



Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task B.7

B-HS3 Field System Monitoring Report No. 3

Progress Report

March 2014

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In association with:



AET
Applied Environmental Technology

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TASK B.7 PROGRESS REPORT

B-HS3 Field System Monitoring Report No. 3

Prepared for:

Florida Department of Health
Division of Disease Control and Health Protection
Bureau of Environmental Health
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1.0 Background

Task B of the Florida Onsite Sewage Nitrogen Reduction Strategies Study (FOSNRS) includes performing field experiments to critically evaluate the performance of nitrogen removal technologies that were identified in FOSNRS Task A.9 and pilot tested in PNRS II. To meet this objective, full scale treatment systems are being installed at various residential sites in Florida and monitored over an extended timeframe under actual onsite conditions. The Task B Quality Assurance Project Plan (Task B.5) documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the home sites. This report documents the third sample event of a passive nitrogen reduction system at home site B-HS3 in Seminole County, Florida.

2.0 Purpose

Operation of the B-HS3 system was initiated on July 12, 2013. This monitoring report documents data collected from the third monitoring and sampling event conducted on February 3, 2014 (Day 207). The third monitoring event consisted of collecting flow measurements from the household water use meter and the treatment system flow meters, recording electricity use, monitoring of field parameters, collection of water samples from seven points in the treatment system, and analyses of water samples by a NELAC certified laboratory. In addition, daily samples were collected February 4th through February 7, 2014 to evaluate daily variation of the treatment system.

3.0 Materials and Methods

3.1 Project Site

The B-HS3 field site is located in Seminole County, FL. The nitrogen reducing onsite treatment system for the single family residence was installed in June 2013. Design and construction details were presented previously in the Task B.6 document. The B-HS3 system consists of a replacement septic tank (which was a 1,500 gallon two chamber concrete primary tank); a 600 gallon concrete STE dose tank; a two zone drip system; a Stage 1 lined drip zone; a 1,050 gallon concrete tank Stage 2 saturated media

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biofilter; and a treated effluent dispersal drip zone. Figure 1 is a system schematic showing the system components and layout of the installation. A flow schematic of the system is shown in Figure 2.

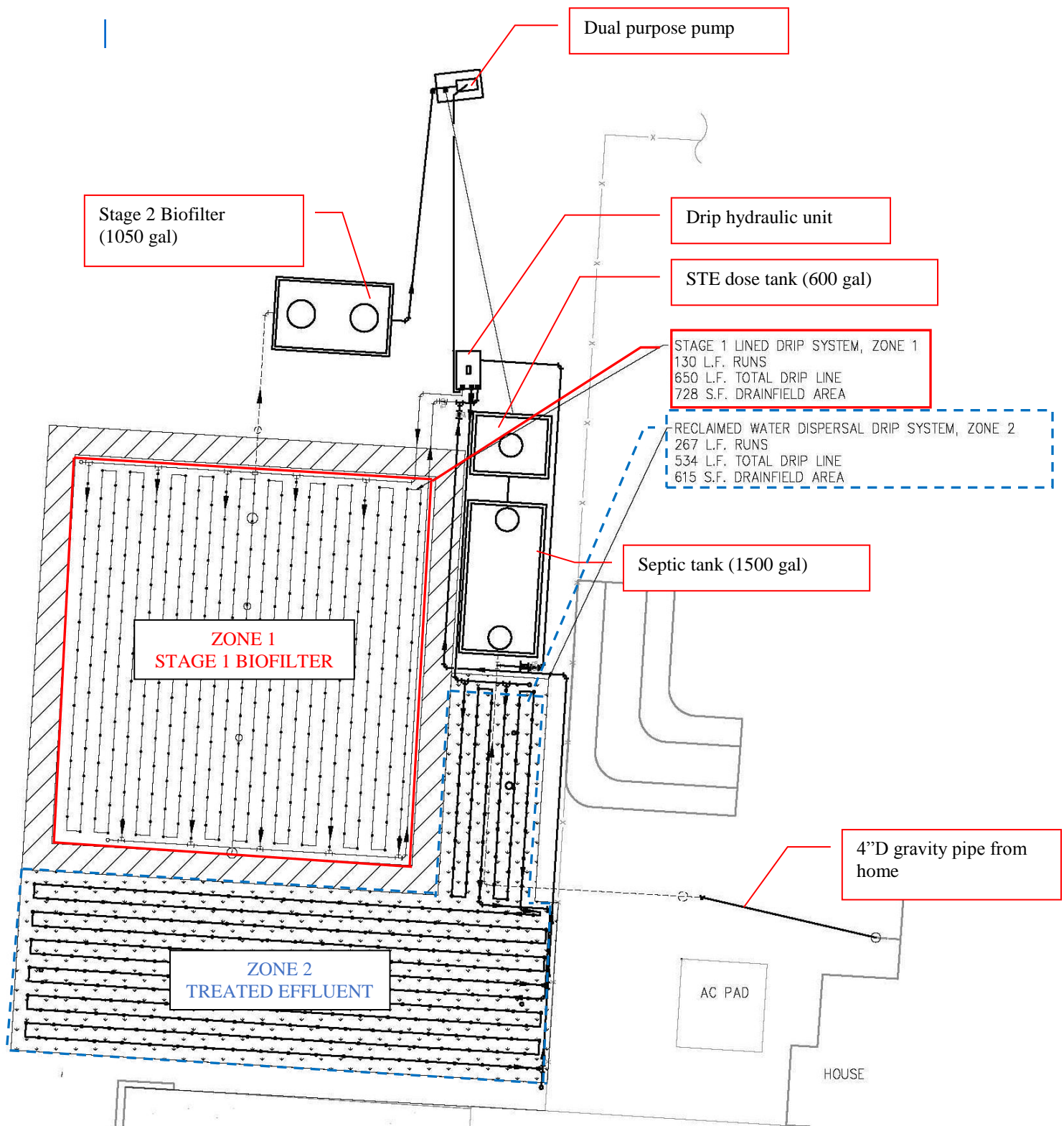


Figure 1
Plan View of B-HS3 System Layout

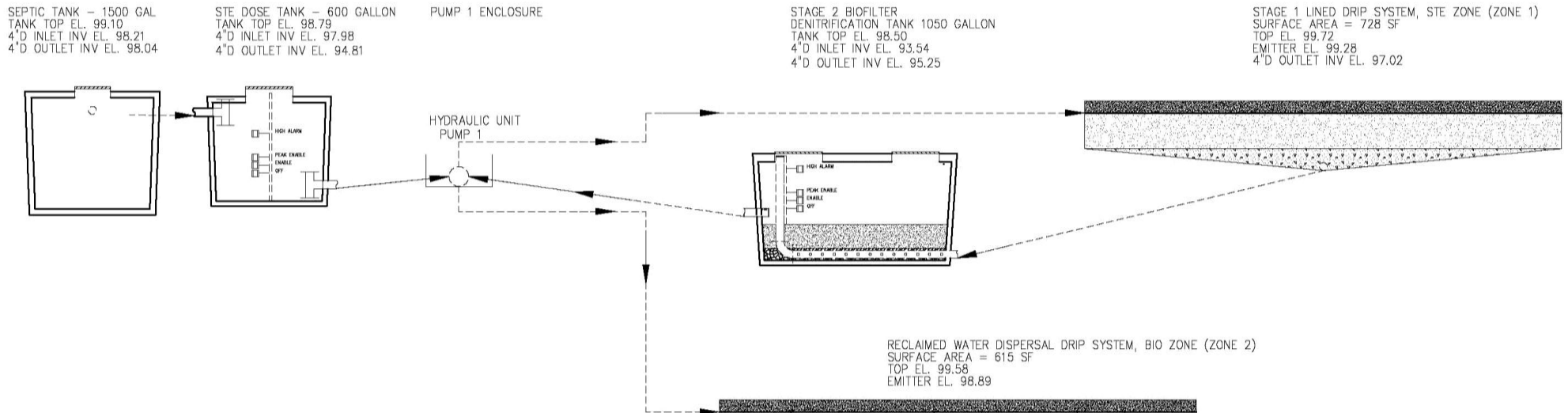


Figure 2
Flow Schematic of B-HS3 PNRS Installed in Seminole County

3.2 Monitoring and Sample Locations and Identification

This monitoring event included sample collection from ten points within the treatment system (Figure 3). The B-HS3 installation also includes five downgradient groundwater monitoring points which are standpipe piezometers that were installed as part of the C-HS2 groundwater monitoring network (Figure 4). In the treatment system, household wastewater enters the 1st chamber of the primary tank and exits the second chamber as septic tank effluent through an effluent screen into the STE dose tank. The first monitoring point, B-HS3-STE, is the effluent sampled approximately 1.5 feet below the surface of the second chamber of the primary tank (Figure 5) before the effluent filter, which is referred to as primary effluent or septic tank effluent (STE). Samples from monitoring point B-HS3-STE are of whole household wastewater after it has had some residence time in the primary tank and represent the influent to the remainder of the onsite nitrogen reduction system.

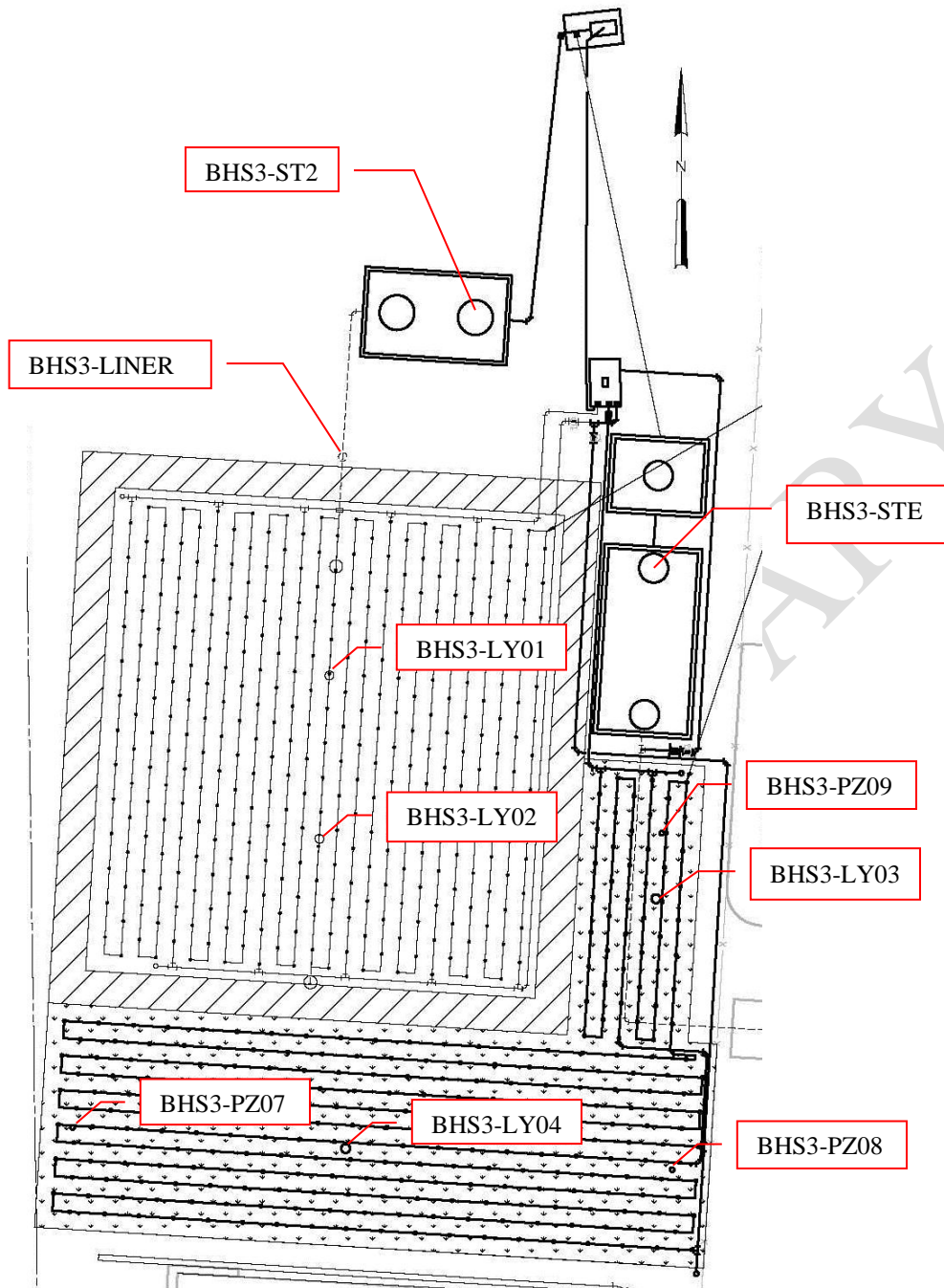


Figure 3
BHS-3 Treatment System Sampling and Monitoring Locations

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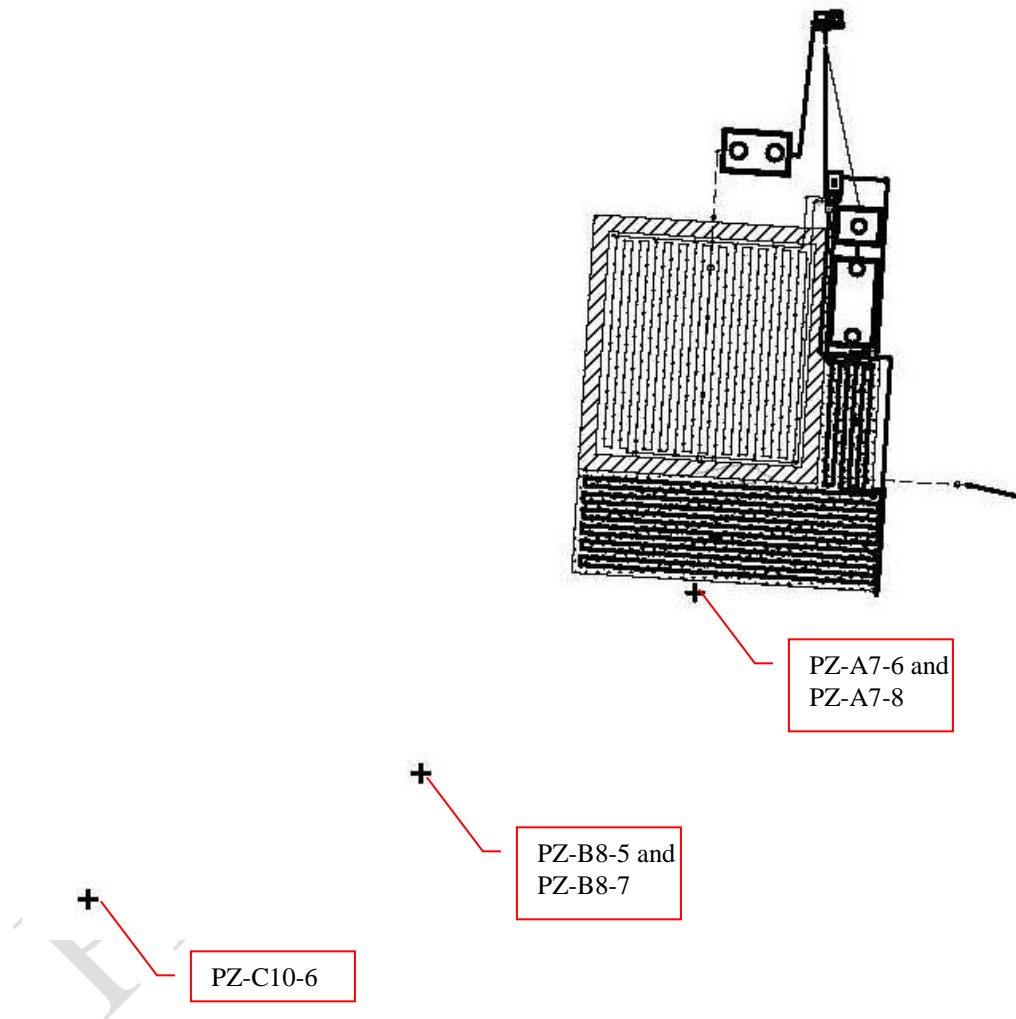


Figure 4
BHS-3 PNRS Downgradient Groundwater Sampling Locations



Figure 5
Second Chamber of Primary Tank (B-HS3-STE Sample)

The STE dose tank effluent is pumped through the drip system hydraulic unit and discharged to the Stage 1 drip system emitters (Zone 1). In the Stage 1 drip area, wastewater proceeds downward through an 18-inch layer of sand and a layer of lignocellulosic and sand media (9-inch maximum thickness) placed above a 30 mil PVC liner. The second and third sampling points are two suction lysimeters (BHS3-LY01 and BHS3-LY02) located in the Stage 1 drip area with the bottom of the 9 inch ceramic cup located at the interface of the overlying sand and underlying lignocellulosic/sand. These sample locations ostensibly represent wastewater that has been nitrified by passage through the overlying sand layer (Figure 6).

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Figure 6
Stage 1 Suction Lysimeter (B-HS3-LY01 and -LY02)

The Stage 1 drip system area was prepared by grading a V-shape so that effluent would collect on the liner and flow to the center where a perforated pipe within a gravel underdrain conveys the effluent to the Stage 2 denitrification tank through a pipe boot within the liner. The fourth sampling point (BHS3-LINER) is a sample port of the Stage 1 lined area effluent prior to the Stage 2 biofilter. At the BHS3-LINER sample point, wastewater would ostensibly be denitrified by passage through the lignocellulosic media mixture.

The liner effluent is conveyed to a Stage 2 biofilter, a concrete 1,050 gallon tank, containing elemental sulfur reactive media for additional treatment (denitrification). The fifth sampling point, B-HS3-ST2, is the Stage 2 biofilter effluent which is sampled approximately 6 inches below the water surface of the Stage 2 biofilter tank (Figure 7).



Figure 7
Second Chamber of Stage 2 Biofilter (B-HS3-ST2 Sample)

The Stage 2 biofilter effluent is pumped through the drip system hydraulic unit and discharged to the treated effluent drip system emitters (Zone 2) to the natural soil. The sixth and seventh sampling points are two suction lysimeters (BHS3-LY03 and BHS3-LY04) located in the treated effluent drip area with the top of the 9 inch ceramic cup located 24 inches below the drip emitters to represent treatment through 24-inches of unsaturated soil (Figure 8). Also located within the treated effluent drip area, are the eighth, ninth and tenth sampling points which are standpipe piezometers (BHS3-PZ07, BHS3-PZ08, and BHS3-PZ09) positioned so that the top of the 5-foot screen is 24-inches below the drip emitters (Figure 9).



Figure 8
Treated Effluent Suction Lysimeter (B-HS3-LY03 and -LY04 sample)



Figure 9
Treated Effluent Area Standpipe Piezometers (B-HS3-PZ07, -PZ08 and -PZ09)

3.3 Operational Monitoring

Start-up of the system occurred on July 12, 2013 (Experimental Day 0) and the system has almost operated continually since that date. Between September 10, 2013 and Sep-

tember 17, 2013 the system was not operating because a replacement part for the hydraulic unit was required. The third formal sampling event was conducted February 3, 2014 (Experimental Day 207). For the third formal sampling event, the water meter for the house and the treatment system flow meters were read and recorded on February 3, 2014.

The household potable water use is recorded via a water meter located in the front yard. The combined pump flow meter is located inside the hydraulic unit following the hydraulic unit filters prior to the split between the two zones, and records the cumulative pumped flow in gallons pumped from both the STE dose tank and Stage 2 biofilter tank. Therefore, the measurement of the combined flow meter includes both the STE flow from the household and the treated effluent flow from the Stage 2 biofilter. The Stage 2 treated effluent flow meter is located following the split on the line from the pump to the treated effluent drip system and records the cumulative flow in gallons pumped from the Stage 2 biofilter tank. The control panel includes telemetry which logs alarms, cumulative pump cycles, and cumulative field flush cycles.

3.4 Energy, Chemical and/or Additives Consumption

Energy consumption was monitored using an electrical meter installed between the main power box for the house and the control panel. The electrical meter records the cumulative power usage of the system in kilowatt-hours. The power usage of the system is primarily due to the single pump, although a small amount of power is used by the control panel itself. There are no chemicals added to the system. However, the denitrification media (lignocellulosic and sulfur) are “reactive” media which will be consumed during operation. The Stage 1 lined area was initially filled with 9 inches of lignocellulosic and sand media mixture and the Stage 2 biofilter was initially filled with 12 inches of sulfur and oyster shell media mixture, which ostensibly will last for many years without replenishment or replacement.

3.5 Water Quality Sample Collection and Analyses

The third formal sample event was conducted on February 3, 2014 and included a full suite of influent, intermediate and effluent water quality samples from the system. Samples were collected at each of the fifteen monitoring points described previously in Section 3.2 and illustrated in Figures 3 and 4: ten treatment system monitoring points and five groundwater sampling points. A peristaltic pump was used to collect samples and route them directly into analysis-specific containers after sufficient flushing of the tubing had occurred. Field parameters were then recorded.

In addition, an equipment blank (EB) sample and field blank (FB) were taken. The equipment blank was collected by pumping deionized water through the cleaned pump tubing. One field blank was collected by filling sample containers with deionized water that had been transported into the field along with the sample equipment. These samples were then analyzed for the same parameters as the monitoring samples.

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 laboratories. 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, provided in Appendix A, were used to document the transfer of samples from field personnel to the analytical laboratory.

Field parameters were measured using portable electronic probes and included temperature (Temp), dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, and specific conductance. The field parameters were measured by placing the analytical probes in a container overflowing with sample water. The influent, intermediate, and effluent samples were analyzed by the laboratory for: total alkalinity, chemical oxygen demand (COD), total Kjeldahl nitrogen (TKN-N), ammonia nitrogen ($\text{NH}_3\text{-N}$), nitrate nitrogen ($\text{NO}_3\text{-N}$), nitrite nitrogen ($\text{NO}_2\text{-N}$), total phosphorus (TP), orthophosphate (Ortho P), total suspended solids (TSS), volatile suspended solids (VSS), total organic carbon (TOC), fecal coliform (fecal), and E. coli. The influent and sulfur media samples included sulfate, sulfide, and hydrogen sulfide (unionized). All analyses were performed by an independent and fully NELAC 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 Nitrogen (NO ₃ -N)	EPA 300.0	0.01 mg/L
Nitrite Nitrogen (NO ₂ -N)	EPA 300.0	0.01 mg/L
Nitrate+Nitrite Nitrogen (NOX-N)	EPA 300.0	0.02 mg/L
Total Phosphorus (TP)	SM 4500P-E	0.01 mg/L
Orthophosphate as P (Ortho P)	EPA 300.0	0.01 mg/L
Carbonaceous Biological Oxygen Demand (CBOD ₅)	SM5210B	2 mg/L
Total Solids (TS)	EPA 160.3	.01 % by wt
Total Suspended Solids (TSS)	SM 2540D	1 mg/L
Volatile Suspended Solids (VSS)	SM 2540E	1 mg/L
Total Organic Carbon (TOC)	SM5310B	0.06 mg/L
Sulfate	EPA 300.0	2.0 mg/L
Sulfide	SM 4500SF	0.10 mg/L
Hydrogen Sulfide (unionized)	SM 4550SF	0.01 mg/L
Fecal Coliform (fecal)	SM 9222D	2 ct/100mL
E.coli	SM 9223B	2 ct/100mL

4.0 Results and Discussion

4.1 Operational Monitoring

Table 2 provides a summary of the household water use since July 13, 2011. The treatment system flow meter readings for the B-HS3 field site are summarized in Table 3. The operation and maintenance log which includes actions taken since start-up is provided in Appendix B.

Table 2
Summary of Household Water Use

Date	Cumulative Volume (gallons)	Average Daily Household Flow, Q Between readings (gpd)	Comments
7/13/2011 14:45	5302677.9		Installed
7/20/2011 17:50	5304207.8	214.6	
7/26/2011 15:19	5305257.9	178.1	
10/27/2011 15:19	5327920.4	243.7	
11/30/2011 8:00	5355610.4	821.8	
3/13/2012 8:10	5378780.2	222.8	
7/10/2012 16:15	5453899.3	629.5	
10/18/2012 15:30	5470593.1	167.0	
3/7/2013 14:00	5488517.4	128.1	
6/7/2013 14:00	5504725.9	176.2	
7/9/2013 12:50	5508873.0	129.8	
PNRS System Start-up			PNRS start-up
7/12/13 14:01	5509172.1	98.1	
7/17/13 13:55	5509884.1	142.5	
7/29/13 9:50	5510830.9	80.0	
8/6/13 10:40	5511588.8	94.3	
8/12/13 11:07	5512244.8	109.0	
8/15/13 8:48	5513128.8	304.5	Prelim Event No. 1
9/5/13 15:31	5514810.2	79.0	
9/10/13			Septic tank pumped
9/17/13			System running again
9/27/13 8:00	5517331.9	116.3	
9/30/13 8:00	5517622.5	96.9	Sample Event No. 1
10/11/13 8:30	5518421.6	72.5	
10/17/13 11:00	5519187.0	125.4	
11/15/2013 10:00	5524455.0	181.9	
11/27/2013 9:10	5525784.8	111.1	
12/2/2013 8:30	5527623.5	369.8	Several guests stayed in the home over the Thanksgiving holiday
12/4/2013 8:51	5527809.2	92.2	Sample Event No. 2
12/23/2013 11:45	5529755.3	101.8	
1/23/2014 11:00	5532487.5	88.2	
1/30/2014 9:00	5533156.8	96.8	
2/3/2014 8:00	5533482.0	82.2	Sample Event No. 3
2/4/2014 8:15	5533499.6	17.4	Sample Event No. 4

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Table 2
Summary of Household Water Use

Date	Cumulative Volume (gallons)	Average Daily Household Flow, Q Between readings (gpd)	Comments
2/5/2014 10:45	5533558.4	53.3	Sample Event No. 5
2/6/2014 10:45	5533690.6	132.2	Sample Event No. 6
2/7/2014 8:00	5533788.6	110.7	Sample Event No. 7
Total average PNRS start-up to 2/7/14		117.4	

Table 3
Summary of System Flow

Date and Time Read	Combined Pumped Flow, Stage 1 and Treated Effluent Drip Zones, Water Meter Reading	Average Daily Combined Pumped Flow between readings	Calculated Flow to Stage 1	Average Daily Calculated Flow to Stage 1 between readings	Treated Effluent Flow Meter Reading	Average Daily Treated Effluent Flow between readings	Difference in Stage 1 and Treated Effluent Flow between readings [(+)Rainfall/Precipitation/ (-) ET]
	Cumulative Volume (gallons)	Gallons/day	Cumulative Volume (gallons)	Gallons/Day	Cumulative Volume (gallons)	Gallons/Day	Gallons/Day
7/12/2013	206.9	Start-up	Start-up	Start-up	58.6	Start-up	Start-up
7/17/2013	423.0	44.0	40.6		234.2	35.7	
7/29/2013	3,345.1	245.3	765.3	60.8	2,431.6	184.5	123.6
8/6/2013	6,541.1	399.7	1,045.1	35.0	5,347.8	364.8	329.8
8/12/2013	8,953.1	398.2	2,360.0	217.1	6,444.9	181.1	-36.0
8/15/2013	10,131.2	405.8	3,084.3	249.4	6,898.7	156.3	-93.1
9/5/2013	18,696.5	402.5	7,734.4	218.5	10,813.8	184.0	-34.5
9/9/2013	19,884.6	318.7	8,287.6	148.4	11,448.8	170.3	22.0
9/17/2013	20,912.4	127.7	8,785.2	61.8	11,979.0	65.9	4.0
9/27/2013	22,142.0	124.1	9,239.3	45.8	12,754.5	78.3	32.4
9/30/2013	22,885.0	247.7	9,692.2	151.0	13,044.6	96.7	-54.2
10/11/2013	26,428.9	321.6	11,417.0	156.5	14,863.7	165.1	8.5
10/17/2013	28,781.4	385.4	12,823.8	230.5	15,809.4	154.9	-75.5
11/8/2013	34,278.1	249.1	15,844.0	136.9	18,285.9	112.2	-24.6
11/27/2013	39,031.1	252.0	18,656.6	149.1	20,226.3	102.9	-46.2
12/2/2013	42,081.5	613.5	20,437.6	358.2	21,495.7	255.3	-102.9
12/4/2013	42,599.8	257.3	20,729.5	144.9	21,722.1	112.4	-32.6
12/23/2013	47,135.0	237.2	23,494.6	144.6	23,640.5	100.3	-44.3
1/23/2014	54,702.9	244.4	27,634.5	133.7	27,068.4	110.7	-23.0
1/30/2014	56,954.9	325.6	28,768.0	163.9	28,187.0	161.7	-2.2
2/3/2014	58,390.4	362.7	29,353.4	147.9	29,037.1	214.8	66.9
2/4/2014	58,688.7	295.2	29,446.4	92.0	29,242.4	203.2	111.1
2/5/2014	58,870.7	164.8	29,542.1	86.7	29,328.6	78.1	-8.6
2/6/2014	59,118.7	248.0	29,702.1	159.9	29,416.7	88.1	-71.9
2/7/2014	59,354.0	265.8	29,852.9	170.4	29,501.1	95.4	-75.0
Total average start-up to 2/7/14		282.0		140.4		145.5	-1.1

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The average household water use since the PNRS system start-up was 117.4 gallons per day with periods of higher and lower flows. Since the PNRS system start-up, the average combined pumped flow (flow to the Stage 1 drip system and treated effluent drip system) was 282.0 gallons per day, the average calculated Stage 1 drip system (STE) flow was 140.4 gallons per day and the average treated effluent drip system (Stage 2 biofilter effluent) flow was 145.5 gallons per day. The average calculated Stage 1 drip system (STE) flow correlates with the household water use water meter.

