **Batch BJ32902 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BJ32902-BLK1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| **LCS (BJ32902-BS1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Sulfate | 9.37 | 0.60 | 0.20 | mg/L | 9.0 | | 104 | 85-115 | | |
| Chloride | 3.05 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.00* | | *mg/L* | *1.0* | | *100* | *90-115* | | |
| **LCS Dup (BJ32902-BSD1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Chloride | 3.06 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | 0.4 | 200 |
| Sulfate | 9.42 | 0.60 | 0.20 | mg/L | 9.0 | | 105 | 85-115 | 0.5 | 200 |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32902 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BJ32902-MS1)** | | **Source: 1311578-01** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Chloride | 27.5 | 0.20 | 0.050 | mg/L | 3.0 | 24.4 | 103 | 80-120 | | |
| Sulfate | 61.4 | 0.60 | 0.20 | mg/L | 9.0 | 52.4 | 100 | 85-115 | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| *Surrogate: Dichloroacetate* | | *Result: 1.07* | | *mg/L* | *1.0* | | *107* | *90-115* | | |
| **Batch BJ32906 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BJ32906-BLK1)** | | | | | Prepared: 10/29/13 Analyzed: 10/31/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BJ32906-BS1)** | | | | | Prepared: 10/29/13 Analyzed: 10/31/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.38 | 0.20 | 0.05 | mg/L | 2.5 | | 94 | 90-110 | | |
| **Matrix Spike (BJ32906-MS1)** | | **Source: 1311294-02** | | | Prepared: 10/29/13 Analyzed: 10/31/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.06 | 0.20 | 0.05 | mg/L | 2.5 | 0.373 | 106 | 90-110 | | |
| **Matrix Spike Dup (BJ32906-MSD1)** | | **Source: 1311294-02** | | | Prepared: 10/29/13 Analyzed: 10/31/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.99 | 0.20 | 0.05 | mg/L | 2.5 | 0.373 | 103 | 90-110 | 2 | 20 |
| **Batch BJ32925 - TOC prep** | | | | | | | | | | |
| **Blank (BJ32925-BLK1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Organic Carbon | 0.060 U | 1.0 | 0.060 | mg/L | | | | | | |
| **LCS (BJ32925-BS1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Organic Carbon | 9.36 | 1.0 | 0.060 | mg/L | 10 | | 94 | 90-110 | | |