The difference between the flow to the Stage 1 drip system (STE) and the treated effluent drip system (Stage 2 biofilter effluent) are due to water inputs and outputs. Water inputs include precipitation, overland flow, and irrigation water collected in the Stage 1 lined area. Water outputs include evapotranspiration. The last column in Table 3 summarizes the difference in the Stage 1 and treated effluent flows for each time period. The positive values indicate higher treated effluent flow (water inputs) which are likely attributed to precipitation and irrigation water collected in the lined area. The negative values indicate higher Stage 1 flow (water outputs) which is likely attributed to evapotranspiration.

Unfortunately, instrument failure of the onsite rain gauge occurred between Sample Event No. 2 and Sample Event No. 3. A weather station (Lake Wayman Heights, Longwood, FL) is located approximately 5 miles from the site. Data from this weather station is available at the following website: <http://www.wunderground.com>. Recorded meteorological data is provided in Appendix C, Table C.1 from this weather station. Table 4 provides daily precipitation totals leading up to and during the sample event.

Table 4
Precipitation Data Daily Totals Measured January 26, 2014 through February 7, 2014
Sample Event No. 3

Date	Precipitation (inches)
1/26/2014	0
1/27/2014	0.66
1/28/2014	0
1/29/2014	0.54
1/30/2014	0.42
1/31/2014	0.55
2/1/2014	0.06
2/2/2014	0
2/3/2014	0.08
2/4/2014	0
2/5/2014	0
2/6/2014	0.19
2/7/2014	0.20

4.2 Energy, Chemical and/or Additives Consumption

Energy consumption is monitored using an electrical meter installed between the main power box for the house and the control panel to record cumulative power usage of the pump in kilowatt-hours. The recorded electrical use for the system is summarized in Table 5. The total average electrical use through February 7, 2014 was 0.95 kWh per day. The average electrical use per gallon pumped was 0.003 kWh per gallon, and this parameter appears fairly stable since start-up.

Table 5
Summary of System Electrical Use

Date and Time Read	Electrical Meter Reading	Average Daily Electrical Use between read- ings	Average Electrical Use per Gallon Pumped between readings
	Cumulative (kWh)	(kWh/day)	(kWh/gal)
7/12/13 14:01	0.6	Start-up	Start-up
7/17/13 11:57	1.1	0.10	0.002
7/29/13 9:52	8.9	0.65	0.003
8/6/13 9:45	19.1	1.28	0.003
8/12/13 11:07	27.9	1.45	0.004
8/15/13 8:48	32.5	1.58	0.004
9/5/13 15:31	69.6	1.74	0.004
9/9/13 9:00	82.3	3.41	0.011
9/17/13 10:12	86.2	0.48	0.004
9/27/13 8:00	88.8	0.26	0.002
9/30/13 8:00	90.6	0.60	0.002
10/11/13 8:30	98.5	0.72	0.002
10/17/13 11:00	104.7	1.02	0.003
11/8/13 12:30	121.1	0.74	0.003
11/27/13 9:10	135.6	0.77	0.003
12/2/13 8:30	145.1	1.91	0.003
12/4/13 8:51	146.8	0.84	0.003
1/23/14 11:00	185.1	0.76	0.003
1/30/14 9:00	192.3	1.04	0.003
2/3/14 8:00	197.0	1.09	0.003
2/4/14 8:15	198.0	1.15	0.004
2/5/14 10:45	198.6	0.76	0.005
2/6/14 10:45	199.3	0.63	0.003
2/7/14 8:00	200.2	0.85	0.003
Total average start-up to 2/7/14		0.95	0.003

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4.3 Water Quality

Water quality analytical results, for Sample Event No. 3 are listed in Table 6 and graphically displayed in Figure 10. A summary of the water quality data collected to date for the test system is presented in Table 7. The laboratory report containing the raw analytical data is included in Appendix A. The following discussion summarizes the water quality analytical results for the Sample Event No. 3. The performance of the various system components was compared by considering the changes through treatment of nitrogen species (TKN-N, $\text{NH}_3\text{-N}$, and $\text{NO}_x\text{-N}$), as well as supporting water quality parameters.



Figure 10
Graphical Representation of Water Quality Results
Sample Event No. 3, February 3, 2014

Septic Tank Effluent (STE) Quality: The water quality characteristics of STE collected in Sample Event 3 were within the typical range generally expected for domestic STE. The measured STE total nitrogen (TN) concentration was 46 mg/L, which is within the range that has been typically reported for Florida single family residence STE.

Stage 1 (Bottom of Sand Layer) Soil Suction Lysimeters (LY01 and LY02): The soil suction lysimeters effluent $\text{NH}_3\text{-N}$ levels were 0.013 mg/L and 0.019 mg/L, respectively with a DO level at 9.92 mg/L and 10.23 mg/L (Table 5). CBOD₅ was below the method detection limit of 2 mg/L. The $\text{NO}_x\text{-N}$ was 24 mg/L and 30 mg/L, respectively. Total inorganic nitrogen was substantially reduced by passage through the unsaturated sand layer. The Stage 1 biofilter showed nearly complete nitrification and some denitrification

with an effluent $\text{NH}_3\text{-N}$ less than 0.02 mg/L, $\text{NO}_x\text{-N}$ of 24 and 30 mg/L and TKN of 1.7 and 1.0 mg/L, respectively.

Stage 1 Liner Effluent (Liner): The Stage 1 effluent $\text{NH}_3\text{-N}$ level was 0.06 mg/L with a DO level at 9.09 mg/L (Table 6). TSS and CBOD_5 was equal to or below 5 mg/L. The Stage 1 effluent $\text{NO}_x\text{-N}$ was 14 mg/L. These results indicate significant denitrification by passage through the lignocellulosic/sand layer in the Stage 1 lined area (approximately 48% reduction of $\text{NO}_x\text{-N}$). The combined Stage 1/liner area biofilter showed nearly complete ammonium removal and substantial removal of (NO_3+NO_2) with an effluent $\text{NH}_3\text{-N}$ of 0.06 mg/L, $\text{NO}_x\text{-N}$ of 14 mg/L and TKN of 2 mg/L.

Stage 2 Biofilter Effluent (ST2): Effluent $\text{NO}_x\text{-N}$ from the Stage 2 biofilter was 5.3 mg/L with a DO level at 0.12 mg/L DO and ORP at -264.8 mV. Final total nitrogen (TN) in the passive nitrogen reduction system effluent was 7.1 mg/L. The Stage 2 biofilter effluent CBOD_5 concentration was below the method detection limit of 2 mg/L, TSS was 6 mg/L and sulfate was 140 mg/L.

Treated Effluent Soil Suction Lysimeters (LY03 and LY04): The treated effluent drip system monitoring device, BHS3-LY03, $\text{NO}_x\text{-N}$ concentration was 6.1 mg/L which is slightly higher than the Stage 2 effluent concentration. However, the BHS3-LY04 device $\text{NO}_x\text{-N}$ concentration was 1.9 mg/L.

In addition during this monitoring event, daily samples were collected from the nitrogen reducing onsite treatment system to evaluate the variability of daily data. Water quality analytical results, for Sample Events No. 4 through 7 are summarized in Appendix A, Table A.1 through Table A.4. Key parameter mean and standard deviations for these five sample events are provided in Figure 11. In addition, the total nitrogen time series for these five sample events are graphically displayed in Figure 12 for the treatment sample locations.

	Q	→	STE	→	STAGE 1 LY01 & LY02	→	STAGE 1 LINER	→	STAGE 2 SULFUR	
CBOD ₅ mg/L	64.6 ± 20				2 ± 0		2 ± 0		2 ± 0	6 ± 4
TKN mg N/L	48.8 ± 5				1.5 ± 0.3		1.4 ± 0.2		1.9 ± 0.4	1.4 ± 0.4
NH ₃ mg N/L	42.2 ± 1.5				0.03 ± 0.02		0.01 ± 0		0.18 ± 0.3	0.4 ± 0.3
NO _x mg N/L	0.04 ± 0.02				14.1 ± 6		31.8 ± 3		8.8 ± 4	1.5 ± 2
TN mg N/L	48.8 ± 5				15.6 ± 6		33.2 ± 3		10.7 ± 4	2.9 ± 3
Sulfate mg/L	29.8 ± 8				35.2 ± 11		39.8 ± 10		31.6 ± 10	136 ± 11
Fecal Coliform geomean (Ct/100mL)	65,604				Not analyzed		1000		25	6

Figure 11
February 3rd through February 7th, 2014
Mean and Standard Deviations from Daily Sample Events

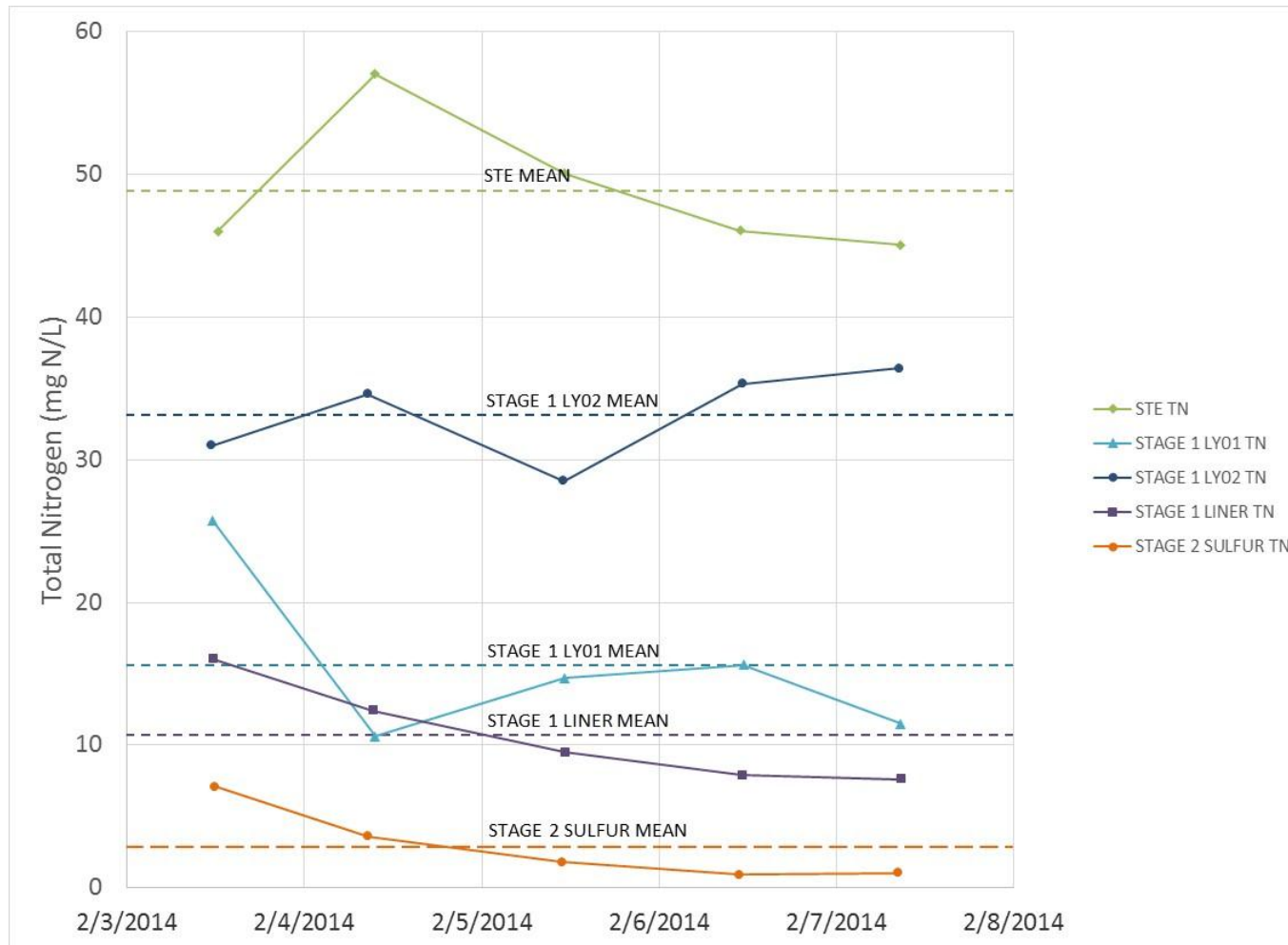


Figure 12
Graphical Representation of Total Nitrogen Time Series
February 3rd through February 7th, 2014

Table 6
Sample Event 3 Water Quality Results

Sample ID	Sample Date/Time	Temp (°C)	pH	Specific Conductance (uS/cm)	DO (mg/L)	ORP (mV)	Total Alkalinity (mg/L)	TSS (mg/L)	VSS (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)	NO ₃ -N (mg/L N)	NO ₂ -N (mg/L N)	NO _x (mg/L N)	TIN (mg/L N) ³	TP (mg/L)	Ortho P (mg/L P)	Chloride	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Sulfide (mg/L)	Fecal (Ct/100 mL)	E-coli (Ct/100 mL)
BHS3-STE	2/3/14 12:17	20.2	6.92	1322	0.04	-321.7	400	18	17	44	170	46.02	46	4	42	0.01	0.01	0.02	42.02	4.9	3.4	75	36	6.2	11	82000	24000
BHS3-STE-DUP	2/3/14 12:22	20.2	6.92	1322	0.04	-321.7	400	17	16	40	200	46.04	46	6	40	0.04	0.01	0.04	40.04	4.5	3.2	75	38	5.8	10	56000	24000
BHS3-STE-FILTERED	2/3/14 12:17	20.2	6.92	1322	0.04	-321.7				23		46.04	46	3	43	0.04	0.01	0.04	43.04								
BHS3-LY01	2/3/14 11:35	21.5	6.81	678	9.92	105				2	17	25.71	1.7	1.687	0.013	24	0.01	24.01	24.023	0.047	0.01	45	46				
BHS3-LY02	2/3/14 11:28	21.6	6.65	788	10.23	114.7				2	10	31.01	1	0.981	0.019	30	0.01	30.01	30.029	2.4	1.3	40	31			1000	2
BHS3-LINER	2/3/14 11:45	19.1	6.62	667	9.09	83	210	5	3	2	37	16.01	2	1.94	0.06	14	0.01	14.01	14.07	0.15	0.01	42	36	0.15	0.2	1	2
BHS3-LINER-FILTERED	2/3/14 11:45	19.1	6.62	667	9.09	83				2		15.01	1	0.979	0.021	14	0.01	14.01	14.031								
BHS3-ST2	2/3/14 11:55	19.7	6.88	836	0.12	-264.8	240	6	6	2	39	7.1	1.8	1.58	0.22	3.2	2.1	5.3	5.52	0.036	0.01	45	140	0.24	0.2	1	2
BHS3-ST2-DUP	2/3/14 12:00	19.7	6.88	836	0.12	-264.8	240	8	6	2	35	7.1	1.9	1.72	0.18	3	2.2	5.2	5.38	0.038	0.01	41	130	0.12	0.2	1	2
BHS3-ST2-FILTERED	2/3/14 11:55	19.7	6.88	836	0.12	-264.8				2		6.8	1.5	1.28	0.22	3.2	2.1	5.3	5.52				140				
BHS3-LY03	2/3/14 11:10	21.8	6.27	807	9.09	119.4				2	21	8.61	2.5	2.486	0.014	6.1	0.01	6.11	6.124	0.15	0.018	38	120	0.6	0.71	1	2
BHS3-LY04	2/3/14 11:20	22.1	6.42	821	9.98	120.6				2	19	2.79	0.88	0.871	0.009	1.9	0.01	1.91	1.919	0.25	0.01	42	130	0.48	0.6	1	2
BHS3-PZ07	2/3/14 10:15	21.3	6.27	811	4.04	-4.2				2	31	2.65	0.84	0.831	0.009	1.8	0.01	1.81	1.819	0.041	0.018	40	120	0.34	0.4	1	2
BHS3-PZ08	2/3/14 10:40	20.0	6.34	740	4.90	37.7				2	25	3.74	0.93	0.921	0.009	2.8	0.01	2.81	2.819	0.29	0.077	40	130	0.17	0.2	1	2
BHS3-PZ09	2/3/14 11:00	21.3	5.09	553	4.81	67.4				2	35	11.11	1.8	1.791	0.009	9.3	0.01	9.31	9.319	4.5	3.5	41	110	0.58	0.6	1	2
PZ-A7-6	2/3/14 9:42	20.3	5.9	700	2.63	85.9	180					2.91	1.2	1.127	0.073	1.7	0.01	1.71	1.783			42	110			1	2
PZ-A7-8	2/3/14 9:59	21.1	6.02	726	0.38	-55.1	270					4.25	3.5	1.6	1.9	0.74	0.01	0.75	2.65			32	66			1	2
PZ-B8-5	2/3/14 9:10	19.8	5.53	296	2.19	67.6	99					2.82	2.4	2.318	0.082	0.41	0.01	0.42	0.502			14	28			1	2
PZ-B8-7	2/3/14 9:24	20.8	5.46	249	1.13	45	73					1.95	1.7	1.641	0.059	0.24	0.01	0.25	0.309			18	16			1	2
PZ-C10-6	2/3/14 8:51	19.2	5.98	425	2.78	47	220					5.01	3.2	2.45	0.75	1.8	0.01	1.81	2.56			12	19			1	2
EB	2/3/14 12:50	23.2	7.48	1.81	7.98	324.7	2	1	1	2	10	0.07	0.05	0.041	0.009	0.01	0.01	0.02	0.029	0.01	0.01	0.05	0.2	0.01	0.1	1	2
FB	2/3/14 12:55	23.1	7.45	1.81	6.40	290.7	2	1	1	2	10	0.07	0.05	0.041	0.009	0.01	0.01	0.02	0.029	0.01	0.01	0.05	0.2	0.01	0.1	1	2

Notes:

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

²Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH₃.

³Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH₃ and NO_x.

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.

Too many colonies were present. The numeric value represents the filtration volume.

Results based on colony counts outside the ideal range.

Table 7
Summary of Water Quality Data

Sample ID	Statistic	Temp (°C)	pH	Specific Conductance (uS/cm)	DO (mg/L)	ORP (mV)	Total Alkalinity (mg/L)	TSS (mg/L)	VSS (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)	NO ₃ -N (mg/L N)	NO ₂ -N (mg/L N)	NOx (mg/L N)	TIN (mg/L N) ³	TP (mg/L)	Ortho P (mg/L P)	Chloride	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Sulfide (mg/L)	Fecal (Ct/100 mL)	E-coli (Ct/100 mL)
STE	n	13	13	13	13	8	12	9	7	9	8	13	13	13	13	11	10	13	13	9	9	11	10	8	8	9	6
	MEAN	23.70	7.26	1088.77	0.38	-301.85	410.00	26.89	22.14	92.33	196.25	62.79	62.62	12.46	50.15	0.10	0.10	0.18	50.33	5.60	4.00	53.64	19.13	4.46	9.48	74,582	30,445
	STD. DEV.	4.21		155.08	0.50	31.55	44.11	16.44	15.37	51.66	84.17	21.60	21.46	12.50	17.12	0.24	0.29	0.49	17.20	2.13	1.74	9.38	14.18	2.86	2.35		
	MIN	18.50	6.88	868.00	0.00	-341.70	330.00	12.00	9.00	44.00	140.00	30.05	30.00	0.00	27.00	0.01	0.01	0.02	27.05	5.70	3.60	41.00	0.82	2.20	5.10	36,400	10,000
	MAX	29.60	7.82	1322.00	1.20	-253.90	490.00	61.00	55.00	210.00	400.00	110.06	110.00	45.00	85.00	0.82	0.94	1.80	85.06	9.00	7.50	75.00	39.00	8.90	12.00	420,000	240,000
Stage 1 LY01	n	4	4	4	4	4	1	0	0	1	3	4	4	4	4	4	4	4	4	3	3	3	4	0	0	0	0
	MEAN	24.72	6.67	495.00	6.56	132.25	100.00			2.00	24.67	12.88	1.65	1.60	0.05	11.18	0.04	11.23	11.28	0.09	0.01	31.00	40.25				
	STD. DEV.	4.76	0.00	157.40	3.13	27.15					19.66	9.62	0.76	0.78	0.03	9.42	0.06	9.42	9.39	0.05	0.00	15.10	11.90				
	MIN	20.50	6.33	330.00	2.39	105.00	100.00			2.00	10.00	2.50	0.99	0.93	0.01	1.30	0.01	1.30	1.38	0.05	0.01	15.00	28.00				
	MAX	30.90	7.24	678.00	9.92	161.60	100.00			2.00	47.00	25.71	2.70	2.66	0.08	24.00	0.13	24.01	24.02	0.14	0.01	45.00	54.00				
Stage 1 LY02	n	8	8	8	8	8	2	4	4	4	7	8	8	8	8	8	8	8	8	7	7	7	7	0	0	1	1
	MEAN	21.95	6.65	758.50	5.36	99.75	135.00	3.25	2.25	2.75	16.57	29.64	1.88	1.66	0.21	27.64	0.05	27.77	27.98	2.20	1.66	42.43	39.29			1,000	2
	STD. DEV.	4.80	0.21	116.08	2.79	67.90	49.50	1.50	1.89	1.50	6.40	9.23	0.91	1.10	0.56	9.74	0.12	9.85	10.05	1.07	0.98	9.50	10.69				
	MIN	14.60	6.41	559.00	1.50	-25.30	100.00	2.00	1.00	2.00	10.00	9.90	1.00	0.10	0.01	7.10	0.01	7.10	7.12	0.18	0.01	23.00	26.00			1,000	2
	MAX	30.20	6.99	871.00	10.23	182.00	170.00	5.00	5.00	5.00	24.00	37.70	3.70	3.69	1.60	35.00	0.34	36.00	37.60	3.00	2.60	52.00	54.00			1,000	2
Stage 1 Liner	n	8	8	8	8	8	7	7	7	7	7	8	8	8	8	8	8	8	8	7	7	7	6	5	5	7	6
	MEAN	22.21	6.79	687.63	3.42	0.75	257.14	7.86	5.57	3.71	24.86	8.62	1.95	1.79	0.16	6.65	0.02	6.67	6.82	0.25	0.01	35.71	27.25	0.42	0.66	1,288	53
	STD. DEV.	4.99	0.26	89.26	2.76	102.56	37.29	3.93	2.64	4.54	11.16	4.12	0.41	0.37	0.20	4.27	0.01	4.26	4.27	0.42	0.00	9.48	14.12	0.42	0.60		
	MIN	18.10	6.44	552.00	1.32	-199.70	210.00	4.00	3.00	2.00	10.00	2.42	1.40	1.29	0.05	0.01	0.01	0.02	0.07	0.01	0.01	15.00	5.50	0.01	0.10	1	2
	MAX	31.80	7.15	811.00	9.09	124.50	310.00	15.00	9.00	14.00	37.00	16.01	2.40	2.35	0.63	14.00	0.05	14.01	14.07	1.20	0.01	43.00	47.00	1.10	1.60	6,800	310
Stage 2	n	8	8	8	8	8	7	7	7	7	7	8	8	8	8	8	8	8	8	7	7	7	8	8	8	7	6
	MEAN	21.77	6.87	818.88	0.33	-204.48	275.71	5.57	3.86	16.71	30.14	2.33	1.36	1.02	0.34	0.56	0.42	0.97	1.32	0.09	0.01	36.29	104.25	2.82	4.45	65	3
	STD. DEV.	4.30	0.24	88.04	0.30	106.12	29.92	3.55	2.19	28.56	14.26	2.11	0.39	0.40	0.26	1.11	0.80	1.89	1.83	0.13	0.00	9.86	48.35	4.00	5.49		
	MIN	18.70	6.53	653.00	0.11	-299.90	240.00	2.00	1.00	2.00	10.00	0.95	0.91	0.44	0.10	0.01	0.01	0.02	0.15	0.01	0.01	15.00	27.00	0.01	0.10	1	2
	MAX	29.70	7.15	942.00	0.91	38.20	310.00	12.00	6.00	81.00	45.00	7.10	1.80	1.58	0.87	3.20	2.10	5.30	5.52	0.39	0.01	45.00	150.00	12.00	16.00	300	10
Treated Effluent LY03	n	4	4	4	4	4	2	2	2	3	3	4	4	4	4	4	4	4	4	3	3	3	4	3	3	1	1
	MEAN	24.73	6.29	829.50	4.84	122.25	250.00	4.00	4.00	4.00	26.00	14.98	2.68	2.66	0.02	12.30	0.02	12.30	12.32	0.14	0.05	27.00	74.75	0.32	0.41	1	2
	STD. DEV.	3.16	0.00	71.82	3.02	25.44	0.00	0.00	0.00	3.46	19.00	6.62	0.70	0.69	0.01	6.07	0.02	6.07	6.08	0.02	0.06	12.77	31.89	0.30	0.31		
	MIN	21.81	6.27	770.00	2.05	103.30	250.00	4.00	4.00	2.00	10.00	8.61	1.90	1.89	0.01	6.10	0.01	6.11	6.12	0.12	0.01	13.00	50.00	0.01	0.10	1	2
	MAX	29.00	6.32	934.00	9.09	159.00	250.00	4.00	4.00	8.00	47.00	21.60	3.60	3.57	0.04	18.00	0.05	18.00	18.04	0.15	0.11	38.00	120.00	0.60	0.71	1	2
Treated Effluent LY04	n	4	4	4	4	4	2	2	2	3	3	4	4	4	4	4	4	4	4	3	3	3	4	3	3	1	1
	MEAN	25.50	6.39	779.25	4.46	107.78	260.00	1.50	1.50	4.33	35.67	8.90	2.02	1.99	0.03	6.87	0.01	6.88	6.91	0.11	0.01	30.00	74.25	0.28	0.37	1	2
	STD. DEV.	3.01	0.00	55.54	3.84	24.48	14.14	0.71	0.71	4.04	18.77	8.86	1.51	1.48	0.04	7.36	0.00	7.36	7.39	0.12	0.00	13.11	39.40	0.24	0.25		
	MIN	22.10	6.21	698.00	1.41	71.20	250.00	1.00	1.00	2.00	19.00	1.79	0.80	0.79	0.01	0.99	0.01	0.99	1.00	0.03	0.01	16.00	40.00	0.01	0.10	1	2
	MAX	29.40	6.61	821.00	9.98	122.30	270.00	2.00	2.00	9.00	56.00	21.00	4.00	3.91	0.09	17.00	0.01	17.00	17.09	0.25	0.01	42.00	130.00	0.48	0.60	1	2
Groundwater PZ07	n	3	3	3	3	3	1	1	1	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2
	MEAN	25.40	6.30	817.67	2.20	-75.50	290.00	3.00	3.00	3.00	20.50	8.65	2.38	2.10	0.28	6.27	0.01	6.27	6.55	0.09	0.01	28.50	77.50	0.35	0.41	1	2
	STD. DEV.	3.55	0.00	13.32	1.74	150.77				1.41	14.85	5.24	1.58	1.22	0.40	4.15	0.00	4.14	4.26	0.07	0.01	16.26	60.10	0.01	0.01		
	MIN	21.31	6.18	809.00	0.59	-248.70	290.00	3.00	3.00	2.00	10.00	2.65	0.84	0.83	0.01	1.80	0.01	1.81	1.82	0.04	0.01	17.00	35.00	0.34	0.40	1	2
	MAX	27.50	6.44	833.00	4.04	26.40	290.00	3.00	3.00	4.00	31.00	12.30	4.00	3.26	0.74	10.00	0.01	10.00	10.08	0.14	0.02	40.00	120.00	0.35	0.41	1	2