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**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32925 - TOC prep** | | | | | | | | | | |
| **Matrix Spike (BJ32925-MS1)** | | **Source: 1311542-01** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Organic Carbon | 10.7 | 1.0 | 0.060 | mg/L | 10 | ND | 107 | 85-115 | | |
| **Matrix Spike Dup (BJ32925-MSD1)** | | **Source: 1311542-01** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Organic Carbon | 11.0 | 1.0 | 0.060 | mg/L | 10 | ND | 110 | 85-115 | 3 | 10 |
| **Batch BJ32927 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BJ32927-BLK1)** | | | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BJ32927-BS1)** | | | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | | 97 | 90-110 | | |
| **Matrix Spike (BJ32927-MS1)** | | **Source: 1311529-01** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.81 | 0.040 | 0.009 | mg/L | 0.50 | 0.33 | 97 | 90-110 | | |
| **Matrix Spike (BJ32927-MS2)** | | **Source: 1311539-07** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.010 | 98 | 90-110 | | |
| **Matrix Spike Dup (BJ32927-MSD1)** | | **Source: 1311529-01** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.79 | 0.040 | 0.009 | mg/L | 0.50 | 0.33 | 92 | 90-110 | 3 | 10 |
| **Matrix Spike Dup (BJ32927-MSD2)** | | **Source: 1311539-07** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.010 | 99 | 90-110 | 0.2 | 10 |
| **Batch BJ33004 - TSS prep** | | | | | | | | | | |
| **Blank (BJ33004-BLK1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Suspended Solids | 1 U | 1 | 1 | 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 BJ33004 - TSS prep** | | | | | | | | | | |
| **LCS (BJ33004-BS1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Suspended Solids | 50.5 | 1 | 1 | mg/L | 50 | | 101 | 85-115 | | |
| **Duplicate (BJ33004-DUP1)** | | **Source: 1310835-02** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Total Suspended Solids | 13.0 | 1 | 1 | mg/L | | 12.0 | | | 8 | 30 |
| **Batch BJ33024 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BJ33024-BLK1)** | | | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BJ33024-BS1)** | | | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 103 | 90-110 | | |
| **Matrix Spike (BJ33024-MS1)** | | **Source: 1311076-29** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | 0.033 | 96 | 90-110 | | |
| **Matrix Spike (BJ33024-MS2)** | | **Source: 1311620-07** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.021 | 101 | 90-110 | | |
| **Matrix Spike Dup (BJ33024-MSD1)** | | **Source: 1311076-29** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.033 | 100 | 90-110 | 4 | 10 |
| **Matrix Spike Dup (BJ33024-MSD2)** | | **Source: 1311620-07** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Ammonia as N | 0.55 | 0.040 | 0.009 | mg/L | 0.50 | 0.021 | 106 | 90-110 | 4 | 10 |
| **Batch BJ33026 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BJ33026-BLK1)** | | | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ33026 - Ammonia by SEAL** | | | | | | | | | | |
| **LCS (BJ33026-BS1)** | | | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Ammonia as N | 0.54 | 0.040 | 0.009 | mg/L | 0.50 | | 108 | 90-110 | | |
| **Matrix Spike (BJ33026-MS1)** | | **Source: 1311076-72** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | ND | 98 | 90-110 | | |
| **Matrix Spike (BJ33026-MS2)** | | **Source: 1311076-73** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | ND | 102 | 90-110 | | |
| **Matrix Spike Dup (BJ33026-MSD1)** | | **Source: 1311076-72** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | ND | 100 | 90-110 | 2 | 10 |
| **Matrix Spike Dup (BJ33026-MSD2)** | | **Source: 1311076-73** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | ND | 100 | 90-110 | 2 | 10 |
| **Batch BJ33046 - COD prep** | | | | | | | | | | |
| **Blank (BJ33046-BLK1)** | | | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BJ33046-BS1)** | | | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Chemical Oxygen Demand | 54 | 25 | 10 | mg/L | 50 | | 108 | 90-110 | | |
| **Matrix Spike (BJ33046-MS1)** | | **Source: 1311076-39** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Chemical Oxygen Demand | 76 | 25 | 10 | mg/L | 50 | 28 | 96 | 85-115 | | |
| **Matrix Spike Dup (BJ33046-MSD1)** | | **Source: 1311076-39** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Chemical Oxygen Demand | 74 | 25 | 10 | mg/L | 50 | 28 | 92 | 85-115 | 3 | 32 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ33102 - TSS prep** | | | | | | | | | | |
| **Blank (BJ33102-BLK1)** | | | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Total Suspended Solids | 1 U | 1 | 1 | mg/L | | | | | | |
| **LCS (BJ33102-BS1)** | | | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Total Suspended Solids | 50.8 | 1 | 1 | mg/L | 50 | | 102 | 85-115 | | |
| **Duplicate (BJ33102-DUP1)** | | **Source: 1311076-02** | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Total Suspended Solids | 14.0 | 1 | 1 | mg/L | | 14.0 | | | 0 | 30 |
| **Batch BJ33108 - alkalinity** | | | | | | | | | | |
| **Blank (BJ33108-BLK1)** | | | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BJ33108-BS1)** | | | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 103 | 90-110 | | |
| **Matrix Spike (BJ33108-MS1)** | | **Source: 1311630-04** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Total Alkalinity | 260 | 8.0 | 2.0 | mg/L | 120 | 140 | 97 | 80-120 | | |
| **Matrix Spike Dup (BJ33108-MSD1)** | | **Source: 1311630-04** | | | Prepared & Analyzed: 11/01/13 | | | | | |
| Total Alkalinity | 260 | 8.0 | 2.0 | mg/L | 120 | 140 | 98 | 80-120 | 0.3 | 26 |
| **Batch BJ33119 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BJ33119-BLK1)** | | | | | Prepared: 10/31/13 Analyzed: 11/11/13 | | | | | |
| 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 BJ33119 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **LCS (BJ33119-BS1)** | | | | | Prepared: 10/31/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.29 | 0.20 | 0.05 | mg/L | 2.5 | | 90 | 90-110 | | |
| **Matrix Spike (BJ33119-MS1)** | | **Source: 1311076-14** | | | Prepared: 10/31/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.57 | 0.20 | 0.05 | mg/L | 2.5 | 0.980 | 102 | 90-110 | | |
| **Matrix Spike (BJ33119-MS2)** | | **Source: 1311065-01** | | | Prepared: 10/31/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.22 | 0.20 | 0.05 | mg/L | 2.5 | 1.75 | 97 | 90-110 | | |
| **Matrix Spike Dup (BJ33119-MSD1)** | | **Source: 1311076-14** | | | Prepared: 10/31/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.52 | 0.20 | 0.05 | mg/L | 2.5 | 0.980 | 100 | 90-110 | 1 | 20 |
| **Matrix Spike Dup (BJ33119-MSD2)** | | **Source: 1311065-01** | | | Prepared: 10/31/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.95 | 0.20 | 0.05 | mg/L | 2.5 | 1.75 | 87 | 90-110 | 6 | 20 |
| **Batch BJ33123 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BJ33123-BLK1)** | | | | | Prepared: 10/31/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BJ33123-BS1)** | | | | | Prepared: 10/31/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 0.778 | 0.040 | 0.010 | mg/L | 0.80 | | 97 | 90-110 | | |
| **Matrix Spike (BJ33123-MS1)** | | **Source: 1311713-02** | | | Prepared: 10/31/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 1.73 | 0.040 | 0.010 | mg/L | 1.0 | 0.781 | 94 | 90-110 | | |
| **Matrix Spike Dup (BJ33123-MSD1)** | | **Source: 1311713-02** | | | Prepared: 10/31/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 1.72 | 0.040 | 0.010 | mg/L | 1.0 | 0.781 | 94 | 90-110 | 0.5 | 25 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BK30431 - COD prep** | | | | | | | | | | |
| **Blank (BK30431-BLK1)** | | | | | Prepared & Analyzed: 11/04/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BK30431-BS1)** | | | | | Prepared & Analyzed: 11/04/13 | | | | | |
| Chemical Oxygen Demand | 50 | 25 | 10 | mg/L | 50 | | 100 | 90-110 | | |
| **Matrix Spike (BK30431-MS1)** | | **Source: 1311076-33** | | | Prepared & Analyzed: 11/04/13 | | | | | |
| Chemical Oxygen Demand | 50 | 25 | 10 | mg/L | 50 | ND | 100 | 85-115 | | |
| **Matrix Spike Dup (BK30431-MSD1)** | | **Source: 1311076-33** | | | Prepared & Analyzed: 11/04/13 | | | | | |
| Chemical Oxygen Demand | 54 | 25 | 10 | mg/L | 50 | ND | 108 | 85-115 | 8 | 32 |
| **Batch BK30433 - alkalinity** | | | | | | | | | | |
| **Blank (BK30433-BLK1)** | | | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BK30433-BS1)** | | | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Total Alkalinity | 140 | 8.0 | 2.0 | mg/L | 120 | | 110 | 90-110 | | |
| **Matrix Spike (BK30433-MS1)** | | **Source: 1311754-01** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Total Alkalinity | 250 | 8.0 | 2.0 | mg/L | 120 | 130 | 101 | 80-120 | | |
| **Matrix Spike Dup (BK30433-MSD1)** | | **Source: 1311754-01** | | | Prepared & Analyzed: 11/05/13 | | | | | |
| Total Alkalinity | 250 | 8.0 | 2.0 | mg/L | 120 | 130 | 100 | 80-120 | 0.1 | 26 |
| **Batch BK30624 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BK30624-BLK1)** | | | | | Prepared: 11/06/13 Analyzed: 11/07/13 | | | | | |
| 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 BK30624 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **LCS (BK30624-BS1)** | | | | | Prepared: 11/06/13 Analyzed: 11/08/13 | | | | | |
| Phosphorous - Total as P | 0.748 | 0.040 | 0.010 | mg/L | 0.80 | | 94 | 90-110 | | |
| **Matrix Spike (BK30624-MS1)** | | **Source: 1311802-02** | | | Prepared: 11/06/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 1.08 | 0.040 | 0.010 | mg/L | 1.0 | 0.0428 | 103 | 90-110 | | |
| **Matrix Spike (BK30624-MS2)** | | **Source: 1311842-02** | | | Prepared: 11/06/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 0.933 | 0.040 | 0.010 | mg/L | 1.0 | 0.0268 | 91 | 90-110 | | |
| **Matrix Spike Dup (BK30624-MSD1)** | | **Source: 1311802-02** | | | Prepared: 11/06/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 0.944 | 0.040 | 0.010 | mg/L | 1.0 | 0.0428 | 90 | 90-110 | 13 | 25 |
| **Matrix Spike Dup (BK30624-MSD2)** | | **Source: 1311842-02** | | | Prepared: 11/06/13 Analyzed: 11/07/13 | | | | | |
| Phosphorous - Total as P | 0.953 | 0.040 | 0.010 | mg/L | 1.0 | 0.0268 | 93 | 90-110 | 2 | 25 |
| **Batch BK30715 - COD prep** | | | | | | | | | | |
| **Blank (BK30715-BLK1)** | | | | | Prepared & Analyzed: 11/07/13 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BK30715-BS1)** | | | | | Prepared & Analyzed: 11/07/13 | | | | | |
| Chemical Oxygen Demand | 50 | 25 | 10 | mg/L | 50 | | 100 | 90-110 | | |
| **Matrix Spike (BK30715-MS1)** | | **Source: 1311076-06** | | | Prepared & Analyzed: 11/07/13 | | | | | |
| Chemical Oxygen Demand | 120 | 25 | 10 | mg/L | 50 | 74 | 94 | 85-115 | | |
| **Matrix Spike Dup (BK30715-MSD1)** | | **Source: 1311076-06** | | | Prepared & Analyzed: 11/07/13 | | | | | |
| Chemical Oxygen Demand | 120 | 25 | 10 | mg/L | 50 | 74 | 100 | 85-115 | 2 | 32 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BK30741 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BK30741-BLK1)** | | | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BK30741-BS1)** | | | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.59 | 0.20 | 0.05 | mg/L | 2.5 | | 102 | 90-110 | | |
| **Matrix Spike (BK30741-MS1)** | | **Source: 1311711-02** | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.12 | 0.20 | 0.05 | mg/L | 2.5 | 0.469 | 105 | 90-110 | | |
| **Matrix Spike (BK30741-MS2)** | | **Source: 1311047-01** | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.91 | 0.20 | 0.05 | mg/L | 2.5 | 1.31 | 103 | 90-110 | | |
| **Matrix Spike Dup (BK30741-MSD1)** | | **Source: 1311711-02** | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.10 | 0.20 | 0.05 | mg/L | 2.5 | 0.469 | 104 | 90-110 | 0.7 | 20 |
| **Matrix Spike Dup (BK30741-MSD2)** | | **Source: 1311047-01** | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 4.04 | 0.20 | 0.05 | mg/L | 2.5 | 1.31 | 108 | 90-110 | 3 | 20 |
| **Batch BK30742 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BK30742-BLK1)** | | | | | Prepared: 11/07/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BK30742-BS1)** | | | | | Prepared: 11/07/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.36 | 0.20 | 0.05 | mg/L | 2.5 | | 93 | 90-110 | | |
| **Matrix Spike (BK30742-MS1)** | | **Source: 1311076-29** | | | Prepared: 11/07/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.40 | 0.20 | 0.05 | mg/L | 2.5 | 0.824 | 102 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BK30742 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Matrix Spike (BK30742-MS2)** | | **Source: 1311076-17** | | | Prepared: 11/07/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.06 | 0.20 | 0.05 | mg/L | 2.5 | 0.521 | 100 | 90-110 | | |
| **Matrix Spike Dup (BK30742-MSD1)** | | **Source: 1311076-29** | | | Prepared: 11/07/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.34 | 0.20 | 0.05 | mg/L | 2.5 | 0.824 | 99 | 90-110 | 2 | 20 |
| **Matrix Spike Dup (BK30742-MSD2)** | | **Source: 1311076-17** | | | Prepared: 11/07/13 Analyzed: 11/11/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.12 | 0.20 | 0.05 | mg/L | 2.5 | 0.521 | 103 | 90-110 | 2 | 20 |
| **Batch BK30743 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BK30743-BLK1)** | | | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BK30743-BS1)** | | | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.37 | 0.20 | 0.05 | mg/L | 2.5 | | 94 | 90-110 | | |
| **Matrix Spike (BK30743-MS1)** | | **Source: 1311758-02** | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.93 | 0.20 | 0.05 | mg/L | 2.5 | 0.639 | 90 | 90-110 | | |
| **Matrix Spike Dup (BK30743-MSD1)** | | **Source: 1311758-02** | | | Prepared: 11/07/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.02 | 0.20 | 0.05 | mg/L | 2.5 | 0.639 | 94 | 90-110 | 3 | 20 |
| **Batch BK30811 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BK30811-BLK1)** | | | | | Prepared: 11/08/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |

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

**November 13, 2013**
**Work Order: 1311076**

**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BK30811 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **LCS (BK30811-BS1)** | | | | | Prepared: 11/08/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 2.60 | 0.20 | 0.05 | mg/L | 2.5 | | 103 | 90-110 | | |
| **Matrix Spike (BK30811-MS1)** | | **Source: 1311821-07** | | | Prepared: 11/08/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.32 | 0.20 | 0.05 | mg/L | 2.5 | 0.640 | 106 | 90-110 | | |
| **Matrix Spike (BK30811-MS2)** | | **Source: 1311076-06** | | | Prepared: 11/08/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.36 | 0.20 | 0.05 | mg/L | 2.5 | 1.32 | 80 | 90-110 | | |
| **Matrix Spike Dup (BK30811-MSD1)** | | **Source: 1311821-07** | | | Prepared: 11/08/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.29 | 0.20 | 0.05 | mg/L | 2.5 | 0.640 | 104 | 90-110 | 1 | 20 |
| **Matrix Spike Dup (BK30811-MSD2)** | | **Source: 1311076-06** | | | Prepared: 11/08/13 Analyzed: 11/12/13 | | | | | |
| Total Kjeldahl Nitrogen | 3.65 | 0.20 | 0.05 | mg/L | 2.5 | 1.32 | 92 | 90-110 | 8 | 20 |