Table 7 (continued)
Summary of Water Quality Data

Sample ID	Statistic	Temp (°C)	pH	Specific Conductance (uS/cm)	DO (mg/L)	ORP (mV)	Total Alkalinity (mg/L)	TSS (mg/L)	VSS (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)	NO ₃ -N (mg/L N)	NO ₂ -N (mg/L N)	NO _x (mg/L N)	TIN (mg/L N) ³	TP (mg/L)	Ortho P (mg/L P)	Chloride	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Sulfide (mg/L)	Fecal (Ct/100 mL)	E-coli (Ct/100 mL)
Groundwater PZ08	n	3	3	3	3	3	1	1	1	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2
	MEAN	24.35	6.38	769.33	3.10	32.27	190.00	23.00	10.00	6.50	17.50	12.11	1.98	1.96	0.01	10.13	0.01	10.14	10.15	0.35	0.22	27.50	82.50	0.25	0.31	3	2
	STD. DEV.	3.76	0.00	179.80	1.56	51.66				6.36	10.61	8.92	0.91	0.90	0.01	8.21	0.00	8.20	8.21	0.08	0.20	17.68	67.18	0.11	0.15		
	MIN	20.04	6.34	606.00	2.12	-21.90	190.00	23.00	10.00	2.00	10.00	3.74	0.93	0.92	0.01	2.80	0.01	2.81	2.82	0.29	0.08	15.00	35.00	0.17	0.20	1	2
	MAX	27.00	6.44	962.00	4.90	81.00	190.00	23.00	10.00	11.00	25.00	21.50	2.50	2.48	0.02	19.00	0.01	19.00	19.02	0.41	0.36	40.00	130.00	0.32	0.41	10	2
Groundwater PZ09	n	3	3	3	3	3	1	1	1	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2
	MEAN	25.00	5.52	534.67	2.94	51.30	120.00	11.00	11.00	2.00	167.50	14.57	2.47	2.42	0.05	12.10	0.01	12.10	12.15	2.85	2.12	29.50	72.50	0.48	0.51	1	2
	STD. DEV.	3.21	0.00	15.89	2.13	14.80				0.00	187.38	3.10	0.65	0.62	0.04	2.48	0.00	2.47	2.50	2.33	1.95	16.26	53.03	0.15	0.13		
	MIN	21.30	5.09	525.00	0.62	38.30	120.00	11.00	11.00	2.00	35.00	11.11	1.80	1.79	0.01	9.30	0.01	9.31	9.32	1.20	0.74	18.00	35.00	0.37	0.41	1	2
	MAX	27.00	5.94	553.00	4.81	67.40	120.00	11.00	11.00	2.00	300.00	17.10	3.10	3.03	0.07	14.00	0.01	14.00	14.07	4.50	3.50	41.00	110.00	0.58	0.60	1	2
Groundwater PZA7-6	n	7	7	7	7	3	7	0	0	0	3	7	7	7	7	4	3	7	7	2	1	6	4	0	0	1	1
	MEAN	22.99	6.04	434.57	2.15	-2.57	97.43				186.67	6.11	2.39	2.19	0.20	0.57	0.01	3.73	3.93	0.62	1.00	21.45	49.25			1	2
	STD. DEV.	3.36	0.00	190.94	2.35	76.75	40.54				15.28	7.05	0.99	0.98	0.12	0.77	0.00	6.37	6.39	0.51		12.92	41.19				
	MIN	18.50	5.80	242.00	0.09	-51.40	58.00				170.00	1.54	1.20	1.13	0.07	0.04	0.01	0.04	0.23	0.26	1.00	5.70	21.00			1	2
	MAX	26.30	6.30	701.00	5.50	85.90	180.00				200.00	20.60	3.60	3.30	0.35	1.70	0.01	17.00	17.30	0.98	1.00	42.00	110.00			1	2
Groundwater PZA7-8	n	8	8	8	8	3	8	0	0	0	4	8	8	8	8	6	6	8	8	2	2	7	5	0	0	1	1
	MEAN	23.57	5.96	525.38	0.53	-46.67	91.63				90.50	17.69	3.59	2.61	0.98	9.64	0.03	14.11	15.08	5.00	3.00	23.70	37.00			1	2
	STD. DEV.	2.19	0.00	165.72	0.49	157.92	109.23				57.88	13.00	1.40	1.36	1.47	9.98	0.03	13.12	13.10	0.42	1.41	13.82	19.24				
	MIN	20.00	5.60	186.00	0.11	-200.20	2.00				36.00	4.25	2.20	0.70	0.01	0.74	0.01	0.75	2.09	4.70	2.00	3.90	14.00			1	2
	MAX	26.00	6.38	726.00	1.60	115.30	270.00				150.00	39.20	5.80	4.87	4.10	23.00	0.07	37.00	37.01	5.30	4.00	40.00	66.00			1	2
Groundwater PZB8-5	n	8	8	8	8	3	8	0	0	0	5	8	8	8	8	7	6	8	8	2	3	7	7	0	0	1	1
	MEAN	23.49	5.78	444.63	0.63	145.37	75.13				86.20	17.14	3.23	3.15	0.07	10.04	0.06	13.91	13.99	0.75	0.70	22.71	31.71			1	2
	STD. DEV.	2.44	0.00	81.35	0.66	73.35	50.45				51.74	14.68	0.92	0.94	0.04	10.25	0.07	14.07	14.05	0.92	0.26	7.52	16.44				
	MIN	19.79	5.50	296.00	0.10	67.60	21.00				0.00	2.82	2.20	2.16	0.03	0.41	0.01	0.42	0.50	0.10	0.49	13.00	0.00			1	2
	MAX	26.40	6.16	579.00	2.19	213.30	180.00				130.00	39.70	4.70	4.67	0.14	28.00	0.18	35.00	35.03	1.40	0.99	34.00	48.00			1	2
Groundwater PZB8-7	n	8	8	8	7	3	7	0	0	0	4	8	8	8	8	4	4	8	8	2	0	7	3	0	0	1	1
	MEAN	23.59	5.85	367.75	0.47	140.17	51.57				55.25	7.92	1.83	1.74	0.08	4.33	0.08	6.09	6.17	0.50		25.99	24.00			1	2
	STD. DEV.	1.98	0.00	101.52	0.36	84.64	28.69				23.82	6.93	0.55	0.51	0.12	7.79	0.15	6.51	6.57	0.38		12.26	7.21				
	MIN	20.84	5.46	249.00	0.10	45.00	2.00				36.00	1.09	1.00	0.96	0.01	0.09	0.01	0.09	0.13	0.23		6.90	16.00			1	2
	MAX	26.50	6.10	518.00	1.13	207.00	93.00				90.00	18.00	2.50	2.36	0.38	16.00	0.30	16.00	16.02	0.77		44.00	30.00			1	2
Groundwater PZC10-6	n	8	8	8	8	3	8	0	0	0	4	8	8	8	8	5	4	8	8	2	1	7	4	0	0	1	1
	MEAN	24.11	5.80	328.84	0.96	69.53	97.75				97.75	5.80	3.28	2.57	0.71	1.45	0.04	2.53	3.23	0.10	0.01	17.57	15.48			1	2
	STD. DEV.	2.68	0.00	122.70	1.16	150.47	97.08				17.75	2.86	0.49	0.53	0.43	0.95	0.06	2.98	2.82	0.02		9.78	7.04				
	MIN	19.19	5.10	200.70	0.10	-68.40	15.00				77.00	2.98	2.70	1.50	0.11	0.03	0.01	0.03	0.98	0.08	0.01	8.00	6.90			1	2
	MAX	27.00	6.15	551.00	2.78	230.00	270.00				120.00	11.90	4.00	3.35	1.40	2.60	0.12	9.20	9.51	0.11	0.01	32.00	23.00			1	2

Notes:

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

²Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH₃.

³Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH₃ and NO_x.

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.

5.0 B-HS3 Sample Event No. 3: Summary and Recommendations

5.1 Summary

The results of the third sampling event indicate that the system is operating well and no adjustments are recommended at this time. The Sample Event No. 3 results indicate that:

- Septic tank effluent (STE) quality is characteristic of typical household STE quality. The total nitrogen concentration of 46 mg/L is within the range of values typically reported for Florida single family residence STE.
- The combined Stage 1 and lined drip system was effective in converting ammonium to oxidized nitrogen; effluent contained 2.0 mg/L TKN, of which 0.06 mg/L was ammonia. The system produced a reducing environment and effluent $\text{NO}_x\text{-N}$ was 14 mg/L.
- The Stage 2 biofilter effluent $\text{NO}_x\text{-N}$ was 5.3 mg/L.
- The total nitrogen concentration in the final effluent from the total treatment system was approximately 7.1 mg/L, an approximately 85% reduction from STE.
- The four additional daily sample events of the treatment system performed in conjunction with this formal sample event showed relatively small variations in system performance. The final effluent mean total nitrogen concentration during the first week of February 2014 was 2.9 mg/L.

5.2 Recommendations

No operational adjustments are recommended at this time, and continued sampling should provide additional insight to system performance.



Appendix A: Laboratory Report

PRELIMINARY

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Table A.1
Water Quality Analytical Results
February 4, 2014

Sample ID	Sample Date/Time	Temp (°C)	pH	Specific Conductance (uS/cm)	DO (mg/L)	ORP (mV)	Total Alkalinity (mg/L)	TSS (mg/L)	VSS (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)	NO ₃ -N (mg/L N)	NO ₂ -N (mg/L N)	NO _x (mg/L N)	TIN (mg/L N) ³	TP (mg/L)	Ortho P (mg/L P)	Chloride (mg/L)	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Sulfide (mg/L)	Fecal (Ct/100 mL)	E-coli (Ct/100 mL)
BHS3-STE	2/4/14 9:32	18.5	7.82	962	0.08	-288.3	400	19	13	55	160	57.02	57	14	43	0.01	0.01	0.02	43.02	3.9	2.9	51	39	8.9	10	41000	24000
BHS3-LY01	2/4/14 9:35	20.5	7.24	568	7.40	148.6	100				47	10.6	0.99	0.925	0.065	9.6	0.01	9.61	9.675	0.094	0.012	33	28				
BHS3-LY02	2/4/14 8:32	19.9	6.99	707	7.20	59.5	100	5	5		22	34.61	1.6	1.582	0.018	33	0.01	33.01	33.028	2.7	2.6	52	40				
BHS3-LINER	2/4/14 9:20	19.9	7.06	796	1.92	124.5	210	4	4	2	33	12.41	1.4	1.32	0.08	11	0.01	11.01	11.09	0.01	0.01	43	47	0.01	0.1	1	2
BHS3-ST2	2/4/14 8:40	18.8	7.15	916	0.65	38.2	240	2	2	2	33	3.61	1.5	1.35	0.15	0.91	1.2	2.11	2.26	0.05	0.01	43	150	0.01	0.1	1	2
BHS3-ST2-DUP	2/4/14 8:50	18.8	7.15	916	0.65	38.2	240	2	2	2	37	3.8	1.6	1.45	0.15	1	1.2	2.2	2.35	0.05	0.01	40	140	0.01	0.1	1	2
EB	2/4/14 9:58	21.9	5.3	2	7.27	67.3	2	1	1	2	10	0.07	0.05	0.041	0.009	0.01	0.01	0.02	0.029	0.01	0.01	0.05	0.2	0.01	0.1	1	2

Notes:

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

²Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH₃.

³Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH₃ and NO_x.

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.

Too many colonies were present. The numeric value represents the filtration volume.

Results based on colony counts outside the ideal range.

Sample held beyond the acceptable holding time

Table A.2
Water Quality Analytical Results
February 5, 2014

Sample ID	Sample Date/Time	Temp (°C)	pH	Specific Conductance (uS/cm)	DO (mg/L)	ORP (mV)	Total Alkalinity (mg/L)	TSS (mg/L)	VSS (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)	NO ₃ -N (mg/L N)	NO ₂ -N (mg/L N)	NO _x (mg/L N)	TIN (mg/L N) ³	TP (mg/L)	Ortho P (mg/L P)	Chloride (mg/L)	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Sulfide (mg/L)	Fecal (Ct/100 mL)	E-coli (Ct/100 mL)
BHS3-STE	2/5/14 11:15	19.0	7.64	973	0.05	-259.2	430	12	9	52	150	50.06	50	8	42	0.06	0.01	0.06	42.06	3.6	3	46	29	8	10	59000	
BHS3-LY01	2/5/14 11:15	21.9	6.91	552	7.07	144				2	10	14.71	1.7	1.665	0.035	13	0.01	13.01	13.045	0.056	0.014	35	48				
BHS3-LY02	2/5/14 11:05	21.8	6.85	823	6.32	142.2				2	18	28.51	1.5	1.486	0.014	27	0.01	27.01	27.024	3	1.8	44	30				
BHS3-LINER	2/5/14 11:20	20.0	7.02	748	2.54	36	260	4	3	2	29	9.51	2.4	1.77	0.63	7.1	0.01	7.11	7.74	0.12	0.01	38	30	0.4	0.81	1410	
BHS3-ST2	2/5/14 10:50	18.7	6.99	819	0.11	-171.6	290	4	4	5	35	1.82	1.8	0.93	0.87	0.01	0.01	0.02	0.89	0.058	0.01	38	140	2.1	4	1	
BHS3-ST2-	2/5/14 10:55	18.7	6.99	819	0.11	-171.6	260	4	4	5	29	1.72	1.7	0.9	0.8	0.01	0.01	0.02	0.82	0.059	0.01	39	140	2.1	4	1	
FB	2/5/14 11:30	25.3	6.05	1.28	8.20	94.7	2	1	1	2	10	0.07	0.05	0.041	0.009	0.01	0.01	0.02	0.029	0.01	0.01	0.05	0.2	0.01	0.1	1	

Notes:

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

²Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH₃.

³Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH₃ and NO_x.

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.

Too many colonies were present. The numeric value represents the filtration volume.

Results based on colony counts outside the ideal range.

Sample held beyond the acceptable holding time

Table A.3
Water Quality Analytical Results
February 6, 2014

Sample ID	Sample Date/Time	Temp (°C)	pH	Specific Conductance (uS/cm)	DO (mg/L)	ORP (mV)	Total Alkalinity (mg/L)	TSS (mg/L)	VSS (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)	NO ₃ -N (mg/L N)	NO ₂ -N (mg/L N)	NO _x (mg/L N)	TIN (mg/L N) ³	TP (mg/L)	Ortho P (mg/L P)	Chloride (mg/L)	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Sulfide (mg/L)	Fecal (Ct/100 mL)	E-coli (Ct/100 mL)
BHS3-STE	2/6/14 11:00	19.6	7.72	1102	0.00	-313	420	26	24	85	170	46.05	46	2	44	0.04	0.01	0.05	44.05	4.1	2.8	48	26	1.7	11	49000	24000
BHS3-LY01	2/6/14 11:25	18.5	7.12	486	7.47	36.2					27	15.61	1.6	1.566	0.034	14	0.01	14.01	14.044	0.073	0.01	37	30				
BHS3-LY02	2/6/14 11:15	18.1	6.80	842	5.97	-25.3					22	35.31	1.3	1.291	0.009	34	0.01	34.01	34.019	3	2.4	43	44				
BHS3-LINER	2/6/14 11:15	18.5	6.57	644	1.32	-68	260	9	9	2	33	7.91	2	1.912	0.088	5.9	0.01	5.91	5.998	0.096	0.01	37	24	0.45	0.6	1	2
BHS3-ST2	2/6/14 10:55	19.1	6.98	800	0.91	-247	260	8	6	11	39	0.95	0.93	0.44	0.49	0.01	0.01	0.02	0.51	0.01	0.01	38	130	4.6	8.5	20	10
BHS3-ST2-DUP	2/6/14 11:00	19.1	6.98	800	0.91	-247	260	8	6	10	41	0.96	0.94	0.45	0.49	0.01	0.01	0.02	0.51	0.01	0.01	38	130	4.6	8.5	20	10
FB	2/6/14 11:25	22.6	4.92	2	6.38	55.8	2	1	1	2	10	0.07	0.05	0.041	0.009	0.01	0.01	0.02	0.029	0.01	0.01	0.05	0.2	0.01	0.1	1	2

Notes:

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

²Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH₃.

³Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH₃ and NO_x.

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.

Too many colonies were present. The numeric value represents the filtration volume.

Results based on colony counts outside the ideal range.

Sample held beyond the acceptable holding time

Table A.4
Water Quality Analytical Results
February 7, 2014

Sample ID	Sample Date/Time	Temp (°C)	pH	Specific Conductance (uS/cm)	DO (mg/L)	ORP (mV)	Total Alkalinity (mg/L)	TSS (mg/L)	VSS (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)	NO ₃ -N (mg/L N)	NO ₂ -N (mg/L N)	NO _x (mg/L N)	TIN (mg/L N) ³	TP (mg/L)	Ortho P (mg/L P)	Chloride (mg/L)	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Sulfide (mg/L)	Fecal (Ct/100 mL)	E-coli (Ct/100 mL)
BHS3-STE	2/7/14 8:35	19.4	7.66	975	0.21	-253.9	400	22	22	87	190	45.05	45	5	40	0.04	0.01	0.05	40.05	3.5	2.2	46	19	2.2	10	125000	10000
BHS3-LY01	2/7/14 8:40	15.8	6.49	497	7.45	180.5		3	2		23	11.51	1.5	1.491	0.009	10	0.01	10.01	10.019	0.14	0.12	30	24				
BHS3-LY02	2/7/14 8:30	14.6	6.41	854	5.59	182		2	1		10	36.41	1.4	1.391	0.009	35	0.01	35.01	35.019	2.8	2.6	45	54				
BHS3-LINER	2/7/14 8:45	18.1	6.65	632	1.97	-47.5	260	9	8	2	22	7.61	1.7	1.642	0.058	5.9	0.01	5.91	5.968	0.11	0.01	36	21	1.1	1.6	6800	2
BHS3-ST2	2/7/14 8:20	18.9	7.12	800	0.40	-227.3	280	5	1	10	10	1.04	0.94	0.55	0.39	0.09	0.01	0.1	0.49	0.05	0.01	37	120	2.2	4.8	300	2
BHS3-ST2-DUP	2/7/14 8:25	18.9	7.12	800	0.40	-227.3	270	4	1	11	10	0.95	0.93	0.51	0.42	0.01	0.01	0.02	0.44	0.05	0.01	37	120	2.4	5.2	100	41
EB	2/7/14 8:50	17.5	5.4	6.45	8.32	113.9	2	1	1	2	10	0.07	0.05	0.041	0.009	0.01	0.01	0.02	0.029	0.01	0.01	0.05	0.2	0.01	0.1	1	2

Notes:

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

²Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH₃.

³Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH₃ and NO_x.

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.

Too many colonies were present. The numeric value represents the filtration volume.

Results based on colony counts outside the ideal range.

Sample held beyond the acceptable holding time

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

March 14, 2014
Work Order: 1401199

Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-STE						
Matrix		Wastewater						
SAL Sample Number		1401199-01						
Date/Time Collected		02/03/14 12:17						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		6.92						
Temperature		20.18 °C						
Conductivity		1322 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	6.2	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	42	EPA 350.1	2.0	0.47		02/07/14 15:20	50
Carbonaceous BOD	mg/L	44	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	170	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	75	EPA 300.0	2.0	0.50		02/17/14 15:16	10
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 20:26	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 20:26	1
Orthophosphate as P	mg/L	3.4	EPA 300.0	0.040	0.010		02/04/14 20:26	1
Phosphorous - Total as P	mg/L	4.9	SM 4500P-E	0.20	0.050	02/13/14 11:06	02/17/14 16:43	5
Sulfate	mg/L	36	EPA 300.0	0.60	0.20		02/04/14 20:26	1
Sulfide	mg/L	11	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Alkalinity	mg/L	400	SM 2320B	8.0	2.0		02/06/14 11:48	1
Total Kjeldahl Nitrogen	mg/L	46	EPA 351.2	1.9	0.48	02/04/14 11:32	02/07/14 15:26	9.62
Total Suspended Solids	mg/L	18	SM 2540D	1	1	02/05/14 10:49	02/10/14 10:58	1
Volatile Suspended Solids	mg/L	17	EPA 160.4	1	1	02/05/14 10:49	02/10/14 10:58	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/04/14 20:26	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	24,000	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	82,000	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

Sample Description **BHS3-STE-DUP**
 Matrix **Wastewater**
 SAL Sample Number **1401199-02**
 Date/Time Collected **02/03/14 12:22**
 Collected by **Sean Schmidt**
 Date/Time Received **02/03/14 16:30**

Client Provided Field Data

pH 6.92
 Temperature 20.18 °C
 Conductivity 1322 umhos

Hydrogen Sulfide (Unionized)	mg/L	5.8	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
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Hazen and Sawyer
10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

March 14, 2014
Work Order: 1401199

Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-STE-DUP						
Matrix		Wastewater						
SAL Sample Number		1401199-02						
Date/Time Collected		02/03/14 12:22						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
Ammonia as N	mg/L	40	EPA 350.1	2.0	0.47		02/07/14 15:21	50
Carbonaceous BOD	mg/L	40	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	200	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	75	EPA 300.0	2.0	0.50		02/17/14 15:25	10
Nitrate (as N)	mg/L	0.04	EPA 300.0	0.04	0.01		02/04/14 20:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 20:36	1
Orthophosphate as P	mg/L	3.2	EPA 300.0	0.040	0.010		02/04/14 20:36	1
Phosphorous - Total as P	mg/L	4.5	SM 4500P-E	0.20	0.050	02/13/14 11:06	02/17/14 16:43	5
Sulfate	mg/L	38	EPA 300.0	0.60	0.20		02/04/14 20:36	1
Sulfide	mg/L	10	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Alkalinity	mg/L	400	SM 2320B	8.0	2.0		02/06/14 11:58	1
Total Kjeldahl Nitrogen	mg/L	46	EPA 351.2	1.9	0.48	02/04/14 11:32	02/07/14 15:27	9.62
Total Suspended Solids	mg/L	17	SM 2540D	1	1	02/05/14 10:49	02/10/14 10:58	1
Volatile Suspended Solids	mg/L	16	EPA 160.4	1	1	02/05/14 10:49	02/10/14 10:58	1
Nitrate+Nitrite (N)	mg/L	0.04 I	EPA 300.0	0.08	0.02		02/04/14 20:36	1
Microbiology								
E. Coli	MPN/100 mL	24,000	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	56,000	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

Sample Description		BHS3-STE-FILTERED						
Matrix		Wastewater						
SAL Sample Number		1401199-03						
Date/Time Collected		02/03/14 12:17						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						

Client Provided Field Data

pH	6.92
Temperature	20.18 °C
Conductivity	1322 umhos

Inorganic, Dissolved

Ammonia as N	mg/L	43	EPA 350.1	2.0	0.47		02/18/14 17:15	50
Carbonaceous BOD	mg/L	23	SM 5210B	2	2	02/05/14 08:30	02/10/14 12:17	1
Nitrate (as N)	mg/L	0.04	EPA 300.0	0.04	0.01		02/04/14 21:41	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 21:41	1
Total Kjeldahl Nitrogen	mg/L	46	EPA 351.2	0.20	0.050	02/05/14 11:50	02/18/14 16:46	20
Nitrate+Nitrite (N)	mg/L	0.04 I	EPA 300.0	0.08	0.02		02/04/14 21:41	1
Lab filtration for diss. analytes							02/04/14 16:00	

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY01						
Matrix		Wastewater						
SAL Sample Number		1401199-04						
Date/Time Collected		02/03/14 11:35						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						

Client Provided Field Data

pH 6.81
 Temperature 21.49 °C
 Conductivity 678 umhos

Inorganics

Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		02/07/14 13:28	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	45	EPA 300.0	0.20	0.050		02/04/14 10:33	1
Nitrate (as N)	mg/L	24	EPA 300.0	0.04	0.01		02/04/14 10:33	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 10:33	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/04/14 10:33	1
Phosphorous - Total as P	mg/L	0.047	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	46	EPA 300.0	0.60	0.20		02/04/14 10:33	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	02/04/14 11:32	02/07/14 14:08	1
Nitrate+Nitrite (N)	mg/L	24	EPA 300.0	0.08	0.02		02/04/14 10:33	1

Sample Description **BHS3-LY02**
 Matrix **Wastewater**
 SAL Sample Number **1401199-05**
 Date/Time Collected **02/03/14 11:28**
 Collected by **Sean Schmidt**
 Date/Time Received **02/03/14 16:30**

Client Provided Field Data

pH 6.65
 Temperature 21.63 °C
 Conductivity 788 umhos

Inorganics

Ammonia as N	mg/L	0.019 I	EPA 350.1	0.040	0.009		02/07/14 13:30	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	40	EPA 300.0	0.20	0.050		02/04/14 22:00	1
Nitrate (as N)	mg/L	30	EPA 300.0	0.04	0.01		02/04/14 22:00	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 22:00	1
Orthophosphate as P	mg/L	1.3	EPA 300.0	0.040	0.010		02/04/14 22:00	1
Phosphorous - Total as P	mg/L	2.4	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	31	EPA 300.0	0.60	0.20		02/04/14 22:00	1

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY02						
Matrix		Wastewater						
SAL Sample Number		1401199-05						
Date/Time Collected		02/03/14 11:28						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	02/04/14 11:32	02/07/14 14:09	1
Nitrate+Nitrite (N)	mg/L	30	EPA 300.0	0.08	0.02		02/04/14 22:00	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1,000	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1
Sample Description		BHS3-LINER						
Matrix		Wastewater						
SAL Sample Number		1401199-06						
Date/Time Collected		02/03/14 11:45						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		6.62						
Temperature		19.08 °C						
Conductivity		667 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.15	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.060	EPA 350.1	0.040	0.009		02/07/14 13:40	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	37	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	42	EPA 300.0	0.20	0.050		02/04/14 22:09	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		02/04/14 22:09	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 22:09	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/04/14 22:09	1
Phosphorous - Total as P	mg/L	0.15	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	36	EPA 300.0	0.60	0.20		02/04/14 22:09	1
Sulfide	mg/L	0.20 I	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Alkalinity	mg/L	210	SM 2320B	8.0	2.0		02/06/14 12:04	1
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	02/04/14 11:32	02/07/14 14:11	1
Total Suspended Solids	mg/L	5	SM 2540D	1	1	02/05/14 10:49	02/10/14 10:58	1
Volatile Suspended Solids	mg/L	3	EPA 160.4	1	1	02/05/14 10:49	02/10/14 10:58	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		02/04/14 22:09	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LINER-FILTERED						
Matrix		Wastewater						
SAL Sample Number		1401199-07						
Date/Time Collected		02/03/14 11:45						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		6.62						
Temperature		19.08 °C						
Conductivity		667 umhos						
<u>Inorganic, Dissolved</u>								
Ammonia as N	mg/L	0.021 I	EPA 350.1	0.040	0.009		02/18/14 16:24	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 08:30	02/10/14 12:17	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		02/04/14 08:16	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 08:16	1
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.050	02/05/14 11:50	02/18/14 16:46	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		02/04/14 08:16	1
Lab filtration for diss. analytes							02/04/14 16:00	

Sample Description **BHS3-ST2**
 Matrix **Wastewater**
 SAL Sample Number **1401199-08**
 Date/Time Collected **02/03/14 11:55**
 Collected by **Sean Schmidt**
 Date/Time Received **02/03/14 16:30**

<u>Client Provided Field Data</u>								
pH		6.88						
Temperature		19.65 °C						
Conductivity		836 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.24	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.22	EPA 350.1	0.040	0.009		02/07/14 13:42	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	39	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	45	EPA 300.0	0.20	0.050		02/04/14 11:00	1
Nitrate (as N)	mg/L	3.2	EPA 300.0	0.04	0.01		02/04/14 11:00	1
Nitrite (as N)	mg/L	2.1	EPA 300.0	0.04	0.01		02/04/14 11:00	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/04/14 11:00	1
Phosphorous - Total as P	mg/L	0.036 I	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	140	EPA 300.0	0.60	0.20		02/04/14 11:00	1
Sulfide	mg/L	0.20 I	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Alkalinity	mg/L	240	SM 2320B	8.0	2.0		02/06/14 12:11	1
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	02/04/14 11:32	02/07/14 14:13	1

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2						
Matrix		Wastewater						
SAL Sample Number		1401199-08						
Date/Time Collected		02/03/14 11:55						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
Total Suspended Solids	mg/L	6	SM 2540D	1	1	02/05/14 10:49	02/10/14 10:58	1
Volatile Suspended Solids	mg/L	6	EPA 160.4	1	1	02/05/14 10:49	02/10/14 10:58	1
Nitrate+Nitrite (N)	mg/L	5.3	EPA 300.0	0.08	0.02		02/04/14 11:00	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1
Sample Description		BHS3-ST2-DUP						
Matrix		Wastewater						
SAL Sample Number		1401199-09						
Date/Time Collected		02/03/14 12:00						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		6.88						
Temperature		19.65 °C						
Conductivity		836 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.12	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.18	EPA 350.1	0.040	0.009		02/07/14 13:44	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	35	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	41	EPA 300.0	0.20	0.050		02/04/14 22:37	1
Nitrate (as N)	mg/L	3.0	EPA 300.0	0.04	0.01		02/04/14 22:37	1
Nitrite (as N)	mg/L	2.2	EPA 300.0	0.04	0.01		02/04/14 22:37	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/04/14 22:37	1
Phosphorous - Total as P	mg/L	0.038 I	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	130	EPA 300.0	0.60	0.20		02/04/14 22:37	1
Sulfide	mg/L	0.20 I	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Alkalinity	mg/L	240	SM 2320B	8.0	2.0		02/06/14 12:18	1
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	02/04/14 11:32	02/07/14 14:17	1
Total Suspended Solids	mg/L	8	SM 2540D	1	1	02/05/14 10:49	02/10/14 10:58	1
Volatile Suspended Solids	mg/L	6	EPA 160.4	1	1	02/05/14 10:49	02/10/14 10:58	1
Nitrate+Nitrite (N)	mg/L	5.1	EPA 300.0	0.08	0.02		02/04/14 22:37	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2-FILTERED						
Matrix		Wastewater						
SAL Sample Number		1401199-10						
Date/Time Collected		02/03/14 11:55						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		6.88						
Temperature		19.65 °C						
Conductivity		836 umhos						
<u>Inorganics</u>								
Sulfate	mg/L	140	EPA 300.0	0.60	0.20		02/04/14 11:09	1
<u>Inorganic, Dissolved</u>								
Ammonia as N	mg/L	0.22	EPA 350.1	0.040	0.009		02/18/14 16:26	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 08:30	02/10/14 12:17	1
Nitrate (as N)	mg/L	3.2	EPA 300.0	0.04	0.01		02/04/14 11:09	1
Nitrite (as N)	mg/L	2.1	EPA 300.0	0.04	0.01		02/04/14 11:09	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.050	02/05/14 11:50	02/18/14 16:46	2
Nitrate+Nitrite (N)	mg/L	5.3	EPA 300.0	0.08	0.02		02/04/14 11:09	1
Lab filtration for diss. analytes							02/04/14 16:00	

Sample Description **BHS3-LY03**
 Matrix **Wastewater**
 SAL Sample Number **1401199-11**
 Date/Time Collected **02/03/14 11:10**
 Collected by **Sean Schmidt**
 Date/Time Received **02/03/14 16:30**