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**Tampa, FL 33619**

**November 13, 2013**
**Work Order: 1311076**

**Inorganic, Dissolved - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32425 - DOC prep** | | | | | | | | | | |
| **Blank (BJ32425-BLK1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Dissolved Organic Carbon | 0.060 U | 1.0 | 0.060 | mg/L | | | | | | |
| **LCS (BJ32425-BS1)** | | | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Dissolved Organic Carbon | 10.1 | 1.0 | 0.060 | mg/L | 10 | | 101 | 90-110 | | |
| **Matrix Spike (BJ32425-MS1)** | | **Source: 1311076-42** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Dissolved Organic Carbon | 27.9 | 1.0 | 0.060 | mg/L | 10 | 18.6 | 93 | 85-125 | | |
| **Matrix Spike Dup (BJ32425-MSD1)** | | **Source: 1311076-42** | | | Prepared & Analyzed: 10/24/13 | | | | | |
| Dissolved Organic Carbon | 27.0 | 1.0 | 0.060 | mg/L | 10 | 18.6 | 85 | 85-125 | 3 | 25 |
| **Batch BJ32926 - DOC prep** | | | | | | | | | | |
| **Blank (BJ32926-BLK1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Dissolved Organic Carbon | 0.060 U | 1.0 | 0.060 | mg/L | | | | | | |
| **LCS (BJ32926-BS1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Dissolved Organic Carbon | 9.41 | 1.0 | 0.060 | mg/L | 10 | | 94 | 90-110 | | |
| **Matrix Spike (BJ32926-MS1)** | | **Source: 1311076-73** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Dissolved Organic Carbon | 9.85 | 1.0 | 0.060 | mg/L | 10 | ND | 99 | 85-125 | | |
| **Matrix Spike Dup (BJ32926-MSD1)** | | **Source: 1311076-73** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Dissolved Organic Carbon | 10.8 | 1.0 | 0.060 | mg/L | 10 | ND | 108 | 85-125 | 9 | 25 |

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**November 13, 2013**
**Work Order: 1311076**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32817 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BJ32817-BLK1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Potassium | 0.12 I | 0.50 | 0.10 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| **LCS (BJ32817-BS1)** | | | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Potassium | 19 | 0.50 | 0.10 | mg/L | 20 | | 93 | 85-115 | | |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | | 94 | 85-115 | | |
| Iron | 8.0 | 0.10 | 0.020 | mg/L | 8.0 | | 100 | 85-115 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | | 98 | 85-115 | | |
| Calcium | 19 | 0.50 | 0.042 | mg/L | 20 | | 95 | 85-115 | | |
| Sodium | 19 | 0.50 | 0.13 | mg/L | 20 | | 96 | 85-115 | | |
| Boron | 0.37 | 0.10 | 0.050 | mg/L | 0.40 | | 93 | 85-115 | | |
| **Matrix Spike (BJ32817-MS1)** | | **Source: 1311380-01** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Boron | 0.39 | 0.10 | 0.050 | mg/L | 0.40 | ND | 98 | 70-130 | | |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | 0.011 | 95 | 70-130 | | |
| Sodium | 43 | 0.50 | 0.13 | mg/L | 20 | 27 | 78 | 70-130 | | |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | 0.23 | 98 | 70-130 | | |
| Calcium | 71 | 0.50 | 0.042 | mg/L | 20 | 52 | 91 | 70-130 | | |
| Magnesium | 23 | 0.50 | 0.020 | mg/L | 20 | 4.9 | 92 | 70-130 | | |
| Potassium | 20 | 0.50 | 0.10 | mg/L | 20 | 1.4 | 91 | 70-130 | | |
| **Matrix Spike (BJ32817-MS2)** | | **Source: 1311394-01** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Potassium | 24 | 0.50 | 0.10 | mg/L | 20 | 3.3 | 104 | 70-130 | | |
| Calcium | 51 | 0.50 | 0.042 | mg/L | 20 | 30 | 102 | 70-130 | | |
| Manganese | 0.49 | 0.010 | 0.0010 | mg/L | 0.40 | 0.022 | 117 | 70-130 | | |
| Iron | 9.6 | 0.10 | 0.020 | mg/L | 8.0 | ND | 120 | 70-130 | | |
| Magnesium | 29 | 0.50 | 0.020 | mg/L | 20 | 8.0 | 107 | 70-130 | | |
| Boron | 0.47 | 0.10 | 0.050 | mg/L | 0.40 | ND | 117 | 70-130 | | |
| Sodium | 35 | 0.50 | 0.13 | mg/L | 20 | 13 | 110 | 70-130 | | |

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**November 13, 2013**
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**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32817 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BJ32817-MSD1)** | | **Source: 1311380-01** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Calcium | 71 | 0.50 | 0.042 | mg/L | 20 | 52 | 92 | 70-130 | 0.3 | 20 |
| Iron | 8.0 | 0.10 | 0.020 | mg/L | 8.0 | 0.23 | 97 | 70-130 | 1 | 20 |
| Sodium | 45 | 0.50 | 0.13 | mg/L | 20 | 27 | 88 | 70-130 | 4 | 20 |
| Manganese | 0.39 | 0.010 | 0.0010 | mg/L | 0.40 | 0.011 | 94 | 70-130 | 1 | 20 |
| Boron | 0.40 | 0.10 | 0.050 | mg/L | 0.40 | ND | 99 | 70-130 | 1 | 20 |
| Potassium | 20 | 0.50 | 0.10 | mg/L | 20 | 1.4 | 92 | 70-130 | 0.8 | 20 |
| Magnesium | 23 | 0.50 | 0.020 | mg/L | 20 | 4.9 | 89 | 70-130 | 3 | 20 |
| **Matrix Spike Dup (BJ32817-MSD2)** | | **Source: 1311394-01** | | | Prepared & Analyzed: 10/29/13 | | | | | |
| Boron | 0.46 | 0.10 | 0.050 | mg/L | 0.40 | ND | 116 | 70-130 | 1 | 20 |
| Magnesium | 28 | 0.50 | 0.020 | mg/L | 20 | 8.0 | 102 | 70-130 | 3 | 20 |
| Manganese | 0.49 | 0.010 | 0.0010 | mg/L | 0.40 | 0.022 | 117 | 70-130 | 0.08 | 20 |
| Iron | 9.7 | 0.10 | 0.020 | mg/L | 8.0 | ND | 122 | 70-130 | 1 | 20 |
| Potassium | 23 | 0.50 | 0.10 | mg/L | 20 | 3.3 | 100 | 70-130 | 4 | 20 |
| Sodium | 32 | 0.50 | 0.13 | mg/L | 20 | 13 | 97 | 70-130 | 7 | 20 |
| Calcium | 47 | 0.50 | 0.042 | mg/L | 20 | 30 | 85 | 70-130 | 7 | 20 |
| **Batch BJ33010 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BJ33010-BLK1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Potassium | 0.16 | 0.050 | 0.010 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |

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**November 13, 2013**
**Work Order: 1311076**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ33010 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **LCS (BJ33010-BS1)** | | | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | | 100 | 85-115 | | |
| Boron | 0.41 | 0.10 | 0.050 | mg/L | 0.40 | | 103 | 85-115 | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | | 105 | 85-115 | | |
| Calcium | 20 | 0.50 | 0.042 | mg/L | 20 | | 98 | 85-115 | | |
| Iron | 8.4 | 0.10 | 0.020 | mg/L | 8.0 | | 105 | 85-115 | | |
| Potassium | 19 | 0.050 | 0.010 | mg/L | 20 | | 95 | 85-115 | | |
| Sodium | 20 | 0.50 | 0.13 | mg/L | 20 | | 99 | 85-115 | | |
| **Matrix Spike (BJ33010-MS1)** | | **Source: 1311076-03** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Magnesium | 57 | 0.50 | 0.020 | mg/L | 20 | 39 | 90 | 70-130 | | |
| Sodium | 57 | 0.50 | 0.13 | mg/L | 20 | 38 | 93 | 70-130 | | |
| Potassium | 34 | 0.050 | 0.010 | mg/L | 20 | 16 | 92 | 70-130 | | |
| Calcium | 99 | 0.50 | 0.042 | mg/L | 20 | 82 | 83 | 70-130 | | |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0072 | 100 | 70-130 | | |
| Boron | 0.89 | 0.10 | 0.050 | mg/L | 0.40 | 0.49 | 99 | 70-130 | | |
| Iron | 8.3 | 0.10 | 0.020 | mg/L | 8.0 | 0.10 | 102 | 70-130 | | |
| **Matrix Spike (BJ33010-MS2)** | | **Source: 1311528-01** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Manganese | 0.43 | 0.010 | 0.0010 | mg/L | 0.40 | 0.014 | 104 | 70-130 | | |
| Calcium | 87 | 0.50 | 0.042 | mg/L | 20 | 66 | 107 | 70-130 | | |
| Boron | 0.55 | 0.10 | 0.050 | mg/L | 0.40 | 0.14 | 102 | 70-130 | | |
| Iron | 8.6 | 0.10 | 0.020 | mg/L | 8.0 | 0.17 | 106 | 70-130 | | |
| Potassium | 28 | 0.050 | 0.010 | mg/L | 20 | 9.1 | 97 | 70-130 | | |
| Magnesium | 30 | 0.50 | 0.020 | mg/L | 20 | 10 | 99 | 70-130 | | |
| Sodium | 97 | 0.50 | 0.13 | mg/L | 20 | 78 | 94 | 70-130 | | |
| **Matrix Spike Dup (BJ33010-MSD1)** | | **Source: 1311076-03** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Boron | 0.92 | 0.10 | 0.050 | mg/L | 0.40 | 0.49 | 107 | 70-130 | 3 | 20 |
| Calcium | 100 | 0.50 | 0.042 | mg/L | 20 | 82 | 94 | 70-130 | 2 | 20 |
| Iron | 8.2 | 0.10 | 0.020 | mg/L | 8.0 | 0.10 | 101 | 70-130 | 0.9 | 20 |
| Potassium | 34 | 0.050 | 0.010 | mg/L | 20 | 16 | 90 | 70-130 | 1 | 20 |
| Magnesium | 58 | 0.50 | 0.020 | mg/L | 20 | 39 | 96 | 70-130 | 2 | 20 |
| Sodium | 58 | 0.50 | 0.13 | mg/L | 20 | 38 | 97 | 70-130 | 1 | 20 |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | 0.0072 | 100 | 70-130 | 0.2 | 20 |

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**November 13, 2013**
**Work Order: 1311076**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ33010 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BJ33010-MSD2)** | | **Source: 1311528-01** | | | Prepared & Analyzed: 10/30/13 | | | | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | 0.014 | 103 | 70-130 | 2 | 20 |
| Iron | 8.4 | 0.10 | 0.020 | mg/L | 8.0 | 0.17 | 103 | 70-130 | 2 | 20 |
| Potassium | 27 | 0.050 | 0.010 | mg/L | 20 | 9.1 | 92 | 70-130 | 3 | 20 |
| Boron | 0.55 | 0.10 | 0.050 | mg/L | 0.40 | 0.14 | 101 | 70-130 | 0.8 | 20 |
| Sodium | 98 | 0.50 | 0.13 | mg/L | 20 | 78 | 99 | 70-130 | 1 | 20 |
| Calcium | 85 | 0.50 | 0.042 | mg/L | 20 | 66 | 98 | 70-130 | 2 | 20 |
| Magnesium | 29 | 0.50 | 0.020 | mg/L | 20 | 10 | 95 | 70-130 | 2 | 20 |
| **Batch BJ33110 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BJ33110-BLK1)** | | | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Iron | 0.020 U | 0.10 | 0.020 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| **LCS (BJ33110-BS1)** | | | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Calcium | 19 | 0.50 | 0.042 | mg/L | 20 | | 94 | 85-115 | | |
| Magnesium | 19 | 0.50 | 0.020 | mg/L | 20 | | 95 | 85-115 | | |
| Sodium | 21 | 0.50 | 0.13 | mg/L | 20 | | 103 | 85-115 | | |
| Boron | 0.41 | 0.10 | 0.050 | mg/L | 0.40 | | 103 | 85-115 | | |
| Manganese | 0.41 | 0.010 | 0.0010 | mg/L | 0.40 | | 103 | 85-115 | | |
| Potassium | 18 | 0.050 | 0.010 | mg/L | 20 | | 90 | 85-115 | | |
| Iron | 8.3 | 0.10 | 0.020 | mg/L | 8.0 | | 104 | 85-115 | | |

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**November 13, 2013**
**Work Order: 1311076**