Client Provided Field Data

pH 6.27
 Temperature 21.81 °C
 Conductivity 807 umhos

Inorganics

Hydrogen Sulfide (Unionized)	mg/L	0.60	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.014 I	EPA 350.1	0.040	0.009		02/07/14 13:46	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/04/14 15:07	02/09/14 09:57	1
Chemical Oxygen Demand	mg/L	21 I	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	38	EPA 300.0	0.20	0.050		02/04/14 22:56	1
Nitrate (as N)	mg/L	6.1	EPA 300.0	0.04	0.01		02/04/14 22:56	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 22:56	1
Orthophosphate as P	mg/L	0.018 I	EPA 300.0	0.040	0.010		02/04/14 22:56	1
Phosphorous - Total as P	mg/L	0.15	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	120	EPA 300.0	0.60	0.20		02/04/14 22:56	1
Sulfide	mg/L	0.71	SM 4500SF	0.40	0.10		02/08/14 13:52	1

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY03						
Matrix		Wastewater						
SAL Sample Number		1401199-11						
Date/Time Collected		02/03/14 11:10						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	02/04/14 11:32	02/07/14 14:18	1
Nitrate+Nitrite (N)	mg/L	6.1	EPA 300.0	0.08	0.02		02/04/14 22:56	1
Microbiology								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1
Sample Description		BHS3-LY04						
Matrix		Wastewater						
SAL Sample Number		1401199-12						
Date/Time Collected		02/03/14 11:20						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
Client Provided Field Data								
pH		6.42						
Temperature		22.10 °C						
Conductivity		821 umhos						
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	0.48	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/07/14 13:48	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	19 I	EPA 410.4	25	10	02/04/14 08:52	02/05/14 14:30	1
Chloride	mg/L	42	EPA 300.0	0.20	0.050		02/04/14 23:06	1
Nitrate (as N)	mg/L	1.9	EPA 300.0	0.04	0.01		02/04/14 23:06	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 23:06	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/04/14 23:06	1
Phosphorous - Total as P	mg/L	0.25	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	130	EPA 300.0	0.60	0.20		02/04/14 23:06	1
Sulfide	mg/L	0.60	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Kjeldahl Nitrogen	mg/L	0.88	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:43	1
Nitrate+Nitrite (N)	mg/L	1.9	EPA 300.0	0.08	0.02		02/04/14 23:06	1
Microbiology								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-PZ07						
Matrix		Wastewater						
SAL Sample Number		1401199-13						
Date/Time Collected		02/03/14 10:15						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		6.27						
Temperature		21.31 °C						
Conductivity		811 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.34	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/07/14 13:50	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/04/14 15:07	02/09/14 09:57	1
Chemical Oxygen Demand	mg/L	31	EPA 410.4	25	10	02/04/14 13:27	02/04/14 16:45	1
Chloride	mg/L	40	EPA 300.0	0.20	0.050		02/04/14 23:43	1
Nitrate (as N)	mg/L	1.8	EPA 300.0	0.04	0.01		02/04/14 23:43	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 23:43	1
Orthophosphate as P	mg/L	0.018 I	EPA 300.0	0.040	0.010		02/04/14 23:43	1
Phosphorous - Total as P	mg/L	0.041	SM 4500P-E	0.040	0.010	02/13/14 11:06	02/17/14 16:43	1
Sulfate	mg/L	120	EPA 300.0	0.60	0.20		02/04/14 23:43	1
Sulfide	mg/L	0.40	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Kjeldahl Nitrogen	mg/L	0.84	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:45	1
Nitrate+Nitrite (N)	mg/L	1.8	EPA 300.0	0.08	0.02		02/04/14 23:43	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

Sample Description **BHS3-PZ08**
 Matrix **Wastewater**
 SAL Sample Number **1401199-14**
 Date/Time Collected **02/03/14 10:40**
 Collected by **Sean Schmidt**
 Date/Time Received **02/03/14 16:30**

Client Provided Field Data

pH 6.34
 Temperature 20.04 °C
 Conductivity 740 umhos

Inorganics

Hydrogen Sulfide (Unionized)	mg/L	0.17	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/07/14 13:53	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/04/14 15:07	02/09/14 09:57	1
Chemical Oxygen Demand	mg/L	25	EPA 410.4	25	10	02/04/14 13:27	02/04/14 16:45	1

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Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-PZ08						
Matrix		Wastewater						
SAL Sample Number		1401199-14						
Date/Time Collected		02/03/14 10:40						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
Chloride	mg/L	40	EPA 300.0	0.20	0.050		02/04/14 23:53	1
Nitrate (as N)	mg/L	2.8	EPA 300.0	0.04	0.01		02/04/14 23:53	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/04/14 23:53	1
Orthophosphate as P	mg/L	0.077	EPA 300.0	0.040	0.010		02/04/14 23:53	1
Phosphorous - Total as P	mg/L	0.29	SM 4500P-E	0.040	0.010	02/13/14 11:11	02/17/14 16:54	1
Sulfate	mg/L	130	EPA 300.0	0.60	0.20		02/04/14 23:53	1
Sulfide	mg/L	0.20 I	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Kjeldahl Nitrogen	mg/L	0.93	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:47	1
Nitrate+Nitrite (N)	mg/L	2.8	EPA 300.0	0.08	0.02		02/04/14 23:53	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1
Sample Description		BHS3-PZ09						
Matrix		Wastewater						
SAL Sample Number		1401199-15						
Date/Time Collected		02/03/14 11:00						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		5.09						
Temperature		21.30 °C						
Conductivity		553 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.58	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/07/14 13:55	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/04/14 15:07	02/09/14 09:57	1
Chemical Oxygen Demand	mg/L	35	EPA 410.4	25	10	02/04/14 13:27	02/04/14 16:45	1
Chloride	mg/L	41	EPA 300.0	0.20	0.050		02/05/14 00:02	1
Nitrate (as N)	mg/L	9.3	EPA 300.0	0.04	0.01		02/05/14 00:02	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:02	1
Orthophosphate as P	mg/L	3.5	EPA 300.0	0.040	0.010		02/05/14 00:02	1
Phosphorous - Total as P	mg/L	4.5	SM 4500P-E	0.20	0.050	02/04/14 09:52	02/05/14 15:13	5
Sulfate	mg/L	110	EPA 300.0	0.60	0.20		02/05/14 00:02	1
Sulfide	mg/L	0.60	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:48	1
Nitrate+Nitrite (N)	mg/L	9.3	EPA 300.0	0.08	0.02		02/05/14 00:02	1

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Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-PZ09						
Matrix		Wastewater						
SAL Sample Number		1401199-15						
Date/Time Collected		02/03/14 11:00						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						

Microbiology

E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

Sample Description	PZ-A7-6							
Matrix	Wastewater							
SAL Sample Number	1401199-16							
Date/Time Collected	02/03/14 09:42							
Collected by	Sean Schmidt							
Date/Time Received	02/03/14 16:30							

Client Provided Field Data

pH	5.90
Temperature	20.32 °C
Conductivity	700 umhos

Inorganics

Ammonia as N	mg/L	0.073	EPA 350.1	0.040	0.009		02/07/14 14:01	1
Chloride	mg/L	42	EPA 300.0	0.20	0.050		02/05/14 00:11	1
Nitrate (as N)	mg/L	1.7	EPA 300.0	0.04	0.01		02/05/14 00:11	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:11	1
Sulfate	mg/L	110	EPA 300.0	0.60	0.20		02/05/14 00:11	1
Total Alkalinity	mg/L	180	SM 2320B	8.0	2.0		02/06/14 12:25	1
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:50	1
Nitrate+Nitrite (N)	mg/L	1.7	EPA 300.0	0.08	0.02		02/05/14 00:11	1

Microbiology

E. Coli	MPN/100 mL	2.0 U,Q	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

Sample Description	PZ-A7-8							
Matrix	Wastewater							
SAL Sample Number	1401199-17							
Date/Time Collected	02/03/14 09:59							
Collected by	Sean Schmidt							
Date/Time Received	02/03/14 16:30							

Client Provided Field Data

pH	6.02
Temperature	21.14 °C

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Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		PZ-A7-8						
Matrix		Wastewater						
SAL Sample Number		1401199-17						
Date/Time Collected		02/03/14 09:59						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
Conductivity		726 umhos						
<u>Inorganics</u>								
Ammonia as N	mg/L	1.9	EPA 350.1	0.040	0.009		02/07/14 14:03	1
Chloride	mg/L	32	EPA 300.0	0.20	0.050		02/05/14 00:21	1
Nitrate (as N)	mg/L	0.74	EPA 300.0	0.04	0.01		02/05/14 00:21	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:21	1
Sulfate	mg/L	66	EPA 300.0	0.60	0.20		02/05/14 00:21	1
Total Alkalinity	mg/L	270	SM 2320B	8.0	2.0		02/14/14 10:03	1
Total Kjeldahl Nitrogen	mg/L	3.5	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:52	1
Nitrate+Nitrite (N)	mg/L	0.74	EPA 300.0	0.08	0.02		02/05/14 00:21	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U,Q	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1
Sample Description		PZ-B8-5						
Matrix		Wastewater						
SAL Sample Number		1401199-18						
Date/Time Collected		02/03/14 09:10						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		5.53						
Temperature		19.79 °C						
Conductivity		296 umhos						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.082	EPA 350.1	0.040	0.009		02/07/14 14:05	1
Chloride	mg/L	14	EPA 300.0	0.20	0.050		02/05/14 00:30	1
Nitrate (as N)	mg/L	0.41	EPA 300.0	0.04	0.01		02/05/14 00:30	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:30	1
Sulfate	mg/L	28	EPA 300.0	0.60	0.20		02/05/14 00:30	1
Total Alkalinity	mg/L	99	SM 2320B	8.0	2.0		02/14/14 10:10	1
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:53	1
Nitrate+Nitrite (N)	mg/L	0.41	EPA 300.0	0.08	0.02		02/05/14 00:30	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U,Q	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U,Q	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		PZ-B8-7						
Matrix		Wastewater						
SAL Sample Number		1401199-19						
Date/Time Collected		02/03/14 09:24						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						

Client Provided Field Data

pH	5.46
Temperature	20.84 °C
Conductivity	249 umhos

Inorganics

Ammonia as N	mg/L	0.059	EPA 350.1	0.040	0.009		02/07/14 14:07	1
Chloride	mg/L	18	EPA 300.0	0.20	0.050		02/05/14 00:40	1
Nitrate (as N)	mg/L	0.24	EPA 300.0	0.04	0.01		02/05/14 00:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:40	1
Sulfate	mg/L	16	EPA 300.0	0.60	0.20		02/05/14 00:40	1
Total Alkalinity	mg/L	73	SM 2320B	8.0	2.0		02/14/14 10:16	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 14:55	1
Nitrate+Nitrite (N)	mg/L	0.24	EPA 300.0	0.08	0.02		02/05/14 00:40	1

Microbiology

E. Coli	MPN/100 mL	2.0 U,Q	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U,Q	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

Sample Description	PZ-C10-6
Matrix	Wastewater
SAL Sample Number	1401199-20
Date/Time Collected	02/03/14 08:51
Collected by	Sean Schmidt
Date/Time Received	02/03/14 16:30

Client Provided Field Data

pH	5.98
Temperature	19.19 °C
Conductivity	425 umhos

Inorganics

Ammonia as N	mg/L	0.75	EPA 350.1	0.040	0.009		02/07/14 10:37	1
Chloride	mg/L	12	EPA 300.0	0.20	0.050		02/05/14 00:49	1
Nitrate (as N)	mg/L	1.8	EPA 300.0	0.04	0.01		02/05/14 00:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:49	1
Sulfate	mg/L	19	EPA 300.0	0.60	0.20		02/05/14 00:49	1
Total Alkalinity	mg/L	220	SM 2320B	8.0	2.0		02/14/14 10:25	1
Total Kjeldahl Nitrogen	mg/L	3.2	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 15:03	1
Nitrate+Nitrite (N)	mg/L	1.8	EPA 300.0	0.08	0.02		02/05/14 00:49	1

Microbiology

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Laboratory Report

Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		PZ-C10-6						
Matrix		Wastewater						
SAL Sample Number		1401199-20						
Date/Time Collected		02/03/14 08:51						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
E. Coli	MPN/100 mL	2.0 U,Q	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U,Q	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1
Sample Description		EB						
Matrix		Reagent Water						
SAL Sample Number		1401199-21						
Date/Time Collected		02/03/14 12:50						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		7.48						
Temperature		23.2 °C						
Conductivity		1.81 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/07/14 10:39	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/04/14 13:27	02/04/14 16:45	1
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		02/05/14 00:58	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:58	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 00:58	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/05/14 00:58	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/04/14 09:52	02/05/14 15:14	1
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		02/05/14 00:58	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		02/14/14 10:28	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 16:19	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	02/05/14 10:49	02/10/14 10:58	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/05/14 10:49	02/10/14 10:58	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/05/14 00:58	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

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Project Name		B-HS3 SE#3						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		FB						
Matrix		Reagent Water						
SAL Sample Number		1401199-22						
Date/Time Collected		02/03/14 12:55						
Collected by		Sean Schmidt						
Date/Time Received		02/03/14 16:30						
<u>Client Provided Field Data</u>								
pH		7.45						
Temperature		23.1 °C						
Conductivity		1.81 umhos						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/08/14 09:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/07/14 10:41	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/04/14 13:27	02/04/14 16:45	1
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		02/05/14 01:08	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 01:08	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/05/14 01:08	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/05/14 01:08	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/04/14 09:52	02/05/14 14:41	1
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		02/05/14 01:08	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/08/14 13:52	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		02/14/14 10:31	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	02/04/14 11:28	02/06/14 16:20	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	02/05/14 10:49	02/10/14 10:58	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/05/14 10:49	02/10/14 10:58	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/05/14 01:08	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/03/14 18:03	02/04/14 12:49	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/03/14 17:40	02/04/14 15:40	1

SOUTHERN ANALYTICAL LABORATORIES, INC.

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Tampa, FL 33619

March 14, 2014
Work Order: 1401199

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40405 - COD prep										
Blank (BB40405-BLK1)					Prepared: 02/04/14 Analyzed: 02/05/14					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BB40405-BS1)					Prepared: 02/04/14 Analyzed: 02/05/14					
Chemical Oxygen Demand	45	25	10	mg/L	50		90	90-110		
Matrix Spike (BB40405-MS1)					Source: 1401199-05 Prepared: 02/04/14 Analyzed: 02/05/14					
Chemical Oxygen Demand	56	25	10	mg/L	50	ND	112	85-115		
Matrix Spike Dup (BB40405-MSD1)					Source: 1401199-05 Prepared: 02/04/14 Analyzed: 02/05/14					
Chemical Oxygen Demand	56	25	10	mg/L	50	ND	112	85-115	0	32
Batch BB40410 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BB40410-BLK1)					Prepared: 02/04/14 Analyzed: 02/05/14					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BB40410-BS1)					Prepared: 02/04/14 Analyzed: 02/05/14					
Phosphorous - Total as P	0.804	0.040	0.010	mg/L	0.80		101	90-110		
Matrix Spike (BB40410-MS1)					Source: 1401199-21 Prepared: 02/04/14 Analyzed: 02/05/14					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	ND	103	90-110		
Matrix Spike Dup (BB40410-MSD1)					Source: 1401199-21 Prepared: 02/04/14 Analyzed: 02/05/14					
Phosphorous - Total as P	1.02	0.040	0.010	mg/L	1.0	ND	102	90-110	1	25
Batch BB40417 - Digestion for TKN by EPA 351.2										
Blank (BB40417-BLK1)					Prepared: 02/04/14 Analyzed: 02/06/14					
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 BB40417 - Digestion for TKN by EPA 351.2										
LCS (BB40417-BS1)					Prepared: 02/04/14 Analyzed: 02/06/14					
Total Kjeldahl Nitrogen	2.70	0.20	0.05	mg/L	2.5		106	90-110		
Matrix Spike (BB40417-MS1)					Source: 1401199-21 Prepared: 02/04/14 Analyzed: 02/06/14					
Total Kjeldahl Nitrogen	2.73	0.20	0.05	mg/L	2.5	ND	108	90-110		
Matrix Spike (BB40417-MS2)					Source: 1401199-22 Prepared: 02/04/14 Analyzed: 02/06/14					
Total Kjeldahl Nitrogen	2.68	0.20	0.05	mg/L	2.5	ND	106	90-110		
Matrix Spike Dup (BB40417-MSD1)					Source: 1401199-21 Prepared: 02/04/14 Analyzed: 02/06/14					
Total Kjeldahl Nitrogen	2.38	0.20	0.05	mg/L	2.5	ND	94	90-110	14	20
Matrix Spike Dup (BB40417-MSD2)					Source: 1401199-22 Prepared: 02/04/14 Analyzed: 02/06/14					
Total Kjeldahl Nitrogen	2.62	0.20	0.05	mg/L	2.5	ND	104	90-110	2	20
Batch BB40419 - Digestion for TKN by EPA 351.2										
Blank (BB40419-BLK1)					Prepared: 02/04/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BB40419-BS1)					Prepared: 02/04/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	2.49	0.20	0.05	mg/L	2.5		98	90-110		
Matrix Spike (BB40419-MS1)					Source: 1401160-05 Prepared: 02/04/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	3.30	0.20	0.05	mg/L	2.5	0.707	102	90-110		
Matrix Spike Dup (BB40419-MSD1)					Source: 1401160-05 Prepared: 02/04/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	3.13	0.20	0.05	mg/L	2.5	0.707	96	90-110	5	20

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40420 - Ion Chromatography 300.0 Prep										
Blank (BB40420-BLK1)					Prepared & Analyzed: 02/06/14					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Surrogate: Dichloroacetate	0.977			mg/L	1.0		98	90-115		
Surrogate: Dichloroacetate	0.977			mg/L	1.0		98	90-115		
Surrogate: Dichloroacetate	0.977			mg/L	1.0		98	90-115		
Surrogate: Dichloroacetate	0.977			mg/L	1.0		98	90-115		
LCS (BB40420-BS1)					Prepared & Analyzed: 02/04/14					
Sulfate	9.43	0.60	0.20	mg/L	9.0		105	85-115		
Nitrate (as N)	1.80	0.04	0.01	mg/L	1.7		106	85-115		
Nitrite (as N)	1.50	0.04	0.01	mg/L	1.4		107	85-115		
Orthophosphate as P	0.844	0.040	0.010	mg/L	0.90		94	85-115		
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 Dup (BB40420-BSD1)					Prepared & Analyzed: 02/06/14					
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115	7	200
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4		105	85-115	2	200
Sulfate	9.14	0.60	0.20	mg/L	9.0		102	85-115	3	200
Orthophosphate as P	0.821	0.040	0.010	mg/L	0.90		91	85-115	3	200
Surrogate: Dichloroacetate	0.986			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.986			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.986			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.986			mg/L	1.0		99	90-115		

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March 14, 2014
Work Order: 1401199

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch BB40420 - Ion Chromatography 300.0 Prep

Matrix Spike (BB40420-MS1)		Source: 1401183-05			Prepared & Analyzed: 02/04/14					
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4	ND	102	85-115		
Sulfate	33.0	0.60	0.20	mg/L	9.0	23.7	103	85-115		
Orthophosphate as P	0.819	0.040	0.010	mg/L	0.90	ND	91	85-115		
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7	0.0700	96	85-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		

Matrix Spike (BB40420-MS2)		Source: 1401199-02			Prepared & Analyzed: 02/04/14					
Orthophosphate as P	4.01	0.040	0.010	mg/L	0.90	3.18	93	85-115		
Sulfate	46.8	0.60	0.20	mg/L	9.0	37.8	100	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7	0.0390	97	85-115		
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		

Batch BB40421 - Ion Chromatography 300.0 Prep

Blank (BB40421-BLK1)		Prepared & Analyzed: 02/04/14								
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Surrogate: Dichloroacetate	0.911			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.911			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.911			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.911			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.911			mg/L	1.0		91	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 BB40421 - Ion Chromatography 300.0 Prep										
LCS (BB40421-BS1)					Prepared & Analyzed: 02/06/14					
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7		101	85-115		
Chloride	2.98	0.20	0.050	mg/L	3.0		99	85-115		
Orthophosphate as P	0.845	0.040	0.010	mg/L	0.90		94	85-115		
Sulfate	9.33	0.60	0.20	mg/L	9.0		104	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		
LCS Dup (BB40421-BS1)					Prepared & Analyzed: 02/04/14					
Chloride	3.07	0.20	0.050	mg/L	3.0		102	85-115	3	200
Sulfate	9.59	0.60	0.20	mg/L	9.0		107	85-115	3	200
Orthophosphate as P	0.813	0.040	0.010	mg/L	0.90		90	85-115	4	200
Nitrate (as N)	1.79	0.04	0.01	mg/L	1.7		105	85-115	4	200
Nitrite (as N)	1.50	0.04	0.01	mg/L	1.4		107	85-115	3	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		
Matrix Spike (BB40421-MS1)					Source: 1401199-12		Prepared & Analyzed: 02/06/14			
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Chloride	30.0 L	0.20	0.050	mg/L	3.0	41.7	NR	80-120		
Nitrate (as N)	3.76	0.04	0.01	mg/L	1.7	1.91	109	85-115		
Sulfate	90.0 L	0.60	0.20	mg/L	9.0	130	NR	85-115		
Orthophosphate as P	0.835	0.040	0.010	mg/L	0.90	ND	93	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		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch BB40421 - Ion Chromatography 300.0 Prep

Matrix Spike (BB40421-MS2)		Source: 1401199-22			Prepared & Analyzed: 02/06/14					
Chloride	3.30	0.20	0.050	mg/L	3.0	ND	110	80-120		
Orthophosphate as P	0.826	0.040	0.010	mg/L	0.90	ND	92	85-115		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Sulfate	9.16	0.60	0.20	mg/L	9.0	ND	102	85-115		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	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		

Batch BB40430 - COD prep

Blank (BB40430-BLK1)		Prepared & Analyzed: 02/04/14								
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BB40430-BS1)		Prepared & Analyzed: 02/04/14								
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		
Matrix Spike (BB40430-MS1)		Source: 1401199-21			Prepared & Analyzed: 02/04/14					
Chemical Oxygen Demand	47	25	10	mg/L	50	ND	94	85-115		
Matrix Spike Dup (BB40430-MSD1)		Source: 1401199-21			Prepared & Analyzed: 02/04/14					
Chemical Oxygen Demand	49	25	10	mg/L	50	ND	98	85-115	4	32

Batch BB40439 - BOD

Blank (BB40439-BLK1)		Prepared: 02/04/14 Analyzed: 02/09/14								
Carbonaceous BOD	2 U	2	2	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40439 - BOD										
LCS (BB40439-BS1)					Prepared: 02/04/14 Analyzed: 02/09/14					
Carbonaceous BOD	210	2	2	mg/L	200		105	85-115		
LCS Dup (BB40439-BS1)					Prepared: 02/04/14 Analyzed: 02/09/14					
Carbonaceous BOD	207	2	2	mg/L	200		103	85-115	1	200
Duplicate (BB40439-DUP1)					Source: 1401169-01		Prepared: 02/04/14 Analyzed: 02/09/14			
Carbonaceous BOD	140	2	2	mg/L		150			5	25
Batch BB40510 - VSS Prep										
Blank (BB40510-BLK1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Total Suspended Solids	1 U	1	1	mg/L						
Volatile Suspended Solids	1 U	1		mg/L						
LCS (BB40510-BS1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Total Suspended Solids	49.0	1	1	mg/L	50		98	85-115		
Duplicate (BB40510-DUP1)					Source: 1401199-01		Prepared: 02/05/14 Analyzed: 02/10/14			
Volatile Suspended Solids	16.5	1		mg/L		17.0			3	20
Total Suspended Solids	17.5	1	1	mg/L		18.0			3	30
Batch BB40513 - BOD										
Blank (BB40513-BLK1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40513 - BOD										
Blank (BB40513-BLK2)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BB40513-BS1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	190	2	2	mg/L	200		95	85-115		
LCS (BB40513-BS2)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	200	2	2	mg/L	200		100	85-115		
LCS Dup (BB40513-BSD1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	187	2	2	mg/L	200		94	85-115	1	200
LCS Dup (BB40513-BSD2)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	202	2	2	mg/L	200		101	85-115	0.7	200
Duplicate (BB40513-DUP1)					Source: 1401199-02 Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	42	2	2	mg/L		40			4	25
Duplicate (BB40513-DUP2)					Source: 1401258-06 Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L		ND				25
Batch BB40607 - alkalinity										
Blank (BB40607-BLK1)					Prepared & Analyzed: 02/06/14					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BB40607-BS1)					Prepared & Analyzed: 02/06/14					
Total Alkalinity	130	8.0	2.0	mg/L	120		105	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40607 - alkalinity										
Matrix Spike (BB40607-MS1)		Source: 1401213-01			Prepared & Analyzed: 02/06/14					
Total Alkalinity	290	8.0	2.0	mg/L	120	170	94	80-120		
Matrix Spike Dup (BB40607-MSD1)		Source: 1401213-01			Prepared & Analyzed: 02/06/14					
Total Alkalinity	290	8.0	2.0	mg/L	120	170	93	80-120	0.8	26
Batch BB40651 - Ammonia by SEAL										
Blank (BB40651-BLK1)					Prepared & Analyzed: 02/07/14					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BB40651-BS1)					Prepared & Analyzed: 02/07/14					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		100	90-110		
Matrix Spike (BB40651-MS1)		Source: 1401199-21			Prepared & Analyzed: 02/07/14					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		
Matrix Spike (BB40651-MS2)		Source: 1401199-22			Prepared & Analyzed: 02/07/14					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		
Matrix Spike Dup (BB40651-MSD1)		Source: 1401199-21			Prepared & Analyzed: 02/07/14					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50	ND	98	90-110	2	10
Matrix Spike Dup (BB40651-MSD2)		Source: 1401199-22			Prepared & Analyzed: 02/07/14					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	97	90-110	1	10
Batch BB40652 - Ammonia by SEAL										
Blank (BB40652-BLK1)					Prepared & Analyzed: 02/07/14					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

March 14, 2014
Work Order: 1401199

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40652 - Ammonia by SEAL										
LCS (BB40652-BS1)					Prepared & Analyzed: 02/07/14					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		101	90-110		
Matrix Spike (BB40652-MS1)					Source: 1401199-12 Prepared & Analyzed: 02/07/14					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	101	90-110		
Matrix Spike (BB40652-MS2)					Source: 1401199-13 Prepared & Analyzed: 02/07/14					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50	ND	99	90-110		
Matrix Spike Dup (BB40652-MSD1)					Source: 1401199-12 Prepared & Analyzed: 02/07/14					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	100	90-110	0.9	10
Matrix Spike Dup (BB40652-MSD2)					Source: 1401199-13 Prepared & Analyzed: 02/07/14					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	100	90-110	1	10
Batch BB40801 - Sulfide prep										
Blank (BB40801-BLK1)					Prepared & Analyzed: 02/08/14					
Sulfide	0.10 U	0.40	0.10	mg/L						
Blank (BB40801-BLK2)					Prepared & Analyzed: 02/08/14					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BB40801-BS1)					Prepared & Analyzed: 02/08/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0		93	85-115		
LCS (BB40801-BS2)					Prepared & Analyzed: 02/08/14					
Sulfide	4.84	0.40	0.10	mg/L	5.0		97	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40801 - Sulfide prep										
Matrix Spike (BB40801-MS1)		Source: 1401199-21			Prepared & Analyzed: 02/08/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115		
Matrix Spike (BB40801-MS2)		Source: 1401199-22			Prepared & Analyzed: 02/08/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115		
Matrix Spike Dup (BB40801-MSD1)		Source: 1401199-21			Prepared & Analyzed: 02/08/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115	0	14
Matrix Spike Dup (BB40801-MSD2)		Source: 1401199-22			Prepared & Analyzed: 02/08/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115	0	14
Batch BB41314 - Digestion for TP and TKN										
Blank (BB41314-BLK1)		Prepared: 02/13/14 Analyzed: 02/17/14								
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BB41314-BS1)		Prepared: 02/13/14 Analyzed: 02/17/14								
Phosphorous - Total as P	0.463	0.040	0.010	mg/L	0.50		93	90-110		
Matrix Spike (BB41314-MS1)		Source: 1401160-04			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.954	0.040	0.010	mg/L	0.50	0.487	93	90-110		
Matrix Spike (BB41314-MS2)		Source: 1401474-07			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.565	0.040	0.010	mg/L	0.50	0.126	88	90-110		
Matrix Spike Dup (BB41314-MSD1)		Source: 1401160-04			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.979	0.040	0.010	mg/L	0.50	0.487	98	90-110	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 BB41314 - Digestion for TP and TKN										
Matrix Spike Dup (BB41314-MSD2)		Source: 1401474-07			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.591	0.040	0.010	mg/L	0.50	0.126	93	90-110	5	25
Batch BB41315 - Digestion for TP and TKN										
Blank (BB41315-BLK1)					Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BB41315-BS1)					Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.463	0.040	0.010	mg/L	0.50		93	90-110		
Matrix Spike (BB41315-MS1)		Source: 1401522-01			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.475	0.040	0.010	mg/L	0.50	ND	95	90-110		
Matrix Spike (BB41315-MS2)		Source: 1401542-07			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.565	0.040	0.010	mg/L	0.50	0.0517	103	90-110		
Matrix Spike Dup (BB41315-MSD1)		Source: 1401522-01			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.473	0.040	0.010	mg/L	0.50	ND	95	90-110	0.3	25
Matrix Spike Dup (BB41315-MSD2)		Source: 1401542-07			Prepared: 02/13/14 Analyzed: 02/17/14					
Phosphorous - Total as P	0.591	0.040	0.010	mg/L	0.50	0.0517	108	90-110	5	25
Batch BB41346 - alkalinity										
Blank (BB41346-BLK1)					Prepared & Analyzed: 02/14/14					
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 BB41346 - alkalinity										
LCS (BB41346-BS1)					Prepared & Analyzed: 02/14/14					
Total Alkalinity	130	8.0	2.0	mg/L	120		103	90-110		
Matrix Spike (BB41346-MS1)					Source: 1401533-01 Prepared & Analyzed: 02/14/14					
Total Alkalinity	270	8.0	2.0	mg/L	120	160	88	80-120		
Matrix Spike Dup (BB41346-MSD1)					Source: 1401533-01 Prepared & Analyzed: 02/14/14					
Total Alkalinity	270	8.0	2.0	mg/L	120	160	88	80-120	0.2	26
Batch BB41706 - Ion Chromatography 300.0 Prep										
Blank (BB41706-BLK1)					Prepared & Analyzed: 02/17/14					
Chloride	0.050 U	0.20	0.050	mg/L						
Surrogate: Dichloroacetate	1.09			mg/L	1.0		109	90-115		
LCS (BB41706-BS1)					Prepared & Analyzed: 02/17/14					
Chloride	3.04	0.20	0.050	mg/L	3.0		101	85-115		
Surrogate: Dichloroacetate	1.05			mg/L	1.0		105	90-115		
LCS Dup (BB41706-BSD1)					Prepared & Analyzed: 02/17/14					
Chloride	3.29	0.20	0.050	mg/L	3.0		110	85-115	8	200
Surrogate: Dichloroacetate	1.02			mg/L	1.0		102	90-115		
Matrix Spike (BB41706-MS1)					Source: 1401793-01 Prepared & Analyzed: 02/17/14					
Chloride	2.92	0.20	0.050	mg/L	3.0	0.193	91	80-120		
Surrogate: Dichloroacetate	1.02			mg/L	1.0		102	90-115		
Matrix Spike (BB41706-MS2)					Source: 1401212-02 Prepared & Analyzed: 02/17/14					
Chloride	19,200	200	50	mg/L	3000	16200	100	80-120		
Surrogate: Dichloroacetate	1.07			mg/L	1.0		107	90-115		

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40421 - Ion Chromatography 300.0 Prep										
Blank (BB40421-BLK1)					Prepared & Analyzed: 02/04/14					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Surrogate: Dichloroacetate	0.911			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.911			mg/L	1.0		91	90-115		
LCS (BB40421-BS1)					Prepared & Analyzed: 02/06/14					
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115		
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7		101	85-115		
Surrogate: Dichloroacetate	1.00			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	1.00			mg/L	1.0		100	90-115		
LCS Dup (BB40421-BSD1)					Prepared & Analyzed: 02/04/14					
Nitrate (as N)	1.79	0.04	0.01	mg/L	1.7		105	85-115	4	200
Nitrite (as N)	1.50	0.04	0.01	mg/L	1.4		107	85-115	3	200
Surrogate: Dichloroacetate	1.05			mg/L	1.0		105	90-115		
Surrogate: Dichloroacetate	1.05			mg/L	1.0		105	90-115		
Matrix Spike (BB40421-MS1)					Source: 1401199-12		Prepared & Analyzed: 02/06/14			
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Nitrate (as N)	3.76	0.04	0.01	mg/L	1.7	1.91	109	85-115		
Surrogate: Dichloroacetate	1.03			mg/L	1.0		103	90-115		
Surrogate: Dichloroacetate	1.03			mg/L	1.0		103	90-115		
Matrix Spike (BB40421-MS2)					Source: 1401199-22		Prepared & Analyzed: 02/06/14			
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	85-115		
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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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40514 - BOD Dissolved										
Blank (BB40514-BLK1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BB40514-BS1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	198	2	2	mg/L	200		99	85-115		
LCS Dup (BB40514-BSD1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	202	2	2	mg/L	200		101	85-115	2	200
Duplicate (BB40514-DUP1)					Source: 1401200-06 Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L		ND				25
Batch BB40521 - Digestion for TKN by EPA 351.2										
Blank (BB40521-BLK1)					Prepared: 02/05/14 Analyzed: 02/18/14					
Total Kjeldahl Nitrogen	0.050 U	0.20	0.050	mg/L						
LCS (BB40521-BS1)					Prepared: 02/05/14 Analyzed: 02/18/14					
Total Kjeldahl Nitrogen	0.915	0.20	0.050	mg/L	1.0		92	90-110		
Matrix Spike (BB40521-MS1)					Source: 1401199-07 Prepared: 02/05/14 Analyzed: 02/18/14					
Total Kjeldahl Nitrogen	2.05	0.20	0.050	mg/L	1.0	1.03	102	90-110		
Matrix Spike (BB40521-MS2)					Source: 1401201-06 Prepared: 02/05/14 Analyzed: 02/18/14					
Total Kjeldahl Nitrogen	1.72	0.20	0.050	mg/L	1.0	0.780	94	90-110		
Matrix Spike Dup (BB40521-MSD1)					Source: 1401199-07 Prepared: 02/05/14 Analyzed: 02/18/14					
Total Kjeldahl Nitrogen	2.07	0.20	0.050	mg/L	1.0	1.03	103	90-110	0.6	20

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40521 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BB40521-MSD2)		Source: 1401201-06			Prepared: 02/05/14 Analyzed: 02/18/14					
Total Kjeldahl Nitrogen	1.70	0.20	0.050	mg/L	1.0	0.780	92	90-110	1	20
Batch BB41303 - Ammonia by SEAL										
Blank (BB41303-BLK1)					Prepared & Analyzed: 02/18/14					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BB41303-BS1)					Prepared & Analyzed: 02/18/14					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50		109	90-110		
Matrix Spike (BB41303-MS1)		Source: 1401199-07			Prepared & Analyzed: 02/18/14					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.021	105	90-110		
Matrix Spike (BB41303-MS2)		Source: 1401201-06			Prepared & Analyzed: 02/18/14					
Ammonia as N	0.80	0.040	0.009	mg/L	0.50	0.30	101	90-110		
Matrix Spike Dup (BB41303-MSD1)		Source: 1401199-07			Prepared & Analyzed: 02/19/14					
Ammonia as N	0.57	0.040	0.009	mg/L	0.50	0.021	109	90-110	3	10
Matrix Spike Dup (BB41303-MSD2)		Source: 1401201-06			Prepared & Analyzed: 02/18/14					
Ammonia as N	0.75	0.040	0.009	mg/L	0.50	0.30	91	90-110	6	10

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Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40402 - FC-MF										
Blank (BB40402-BLK1)					Prepared: 02/03/14 Analyzed: 02/04/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BB40402-DUP1)					Source: 1401199-21 Prepared: 02/03/14 Analyzed: 02/04/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Duplicate (BB40402-DUP2)					Source: 1401199-22 Prepared: 02/03/14 Analyzed: 02/04/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Duplicate (BB40402-DUP3)					Source: 1401200-10 Prepared: 02/03/14 Analyzed: 02/04/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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*** Qualifiers, Notes and Definitions**

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

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

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

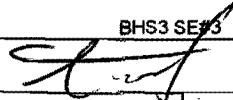
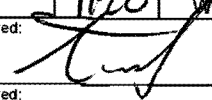
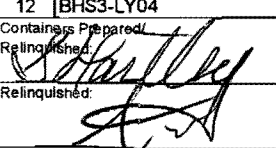
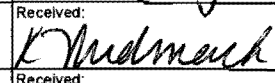
Test results in this report meet all the requirements of the NELAC standards. Any applicable qualifiers are shown below.

- Q Sample held beyond the accepted holding time.
L Off-scale high. Result exceeded highest calibration standard.

Questions regarding this report should be directed to :

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

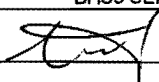
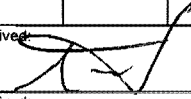
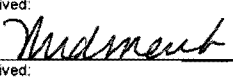


Client Name Hazan and Sawyer										Contact / Phone: Josefin Hirst 813-630-4498									
Project Name / Location BHS3 SE#3																			
Samplers: (Signature) 																			
<p>Matrix Codes: DW-Drinking Water WW-Wastewater SW-Surface Water SL-Studge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water</p>										PARAMETER / CONTAINER DESCRIPTION									
SAL Use Only	Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	125mLP, Na ₂ S ₂ O ₃ FC-MF, FC-QT	1LP, Cool Total Alkalinity, TSS, VSS, CBOD, NOx, Cl, OP, SO ₄	125mLP, H ₂ SO ₄ COD, TKN, NH ₃ , TP	500mLP, NaOH, Zn Acetate H ₂ S	1LP, Cool Lab Filtered: CBOD, TKN, NH ₃ , NOx	1LP, Cool Lab Filtered: CBOD, TKN, NH ₃ , NOx, SO ₄				pH	Temperature	Conductivity
	01	BHS3-STE	2/3/14	1217	WW		X	4	1	1	1						6.92	20.18	1322
	02	BHS3-STE-DUP		1222	WW		X	4	1	1	1								
	03	BHS3-STE-FILTERED		1217	WW		X					1							
	04	BHS3-LY01		1135	WW		X	1	1	1							6.81	21.49	678
	05	BHS3-LY02		1128	WW		X	12	1	1							6.65	21.63	788
	06	BHS3-LINER		1145	WW		X	4	1	1	1						6.62	19.08	667
	07	BHS3-LINER-FILTERED			WW		X					1							
	08	BHS3-ST2		1153	WW		X	4	1	1	1						6.88	19.65	836
	09	BHS3-ST2-DUP		1200	WW		X	4	1	1	1								
	10	BHS3-ST2-FILTERED		1155	WW		X						1						
	11	BHS3-LY03		1110	WW		X	12	1	1	1						6.27	21.81	807
	12	BHS3-LY04		1120	WW		X	12	1	1	1						6.42	22.10	821
Containers Prepared/Relinquished:		Date/Time: 2/29/14	Received: 		Date/Time: 1/30/14		Seal intact? <input checked="" type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> NA												
Relinquished: 		Date/Time: 2/3/14	Received: 		Date/Time: 2/3/14 1630		Samples intact upon arrival? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Received on ice? Temp: <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Proper preservatives indicated? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Rec'd within holding time? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Volatiles rec'd w/out headspace? <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Proper containers used? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA												
Instructions / Remarks																			

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1401199

Client Name Hazan and Sawyer										Contact / Phone: Josefin Hirst 813-630-4498									
Project Name / Location BHS3 SE#3																			
Samplers: (Signature) 										PARAMETER / CONTAINER DESCRIPTION									
Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water																			
SAL Use Only	Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	125mLP, Na ₂ S ₂ O ₃ FC-MF, FC-QT	1LP, Cool Total Alkalinity, TSS, VSS, CBOD, NOx, Cl, OP, SO ₄	125mLP, H ₂ SO ₄ COD, TKN, NH ₃ , TP	500mLP, NaOH, Zn Acetate H ₂ S	1LP, Cool Total Alkalinity, NOx, Cl, SO ₄	125mLP, H ₂ SO ₄ TKN, NH ₃				pH	Temperature	Conductivity
	13	BHS3-PZ07	2/3/14	1015	WW		X	4	1	1	1						6.27	21.31	811
	14	BHS3-PZ08		1040	WW		X	4	1	1	1						6.34	20.04	740
	15	BHS3-PZ09		1100	WW		X	4	1	1	1						5.09	21.40	553
	16	PZ-A7-6		0942	WW		X	4				1	1				5.90	20.32	700
	17	PZ-A7-8		0859	WW		X	4				1	1				6.02	21.14	726
	18	PZ-B8-5		0910	WW		X	4				1	1				5.53	19.79	296
	19	PZ-B8-7		0924	WW		X	4				1	1				5.46	20.84	249
	20	PZ-C10-6		0851	WW		X	4				1	1				5.98	19.19	425
	21	EB		1250	R		X	4	1	1	1						7.48	23.2	151
	22	FB		1255	R		X	4	1	1	1						7.45	23.1	1.81
Containers Prepared/Relinquished:		Date/Time: 0820		Received: 		Date/Time: 1/30/14		Seal intact?		Y N N/A		Instructions / Remarks							
Relinquished:		Date/Time: 1630		Received: 		Date/Time: 1630		Samples intact upon arrival?		Y N N/A									
Relinquished:		Date/Time: 2/3/14		Received: K. Madment		Date/Time: 2/3/14		Received on ice? Temp _____		Y N N/A									
Relinquished:		Date/Time:		Received:		Date/Time:		Proper preservatives indicated?		Y N N/A									
Relinquished:		Date/Time:		Received:		Date/Time:		Rec'd within holding time?		Y N N/A									
Relinquished:		Date/Time:		Received:		Date/Time:		Volatiles rec'd w/out headspace		Y N N/A									
Relinquished:		Date/Time:		Received:		Date/Time:		Proper containers used?		Y N N/A									

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

Chain of Custody

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

February 24, 2014
Work Order: 1401258

Laboratory Report

Project Name		B-HS3 SE#4						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-STE						
Matrix		Wastewater						
SAL Sample Number		1401258-01						
Date/Time Collected		02/04/14 09:32						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
<u>Client Provided Field Data</u>								
pH		7.82						
Temperature		18.5 °C						
Conductivity		962 umhos						
Dissolved Oxygen		0.08 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	8.9	SM 4550SF	0.04	0.01	02/11/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	43	EPA 350.1	2.0	0.47		02/12/14 12:07	50
Carbonaceous BOD	mg/L	55	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	160	EPA 410.4	25	10	02/06/14 11:09	02/07/14 14:33	1
Chloride	mg/L	51	EPA 300.0	2.0	0.50		02/17/14 19:57	10
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 01:33	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 01:33	1
Orthophosphate as P	mg/L	2.9	EPA 300.0	0.040	0.010		02/06/14 01:33	1
Phosphorous - Total as P	mg/L	3.9	SM 4500P-E	0.80	0.20	02/19/14 08:47	02/21/14 12:59	20
Sulfate	mg/L	39	EPA 300.0	0.60	0.20		02/06/14 01:33	1
Sulfide	mg/L	10	SM 4500SF	0.40	0.10		02/11/14 09:00	1
Total Alkalinity	mg/L	400	SM 2320B	8.0	2.0		02/18/14 10:00	1
Total Kjeldahl Nitrogen	mg/L	57	EPA 351.2	4.0	1.0	02/05/14 11:47	02/07/14 13:29	20
Total Suspended Solids	mg/L	19	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	13	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/06/14 01:33	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	24,000	SM 9223B	2.0	2.0	02/04/14 16:54	02/05/14 11:09	1
Fecal Coliforms	CFU/100 ml	41,000	SM 9222D	1	1	02/04/14 16:43	02/05/14 15:02	1

Sample Description **BHS3-LY01**
 Matrix **Wastewater**
 SAL Sample Number **1401258-02**
 Date/Time Collected **02/04/14 09:35**
 Collected by **Josefin Hirst**
 Date/Time Received **02/04/14 15:30**

Client Provided Field Data

pH 7.24
 Temperature 20.5 °C
 Conductivity 568 umhos
 Dissolved Oxygen 7.40 mg/L

Hazen and Sawyer
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Tampa, FL 33619

February 24, 2014
Work Order: 1401258

Laboratory Report

Project Name		B-HS3 SE#4						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY01						
Matrix		Wastewater						
SAL Sample Number		1401258-02						
Date/Time Collected		02/04/14 09:35						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.065 I	EPA 350.1	0.20	0.047		02/12/14 14:17	5
Chemical Oxygen Demand	mg/L	47	EPA 410.4	25	10	02/06/14 11:09	02/07/14 14:33	1
Chloride	mg/L	33	EPA 300.0	0.20	0.050		02/06/14 01:50	1
Nitrate (as N)	mg/L	9.6	EPA 300.0	0.04	0.01		02/06/14 01:50	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 01:50	1
Orthophosphate as P	mg/L	0.012 I	EPA 300.0	0.040	0.010		02/06/14 01:50	1
Phosphorous - Total as P	mg/L	0.094	SM 4500P-E	0.040	0.010	02/19/14 08:47	02/21/14 12:59	1
Sulfate	mg/L	28	EPA 300.0	0.60	0.20		02/06/14 01:50	1
Total Alkalinity	mg/L	100	SM 2320B	8.0	2.0		02/18/14 10:00	1
Total Kjeldahl Nitrogen	mg/L	0.99	EPA 351.2	0.20	0.05	02/05/14 11:47	02/07/14 13:31	1
Nitrate+Nitrite (N)	mg/L	9.6	EPA 300.0	0.08	0.02		02/06/14 01:50	1
Sample Description		BHS3-LY02						
Matrix		Wastewater						
SAL Sample Number		1401258-03						
Date/Time Collected		02/04/14 08:32						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
<u>Client Provided Field Data</u>								
pH		6.99						
Temperature		19.9 °C						
Conductivity		707 umhos						
Dissolved Oxygen		7.20 mg/L						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.018 I	EPA 350.1	0.040	0.009		02/07/14 14:25	1
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10	02/06/14 11:09	02/07/14 14:33	1
Chloride	mg/L	52	EPA 300.0	2.0	0.50		02/17/14 20:07	10
Nitrate (as N)	mg/L	33	EPA 300.0	0.04	0.01		02/06/14 02:00	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 02:00	1
Orthophosphate as P	mg/L	2.6	EPA 300.0	0.040	0.010		02/06/14 02:00	1
Phosphorous - Total as P	mg/L	2.7	SM 4500P-E	0.040	0.010	02/19/14 08:47	02/21/14 12:59	1
Sulfate	mg/L	40	EPA 300.0	0.60	0.20		02/06/14 02:00	1
Total Alkalinity	mg/L	100	SM 2320B	8.0	2.0		02/18/14 10:00	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	02/05/14 11:47	02/07/14 13:32	1
Total Suspended Solids	mg/L	5	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	5	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1

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February 24, 2014
Work Order: 1401258

Laboratory Report

Project Name		B-HS3 SE#4						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY02						
Matrix		Wastewater						
SAL Sample Number		1401258-03						
Date/Time Collected		02/04/14 08:32						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
Nitrate+Nitrite (N)	mg/L	33	EPA 300.0	0.08	0.02		02/06/14 02:00	1
Sample Description		BHS3-LINER						
Matrix		Wastewater						
SAL Sample Number		1401258-04						
Date/Time Collected		02/04/14 09:20						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
<u>Client Provided Field Data</u>								
pH		7.06						
Temperature		19.9 °C						
Conductivity		796 umhos						
Dissolved Oxygen		1.92 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/11/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.080	EPA 350.1	0.040	0.009		02/07/14 14:27	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	33	EPA 410.4	25	10	02/06/14 11:09	02/07/14 14:33	1
Chloride	mg/L	43	EPA 300.0	2.0	0.50		02/17/14 20:16	10
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		02/06/14 02:09	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 02:09	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/06/14 02:09	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/19/14 08:47	02/21/14 12:59	1
Sulfate	mg/L	47	EPA 300.0	0.60	0.20		02/06/14 02:09	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/11/14 09:00	1
Total Alkalinity	mg/L	210	SM 2320B	8.0	2.0		02/18/14 10:00	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	02/05/14 11:47	02/07/14 13:37	1
Total Suspended Solids	mg/L	4	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	4	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		02/06/14 02:09	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/04/14 16:54	02/05/14 11:09	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/04/14 16:43	02/05/14 15:02	1

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February 24, 2014
Work Order: 1401258

Laboratory Report

Project Name		B-HS3 SE#4						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2						
Matrix		Wastewater						
SAL Sample Number		1401258-05						
Date/Time Collected		02/04/14 08:40						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
<u>Client Provided Field Data</u>								
pH		7.15						
Temperature		18.8 °C						
Conductivity		916 umhos						
Dissolved Oxygen		0.65 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/11/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.15	EPA 350.1	0.040	0.009		02/07/14 15:23	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	33	EPA 410.4	25	10	02/06/14 11:09	02/07/14 14:33	1
Chloride	mg/L	43	EPA 300.0	2.0	0.50		02/17/14 20:54	10
Nitrate (as N)	mg/L	0.91	EPA 300.0	0.04	0.01		02/05/14 12:55	1
Nitrite (as N)	mg/L	1.2	EPA 300.0	0.04	0.01		02/05/14 12:55	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/05/14 12:55	1
Phosphorous - Total as P	mg/L	0.050 U	SM 4500P-E	0.20	0.050	02/19/14 08:47	02/21/14 12:59	5
Sulfate	mg/L	150	EPA 300.0	6.0	2.0		02/17/14 20:54	10
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/11/14 09:00	1
Total Alkalinity	mg/L	240	SM 2320B	8.0	2.0		02/18/14 10:00	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	02/05/14 11:47	02/07/14 15:07	1
Total Suspended Solids	mg/L	2	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	2	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	2.2	EPA 300.0	0.08	0.02		02/05/14 12:55	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U,Q	SM 9223B	2.0	2.0	02/04/14 16:54	02/05/14 11:09	1
Fecal Coliforms	CFU/100 ml	1 U,Q	SM 9222D	1	1	02/04/14 16:43	02/05/14 15:02	1

Sample Description **BHS3-ST2-DUP**
 Matrix **Wastewater**
 SAL Sample Number **1401258-06**
 Date/Time Collected **02/04/14 08:50**
 Collected by **Josefin Hirst**
 Date/Time Received **02/04/14 15:30**

Client Provided Field Data

pH 7.15
 Temperature 18.8 °C
 Conductivity 916 umhos
 Dissolved Oxygen 0.65 mg/L

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February 24, 2014
Work Order: 1401258

Laboratory Report

Project Name		B-HS3 SE#4						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2-DUP						
Matrix		Wastewater						
SAL Sample Number		1401258-06						
Date/Time Collected		02/04/14 08:50						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/11/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.15	EPA 350.1	0.040	0.009		02/07/14 14:31	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	37	EPA 410.4	25	10	02/06/14 11:09	02/07/14 14:33	1
Chloride	mg/L	40	EPA 300.0	2.0	0.50		02/17/14 21:03	10
Nitrate (as N)	mg/L	1.0	EPA 300.0	0.04	0.01		02/06/14 02:28	1
Nitrite (as N)	mg/L	1.2	EPA 300.0	0.04	0.01		02/06/14 02:28	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/06/14 02:28	1
Phosphorous - Total as P	mg/L	0.050 U	SM 4500P-E	0.20	0.050	02/19/14 08:47	02/21/14 12:59	5
Sulfate	mg/L	140	EPA 300.0	6.0	2.0		02/17/14 21:03	10
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/11/14 09:00	1
Total Alkalinity	mg/L	240	SM 2320B	8.0	2.0		02/18/14 10:00	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	02/05/14 11:47	02/07/14 13:41	1
Total Suspended Solids	mg/L	2	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	2	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	2.2	EPA 300.0	0.08	0.02		02/06/14 02:28	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U,Q	SM 9223B	2.0	2.0	02/04/14 16:54	02/05/14 11:09	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/04/14 16:43	02/05/14 15:02	1

Sample Description **EB**
 Matrix **Reagent Water**
 SAL Sample Number **1401258-07**
 Date/Time Collected **02/04/14 09:58**
 Collected by **Josefin Hirst**
 Date/Time Received **02/04/14 15:30**

Client Provided Field Data

pH 5.30
 Temperature 21.86 °C
 Conductivity 2 umhos
 Dissolved Oxygen 7.27 mg/L

<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/11/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/07/14 15:25	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/05/14 11:17	02/10/14 12:18	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/06/14 11:09	02/07/14 14:33	1

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February 24, 2014
Work Order: 1401258

Laboratory Report

Project Name		B-HS3 SE#4						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		EB						
Matrix		Reagent Water						
SAL Sample Number		1401258-07						
Date/Time Collected		02/04/14 09:58						
Collected by		Josefin Hirst						
Date/Time Received		02/04/14 15:30						
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		02/06/14 02:45	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 02:45	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 02:45	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/06/14 02:45	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/19/14 08:47	02/21/14 12:59	1
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		02/06/14 02:45	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/11/14 09:00	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		02/18/14 10:00	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	02/05/14 11:47	02/07/14 13:42	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/06/14 02:45	1
Microbiology								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/04/14 16:54	02/05/14 11:09	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/04/14 16:43	02/05/14 15:02	1

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Tampa, FL 33619

February 24, 2014
Work Order: 1401258

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40513 - BOD										
Blank (BB40513-BLK1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BB40513-BLK2)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BB40513-BS1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	190	2	2	mg/L	200		95	85-115		
LCS (BB40513-BS2)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	200	2	2	mg/L	200		100	85-115		
LCS Dup (BB40513-BSD1)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	187	2	2	mg/L	200		94	85-115	1	200
LCS Dup (BB40513-BSD2)					Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	202	2	2	mg/L	200		101	85-115	0.7	200
Duplicate (BB40513-DUP1)					Source: 1401199-02 Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	42	2	2	mg/L		40			4	25
Duplicate (BB40513-DUP2)					Source: 1401258-06 Prepared: 02/05/14 Analyzed: 02/10/14					
Carbonaceous BOD	2 U	2	2	mg/L		ND				25
Batch BB40516 - Ion Chromatography 300.0 Prep										
Blank (BB40516-BLK1)					Prepared & Analyzed: 02/05/14					
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
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		

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February 24, 2014
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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40516 - Ion Chromatography 300.0 Prep										
LCS (BB40516-BS1)					Prepared & Analyzed: 02/05/14					
Sulfate	9.60	0.60	0.20	mg/L	9.0		107	85-115		
Orthophosphate as P	0.901	0.040	0.010	mg/L	0.90		100	85-115		
Nitrite (as N)	1.55	0.04	0.01	mg/L	1.4		111	85-115		
Chloride	3.16	0.20	0.050	mg/L	3.0		105	85-115		
Nitrate (as N)	1.82	0.04	0.01	mg/L	1.7		107	85-115		
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		
LCS Dup (BB40516-BSD1)					Prepared & Analyzed: 02/05/14					
Orthophosphate as P	0.878	0.040	0.010	mg/L	0.90		98	85-115	3	200
Sulfate	9.40	0.60	0.20	mg/L	9.0		104	85-115	2	200
Nitrate (as N)	1.80	0.04	0.01	mg/L	1.7		106	85-115	1	200
Chloride	3.14	0.20	0.050	mg/L	3.0		105	85-115	0.9	200
Nitrite (as N)	1.54	0.04	0.01	mg/L	1.4		110	85-115	0.9	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		
Matrix Spike (BB40516-MS1)					Source: 1401257-04		Prepared & Analyzed: 02/06/14			
Nitrite (as N)	1.48	0.04	0.01	mg/L	1.4	ND	106	85-115		
Orthophosphate as P	3.64	0.040	0.010	mg/L	0.90	2.75	99	85-115		
Nitrate (as N)	1.61	0.04	0.01	mg/L	1.7	0.0400	92	85-115		
Chloride	30.0 L	0.20	0.050	mg/L	3.0	71.3	NR	80-120		
Sulfate	39.0	0.60	0.20	mg/L	9.0	29.9	100	85-115		
Surrogate: Dichloroacetate	0.910			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.910			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.910			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.910			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.910			mg/L	1.0		91	90-115		

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February 24, 2014
Work Order: 1401258

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch BB40516 - Ion Chromatography 300.0 Prep

Matrix Spike (BB40516-MS2)		Source: 1401260-01			Prepared & Analyzed: 02/06/14					
Nitrate (as N)	1.73	0.04	0.01	mg/L	1.7	0.0390	99	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	161	NR	80-120		
Orthophosphate as P	0.537 J5	0.040	0.010	mg/L	0.90	ND	60	85-115		
Sulfate	41.0	0.60	0.20	mg/L	9.0	30.8	112	85-115		
Surrogate: Dichloroacetate	0.989			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.989			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.989			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.989			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.989			mg/L	1.0		99	90-115		