**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ33110 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike (BJ33110-MS1)** | | **Source: 1311076-06** | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Magnesium | 21 | 0.50 | 0.020 | mg/L | 20 | 0.58 | 101 | 70-130 | | |
| Potassium | 19 | 0.050 | 0.010 | mg/L | 20 | 0.12 | 94 | 70-130 | | |
| Sodium | 47 | 0.50 | 0.13 | mg/L | 20 | 27 | 103 | 70-130 | | |
| Calcium | 26 | 0.50 | 0.042 | mg/L | 20 | 7.1 | 95 | 70-130 | | |
| Boron | 0.49 | 0.10 | 0.050 | mg/L | 0.40 | 0.073 | 105 | 70-130 | | |
| Iron | 8.7 | 0.10 | 0.020 | mg/L | 8.0 | 0.26 | 105 | 70-130 | | |
| Manganese | 0.42 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 105 | 70-130 | | |
| **Matrix Spike (BJ33110-MS2)** | | **Source: 1311662-01** | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Manganese | 0.47 | 0.010 | 0.0010 | mg/L | 0.40 | 0.025 | 111 | 70-130 | | |
| Sodium | 170 | 0.50 | 0.13 | mg/L | 20 | 130 | 205 | 70-130 | | |
| Boron | 0.75 | 0.10 | 0.050 | mg/L | 0.40 | 0.28 | 117 | 70-130 | | |
| Iron | 9.2 | 0.10 | 0.020 | mg/L | 8.0 | 0.23 | 113 | 70-130 | | |
| Magnesium | 32 | 0.50 | 0.020 | mg/L | 20 | 8.0 | 118 | 70-130 | | |
| Potassium | 38 | 0.050 | 0.010 | mg/L | 20 | 14 | 120 | 70-130 | | |
| Calcium | 110 | 0.50 | 0.042 | mg/L | 20 | 73 | 167 | 70-130 | | |
| **Matrix Spike Dup (BJ33110-MSD1)** | | **Source: 1311076-06** | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Sodium | 47 | 0.50 | 0.13 | mg/L | 20 | 27 | 99 | 70-130 | 2 | 20 |
| Magnesium | 21 | 0.50 | 0.020 | mg/L | 20 | 0.58 | 101 | 70-130 | 0.3 | 20 |
| Calcium | 27 | 0.50 | 0.042 | mg/L | 20 | 7.1 | 100 | 70-130 | 4 | 20 |
| Manganese | 0.40 | 0.010 | 0.0010 | mg/L | 0.40 | ND | 99 | 70-130 | 6 | 20 |
| Boron | 0.46 | 0.10 | 0.050 | mg/L | 0.40 | 0.073 | 96 | 70-130 | 8 | 20 |
| Iron | 8.3 | 0.10 | 0.020 | mg/L | 8.0 | 0.26 | 100 | 70-130 | 5 | 20 |
| Potassium | 19 | 0.050 | 0.010 | mg/L | 20 | 0.12 | 93 | 70-130 | 1 | 20 |
| **Matrix Spike Dup (BJ33110-MSD2)** | | **Source: 1311662-01** | | | Prepared & Analyzed: 10/31/13 | | | | | |
| Sodium | 150 | 0.50 | 0.13 | mg/L | 20 | 130 | 109 | 70-130 | 12 | 20 |
| Boron | 0.71 | 0.10 | 0.050 | mg/L | 0.40 | 0.28 | 106 | 70-130 | 6 | 20 |
| Potassium | 35 | 0.050 | 0.010 | mg/L | 20 | 14 | 104 | 70-130 | 9 | 20 |
| Magnesium | 29 | 0.50 | 0.020 | mg/L | 20 | 8.0 | 107 | 70-130 | 7 | 20 |
| Calcium | 96 | 0.50 | 0.042 | mg/L | 20 | 73 | 114 | 70-130 | 11 | 20 |
| Iron | 8.9 | 0.10 | 0.020 | mg/L | 8.0 | 0.23 | 108 | 70-130 | 4 | 20 |
| Manganese | 0.45 | 0.010 | 0.0010 | mg/L | 0.40 | 0.025 | 106 | 70-130 | 5 | 20 |

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**November 13, 2013**
**Work Order: 1311076**

**Microbiology - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BJ32451 - FC-MF** | | | | | | | | | | |
| **Blank (BJ32451-BLK1)** | | | | | Prepared: 10/24/13 Analyzed: 10/25/13 | | | | | |
| Fecal Coliforms | 1 U | 1 | 1 | CFU/100 ml | | | | | | |
| **Duplicate (BJ32451-DUP1)** | | **Source: 1311480-02** | | | Prepared: 10/24/13 Analyzed: 10/25/13 | | | | | |
| Fecal Coliforms | 1 U | 1 | 1 | CFU/100 ml | | ND | | | | 200 |

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**November 13, 2013**
**Work Order: 1311076**

## * 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.

| | |
|---|---|
| L | Off-scale high. Result exceeded highest calibration standard. |
| J5 | Matrix spike of this sample was outside typical range. All other QC criteria were acceptable. |

Questions regarding this report should be directed to :

Kathryn Nordmark
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Kathryn@southernanalyticallabs.com

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-MF, FC-QT | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | | | WW | | X | 4 | 1 | 1 | 1 | | | | | | | | | | | |
| 02 | STE-DUP | | | WW | | X | 4 | 1 | 1 | 1 | | | | | | | | | | | |
| 03 | PZ-01 | 10/23/13 | 1144 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 5.34 | 25.5 | 956 | 4.57 | |
| 04 | PZ-02 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 05 | PZ-03 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 06 | BKG-10 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 07 | BKG-15 | | | GW | | X | | | 1 | | | | | | 1 | | | | | | |
| 08 | PZ-04 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 09 | PZ-05 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 10 | PZ-06 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 11 | PZ-AB4-08 | | | GW | | X | | | 1 | | | | | | 1 | | | | | | |
| 12 | PZ-AB4-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: S Lynn | 10:15AM 10/17 | | |
| Relinquished: | 10-23-13 1455 | | 10-23-13 1455 |
| 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 |

1311076

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. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-MF, FC-QT | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-C1 | 10/23/13 | 0854 | GW | | X | | | 1 | 1 | 1 | | | | | | 5.99 | 24.6 | 1015 | 3.58 | |
| 14 | PZ-C2 | | 0910 | GW | | X | | | | | | | | | 1 | 1 | 5.23 | 24.9 | 369 | 0.56 | |
| 15 | PZ-C3-08 | | 0954 | GW | | X | | | 1 | | | | 2 | 1 | 1 | | 5.27 | 24.7 | 754 | 0.81 | |
| 16 | PZ-C3-15 | | 1010 | GW | | X | | | | | | | | | 1 | 1 | 6.48 | 24.6 | 394 | 0.56 | |
| 17 | PZ-C6-08 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 18 | PZ-C6-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 19 | PZ-D3-08 | 10/23/13 | 1027 | GW | | X | | | 1 | | | | | | 1 | | 5.48 | 24.8 | 659 | 2.40 | |
| 20 | PZ-D3-15 | | 1039 | GW | | X | | | 1 | | | | | | 1 | | 6.37 | 24.9 | 315 | 1.02 | |
| 21 | PZ-D4-08 | | 1201 | GW | | X | | | | | | | | | 1 | 1 | 7.55 | 25.0 | 949 | 2.24 | |
| 22 | PZ-D4-15 | | 1215 | GW | | X | | | | | | | | | 1 | 1 | 6.97 | 24.7 | 567 | 0.24 | |
| 23 | PZ-E1 | 10/23/13 | 0840 | GW | | X | | | 1 | | | | | | 1 | | 5.01 | 25.4 | 535 | 1.39 | |
| 24 | PZ-E2 | 10/23/13 | 0823 | GW | | X | | | | | | | | | 1 | 1 | 5.69 | 24.9 | 325 | 3.99 | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: S Lynn | 10:35AM 10/17 | | |
| | 10-23-13 1455 | | 10-23-13 1455 |
| | | | |
| | | | |
| | | | |