Batch BB40519 - Digestion for TKN by EPA 351.2

Blank (BB40519-BLK1)					Prepared: 02/05/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BB40519-BS1)					Prepared: 02/05/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	2.64	0.20	0.05	mg/L	2.5		104	90-110		
Matrix Spike (BB40519-MS1)					Prepared: 02/05/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	2.43	0.20	0.05	mg/L	2.5	ND	96	90-110		
Matrix Spike (BB40519-MS2)					Prepared: 02/05/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	2.37	0.20	0.05	mg/L	2.5	ND	94	90-110		
Matrix Spike Dup (BB40519-MSD1)					Prepared: 02/05/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5	ND	99	90-110	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 BB40519 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BB40519-MSD2)		Source: 1401258-07			Prepared: 02/05/14 Analyzed: 02/07/14					
Total Kjeldahl Nitrogen	2.38	0.20	0.05	mg/L	2.5	ND	94	90-110	0.5	20
Batch BB40623 - COD prep										
Blank (BB40623-BLK1)					Prepared: 02/06/14 Analyzed: 02/07/14					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BB40623-BS1)					Prepared: 02/06/14 Analyzed: 02/07/14					
Chemical Oxygen Demand	49	25	10	mg/L	50		98	90-110		
Matrix Spike (BB40623-MS1)		Source: 1401270-02			Prepared: 02/06/14 Analyzed: 02/07/14					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115		
Matrix Spike Dup (BB40623-MSD1)		Source: 1401270-02			Prepared: 02/06/14 Analyzed: 02/07/14					
Chemical Oxygen Demand	49	25	10	mg/L	50	ND	98	85-115	10	32
Batch BB40653 - Ammonia by SEAL										
Blank (BB40653-BLK1)					Prepared & Analyzed: 02/07/14					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BB40653-BS1)					Prepared & Analyzed: 02/07/14					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		98	90-110		
Matrix Spike (BB40653-MS1)		Source: 1401258-07			Prepared & Analyzed: 02/07/14					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50	ND	98	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40653 - Ammonia by SEAL										
Matrix Spike Dup (BB40653-MSD1)		Source: 1401258-07			Prepared & Analyzed: 02/07/14					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50	ND	99	90-110	0.2	10
Batch BB41123 - Ammonia by SEAL										
Blank (BB41123-BLK1)					Prepared & Analyzed: 02/12/14					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BB41123-BS1)					Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BB41123-MS1)		Source: 1401256-06			Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110		
Matrix Spike (BB41123-MS2)		Source: 1401353-07			Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110		
Matrix Spike Dup (BB41123-MSD1)		Source: 1401256-06			Prepared & Analyzed: 02/12/14					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	ND	107	90-110	3	10
Matrix Spike Dup (BB41123-MSD2)		Source: 1401353-07			Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	105	90-110	1	10
Batch BB41140 - Sulfide prep										
Blank (BB41140-BLK1)					Prepared & Analyzed: 02/11/14					
Sulfide	0.10 U	0.40	0.10	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 BB41140 - Sulfide prep										
Blank (BB41140-BLK2)					Prepared & Analyzed: 02/11/14					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BB41140-BS1)					Prepared & Analyzed: 02/11/14					
Sulfide	5.04	0.40	0.10	mg/L	5.0		101	85-115		
LCS (BB41140-BS2)					Prepared & Analyzed: 02/11/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0		93	85-115		
Matrix Spike (BB41140-MS1)					Source: 1401258-07		Prepared & Analyzed: 02/11/14			
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115		
Matrix Spike (BB41140-MS2)					Source: 1401317-01		Prepared & Analyzed: 02/11/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115		
Matrix Spike Dup (BB41140-MSD1)					Source: 1401258-07		Prepared & Analyzed: 02/11/14			
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115	0	14
Matrix Spike Dup (BB41140-MSD2)					Source: 1401317-01		Prepared & Analyzed: 02/11/14			
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115	4	14
Batch BB41205 - VSS Prep										
Blank (BB41205-BLK1)					Prepared: 02/10/14 Analyzed: 02/11/14					
Total Suspended Solids	1 U	1	1	mg/L						
Volatile Suspended Solids	1 U	1		mg/L						
LCS (BB41205-BS1)					Prepared: 02/10/14 Analyzed: 02/11/14					
Total Suspended Solids	50.0	1	1	mg/L	50		100	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB41205 - VSS Prep										
Duplicate (BB41205-DUP1)		Source: 1401258-01			Prepared: 02/10/14 Analyzed: 02/11/14					
Volatile Suspended Solids	12.0	1		mg/L		13.0			8	20
Total Suspended Solids	18.0	1	1	mg/L		19.0			5	30
Batch BB41707 - Ion Chromatography 300.0 Prep										
Blank (BB41707-BLK1)		Prepared & Analyzed: 02/17/14								
Sulfate	0.20 U	0.60	0.20	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Surrogate: Dichloroacetate	0.933			mg/L	1.0		93	90-115		
Surrogate: Dichloroacetate	0.933			mg/L	1.0		93	90-115		
LCS (BB41707-BS1)		Prepared & Analyzed: 02/17/14								
Sulfate	8.81	0.60	0.20	mg/L	9.0		98	85-115		
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115		
Surrogate: Dichloroacetate	1.08			mg/L	1.0		108	90-115		
Surrogate: Dichloroacetate	1.08			mg/L	1.0		108	90-115		
LCS Dup (BB41707-BSD1)		Prepared & Analyzed: 02/17/14								
Sulfate	8.86	0.60	0.20	mg/L	9.0		98	85-115	0.6	200
Chloride	2.96	0.20	0.050	mg/L	3.0		99	85-115	0.4	200
Surrogate: Dichloroacetate	1.05			mg/L	1.0		105	90-115		
Surrogate: Dichloroacetate	1.05			mg/L	1.0		105	90-115		
Matrix Spike (BB41707-MS1)		Source: 1401258-04			Prepared & Analyzed: 02/17/14					
Chloride	72.7	2.0	0.50	mg/L	30	42.6	100	80-120		
Sulfate	137	6.0	2.0	mg/L	90	43.9	104	85-115		
Surrogate: Dichloroacetate	1.02			mg/L	1.0		102	90-115		
Surrogate: Dichloroacetate	1.02			mg/L	1.0		102	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 BB41707 - Ion Chromatography 300.0 Prep										
Matrix Spike (BB41707-MS2)		Source: 1401585-03			Prepared & Analyzed: 02/17/14					
Chloride	57.6	2.0	0.50	mg/L	30	29.4	94	80-120		
Sulfate	91.7	6.0	2.0	mg/L	90	3.79	98	85-115		
Surrogate: Dichloroacetate	0.996			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	0.996			mg/L	1.0		100	90-115		
Batch BB41905 - Digestion for TP and TKN										
Blank (BB41905-BLK1)		Prepared: 02/19/14 Analyzed: 02/21/14								
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BB41905-BS1)		Prepared: 02/19/14 Analyzed: 02/21/14								
Phosphorous - Total as P	0.467	0.040	0.010	mg/L	0.50		93	90-110		
Matrix Spike (BB41905-MS1)		Source: 1401256-06			Prepared: 02/19/14 Analyzed: 02/21/14					
Phosphorous - Total as P	0.485	0.040	0.010	mg/L	0.50	ND	97	90-110		
Matrix Spike (BB41905-MS2)		Source: 1401258-07			Prepared: 02/19/14 Analyzed: 02/21/14					
Phosphorous - Total as P	0.476	0.040	0.010	mg/L	0.50	ND	95	90-110		
Matrix Spike Dup (BB41905-MSD1)		Source: 1401256-06			Prepared: 02/19/14 Analyzed: 02/21/14					
Phosphorous - Total as P	0.493	0.040	0.010	mg/L	0.50	ND	99	90-110	2	25
Matrix Spike Dup (BB41905-MSD2)		Source: 1401258-07			Prepared: 02/19/14 Analyzed: 02/21/14					
Phosphorous - Total as P	0.474	0.040	0.010	mg/L	0.50	ND	95	90-110	0.3	25
Batch BB41920 - alkalinity										
Blank (BB41920-BLK1)		Prepared & Analyzed: 02/19/14								
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 BB41920 - alkalinity										
LCS (BB41920-BS1)					Prepared & Analyzed: 02/19/14					
Total Alkalinity	130	8.0	2.0	mg/L	120		108	90-110		
Matrix Spike (BB41920-MS1)					Source: 1401795-01 Prepared & Analyzed: 02/19/14					
Total Alkalinity	280	8.0	2.0	mg/L	120	160	99	80-120		
Matrix Spike Dup (BB41920-MSD1)					Source: 1401795-01 Prepared & Analyzed: 02/19/14					
Total Alkalinity	280	8.0	2.0	mg/L	120	160	99	80-120	0	26

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Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40449 - FC-MF										
Blank (BB40449-BLK1)					Prepared: 02/04/14 Analyzed: 02/05/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BB40449-DUP1)					Source: 1401256-06 Prepared: 02/04/14 Analyzed: 02/05/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Duplicate (BB40449-DUP2)					Source: 1401258-07 Prepared: 02/04/14 Analyzed: 02/05/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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* Qualifiers, Notes and Definitions

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

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

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

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

- Q Sample held beyond the accepted holding time.
- 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 :

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Client Name Hazan and Sawyer	Contact / Phone: Josefin Hirst 813-630-4498
Project Name / Location BHS3 SE#4	

Samplers: (Signature) <i>Jose H</i>		PARAMETER / CONTAINER DESCRIPTION															
Matrix Codes: DW-Drinking Water WW-Wastewater SW-Surface Water SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water		Date	Time	Matrix	Composite	Grab	125mLP, Na ₂ S ₂ O ₃ FC-MF, FC-QT	TLP, Cool Total Alkalinity, TSS, VSS, CBOD, NOx, Cl, OP, SO ₄	125mLP, H ₂ SO ₄ COD, TKN, NH ₃ , TP	500mLP, NaOH, Zn Acetate H ₂ S				DO	pH	Temperature	Conductivity
SAL Use Only	Sample No.																
Sample Description																	
	01	BHS3-STE	2/1/14	9:32	WW	X	4	1	1	1				0.08	7.82	18.5	962
	02	BHS3-LY01	↓	9:35	WW	X	10	1	1	1				7.40	7.24	20.5	568
	03	BHS3-LY02		8:32	WW	X	10	1	1	1				7.20	6.99	19.9	707
	04	BHS3-LINER		9:20	WW	X	4	1	1	1				1.92	7.06	19.9	796
	05	BHS3-ST2		8:40	WW	X	4	1	1	1				0.65	7.15	18.8	916
	06	BHS3-ST2-DUP		8:50	WW	X	4	1	1	1				0.65	7.15	18.8	916
	07	EB		9:58	R	X	4	1	1	1				7.27	5.30	21.86	2

Date/Time: <i>12/5</i>	Received: <i>Josefin Hirst</i>	Date/Time: <i>01/30/14 1200</i>	Seal intact? <input checked="" type="radio"/> N <input type="radio"/> NA Samples intact upon arrival? <input checked="" type="radio"/> N <input type="radio"/> NA Received on ice? Temp _____ <input checked="" type="radio"/> N <input type="radio"/> NA Proper preservatives indicated? <input checked="" type="radio"/> N <input type="radio"/> NA Rec'd within holding time? <input checked="" type="radio"/> N <input type="radio"/> NA Volatiles rec'd w/out headspace? <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> NA Proper containers used? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA
Date/Time: <i>15:00</i>	Received: <i>[Signature]</i>	Date/Time: <i>2-4-14 1530</i>	
Date/Time: <i>2/3/14</i>	Received: <i>[Signature]</i>	Date/Time:	
Date/Time:	Received:	Date/Time:	
Date/Time:	Received:	Date/Time:	

Instructions / Remarks

Chain of Custody

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

March 11, 2014
Work Order: 1401353

Laboratory Report

Project Name		B-HS3 SE#5						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-STE						
Matrix		Wastewater						
SAL Sample Number		1401353-01						
Date/Time Collected		02/05/14 11:15						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	8.0	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	42	EPA 350.1	2.0	0.47		02/18/14 12:30	50
Carbonaceous BOD	mg/L	52	SM 5210B	2	2	02/06/14 09:00	02/11/14 14:01	1
Chemical Oxygen Demand	mg/L	150	EPA 410.4	25	10	02/10/14 09:30	02/10/14 12:30	1
Chloride	mg/L	46	EPA 300.0	2.0	0.50		02/18/14 21:42	10
Nitrate (as N)	mg/L	0.06	EPA 300.0	0.04	0.01		02/06/14 22:56	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 22:56	1
Orthophosphate as P	mg/L	3.0	EPA 300.0	0.040	0.010		02/06/14 22:56	1
Phosphorous - Total as P	mg/L	3.6	SM 4500P-E	0.80	0.20	02/19/14 10:50	02/24/14 15:34	20
Sulfate	mg/L	29	EPA 300.0	0.60	0.20		02/06/14 22:56	1
Sulfide	mg/L	10	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	430	SM 2320B	8.0	2.0		02/19/14 16:30	1
Total Kjeldahl Nitrogen	mg/L	50	EPA 351.2	4.0	1.0	02/19/14 10:50	02/24/14 15:30	20
Total Suspended Solids	mg/L	12	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	9	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	0.06 I	EPA 300.0	0.08	0.02		02/06/14 22:56	1
<u>Microbiology</u>								
Fecal Coliforms	CFU/100 ml	59,000	SM 9222D	1	1	02/05/14 15:31	02/06/14 14:09	1
Sample Description		BHS3-LY01						
Matrix		Wastewater						
SAL Sample Number		1401353-02						
Date/Time Collected		02/05/14 11:15						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.035 I	EPA 350.1	0.040	0.009		02/18/14 10:26	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/06/14 09:00	02/11/14 14:01	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/10/14 09:30	02/10/14 12:30	1
Chloride	mg/L	35	EPA 300.0	0.20	0.050		02/06/14 23:05	1
Nitrate (as N)	mg/L	13	EPA 300.0	0.04	0.01		02/06/14 23:05	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 23:05	1
Orthophosphate as P	mg/L	0.014 I	EPA 300.0	0.040	0.010		02/06/14 23:05	1
Phosphorous - Total as P	mg/L	0.056	SM 4500P-E	0.040	0.010	02/19/14 10:50	02/24/14 15:34	1
Sulfate	mg/L	48	EPA 300.0	0.60	0.20		02/06/14 23:05	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	02/19/14 10:50	02/24/14 15:30	1

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March 11, 2014
Work Order: 1401353

Laboratory Report

Project Name		B-HS3 SE#5						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY01						
Matrix		Wastewater						
SAL Sample Number		1401353-02						
Date/Time Collected		02/05/14 11:15						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
Nitrate+Nitrite (N)	mg/L	13	EPA 300.0	0.08	0.02		02/06/14 23:05	1
Sample Description		BHS3-LY02						
Matrix		Wastewater						
SAL Sample Number		1401353-03						
Date/Time Collected		02/05/14 11:05						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.014 I	EPA 350.1	0.040	0.009		02/18/14 10:29	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/06/14 09:00	02/11/14 14:01	1
Chemical Oxygen Demand	mg/L	18 I	EPA 410.4	25	10	02/10/14 09:30	02/10/14 12:30	1
Chloride	mg/L	44	EPA 300.0	2.0	0.50		02/18/14 22:57	10
Nitrate (as N)	mg/L	27	EPA 300.0	0.04	0.01		02/06/14 23:14	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 23:14	1
Orthophosphate as P	mg/L	1.8	EPA 300.0	0.040	0.010		02/06/14 23:14	1
Phosphorous - Total as P	mg/L	3.0	SM 4500P-E	0.080	0.020	02/19/14 10:50	02/24/14 15:34	2
Sulfate	mg/L	30	EPA 300.0	0.60	0.20		02/06/14 23:14	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.40	0.10	02/19/14 10:50	02/24/14 15:30	2
Nitrate+Nitrite (N)	mg/L	27	EPA 300.0	0.08	0.02		02/06/14 23:14	1
Sample Description		BHS3-LINER						
Matrix		Wastewater						
SAL Sample Number		1401353-04						
Date/Time Collected		02/05/14 11:20						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.40	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.63	EPA 350.1	0.040	0.009		02/18/14 10:31	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/06/14 09:00	02/11/14 14:01	1
Chemical Oxygen Demand	mg/L	29	EPA 410.4	25	10	02/10/14 09:30	02/10/14 12:30	1
Chloride	mg/L	38	EPA 300.0	2.0	0.50		02/18/14 23:07	10
Nitrate (as N)	mg/L	7.1	EPA 300.0	0.04	0.01		02/06/14 23:24	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 23:24	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/06/14 23:24	1

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March 11, 2014
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Laboratory Report

Project Name		B-HS3 SE#5						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LINER						
Matrix		Wastewater						
SAL Sample Number		1401353-04						
Date/Time Collected		02/05/14 11:20						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
Phosphorous - Total as P	mg/L	0.12	SM 4500P-E	0.040	0.010	02/19/14 10:50	02/24/14 15:34	1
Sulfate	mg/L	30	EPA 300.0	0.60	0.20		02/06/14 23:24	1
Sulfide	mg/L	0.81	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	260	SM 2320B	8.0	2.0		02/19/14 16:30	1
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	02/19/14 10:50	02/24/14 15:30	1
Total Suspended Solids	mg/L	4	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	3	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	7.1	EPA 300.0	0.08	0.02		02/06/14 23:24	1
Microbiology								
Fecal Coliforms	CFU/100 ml	1,410	SM 9222D	1	1	02/05/14 15:31	02/06/14 14:09	1
Sample Description		BHS3-ST2						
Matrix		Wastewater						
SAL Sample Number		1401353-05						
Date/Time Collected		02/05/14 10:50						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	2.1	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.87	EPA 350.1	0.040	0.009		02/18/14 10:33	1
Carbonaceous BOD	mg/L	5	SM 5210B	2	2	02/06/14 09:00	02/11/14 14:01	1
Chemical Oxygen Demand	mg/L	35	EPA 410.4	25	10	02/10/14 09:30	02/10/14 12:30	1
Chloride	mg/L	38	EPA 300.0	2.0	0.50		02/18/14 23:16	10
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 23:33	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/06/14 23:33	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/06/14 23:33	1
Phosphorous - Total as P	mg/L	0.058 I	SM 4500P-E	0.20	0.050	02/19/14 10:50	02/24/14 15:34	5
Sulfate	mg/L	140	EPA 300.0	6.0	2.0		02/18/14 23:16	10
Sulfide	mg/L	4.0	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	290	SM 2320B	8.0	2.0		02/19/14 16:30	1
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	1.0	0.25	02/19/14 10:50	02/24/14 15:30	5
Total Suspended Solids	mg/L	4	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	4	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/06/14 23:33	1
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/05/14 15:31	02/06/14 14:09	1

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March 11, 2014
Work Order: 1401353

Laboratory Report

Project Name		B-HS3 SE#5						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2-DUP						
Matrix		Wastewater						
SAL Sample Number		1401353-06						
Date/Time Collected		02/05/14 10:55						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	2.1	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.80	EPA 350.1	0.040	0.009		02/12/14 12:50	1
Carbonaceous BOD	mg/L	5	SM 5210B	2	2	02/06/14 09:00	02/11/14 14:01	1
Chemical Oxygen Demand	mg/L	29	EPA 410.4	25	10	02/10/14 11:30	02/10/14 16:45	1
Chloride	mg/L	39	EPA 300.0	2.0	0.50		02/18/14 23:25	10
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/07/14 00:11	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/07/14 00:11	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/07/14 00:11	1
Phosphorous - Total as P	mg/L	0.059 I	SM 4500P-E	0.20	0.050	02/19/14 10:50	02/24/14 15:34	5
Sulfate	mg/L	140	EPA 300.0	6.0	2.0		02/18/14 23:25	10
Sulfide	mg/L	4.0	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	260	SM 2320B	8.0	2.0		02/19/14 16:30	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	1.0	0.25	02/19/14 10:50	02/24/14 15:30	5
Total Suspended Solids	mg/L	4	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	4	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/07/14 00:11	1
<u>Microbiology</u>								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/05/14 15:31	02/06/14 14:09	1
Sample Description		FB						
Matrix		Reagent Water						
SAL Sample Number		1401353-07						
Date/Time Collected		02/05/14 11:30						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/12/14 12:16	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/06/14 09:00	02/11/14 14:01	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/10/14 09:30	02/10/14 12:30	1
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		02/07/14 00:20	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/07/14 00:20	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/07/14 00:20	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/07/14 00:20	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/19/14 10:50	02/24/14 15:34	1
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		02/07/14 00:20	1

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March 11, 2014
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Laboratory Report

Project Name		B-HS3 SE#5						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		FB						
Matrix		Reagent Water						
SAL Sample Number		1401353-07						
Date/Time Collected		02/05/14 11:30						
Collected by		Josefin Hirst						
Date/Time Received		02/05/14 14:00						
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		02/19/14 16:30	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	02/19/14 10:50	02/24/14 15:30	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	02/10/14 10:00	02/11/14 14:09	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/10/14 10:00	02/11/14 14:09	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/07/14 00:20	1
<u>Microbiology</u>								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/05/14 15:31	02/06/14 14:09	1

SOUTHERN ANALYTICAL LABORATORIES, INC.

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March 11, 2014
Work Order: 1401353

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40629 - BOD										
Blank (BB40629-BLK1)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BB40629-BLK2)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BB40629-BLK3)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BB40629-BS1)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	202	2	2	mg/L	200		101	85-115		
LCS (BB40629-BS2)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	189	2	2	mg/L	200		94	85-115		
LCS (BB40629-BS3)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	189	2	2	mg/L	200		95	85-115		
LCS Dup (BB40629-BSD1)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	198	2	2	mg/L	200		99	85-115	2	200
LCS Dup (BB40629-BSD2)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	191	2	2	mg/L	200		95	85-115	1	200
LCS Dup (BB40629-BSD3)					Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	189	2	2	mg/L	200		95	85-115	0	200
Duplicate (BB40629-DUP1)		Source: 1401256-05			Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	5	2	2	mg/L		5			0	25

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40629 - BOD										
Duplicate (BB40629-DUP2)		Source: 1401349-05			Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	16	2	2	mg/L		16			2	25
Duplicate (BB40629-DUP3)		Source: 1401375-01			Prepared: 02/06/14 Analyzed: 02/11/14					
Carbonaceous BOD	120	2	2	mg/L		98			18	25
Batch BB40637 - Ion Chromatography 300.0 Prep										
Blank (BB40637-BLK1)		Prepared & Analyzed: 02/06/14								
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
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		
LCS (BB40637-BS1)		Prepared & Analyzed: 02/06/14								
Orthophosphate as P	0.815	0.040	0.010	mg/L	0.90		91	85-115		
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7		101	85-115		
Chloride	2.94	0.20	0.050	mg/L	3.0		98	85-115		
Sulfate	9.19	0.60	0.20	mg/L	9.0		102	85-115		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115		
Surrogate: Dichloroacetate	0.988			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.988			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.988			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.988			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.988			mg/L	1.0		99	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 BB40637 - Ion Chromatography 300.0 Prep										
LCS Dup (BB40637-BSD1)					Prepared & Analyzed: 02/06/14					
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115	0.6	200
Orthophosphate as P	0.816	0.040	0.010	mg/L	0.90		91	85-115	0.1	200
Sulfate	9.11	0.60	0.20	mg/L	9.0		101	85-115	0.9	200
Chloride	2.96	0.20	0.050	mg/L	3.0		99	85-115	1	200
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4		104	85-115	0.4	200
Surrogate: Dichloroacetate	0.966			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.966			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.966			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.966			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.966			mg/L	1.0		97	90-115		
Matrix Spike (BB40637-MS1)					Source: 1401353-05 Prepared & Analyzed: 02/06/14					
Chloride	30.0 L	0.20	0.050	mg/L	3.0	37.9	NR	80-120		
Orthophosphate as P	0.351 J5	0.040	0.010	mg/L	0.90	ND	39	85-115		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4	ND	104	85-115		
Nitrate (as N)	1.55	0.04	0.01	mg/L	1.7	ND	91	85-115		
Sulfate	90.0 L	0.60	0.20	mg/L	9.0	136	NR	85-115		
Surrogate: Dichloroacetate	0.913			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.913			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.913			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.913			mg/L	1.0		91	90-115		
Surrogate: Dichloroacetate	0.913			mg/L	1.0		91	90-115		
Matrix Spike (BB40637-MS2)					Source: 1401383-01 Prepared & Analyzed: 02/07/14					
Nitrate (as N)	4.27	0.04	0.01	mg/L	1.7	2.35	113	85-115		
Orthophosphate as P	0.856	0.040	0.010	mg/L	0.90	0.0240	92	85-115		
Nitrite (as N)	1.54	0.04	0.01	mg/L	1.4	ND	110	85-115		
Sulfate	25.5	0.60	0.20	mg/L	9.0	16.7	98	85-115		
Chloride	34.5	0.20	0.050	mg/L	3.0	31.4	103	80-120		
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		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB41012 - COD prep										
Blank (BB41012-BLK1)					Prepared & Analyzed: 02/10/14					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BB41012-BS1)					Prepared & Analyzed: 02/10/14					
Chemical Oxygen Demand	50	25	10	mg/L	50		100	90-110		
Matrix Spike (BB41012-MS1)					Source: 1401349-06		Prepared & Analyzed: 02/10/14			
Chemical Oxygen Demand	50	25	10	mg/L	50	ND	100	85-115		
Matrix Spike Dup (BB41012-MSD1)					Source: 1401349-06		Prepared & Analyzed: 02/10/14			
Chemical Oxygen Demand	49	25	10	mg/L	50	ND	98	85-115	2	32
Batch BB41014 - COD prep										
Blank (BB41014-BLK1)					Prepared & Analyzed: 02/10/14					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BB41014-BS1)					Prepared & Analyzed: 02/10/14					
Chemical Oxygen Demand	52	25	10	mg/L	50		104	90-110		
Matrix Spike (BB41014-MS1)					Source: 1401353-06		Prepared & Analyzed: 02/10/14			
Chemical Oxygen Demand	77	25	10	mg/L	50	29	96	85-115		
Matrix Spike Dup (BB41014-MSD1)					Source: 1401353-06		Prepared & Analyzed: 02/10/14			
Chemical Oxygen Demand	72	25	10	mg/L	50	29	86	85-115	7	32
Batch BB41123 - Ammonia by SEAL										
Blank (BB41123-BLK1)					Prepared & Analyzed: 02/12/14					
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 BB41123 - Ammonia by SEAL										
LCS (BB41123-BS1)					Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BB41123-MS1)					Source: 1401256-06 Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110		
Matrix Spike (BB41123-MS2)					Source: 1401353-07 Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110		
Matrix Spike Dup (BB41123-MSD1)					Source: 1401256-06 Prepared & Analyzed: 02/12/14					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	ND	107	90-110	3	10
Matrix Spike Dup (BB41123-MSD2)					Source: 1401353-07 Prepared & Analyzed: 02/12/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	105	90-110	1	10
Batch BB41205 - VSS Prep										
Blank (BB41205-BLK1)					Prepared: 02/10/14 Analyzed: 02/11/14					
Volatile Suspended Solids	1 U	1		mg/L						
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BB41205-BS1)					Prepared: 02/10/14 Analyzed: 02/11/14					
Total Suspended Solids	50.0	1	1	mg/L	50		100	85-115		
Duplicate (BB41205-DUP1)					Source: 1401258-01 Prepared: 02/10/14 Analyzed: 02/11/14					
Total Suspended Solids	18.0	1	1	mg/L		19.0			5	30
Volatile Suspended Solids	12.0	1		mg/L		13.0			8	20