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

1311076

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. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-MF, FC-QT | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E3-08 | 10/23/13 | 1053 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 5.74 | 25.2 | 1011 | 0.97 | |
| 26 | PZ-E3-15 | | 1111 | GW | | X | | | | | | 1 | | | 1 | | 6.04 | 25.1 | 208 | 0.31 | |
| 27 | PZ-E4-08 | | 1230 | GW | | X | | | | | | 1 | | | 1 | | 4.73 | 25.2 | 849 | 0.95 | |
| 28 | PZ-E4-15 | | 1243 | GW | | X | | | | | | | | | 1 | 1 | 6.42 | 24.9 | 422 | 0.16 | |
| 29 | PZ-E5-08 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 30 | PZ-E5-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 31 | PZ-E6-08 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 32 | PZ-E6-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 33 | PZ-E7-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 34 | PZ-E7-15 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 35 | PZ-E7-15-DUP | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 36 | PZ-F3-08 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 11:00AM 10/17 | | |
| Relinquished: | 10-23-13 1455 | | 10-23-13 1455 |
| 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

1311076

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. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$ | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-F3-15 | 10/23/15 | 1129 | GW | | X | | | | | | 1 | | | 1 | | 6.31 | 25.1 | 281 | 1.52 | |
| 38 | PZ-F4-08 | | 1257 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 4.78 | 25.4 | 728 | 1.80 | |
| 39 | PZ-F4-15 | | 1314 | GW | | X | | | | | | 1 | | | 1 | | 6.54 | 25.0 | 787 | 0.07 | |
| 40 | PZ-G1 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 41 | PZ-G2-12.5 | | 0940 | GW | | X | 1 | | | | | | | | 1 | | 4.29 | 25.6 | 884 | 0.56 | |
| 42 | PZ-H4-08 | | 1329 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 4.52 | 25.3 | 840 | 1.39 | |
| 43 | PZ-H4-15 | | 1348 | GW | | X | | | | | | 1 | | | 1 | | 6.52 | 25.0 | 657 | 0.41 | |
| 44 | PZ-H5-11.5 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 45 | PZ-I6-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 46 | PZ-I6-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 47 | PZ-I6-15-DUP | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 48 | PZ-I10-08 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 11:20AM 10/17 | | |
| Relinquished: | 10-23-15 1455 | | 10-23-15 1455 |
| 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 |

1311076

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-MF, FC-QT | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | 10/24/13 | 1340 | WW | | X | 4 | 1 | 1 | 1 | | | | | | | 7.07 | 24.3 | 1345 | 0.04 | |
| 02 | STE-DUP | | 1345 | WW | | X | 4 | 1 | 1 | 1 | | | | | | | | | | | |
| 03 | PZ-01 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 04 | PZ-02 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 05 | PZ-03 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 06 | BKG-10 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 07 | BKG-15 | | | GW | | X | | | 1 | | | | | | 1 | | | | | | |
| 08 | PZ-04 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 09 | PZ-05 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 10 | PZ-06 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 11 | PZ-AB4-08 | | | GW | | X | | | 1 | | | | | | 1 | | | | | | |
| 12 | PZ-AB4-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: S Lynn | 10:15AM 10/17 | | |
| Relinquished: | 1500 10/24/13 | K Tindmarsh | 1500 10/24/13 |
| 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 |

1311076

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

Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-MF, FC-QT | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | PZ-C1 | | | GW | | X | | | 1 | 1 | 1 | | | | | | | | | | |
| 14 | PZ-C2 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 15 | PZ-C3-08 | | | GW | | X | | | 1 | | | | 2 | 1 | 1 | | | | | | |
| 16 | PZ-C3-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 17 | PZ-C6-08 | 10/24/13 | 0840 | GW | | X | | | | | | | | | 1 | 1 | 3.97 | 23.6 | 523 | 0.19 | |
| 18 | PZ-C6-15 | | 0852 | GW | | X | | | | | | | | | 1 | 1 | 5.40 | 23.6 | 356 | 0.22 | |
| 19 | PZ-D3-08 | | | GW | | X | | | 1 | | | | | | 1 | | | | | | |
| 20 | PZ-D3-15 | | | GW | | X | | | 1 | | | | | | 1 | | | | | | |
| 21 | PZ-D4-08 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 22 | PZ-D4-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 23 | PZ-E1 | | | GW | | X | | | 1 | | | | | | 1 | | | | | | |
| 24 | PZ-E2 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: S Lynn | Date/Time: 10:35AM 10/17 | Received: | Date/Time: |
| Relinquished: | Date/Time: 1500 10/24/13 | Received: K Mudmond | Date/Time: 1500 10/24/13 |
| 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 |

1311076

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. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-MF, FC-QT | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | PZ-E3-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 26 | PZ-E3-15 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 27 | PZ-E4-08 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 28 | PZ-E4-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 29 | PZ-E5-08 | 10/24/13 | 0814 | GW | | X | | | | | | | | | 1 | 1 | 4.31 | 24.0 | 637 | 0.54 | |
| 30 | PZ-E5-15 | | 0827 | GW | | X | | | | | | | | | 1 | 1 | 6.19 | 24.1 | 555 | 0.18 | |
| 31 | PZ-E6-08 | | 0859 | GW | | X | | | | | | | | | 1 | 1 | 4.17 | 23.7 | 743 | 0.94 | |
| 32 | PZ-E6-15 | | 0913 | GW | | X | | | | | | | | | 1 | 1 | 4.54 | 23.7 | 518 | 0.28 | |
| 33 | PZ-E7-08 | | 0953 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 4.48 | 22.8 | 702 | 0.29 | |
| 34 | PZ-E7-15 | | 1007 | GW | | X | | | | | | 1 | | | 1 | | 6.41 | 23.3 | 953 | 0.30 | |
| 35 | PZ-E7-15-DUP | | 1012 | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 36 | PZ-F3-08 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 11:00AM 10/17 | | |
| | 1500 10/24/13 | K Nudmark | 1500 10/24/13 |
| | | | |
| | | | |
| | | | |