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB41245 - Sulfide prep										
Blank (BB41245-BLK1)					Prepared & Analyzed: 02/12/14					
Sulfide	0.10 U	0.40	0.10	mg/L						
Blank (BB41245-BLK2)					Prepared & Analyzed: 02/12/14					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BB41245-BS1)					Prepared & Analyzed: 02/12/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0		93	85-115		
LCS (BB41245-BS2)					Prepared & Analyzed: 02/12/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0		93	85-115		
Matrix Spike (BB41245-MS1)					Source: 1401349-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115		
Matrix Spike (BB41245-MS2)					Source: 1401419-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115		
Matrix Spike Dup (BB41245-MSD1)					Source: 1401349-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115	0	14
Matrix Spike Dup (BB41245-MSD2)					Source: 1401419-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115	0	14
Batch BB41437 - Ammonia by SEAL										
Blank (BB41437-BLK1)					Prepared & Analyzed: 02/18/14					
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 BB41437 - Ammonia by SEAL										
LCS (BB41437-BS1)					Prepared & Analyzed: 02/18/14					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50		106	90-110		
Matrix Spike (BB41437-MS1)					Source: 1401611-07 Prepared & Analyzed: 02/18/14					
Ammonia as N	0.56	0.040	0.009	mg/L	0.50	0.036	105	90-110		
Matrix Spike (BB41437-MS2)					Source: 1401686-07 Prepared & Analyzed: 02/18/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.031	98	90-110		
Matrix Spike Dup (BB41437-MSD1)					Source: 1401611-07 Prepared & Analyzed: 02/18/14					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.036	100	90-110	5	10
Matrix Spike Dup (BB41437-MSD2)					Source: 1401686-07 Prepared & Analyzed: 02/18/14					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.031	97	90-110	1	10
Batch BB41720 - Ion Chromatography 300.0 Prep										
Blank (BB41720-BLK1)					Prepared & Analyzed: 02/18/14					
Chloride	0.050 U	0.20	0.050	mg/L						
Surrogate: Dichloroacetate	0.982			mg/L	1.0		98	90-115		
LCS (BB41720-BS1)					Prepared & Analyzed: 02/18/14					
Chloride	2.90	0.20	0.050	mg/L	3.0		97	85-115		
Surrogate: Dichloroacetate	0.994			mg/L	1.0		99	90-115		
LCS Dup (BB41720-BSD1)					Prepared & Analyzed: 02/18/14					
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.6	200
Surrogate: Dichloroacetate	1.00			mg/L	1.0		100	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 BB41720 - Ion Chromatography 300.0 Prep										
Matrix Spike (BB41720-MS1)		Source: 1401585-06			Prepared & Analyzed: 02/18/14					
Chloride	209	2.0	0.50	mg/L	30	178	104	80-120		
Surrogate: Dichloroacetate	0.974			mg/L	1.0		97	90-115		
Matrix Spike (BB41720-MS2)		Source: 1401823-02			Prepared & Analyzed: 02/18/14					
Chloride	30.0 L	0.20	0.050	mg/L	3.0	189	NR	80-120		
Surrogate: Dichloroacetate	1.01			mg/L	1.0		101	90-115		
Batch BB41721 - Ion Chromatography 300.0 Prep										
Blank (BB41721-BLK1)		Prepared & Analyzed: 02/18/14								
Sulfate	0.20 U	0.60	0.20	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Surrogate: Dichloroacetate	0.999			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	0.999			mg/L	1.0		100	90-115		
LCS (BB41721-BS1)		Prepared & Analyzed: 02/18/14								
Sulfate	8.60	0.60	0.20	mg/L	9.0		96	85-115		
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115		
Surrogate: Dichloroacetate	1.00			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	1.00			mg/L	1.0		100	90-115		
LCS Dup (BB41721-BSD1)		Prepared & Analyzed: 02/18/14								
Sulfate	8.67	0.60	0.20	mg/L	9.0		96	85-115	0.8	200
Chloride	2.84	0.20	0.050	mg/L	3.0		94	85-115	0.2	200
Surrogate: Dichloroacetate	0.991			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.991			mg/L	1.0		99	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 BB41721 - Ion Chromatography 300.0 Prep										
Matrix Spike (BB41721-MS1)		Source: 1401667-01			Prepared & Analyzed: 02/19/14					
Chloride	30.0 L	0.20	0.050	mg/L	3.0	53.2	NR	80-120		
Sulfate	35.1	0.60	0.20	mg/L	9.0	25.5	107	85-115		
Surrogate: Dichloroacetate	1.02			mg/L	1.0		102	90-115		
Surrogate: Dichloroacetate	1.02			mg/L	1.0		102	90-115		
Matrix Spike (BB41721-MS2)		Source: 1401684-03			Prepared & Analyzed: 02/19/14					
Sulfate	154	6.0	2.0	mg/L	90	65.4	99	85-115		
Chloride	115	2.0	0.50	mg/L	30	82.0	108	80-120		
Surrogate: Dichloroacetate	0.986			mg/L	1.0		99	90-115		
Surrogate: Dichloroacetate	0.986			mg/L	1.0		99	90-115		
Batch BB41914 - Digestion for TP and TKN										
Blank (BB41914-BLK1)		Prepared: 02/19/14 Analyzed: 02/24/14								
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BB41914-BS1)		Prepared: 02/19/14 Analyzed: 02/24/14								
Total Kjeldahl Nitrogen	1.09	0.20	0.05	mg/L	1.0		109	90-110		
Phosphorous - Total as P	0.489	0.040	0.010	mg/L	0.50		98	90-110		
Matrix Spike (BB41914-MS1)		Source: 1401349-06			Prepared: 02/19/14 Analyzed: 02/24/14					
Phosphorous - Total as P	0.504	0.040	0.010	mg/L	0.50	ND	101	90-110		
Total Kjeldahl Nitrogen	1.06	0.20	0.05	mg/L	1.0	ND	106	90-110		
Matrix Spike (BB41914-MS2)		Source: 1401686-07			Prepared: 02/19/14 Analyzed: 02/24/14					
Phosphorous - Total as P	0.718	0.040	0.010	mg/L	0.50	0.211	101	90-110		
Total Kjeldahl Nitrogen	1.82	0.20	0.05	mg/L	1.0	0.812	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 BB41914 - Digestion for TP and TKN										
Matrix Spike Dup (BB41914-MSD1)		Source: 1401349-06			Prepared: 02/19/14 Analyzed: 02/24/14					
Total Kjeldahl Nitrogen	1.08	0.20	0.05	mg/L	1.0	ND	108	90-110	2	20
Phosphorous - Total as P	0.484	0.040	0.010	mg/L	0.50	ND	97	90-110	4	25
Matrix Spike Dup (BB41914-MSD2)		Source: 1401686-07			Prepared: 02/19/14 Analyzed: 02/24/14					
Phosphorous - Total as P	0.720	0.040	0.010	mg/L	0.50	0.211	102	90-110	0.3	25
Total Kjeldahl Nitrogen	1.78	0.20	0.05	mg/L	1.0	0.812	97	90-110	2	20
Batch BB41943 - alkalinity										
Blank (BB41943-BLK1)					Prepared & Analyzed: 02/19/14					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BB41943-BS1)					Prepared & Analyzed: 02/19/14					
Total Alkalinity	130	8.0	2.0	mg/L	120		108	90-110		
Matrix Spike (BB41943-MS1)		Source: 1401419-06			Prepared & Analyzed: 02/19/14					
Total Alkalinity	130	8.0	2.0	mg/L	120	ND	108	80-120		
Matrix Spike Dup (BB41943-MSD1)		Source: 1401419-06			Prepared & Analyzed: 02/19/14					
Total Alkalinity	130	8.0	2.0	mg/L	120	ND	108	80-120	0	26

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March 11, 2014
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Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40543 - FC-MF										
Blank (BB40543-BLK1)					Prepared: 02/05/14 Analyzed: 02/06/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BB40543-DUP1)					Source: 1401349-06 Prepared: 02/05/14 Analyzed: 02/06/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Duplicate (BB40543-DUP2)					Source: 1401353-07 Prepared: 02/05/14 Analyzed: 02/06/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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* Qualifiers, Notes and Definitions

Results followed by a "U" indicate that the sample was analyzed but the compound was not detected. Results followed by "I" indicate that the reported value is between the laboratory method detection limits 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 :

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Kathryn@southernanalyticallabs.com



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

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February 26, 2014
Work Order: 1401421

Laboratory Report

Project Name		B-HS3 SE#6						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-STE						
Matrix		Wastewater						
SAL Sample Number		1401421-01						
Date/Time Collected		02/06/14 11:00						
Collected by		Josefin Hirst						
Date/Time Received		02/06/14 13:45						
<u>Client Provided Field Data</u>								
pH		7.72						
Temperature		19.6 °C						
Conductivity		1102 umhos						
Dissolved Oxygen		0.00 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	1.7	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	44	EPA 350.1	2.0	0.47		02/20/14 12:31	50
Carbonaceous BOD	mg/L	85	SM 5210B	2	2	02/07/14 11:36	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	170	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	48	EPA 300.0	2.0	0.50		02/20/14 07:53	10
Nitrate (as N)	mg/L	0.04	EPA 300.0	0.04	0.01		02/08/14 00:51	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 00:51	1
Orthophosphate as P	mg/L	2.8	EPA 300.0	0.040	0.010		02/08/14 00:51	1
Phosphorous - Total as P	mg/L	4.1	SM 4500P-E	0.80	0.20	02/19/14 10:54	02/24/14 15:44	20
Sulfate	mg/L	26	EPA 300.0	0.60	0.20		02/08/14 00:51	1
Sulfide	mg/L	11	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	420	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	46	EPA 351.2	4.0	1.0	02/19/14 10:54	02/24/14 15:39	20
Total Suspended Solids	mg/L	26	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	24	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.04 I	EPA 300.0	0.08	0.02		02/08/14 00:51	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	24,000	SM 9223B	2.0	2.0	02/06/14 16:03	02/07/14 10:07	1
Fecal Coliforms	CFU/100 ml	49,000	SM 9222D	1	1	02/06/14 15:42	02/07/14 13:42	1

Sample Description **BHS3-LY01**
 Matrix **Wastewater**
 SAL Sample Number **1401421-02**
 Date/Time Collected **02/06/14 11:25**
 Collected by **Josefin Hirst**
 Date/Time Received **02/06/14 13:45**

Client Provided Field Data

pH 7.12
 Temperature 18.5 °C
 Conductivity 486 umhos
 Dissolved Oxygen 7.47 mg/L

Hazen and Sawyer
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February 26, 2014
Work Order: 1401421

Laboratory Report

Project Name		B-HS3 SE#6						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY01						
Matrix		Wastewater						
SAL Sample Number		1401421-02						
Date/Time Collected		02/06/14 11:25						
Collected by		Josefin Hirst						
Date/Time Received		02/06/14 13:45						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.034 I	EPA 350.1	0.040	0.009		02/20/14 12:41	1
Chemical Oxygen Demand	mg/L	27	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	37	EPA 300.0	0.20	0.050		02/08/14 01:57	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		02/08/14 01:57	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 01:57	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 01:57	1
Phosphorous - Total as P	mg/L	0.073	SM 4500P-E	0.040	0.010	02/19/14 10:54	02/24/14 15:44	1
Sulfate	mg/L	30	EPA 300.0	0.60	0.20		02/08/14 01:57	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	02/19/14 10:54	02/24/14 15:39	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		02/08/14 01:57	1

Sample Description **BHS3-LY02**
 Matrix **Wastewater**
 SAL Sample Number **1401421-03**
 Date/Time Collected **02/06/14 11:15**
 Collected by **Josefin Hirst**
 Date/Time Received **02/06/14 13:45**

Client Provided Field Data

pH 6.80
 Temperature 18.1 °C
 Conductivity 842 umhos
 Dissolved Oxygen 5.97 mg/L

<u>Inorganics</u>								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/20/14 12:43	1
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	43	EPA 300.0	2.0	0.50		02/19/14 18:24	10
Nitrate (as N)	mg/L	34	EPA 300.0	0.04	0.01		02/08/14 02:06	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:06	1
Orthophosphate as P	mg/L	2.4	EPA 300.0	0.040	0.010		02/08/14 02:06	1
Phosphorous - Total as P	mg/L	3.0	SM 4500P-E	0.080	0.020	02/19/14 10:54	02/24/14 15:44	2
Sulfate	mg/L	44	EPA 300.0	0.60	0.20		02/08/14 02:06	1
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.40	0.10	02/19/14 10:54	02/24/14 15:39	2
Nitrate+Nitrite (N)	mg/L	34	EPA 300.0	0.08	0.02		02/08/14 02:06	1

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Work Order: 1401421

Laboratory Report

Project Name		B-HS3 SE#6						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LINER						
Matrix		Wastewater						
SAL Sample Number		1401421-04						
Date/Time Collected		02/06/14 11:15						
Collected by		Josefin Hirst						
Date/Time Received		02/06/14 13:45						
<u>Client Provided Field Data</u>								
pH		6.57						
Temperature		18.5 °C						
Conductivity		644 umhos						
Dissolved Oxygen		1.32 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.45	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.088	EPA 350.1	0.040	0.009		02/20/14 12:45	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/07/14 11:36	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	33	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	37	EPA 300.0	2.0	0.50		02/19/14 18:34	10
Nitrate (as N)	mg/L	5.9	EPA 300.0	0.04	0.01		02/08/14 02:16	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:16	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 02:16	1
Phosphorous - Total as P	mg/L	0.096	SM 4500P-E	0.040	0.010	02/19/14 10:54	02/24/14 15:44	1
Sulfate	mg/L	24	EPA 300.0	0.60	0.20		02/08/14 02:16	1
Sulfide	mg/L	0.60	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	260	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	02/19/14 10:54	02/24/14 15:39	1
Total Suspended Solids	mg/L	9	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	9	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	5.9	EPA 300.0	0.08	0.02		02/08/14 02:16	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/06/14 16:03	02/07/14 10:07	1
Fecal Coliforms	CFU/100 ml	1	SM 9222D	1	1	02/06/14 15:42	02/07/14 13:42	1

Sample Description **BHS3-ST2**
 Matrix **Wastewater**
 SAL Sample Number **1401421-05**
 Date/Time Collected **02/06/14 10:55**
 Collected by **Josefin Hirst**
 Date/Time Received **02/06/14 13:45**

Client Provided Field Data

pH 6.98
 Temperature 19.0 °C
 Conductivity 800 umhos
 Dissolved Oxygen 0.91 mg/L

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February 26, 2014
Work Order: 1401421

Laboratory Report

Project Name		B-HS3 SE#6						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2						
Matrix		Wastewater						
SAL Sample Number		1401421-05						
Date/Time Collected		02/06/14 10:55						
Collected by		Josefin Hirst						
Date/Time Received		02/06/14 13:45						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	4.6	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.49	EPA 350.1	0.040	0.009		02/20/14 14:31	1
Carbonaceous BOD	mg/L	11	SM 5210B	2	2	02/07/14 11:36	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	39	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	38	EPA 300.0	2.0	0.50		02/19/14 18:43	10
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:25	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:25	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 02:25	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/19/14 10:54	02/24/14 15:44	1
Sulfate	mg/L	130	EPA 300.0	6.0	2.0		02/19/14 18:43	10
Sulfide	mg/L	8.5	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	260	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	0.93	EPA 351.2	0.20	0.05	02/19/14 10:54	02/24/14 15:39	1
Total Suspended Solids	mg/L	8	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	6	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/08/14 02:25	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	10	SM 9223B	2.0	2.0	02/06/14 16:03	02/07/14 10:07	1
Fecal Coliforms	CFU/100 ml	20	SM 9222D	1	1	02/06/14 15:42	02/07/14 13:42	1

Sample Description **BHS3-ST2-DUP**
 Matrix **Wastewater**
 SAL Sample Number **1401421-06**
 Date/Time Collected **02/06/14 11:00**
 Collected by **Josefin Hirst**
 Date/Time Received **02/06/14 13:45**

Client Provided Field Data

pH 6.98
 Temperature 19.0 °C
 Conductivity 800 umhos
 Dissolved Oxygen 0.91 mg/L

<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	4.6	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.49	EPA 350.1	0.040	0.009		02/20/14 12:49	1
Carbonaceous BOD	mg/L	10	SM 5210B	2	2	02/07/14 11:36	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	41	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1

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Laboratory Report

Project Name		B-HS3 SE#6						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2-DUP						
Matrix		Wastewater						
SAL Sample Number		1401421-06						
Date/Time Collected		02/06/14 11:00						
Collected by		Josefin Hirst						
Date/Time Received		02/06/14 13:45						
Chloride	mg/L	38	EPA 300.0	2.0	0.50		02/19/14 18:52	10
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:35	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:35	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 02:35	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/19/14 10:54	02/24/14 15:44	1
Sulfate	mg/L	130	EPA 300.0	6.0	2.0		02/19/14 18:52	10
Sulfide	mg/L	8.5	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	260	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	0.94	EPA 351.2	0.20	0.05	02/19/14 10:54	02/24/14 15:39	1
Total Suspended Solids	mg/L	8	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	6	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/08/14 02:35	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	10	SM 9223B	2.0	2.0	02/06/14 16:03	02/07/14 10:07	1
Fecal Coliforms	CFU/100 ml	20	SM 9222D	1	1	02/06/14 15:42	02/07/14 13:42	1
Sample Description		FB						
Matrix		Reagent Water						
SAL Sample Number		1401421-07						
Date/Time Collected		02/06/14 11:25						
Collected by		Josefin Hirst						
Date/Time Received		02/06/14 13:45						
<u>Client Provided Field Data</u>								
pH		4.92						
Temperature		22.6 °C						
Conductivity		2 umhos						
Dissolved Oxygen		6.38 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/12/14 08:00	02/13/14 15:52	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/20/14 12:52	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/07/14 11:36	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		02/08/14 02:44	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:44	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 02:44	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 02:44	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/19/14 10:54	02/24/14 15:44	1

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February 26, 2014
Work Order: 1401421

Laboratory Report

Project Name		B-HS3 SE#6						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		FB						
Matrix		Reagent Water						
SAL Sample Number		1401421-07						
Date/Time Collected		02/06/14 11:25						
Collected by		Josefin Hirst						
Date/Time Received		02/06/14 13:45						
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		02/08/14 02:44	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/12/14 09:00	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	02/19/14 10:54	02/24/14 15:39	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/08/14 02:44	1
Microbiology								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/06/14 16:03	02/07/14 10:07	1
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	02/06/14 15:42	02/07/14 13:42	1

SOUTHERN ANALYTICAL LABORATORIES, INC.

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February 26, 2014
Work Order: 1401421

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40711 - Ion Chromatography 300.0 Prep										
Blank (BB40711-BLK1)					Prepared & Analyzed: 02/07/14					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		
LCS (BB40711-BS1)					Prepared & Analyzed: 02/07/14					
Sulfate	9.11	0.60	0.20	mg/L	9.0		101	85-115		
Orthophosphate as P	0.881	0.040	0.010	mg/L	0.90		98	85-115		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4		105	85-115		
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7		101	85-115		
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 Dup (BB40711-BSD1)					Prepared & Analyzed: 02/07/14					
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4		105	85-115	0.2	200
Orthophosphate as P	0.882	0.040	0.010	mg/L	0.90		98	85-115	0.1	200
Sulfate	9.22	0.60	0.20	mg/L	9.0		102	85-115	1	200
Nitrate (as N)	1.73	0.04	0.01	mg/L	1.7		102	85-115	1	200
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		
Surrogate: Dichloroacetate	1.11			mg/L	1.0		111	90-115		

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February 26, 2014
Work Order: 1401421

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40711 - Ion Chromatography 300.0 Prep										
Matrix Spike (BB40711-MS1)		Source: 1401419-02			Prepared & Analyzed: 02/07/14					
Orthophosphate as P	2.56	0.040	0.010	mg/L	0.90	1.75	90	85-115		
Sulfate	44.5	0.60	0.20	mg/L	9.0	34.7	109	85-115		
Nitrate (as N)	17.0 L	0.04	0.01	mg/L	1.7	47.6	NR	85-115		
Nitrite (as N)	1.79	0.04	0.01	mg/L	1.4	0.389	100	85-115		
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		
Matrix Spike (BB40711-MS2)		Source: 1401421-01			Prepared & Analyzed: 02/08/14					
Chloride	30.0 L	0.20	0.050	mg/L	3.0	48.3	NR	80-120		
Nitrate (as N)	1.60	0.04	0.01	mg/L	1.7	0.0370	92	85-115		
Orthophosphate as P	3.77	0.040	0.010	mg/L	0.90	2.81	107	85-115		
Sulfate	36.1	0.60	0.20	mg/L	9.0	26.4	108	85-115		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Surrogate: Dichloroacetate	0.995			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	0.995			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	0.995			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	0.995			mg/L	1.0		100	90-115		
Surrogate: Dichloroacetate	0.995			mg/L	1.0		100	90-115		
Batch BB40712 - Ion Chromatography 300.0 Prep										
Blank (BB40712-BLK1)		Prepared & Analyzed: 02/08/14								
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						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Surrogate: Dichloroacetate	0.929			mg/L	1.0		93	90-115		
Surrogate: Dichloroacetate	0.929			mg/L	1.0		93	90-115		
Surrogate: Dichloroacetate	0.929			mg/L	1.0		93	90-115		
Surrogate: Dichloroacetate	0.929			mg/L	1.0		93	90-115		
Surrogate: Dichloroacetate	0.929			mg/L	1.0		93	90-115		

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Tampa, FL 33619

February 26, 2014
Work Order: 1401421

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40712 - Ion Chromatography 300.0 Prep										
LCS (BB40712-BS1)					Prepared & Analyzed: 02/08/14					
Sulfate	9.27	0.60	0.20	mg/L	9.0		103	85-115		
Nitrate (as N)	1.73	0.04	0.01	mg/L	1.7		102	85-115		
Orthophosphate as P	0.839	0.040	0.010	mg/L	0.90		93	85-115		
Chloride	2.96	0.20	0.050	mg/L	3.0		99	85-115		
Nitrite (as N)	1.50	0.04	0.01	mg/L	1.4		107	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		
LCS Dup (BB40712-BSD1)					Prepared & Analyzed: 02/08/14					
Sulfate	9.07	0.60	0.20	mg/L	9.0		101	85-115	2	200
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	4	200
Orthophosphate as P	0.848	0.040	0.010	mg/L	0.90		94	85-115	1	200
Chloride	2.90	0.20	0.050	mg/L	3.0		97	85-115	2	200
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4		105	85-115	2	200
Surrogate: Dichloroacetate	0.972			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.972			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.972			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.972			mg/L	1.0		97	90-115		
Surrogate: Dichloroacetate	0.972			mg/L	1.0		97	90-115		
Matrix Spike (BB40712-MS1)					Source: 1401445-01		Prepared & Analyzed: 02/08/14			
Sulfate	9.08	0.60	0.20	mg/L	9.0	0.258	98	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7	ND	97	85-115		
Orthophosphate as P	0.837	0.040	0.010	mg/L	0.90	ND	93	85-115		
Chloride	10.7	0.20	0.050	mg/L	3.0	7.54	106	80-120		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	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		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch BB40712 - Ion Chromatography 300.0 Prep

Matrix Spike (BB40712-MS2)		Source: 1401183-06			Prepared & Analyzed: 02/08/14					
Nitrite (as N)	151	4.0	1.0	mg/L	140		108	85-115		
Chloride	551	20	5.0	mg/L	300	219	111	80-120		
Orthophosphate as P	85.0	4.0	1.0	mg/L	90		94	85-115		
Sulfate	976	60	20	mg/L	900	34.9	105	85-115		
Nitrate (as N)	178	4.0	1.0	mg/L	170	0.0400	105	85-115		
Surrogate: Dichloroacetate	1.08			mg/L	1.0		108	90-115		
Surrogate: Dichloroacetate	1.08			mg/L	1.0		108	90-115		
Surrogate: Dichloroacetate	1.08			mg/L	1.0		108	90-115		
Surrogate: Dichloroacetate	1.08			mg/L	1.0		108	90-115		
Surrogate: Dichloroacetate	1.08			mg/L	1.0		108	90-115		

Batch BB40716 - BOD

Blank (BB40716-BLK1)		Prepared: 02/07/14 Analyzed: 02/12/14								
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BB40716-BLK2)		Prepared: 02/07/14 Analyzed: 02/12/14								
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BB40716-BS1)		Prepared: 02/07/14 Analyzed: 02/12/14								
Carbonaceous BOD	193	2	2	mg/L	200		97	85-115		
LCS (BB40716-BS2)		Prepared: 02/07/14 Analyzed: 02/12/14								
Carbonaceous BOD	182	2	2	mg/L	200		91	85-115		
LCS Dup (BB40716-BSD1)		Prepared: 02/07/14 Analyzed: 02/12/14								
Carbonaceous BOD	185	2	2	mg/L	200		92	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 BB40716 - BOD										
LCS Dup (BB40716-BSD2)					Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	189	2	2	mg/L	200		94	85-115	4	200
Duplicate (BB40716-DUP1)					Source: 1401420-05 Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	17	2	2	mg/L		18			7	25
Duplicate (BB40716-DUP2)					Source: 1401481-05 Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	16	2	2	mg/L		17			6	25
Batch BB41131 - COD prep										
Blank (BB41131-BLK1)					Prepared & Analyzed: 02/11/14					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BB41131-BS1)					Prepared & Analyzed: 02/11/14					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BB41131-MS1)					Source: 1401480-02 Prepared & Analyzed: 02/11/14					
Chemical Oxygen Demand	66	25	10	mg/L	50	23	86	85-115		
Matrix Spike Dup (BB41131-MSD1)					Source: 1401480-02 Prepared & Analyzed: 02/11/14					
Chemical Oxygen Demand	66	25	10	mg/L	50	23	86	85-115	0	32
Batch BB41245 - Sulfide prep										
Blank (BB41245-BLK1)					Prepared & Analyzed: 02/12/14					
Sulfide	0.10 U	0.40	0.10	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 BB41245 - Sulfide prep										
Blank (BB41245-BLK2)					Prepared & Analyzed: 02/12/14					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BB41245-BS1)					Prepared & Analyzed: 02/12/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0		93	85-115		
LCS (BB41245-BS2)					Prepared & Analyzed: 02/12/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0		93	85-115		
Matrix Spike (BB41245-MS1)					Source: 1401349-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115		
Matrix Spike (BB41245-MS2)					Source: 1401419-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115		
Matrix Spike Dup (BB41245-MSD1)					Source: 1401349-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115	0	14
Matrix Spike Dup (BB41245-MSD2)					Source: 1401419-06		Prepared & Analyzed: 02/12/14			
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115	0	14
Batch BB41709 - VSS Prep										
Blank (BB41709-BLK1)					Prepared: 02/10/14 Analyzed: 02/12/14					
Total Suspended Solids	1 U	1	1	mg/L						
Volatile Suspended Solids	1 U	1		mg/L						
LCS (BB41709-BS1)					Prepared: 02/10/14 Analyzed: 02/12/14					
Total Suspended Solids	48.5	1	1	mg/L	50		97	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB41709 - VSS Prep										
Duplicate (BB41709-DUP1)		Source: 1401420-03			Prepared: 02/10/14 Analyzed: 02/12/14					
Total Suspended Solids	2.00	1	1	mg/L		2.00			0	30
Volatile Suspended Solids	2.00	1		mg/L		2.00			0	20
Batch BB41824 - Ion Chromatography 300.0 Prep										
Blank (BB41824-BLK1)		Prepared & Analyzed: 02/19/14								
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
LCS (BB41824-BS1)		Prepared & Analyzed: 02/19/14								
Sulfate	8.92	0.60	0.20	mg/L	9.0		99	85-115		
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115		
Surrogate: Dichloroacetate	1.04			mg/L	1.0		104	90-115		
Surrogate: Dichloroacetate	1.04			mg/L	1.0		104	90-115		
LCS Dup (BB41824-BSD1)		Prepared & Analyzed: 02/19/14								
Sulfate	9.13	0.60	0.20	mg/L	9.0		101	85-115	2	200
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115	0.8	200
Surrogate: Dichloroacetate	1.07			mg/L	1.0		107	90-115		
Surrogate: Dichloroacetate	1.07			mg/L	1.0		107	90-115		
Matrix Spike (BB41824-MS1)		Source: 1401759-01			Prepared & Analyzed: 02/19/14					
Chloride	16.8	0.20	0.050	mg/L	3.0	13.5	109	80-120		
Sulfate	82.3	0.60	0.20	mg/L	9.0	72.4	110	85-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	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 BB41824 - Ion Chromatography 300.0 Prep										
Matrix Spike (BB41824-MS2)		Source: 1401782-02			Prepared & Analyzed: 02/19/14					
Chloride	17,400	200	50	mg/L	3000	14100	109	80-120		
Sulfate	10,500	600	200	mg/L	9000	1670	98	85-115		
Surrogate: Dichloroacetate	1.03			mg/L	1.0		103	90-115		
Surrogate: Dichloroacetate	1.03			mg/L	1.0		103	90-115		
Batch BB41915 - Digestion for TP and TKN										
Blank (BB41915-BLK1)		Prepared: 02/19/14 Analyzed: 02/24/14								
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BB41915-BS1)		Prepared: 02/19/14 Analyzed: 02/24/14								
Total Kjeldahl Nitrogen	0.924	0.20	0.05	mg/L	1.0		92	90-110		
Phosphorous - Total as P	0.502	0.040	0.010	mg/L	0.50		100	90-110		
Matrix Spike (BB41915-MS1)		Source: 1401419-06			Prepared: 02/19/14 Analyzed: 02/24/14					
Total Kjeldahl Nitrogen	0.988	0.20	0.05	mg/L	1.0	ND	99	90-110		
Phosphorous - Total as P	0.513	0.040	0.010	mg/L	0.50	ND	103	90-110		
Matrix Spike (BB41915-MS2)		Source: 1401421-02			Prepared: 02/19/14 Analyzed: 02/24/14					
Phosphorous - Total as P	0.579	0.040	0.010	mg/L	0.50	0.0729	101	90-110		
Total Kjeldahl Nitrogen	2.25	0.20	0.05	mg/L	1.0	1.64	62	90-110		
Matrix Spike Dup (BB41915-MSD1)		Source: 1401419-06			Prepared: 02/19/14 Analyzed: 02/24/14					
Total Kjeldahl Nitrogen	1.01	0.20	0.05	mg/L	1.0	ND	101	90-110	3	20
Phosphorous - Total as P	0.500	0.040	0.010	mg/L	0.50	ND	100	90-110	3	25

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch BB41915 - Digestion for TP and TKN

Matrix Spike Dup (BB41915-MSD2)		Source: 1401421-02			Prepared: 02/19/14 Analyzed: 02/24/14					
Total Kjeldahl Nitrogen	2.72	0.20	0.05	mg/L	1.0	1.64	108	90-110	19	20
Phosphorous - Total as P	0.573	0.040	0.010	mg/L	0.50	0.0729	100	90-110	1	25

Batch BB41944 - alkalinity

Blank (BB41944-BLK1)					Prepared & Analyzed: 02/20/14					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BB41944-BS1)					Prepared & Analyzed: 02/20/14					
Total Alkalinity	120	8.0	2.0	mg/L	120	99	90-110			
Matrix Spike (BB41944-MS1)		Source: 1401481-02			Prepared & Analyzed: 02/20/14					
Total Alkalinity	340	8.0	2.0	mg/L	120	210	99	80-120		
Matrix Spike Dup (BB41944-MSD1)		Source: 1401481-02			Prepared & Analyzed: 02/20/14					
Total Alkalinity	340	8.0	2.0	mg/L	120	210	99	80-120	0	26

Batch BB42006 - Ammonia by SEAL

Blank (BB42006-BLK1)					Prepared & Analyzed: 02/20/14			
Ammonia as N	0.009 U	0.040	0.009	mg/L				
LCS (BB42006-BS1)					Prepared & Analyzed: 02/20/14			
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	105	90-110	
Matrix Spike (BB42006-MS1)		Source: 1401419-06			Prepared & Analyzed: 02/20/14			
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	ND	108	90-110

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB42006 - Ammonia by SEAL										
Matrix Spike (BB42006-MS2)		Source: 1401421-07			Prepared & Analyzed: 02/20/14					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	ND	109	90-110		
Matrix Spike Dup (BB42006-MSD1)		Source: 1401419-06			Prepared & Analyzed: 02/20/14					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	ND	108	90-110	0.1	10
Matrix Spike Dup (BB42006-MSD2)		Source: 1401421-07			Prepared & Analyzed: 02/20/14					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	ND	107	90-110	1	10