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

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Chain of Custody

# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$ | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | PZ-F3-15 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 38 | PZ-F4-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 39 | PZ-F4-15 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 40 | PZ-G1 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 41 | PZ-G2-12.5 | | | GW | | X | 1 | | | | | | | | 1 | | | | | | |
| 42 | PZ-H4-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 43 | PZ-H4-15 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 44 | PZ-H5-11.5 | 10/24/13 | 1323 | GW | | X | | | | | | 1 | | | 1 | | 4.40 | 24.2 | 645 | 2.35 | |
| 45 | PZ-I6-08 | | 1247 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 4.36 | 23.7 | 300 | 2.81 | |
| 46 | PZ-I6-15 | | 1305 | GW | | X | | | | | | | | | 1 | 1 | 6.62 | 23.9 | 776 | 0.10 | |
| 47 | PZ-I6-15-DUP | | 1310 | GW | | X | | | | | | | | | 1 | 1 | / | / | / | / | |
| 48 | PZ-I10-08 | | 1023 | GW | | X | | | | | | 1 | | | 1 | | 4.87 | 23.8 | 353 | 0.46 | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: S Lynn | Date/Time: 11:20AM 10/17 | Received: | Date/Time: |
| Relinquished: | Date/Time: 1500 10/24/13 | Received: K Mudmerch | Date/Time: 1500 10/24/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$ | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | PZ-I10-15 | 10/24/13 | 1035 | GW | | X | | | | | | | | | 1 | 1 | 5.87 | 23.8 | 521 | 0.13 | |
| 50 | PZ-J4-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 51 | PZ-J4-15 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 52 | PZ-J7-08 | | 1210 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 4.61 | 23.3 | 258 | 3.25 | |
| 53 | PZ-J7-15 | | 1225 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 5.03 | 23.9 | 437 | 0.16 | |
| 54 | PZ-J7-15-DUP | | 1230 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 55 | PZ-N4-08 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 56 | PZ-N4-08-DUP | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 57 | PZ-N4-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 58 | PZ-N7-08 | | 1145 | GW | | X | | | | | | | | | 1 | 1 | 5.63 | 23.4 | 390 | 1.98 | |
| 59 | PZ-N7-15 | | 1154 | GW | | X | | | | | | | | | 1 | 1 | 5.42 | 23.8 | 479 | 0.90 | |
| 60 | PZ-N7-15-DUP | | 1159 | GW | | X | | | | | | | | | 1 | 1 | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: S Lynn | 12:15 PM 10/17 | | |
| Relinquished: | 1500 10/24/13 | Received: K Rudmach | Date/Time: 10/24/13 1500 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$ | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | PZ-N10-08 | 10/24/13 | 1058 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 5.52 | 23.7 | 289 | 1.03 | |
| 62 | PZ-N10-15 | | 1112 | GW | | X | | | | | | | | | 1 | 1 | 6.55 | 23.6 | 568 | 0.11 | |
| 63 | PZ-S10-08 | | 1125 | GW | | X | | | | | | 1 | | | 1 | | 4.66 | 23.9 | 242 | 0.16 | |
| 64 | PZ-S10-08-DUP | | 1170 | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 65 | DP-01 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 66 | DP-02 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 67 | DP-03 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 68 | DP-04-shallow | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 69 | DP-04-deep | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 70 | DP-05 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 71 | DP-06 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 72 | FB-DI | 10/24/13 | 1335 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 5.73 | 20.1 | 1.25 | 8.39 | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| S Lynn | 12:35 PM 10/17 | | |
| | 1500 10/24/13 | K Mudrnak | 1500 10/24/13 |
| | | | |
| | | | |
| | | | |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$ | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73 | EB | 10/24/13 | 1325 | R | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 5.79 | 20.1 | 1.25 | 8.31 | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| S Lynn | 12:40 pm 10/17 | | |
| Relinquished: | Date/Time: 1500 10/24/13 | Received: K Mudmard | Date/Time: 1500 10/24/13 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

11D BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $Na_2S_2O_3$ FC-MF, FC-QT | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | STE | | | WW | | X | 4 | 1 | 1 | 1 | | | | | | | | | | | |
| 02 | STE-DUP | | | WW | | X | 4 | 1 | 1 | 1 | | | | | | | | | | | |
| 03 | PZ-01 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 04 | PZ-02 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 05 | PZ-03 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 06 | BKG-10 | 10/25/13 | 1035 | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | 3.57 | 27.1 | 3668 | 6.34 | |
| 07 | BKG-15 | | 1055 | GW | | X | | | 1 | | | | | | 1 | | 5.54 | 24.1 | 1684 | 0.29 | |
| 08 | PZ-04 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 09 | PZ-05 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 10 | PZ-06 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 11 | PZ-AB4-08 | 10/25/13 | 1006 | GW | | X | | | 1 | | | | | | 1 | | 4.54 | 23.6 | 198 | 1.60 | |
| 12 | PZ-AB4-15 | | 1020 | GW | | X | | | | | | | | | 1 | 1 | 6.39 | 23.6 | 269 | 0.26 | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | 10:15AM 10/17 | | |
| Relinquished: | 10-25-13 1200 | | 10-25-13 1200 |
| 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 |

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1311076

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS4 SE#4

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 | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$ | 500mLP, Cool TS, TSS, Total Alkalinity, CBOD, NOx, F, Cl OP, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$, TP | 250mLP, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 500mLP, Cool Total Alkalinity, NOx, F, Cl, OP, $SO_4$ | 125mLP, $H_2SO_4$ COD, TKN, $NH_3$, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | 500mLP, Cool Total Alkalinity, NOx, Cl, $SO_4$ | 125mLP, $H_2SO_4$ TKN, $NH_3$ | pH | Temperature | Conductivity | DO | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | PZ-I10-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 50 | PZ-J4-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 51 | PZ-J4-15 | 10/25/13 | 0952 | GW | | X | | | | | | 1 | | | 1 | | 6.12 | 24.1 | 437 | 0.69 | |
| 52 | PZ-J7-08 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 53 | PZ-J7-15 | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 54 | PZ-J7-15-DUP | | | GW | | X | | | | 1 | 1 | 1 | 2 | 1 | | | | | | | |
| 55 | PZ-N4-08 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 56 | PZ-N4-08-DUP 0939 10/25/13 | | | GW | | X | | | | | | 1 | | | 1 | | | | | | |
| 57 | PZ-N4-15 | 10/25/13 | 0934 | GW | | X | | | | | | | | | 1 | 1 | 6.31 | 22.3 | 386 | 0.53 | |
| 58 | PZ-N7-08 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 59 | PZ-N7-15 | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |
| 60 | PZ-N7-15-DUP | | | GW | | X | | | | | | | | | 1 | 1 | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| D Lynn | 12:15 PM 10/17 | | |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| | 10-25-13 1200 | | 10-25-13 1200 |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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