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Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40665 - FC-MF										
Blank (BB40665-BLK1)					Prepared: 02/06/14 Analyzed: 02/07/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BB40665-DUP1)					Source: 1401419-06 Prepared: 02/06/14 Analyzed: 02/07/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Duplicate (BB40665-DUP2)					Source: 1401421-07 Prepared: 02/06/14 Analyzed: 02/07/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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*** Qualifiers, Notes and Definitions**

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

Questions regarding this report should be directed to :

Kathryn Nordmark

Telephone (813) 855-1844 FAX (813) 855-2218

Kathryn@southernanalyticalabs.com



Client Name Hazan and Sawyer										Contact / Phone: Josefin Hirst 813-630-4498									
Project Name / Location BHS3 SE#6																			
Samplers: (Signature) <i>[Signature]</i>										PARAMETER / CONTAINER DESCRIPTION									
Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water		Date	Time	Matrix	Composite	Grab	125mLP, Na ₂ S ₂ O ₃ FC-MF, FC-QT	TLP, Cool Total Alkalinity, TSS, VSS, CBOD, NOx, Cl, OP, SO ₄	125mLP, H ₂ SO ₄ COD, TKN, NH ₃ , TP	500mLP, NaOH, Zn Acetate H ₂ S	DO	pH	Temperature	Conductivity					
SAL Use Only	Sample No.														Sample Description				
01	BHS3-STE	2/6/14	11:00	WW	X		4	1	1	1									
02	BHS3-LY01		11:25	WW	X		4	1	1	1									
03	BHS3-LY02		11:15	WW	X		4	1	1	1									
04	BHS3-LINER		11:15	WW	X		4	1	1	1									
05	BHS3-ST2		10:55	WW	X		4	1	1	1									
06	BHS3-ST2-DUP		11:00	WW	X		4	1	1	1									
07	FB		11:25	R	X		4	1	1	1									
Containers Prepared/Relinquished: <i>[Signature]</i>		Date/Time: 12/10/14	Received: <i>[Signature]</i>		Date/Time: 1-30-14 10:30		Seal intact? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		Instructions / Remarks										
Relinquished: <i>[Signature]</i>		Date/Time: 1345 2/6/14	Received: <i>[Signature]</i>		Date/Time: 2-6-14 1345		Samples intact upon arrival? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Received on ice? Temp <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Proper preservatives indicated? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Rec'd within holding time? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Volatiles rec'd w/out headspace? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Proper containers used? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA												

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10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

February 26, 2014
Work Order: 1401480

Laboratory Report

Project Name		B-HS3 SE#7						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-STE						
Matrix		Wastewater						
SAL Sample Number		1401480-01						
Date/Time Collected		02/07/14 08:35						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
<u>Client Provided Field Data</u>								
pH		7.66						
Temperature		19.4 °C						
Conductivity		975 umhos						
Dissolved Oxygen		0.21 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	2.2	SM 4550SF	0.04	0.01	02/14/14 08:20	02/14/14 10:28	1
Ammonia as N	mg/L	40	EPA 350.1	2.0	0.47		02/21/14 15:12	50
Carbonaceous BOD	mg/L	87	SM 5210B	2	2	02/07/14 14:00	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	190	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	46	EPA 300.0	2.0	0.50		02/19/14 19:49	10
Nitrate (as N)	mg/L	0.04	EPA 300.0	0.04	0.01		02/08/14 06:20	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 06:20	1
Orthophosphate as P	mg/L	2.2	EPA 300.0	0.040	0.010		02/08/14 06:20	1
Phosphorous - Total as P	mg/L	3.5	SM 4500P-E	0.80	0.20	02/21/14 15:14	02/25/14 14:45	20
Sulfate	mg/L	19	EPA 300.0	0.60	0.20		02/08/14 06:20	1
Sulfide	mg/L	10	SM 4500SF	0.40	0.10		02/14/14 10:23	1
Total Alkalinity	mg/L	400	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	45	EPA 351.2	4.0	1.0	02/21/14 15:14	02/25/14 16:50	20
Total Suspended Solids	mg/L	22	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	22	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.04 I	EPA 300.0	0.08	0.02		02/08/14 06:20	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	10,000	SM 9223B	2.0	2.0	02/07/14 15:20	02/08/14 12:30	1
Fecal Coliforms	CFU/100 ml	125,000	SM 9222D	1	1	02/07/14 15:15	02/08/14 13:25	1

Sample Description **BHS3-LY01**
 Matrix **Wastewater**
 SAL Sample Number **1401480-02**
 Date/Time Collected **02/07/14 08:40**
 Collected by **Josefin Hirst**
 Date/Time Received **02/07/14 13:45**

Client Provided Field Data

pH 6.49
 Temperature 15.8 °C
 Conductivity 497 umhos
 Dissolved Oxygen 7.45 mg/L

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Laboratory Report

Project Name		B-HS3 SE#7						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY01						
Matrix		Wastewater						
SAL Sample Number		1401480-02						
Date/Time Collected		02/07/14 08:40						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/21/14 15:14	1
Chemical Oxygen Demand	mg/L	23 I	EPA 410.4	25	10	02/11/14 11:46	02/11/14 14:49	1
Chloride	mg/L	30	EPA 300.0	0.20	0.050		02/08/14 06:29	1
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		02/08/14 06:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 06:29	1
Orthophosphate as P	mg/L	0.12	EPA 300.0	0.040	0.010		02/08/14 06:29	1
Phosphorous - Total as P	mg/L	0.14	SM 4500P-E	0.040	0.010	02/21/14 15:14	02/25/14 14:45	1
Sulfate	mg/L	24	EPA 300.0	0.60	0.20		02/08/14 06:29	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	02/21/14 15:14	02/25/14 16:50	1
Total Suspended Solids	mg/L	3	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	2	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	10	EPA 300.0	0.08	0.02		02/08/14 06:29	1
Sample Description		BHS3-LY02						
Matrix		Wastewater						
SAL Sample Number		1401480-03						
Date/Time Collected		02/07/14 08:30						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
<u>Client Provided Field Data</u>								
pH		6.41						
Temperature		14.6 °C						
Conductivity		854 umhos						
Dissolved Oxygen		5.59 mg/L						
<u>Inorganics</u>								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/21/14 15:16	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/12/14 12:30	02/12/14 15:00	1
Chloride	mg/L	45	EPA 300.0	0.20	0.050		02/08/14 06:39	1
Nitrate (as N)	mg/L	35	EPA 300.0	0.04	0.01		02/08/14 06:39	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 06:39	1
Orthophosphate as P	mg/L	2.6	EPA 300.0	0.040	0.010		02/08/14 06:39	1
Phosphorous - Total as P	mg/L	2.8	SM 4500P-E	0.080	0.020	02/21/14 15:14	02/25/14 14:45	2
Sulfate	mg/L	54	EPA 300.0	0.60	0.20		02/08/14 06:39	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.40	0.10	02/21/14 15:14	02/25/14 16:50	2
Total Suspended Solids	mg/L	2	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1

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Project Name		B-HS3 SE#7						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-LY02						
Matrix		Wastewater						
SAL Sample Number		1401480-03						
Date/Time Collected		02/07/14 08:30						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
Nitrate+Nitrite (N)	mg/L	35	EPA 300.0	0.08	0.02		02/08/14 06:39	1
Sample Description		BHS3-LINER						
Matrix		Wastewater						
SAL Sample Number		1401480-04						
Date/Time Collected		02/07/14 08:45						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
<u>Client Provided Field Data</u>								
pH		6.65						
Temperature		18.1 °C						
Conductivity		632 umhos						
Dissolved Oxygen		1.97 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	1.1	SM 4550SF	0.04	0.01	02/14/14 08:20	02/14/14 10:28	1
Ammonia as N	mg/L	0.058	EPA 350.1	0.040	0.009		02/21/14 15:18	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/07/14 14:00	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10	02/12/14 12:30	02/12/14 15:00	1
Chloride	mg/L	36	EPA 300.0	2.0	0.50		02/20/14 08:14	10
Nitrate (as N)	mg/L	5.9	EPA 300.0	0.04	0.01		02/08/14 06:48	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 06:48	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 06:48	1
Phosphorous - Total as P	mg/L	0.11	SM 4500P-E	0.040	0.010	02/21/14 15:14	02/25/14 14:45	1
Sulfate	mg/L	21	EPA 300.0	0.60	0.20		02/08/14 06:48	1
Sulfide	mg/L	1.6	SM 4500SF	0.40	0.10		02/14/14 10:23	1
Total Alkalinity	mg/L	260	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	02/21/14 15:14	02/25/14 16:50	1
Total Suspended Solids	mg/L	9	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	8	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	5.9	EPA 300.0	0.08	0.02		02/08/14 06:48	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/07/14 15:20	02/08/14 12:30	1
Fecal Coliforms	CFU/100 ml	6,800	SM 9222D	1	1	02/07/14 15:15	02/08/14 13:25	1

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Project Name		B-HS3 SE#7						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2						
Matrix		Wastewater						
SAL Sample Number		1401480-05						
Date/Time Collected		02/07/14 08:20						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
<u>Client Provided Field Data</u>								
pH		7.12						
Temperature		18.9 °C						
Conductivity		800 umhos						
Dissolved Oxygen		0.40 mg/L						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	2.2	SM 4550SF	0.04	0.01	02/14/14 08:20	02/14/14 10:28	1
Ammonia as N	mg/L	0.39	EPA 350.1	0.040	0.009		02/21/14 15:20	1
Carbonaceous BOD	mg/L	10	SM 5210B	2	2	02/07/14 14:00	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/12/14 12:30	02/12/14 15:00	1
Chloride	mg/L	37	EPA 300.0	2.0	0.50		02/20/14 08:23	10
Nitrate (as N)	mg/L	0.09	EPA 300.0	0.04	0.01		02/08/14 06:57	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 06:57	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 06:57	1
Phosphorous - Total as P	mg/L	0.050 U	SM 4500P-E	0.20	0.050	02/21/14 15:14	02/25/14 14:45	5
Sulfate	mg/L	120	EPA 300.0	6.0	2.0		02/20/14 08:23	10
Sulfide	mg/L	4.8	SM 4500SF	0.40	0.10		02/14/14 10:23	1
Total Alkalinity	mg/L	280	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	0.94 I	EPA 351.2	1.0	0.25	02/21/14 15:14	02/25/14 16:50	5
Total Suspended Solids	mg/L	5	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.09	EPA 300.0	0.08	0.02		02/08/14 06:57	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/07/14 15:20	02/08/14 12:30	1
Fecal Coliforms	CFU/100 ml	300	SM 9222D	1	1	02/07/14 15:15	02/08/14 13:25	1

Sample Description **BHS3-ST2-DUP**
 Matrix **Wastewater**
 SAL Sample Number **1401480-06**
 Date/Time Collected **02/07/14 08:25**
 Collected by **Josefin Hirst**
 Date/Time Received **02/07/14 13:45**

Client Provided Field Data

pH 7.12
 Temperature 18.9 °C
 Conductivity 800 umhos
 Dissolved Oxygen 0.40 mg/L

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Laboratory Report

Project Name		B-HS3 SE#7						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		BHS3-ST2-DUP						
Matrix		Wastewater						
SAL Sample Number		1401480-06						
Date/Time Collected		02/07/14 08:25						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	2.4	SM 4550SF	0.04	0.01	02/14/14 08:20	02/14/14 10:28	1
Ammonia as N	mg/L	0.42	EPA 350.1	0.040	0.009		02/21/14 15:22	1
Carbonaceous BOD	mg/L	11	SM 5210B	2	2	02/07/14 14:00	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/12/14 12:30	02/12/14 15:00	1
Chloride	mg/L	37	EPA 300.0	2.0	0.50		02/19/14 20:17	10
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 07:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 07:07	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 07:07	1
Phosphorous - Total as P	mg/L	0.050 U	SM 4500P-E	0.20	0.050	02/21/14 15:14	02/25/14 14:45	5
Sulfate	mg/L	120	EPA 300.0	6.0	2.0		02/19/14 20:17	10
Sulfide	mg/L	5.2	SM 4500SF	0.40	0.10		02/14/14 10:23	1
Total Alkalinity	mg/L	270	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	0.93 I	EPA 351.2	1.0	0.25	02/21/14 15:14	02/25/14 16:50	5
Total Suspended Solids	mg/L	4	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/08/14 07:07	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	41	SM 9223B	2.0	2.0	02/07/14 15:20	02/08/14 12:30	1
Fecal Coliforms	CFU/100 ml	100	SM 9222D	1	1	02/07/14 15:15	02/08/14 13:25	1

Sample Description **EB**
 Matrix **Reagent Water**
 SAL Sample Number **1401480-07**
 Date/Time Collected **02/07/14 08:50**
 Collected by **Josefin Hirst**
 Date/Time Received **02/07/14 13:45**

Client Provided Field Data

pH 5.40
 Temperature 17.5 °C
 Conductivity 6.45 umhos
 Dissolved Oxygen 8.32 mg/L

<u>Inorganics</u>								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	02/14/14 08:20	02/14/14 10:28	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		02/21/14 15:24	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	02/07/14 14:00	02/12/14 09:03	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	02/12/14 12:30	02/12/14 15:00	1

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Laboratory Report

Project Name		B-HS3 SE#7						
Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		EB						
Matrix		Reagent Water						
SAL Sample Number		1401480-07						
Date/Time Collected		02/07/14 08:50						
Collected by		Josefin Hirst						
Date/Time Received		02/07/14 13:45						
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		02/08/14 07:16	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 07:16	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		02/08/14 07:16	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		02/08/14 07:16	1
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	02/21/14 15:14	02/25/14 14:45	1
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		02/08/14 07:16	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		02/14/14 10:23	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		02/20/14 14:45	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	02/21/14 15:14	02/25/14 16:50	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	02/10/14 10:02	02/12/14 11:44	1
Volatile Suspended Solids	mg/L	1 U	EPA 160.4	1	1	02/10/14 10:02	02/12/14 11:44	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		02/08/14 07:16	1
<u>Microbiology</u>								
E. Coli	MPN/100 mL	2.0 U	SM 9223B	2.0	2.0	02/07/14 15:20	02/08/14 12:30	1
Fecal Coliforms	CFU/100 ml	1	SM 9222D	1	1	02/07/14 15:15	02/08/14 13:25	1

SOUTHERN ANALYTICAL LABORATORIES, INC.

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40716 - BOD										
Blank (BB40716-BLK1)					Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BB40716-BLK2)					Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BB40716-BS1)					Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	193	2	2	mg/L	200		97	85-115		
LCS (BB40716-BS2)					Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	182	2	2	mg/L	200		91	85-115		
LCS Dup (BB40716-BSD1)					Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	185	2	2	mg/L	200		92	85-115	4	200
LCS Dup (BB40716-BSD2)					Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	189	2	2	mg/L	200		94	85-115	4	200
Duplicate (BB40716-DUP1)					Source: 1401420-05 Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	17	2	2	mg/L		18			7	25
Duplicate (BB40716-DUP2)					Source: 1401481-05 Prepared: 02/07/14 Analyzed: 02/12/14					
Carbonaceous BOD	16	2	2	mg/L		17			6	25
Batch BB40723 - Ion Chromatography 300.0 Prep										
Blank (BB40723-BLK1)					Prepared & Analyzed: 02/08/14					
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						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
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		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40723 - Ion Chromatography 300.0 Prep										
LCS (BB40723-BS1)					Prepared & Analyzed: 02/08/14					
Sulfate	9.20	0.60	0.20	mg/L	9.0		102	85-115		
Nitrate (as N)	1.75	0.04	0.01	mg/L	1.7		103	85-115		
Nitrite (as N)	1.50	0.04	0.01	mg/L	1.4		107	85-115		
Orthophosphate as P	0.823	0.040	0.010	mg/L	0.90		91	85-115		
Chloride	3.06	0.20	0.050	mg/L	3.0		102	85-115		
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 Dup (BB40723-BSD1)					Prepared & Analyzed: 02/08/14					
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115	3	200
Orthophosphate as P	0.812	0.040	0.010	mg/L	0.90		90	85-115	1	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	6	200
Sulfate	8.94	0.60	0.20	mg/L	9.0		99	85-115	3	200
Chloride	2.98	0.20	0.050	mg/L	3.0		99	85-115	3	200
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		
Matrix Spike (BB40723-MS1)					Source: 1401481-03		Prepared & Analyzed: 02/08/14			
Sulfate	33.0	0.60	0.20	mg/L	9.0	23.9	100	85-115		
Nitrite (as N)	2.32	0.04	0.01	mg/L	1.4	0.876	104	85-115		
Nitrate (as N)	7.78	0.04	0.01	mg/L	1.7	5.92	110	85-115		
Chloride	30.0 L	0.20	0.050	mg/L	3.0	81.0	NR	80-120		
Orthophosphate as P	1.44	0.040	0.010	mg/L	0.90	0.494	105	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		

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February 26, 2014
Work Order: 1401480

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch BB40723 - Ion Chromatography 300.0 Prep

Matrix Spike (BB40723-MS2)		Source: 1401482-05			Prepared & Analyzed: 02/08/14					
Orthophosphate as P	4.48	0.040	0.010	mg/L	0.90	3.58	100	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4	ND	100	85-115		
Sulfate	29.5	0.60	0.20	mg/L	9.0	20.8	97	85-115		
Chloride	30.0 L	0.20	0.050	mg/L	3.0	71.6	NR	80-120		
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7	0.0720	97	85-115		
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		

Batch BB41131 - COD prep

Blank (BB41131-BLK1)		Prepared & Analyzed: 02/11/14								
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BB41131-BS1)		Prepared & Analyzed: 02/11/14								
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BB41131-MS1)		Source: 1401480-02			Prepared & Analyzed: 02/11/14					
Chemical Oxygen Demand	66	25	10	mg/L	50	23	86	85-115		
Matrix Spike Dup (BB41131-MSD1)		Source: 1401480-02			Prepared & Analyzed: 02/11/14					
Chemical Oxygen Demand	66	25	10	mg/L	50	23	86	85-115	0	32

Batch BB41224 - COD prep

Blank (BB41224-BLK1)		Prepared & Analyzed: 02/12/14								
Chemical Oxygen Demand	10 U	25	10	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB41224 - COD prep										
LCS (BB41224-BS1)					Prepared & Analyzed: 02/12/14					
Chemical Oxygen Demand	49	25	10	mg/L	50		98	90-110		
Matrix Spike (BB41224-MS1)					Source: 1401480-03 Prepared & Analyzed: 02/12/14					
Chemical Oxygen Demand	49	25	10	mg/L	50	ND	98	85-115		
Matrix Spike Dup (BB41224-MSD1)					Source: 1401480-03 Prepared & Analyzed: 02/12/14					
Chemical Oxygen Demand	50	25	10	mg/L	50	ND	100	85-115	2	32
Batch BB41431 - Sulfide prep										
Blank (BB41431-BLK1)					Prepared & Analyzed: 02/14/14					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BB41431-BS1)					Prepared & Analyzed: 02/14/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0		93	85-115		
Matrix Spike (BB41431-MS1)					Source: 1401480-07 Prepared & Analyzed: 02/14/14					
Sulfide	4.64	0.40	0.10	mg/L	5.0	ND	93	85-115		
Matrix Spike Dup (BB41431-MSD1)					Source: 1401480-07 Prepared & Analyzed: 02/14/14					
Sulfide	4.84	0.40	0.10	mg/L	5.0	ND	97	85-115	4	14
Batch BB41709 - VSS Prep										
Blank (BB41709-BLK1)					Prepared: 02/10/14 Analyzed: 02/12/14					
Total Suspended Solids	1 U	1	1	mg/L						
Volatile Suspended Solids	1 U	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 BB41709 - VSS Prep										
LCS (BB41709-BS1)					Prepared: 02/10/14 Analyzed: 02/12/14					
Total Suspended Solids	48.5	1	1	mg/L	50		97	85-115		
Duplicate (BB41709-DUP1)					Source: 1401420-03 Prepared: 02/10/14 Analyzed: 02/12/14					
Volatile Suspended Solids	2.00	1		mg/L		2.00			0	20
Total Suspended Solids	2.00	1	1	mg/L		2.00			0	30
Batch BB41824 - Ion Chromatography 300.0 Prep										
Blank (BB41824-BLK1)					Prepared & Analyzed: 02/19/14					
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
LCS (BB41824-BS1)					Prepared & Analyzed: 02/19/14					
Sulfate	8.92	0.60	0.20	mg/L	9.0		99	85-115		
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115		
Surrogate: Dichloroacetate	1.04			mg/L	1.0		104	90-115		
Surrogate: Dichloroacetate	1.04			mg/L	1.0		104	90-115		
LCS Dup (BB41824-BSD1)					Prepared & Analyzed: 02/19/14					
Sulfate	9.13	0.60	0.20	mg/L	9.0		101	85-115	2	200
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115	0.8	200
Surrogate: Dichloroacetate	1.07			mg/L	1.0		107	90-115		
Surrogate: Dichloroacetate	1.07			mg/L	1.0		107	90-115		
Matrix Spike (BB41824-MS1)					Source: 1401759-01 Prepared & Analyzed: 02/19/14					
Chloride	16.8	0.20	0.050	mg/L	3.0	13.5	109	80-120		
Sulfate	82.3	0.60	0.20	mg/L	9.0	72.4	110	85-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	90-115		
Surrogate: Dichloroacetate	1.06			mg/L	1.0		106	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 BB41824 - Ion Chromatography 300.0 Prep										
Matrix Spike (BB41824-MS2)		Source: 1401782-02			Prepared & Analyzed: 02/19/14					
Chloride	17,400	200	50	mg/L	3000	14100	109	80-120		
Sulfate	10,500	600	200	mg/L	9000	1670	98	85-115		
Surrogate: Dichloroacetate	1.03			mg/L	1.0		103	90-115		
Surrogate: Dichloroacetate	1.03			mg/L	1.0		103	90-115		
Batch BB41944 - alkalinity										
Blank (BB41944-BLK1)		Prepared & Analyzed: 02/20/14								
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BB41944-BS1)		Prepared & Analyzed: 02/20/14								
Total Alkalinity	120	8.0	2.0	mg/L	120		99	90-110		
Matrix Spike (BB41944-MS1)		Source: 1401481-02			Prepared & Analyzed: 02/20/14					
Total Alkalinity	340	8.0	2.0	mg/L	120	210	99	80-120		
Matrix Spike Dup (BB41944-MSD1)		Source: 1401481-02			Prepared & Analyzed: 02/20/14					
Total Alkalinity	340	8.0	2.0	mg/L	120	210	99	80-120	0	26
Batch BB42102 - Ammonia by SEAL										
Blank (BB42102-BLK1)		Prepared & Analyzed: 02/21/14								
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BB42102-BS1)		Prepared & Analyzed: 02/22/14								
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		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 BB42102 - Ammonia by SEAL										
Matrix Spike (BB42102-MS1)		Source: 1401480-07			Prepared & Analyzed: 02/21/14					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	ND	103	90-110		
Matrix Spike (BB42102-MS2)		Source: 1401818-07			Prepared & Analyzed: 02/21/14					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.038	98	90-110		
Matrix Spike Dup (BB42102-MSD1)		Source: 1401480-07			Prepared & Analyzed: 02/21/14					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	ND	108	90-110	5	10
Matrix Spike Dup (BB42102-MSD2)		Source: 1401818-07			Prepared & Analyzed: 02/21/14					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.038	108	90-110	9	10
Batch BB42128 - Digestion for TP and TKN										
Blank (BB42128-BLK1)					Prepared: 02/21/14 Analyzed: 02/25/14					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BB42128-BS1)					Prepared: 02/21/14 Analyzed: 02/25/14					
Phosphorous - Total as P	0.469	0.040	0.010	mg/L	0.50		94	90-110		
Total Kjeldahl Nitrogen	0.967	0.20	0.05	mg/L	1.0		97	90-110		
Matrix Spike (BB42128-MS1)		Source: 1401480-07			Prepared: 02/21/14 Analyzed: 02/25/14					
Total Kjeldahl Nitrogen	0.983	0.20	0.05	mg/L	1.0	ND	98	90-110		
Phosphorous - Total as P	0.488	0.040	0.010	mg/L	0.50	ND	98	90-110		
Matrix Spike (BB42128-MS2)		Source: 1401750-01			Prepared: 02/21/14 Analyzed: 02/25/14					
Phosphorous - Total as P	0.470	0.040	0.010	mg/L	0.50	ND	94	90-110		
Total Kjeldahl Nitrogen	0.998	0.20	0.05	mg/L	1.0	ND	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 BB42128 - Digestion for TP and TKN										
Matrix Spike Dup (BB42128-MSD1)		Source: 1401480-07			Prepared: 02/21/14 Analyzed: 02/25/14					
Phosphorous - Total as P	0.466	0.040	0.010	mg/L	0.50	ND	93	90-110	4	25
Total Kjeldahl Nitrogen	0.949	0.20	0.05	mg/L	1.0	ND	95	90-110	3	20
Matrix Spike Dup (BB42128-MSD2)		Source: 1401750-01			Prepared: 02/21/14 Analyzed: 02/25/14					
Total Kjeldahl Nitrogen	0.960	0.20	0.05	mg/L	1.0	ND	96	90-110	4	20
Phosphorous - Total as P	0.480	0.040	0.010	mg/L	0.50	ND	96	90-110	2	25

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Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BB40725 - FC-MF										
Blank (BB40725-BLK1)					Prepared: 02/07/14 Analyzed: 02/08/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BB40725-DUP1)					Source: 1401480-07 Prepared: 02/07/14 Analyzed: 02/08/14					
Fecal Coliforms	1 U	1	1	CFU/100 ml		1.00				200

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*** Qualifiers, Notes and Definitions**

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

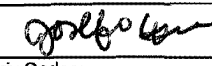
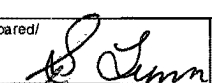
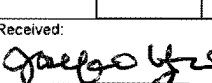
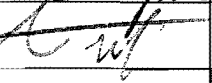

Questions regarding this report should be directed to :

Kathryn Nordmark

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Kathryn@southernanalyticalabs.com



Client Name Hazan and Sawyer										Contact / Phone: Josefin Hirst 813-630-4498									
Project Name / Location BHS3 SE#7																			
Samplers: (Signature) 										PARAMETER / CONTAINER DESCRIPTION									
Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water		Date	Time	Matrix	Composite	Grab	125mLP, Na ₂ S ₂ O ₃ FC-MF, FC-QT	TLP, Cool Total Alkalinity, TSS, VSS, CBOD, NOx, Cl, OP, SO ₄	125mLP, H ₂ SO ₄ COD, TKN, NH ₃ , TP	500mLP, NaOH, Zn Acetate H ₂ S					DO	pH	Temperature	Conductivity	
SAL Use Only Sample No.	Sample Description																		
01	BHS3-STE	2/7/14	8:35	WW		X	4	1	1	1					0.21	7.66	19.4	975	
02	BHS3-LY01	↓	8:40	WW		X	40	1	1	1					7.45	6.49	15.8	497	
03	BHS3-LY02		8:30	WW		X	40	1	1	1					5.54	6.41	14.6	854	
04	BHS3-LINER		8:45	WW		X	4	1	1	1					1.97	6.65	18.1	632	
05	BHS3-ST2		8:20	WW		X	4	1	1	1					0.40	7.12	18.9	800	
06	BHS3-ST2-DUP		8:25	WW		X	4	1	1	1					0.40	7.12	18.9	800	
07	EB		8:50	R		X	4	1	1	1					8.32	5.40	17.5	6.45	
Containers Prepared/Relinquished:		Date/Time:	Received:		Date/Time:		Seal intact? <input checked="" type="radio"/> N <input type="radio"/> NA												
Relinquished: 		1/29 11:25 AM	Received: 		1-30-14 10:30		Samples intact upon arrival? <input checked="" type="radio"/> N <input type="radio"/> NA												
Relinquished: 		2/13/14	Received: 		2-7-14 1345		Received on ice? Temp <input checked="" type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Proper preservatives indicated? <input checked="" type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Rec'd within holding time? <input checked="" type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Volatiles rec'd w/out headspace? Y <input checked="" type="radio"/> N <input type="radio"/> NA												
Relinquished:		Date/Time:	Received:		Date/Time:		Proper containers used? <input checked="" type="radio"/> N <input type="radio"/> NA												
Instructions / Remarks																			



Appendix B: Operation & Maintenance Log

Table B.1
Operation and Maintenance Log

Date	Description
7/25/2011	C-HS2 Groundwater Sample Event 1
11/30/2011	C-HS2 Groundwater Sample Event 2
3/13/2012	C-HS2 Groundwater Sample Event 3
7/10/2012	C-HS2 Groundwater Sample Event 4
6/14/2013	PNRS Pre-construction sample event
6/17/2013	PNRS construction. Old septic tank removed, new septic tank installed
	Stage 2 biofilter installed
6/18/2013	PNRS construction - backfill to set tanks, anchor trench for liner area
6/19/2013	PNRS construction - liner installed by Comanco
	Ligno and sand 50/50 filled to toe of lined area, fill dirt to grade
6/24/2013	New piezometers PZ-07, PZ-08, and PZ-09 installed and developed
	4 Lysimeters installed
6/26/2013	Both drip systems covered
7/9/2013	Electrician installed panel for system
7/11/2013	Electrician set up panel for hydraulic unit
	Dose times and volumes set
7/12/2013	System start-up
	Installed priming tee on pump. Installed reclaimed water flowmeter
7/17/2013	System check
7/22/2013	Repaired leaks in feed and return lines
	Installed new fittings for air release valves
7/29/2013	System check
7/31/2013	Sod installation
8/15/2013	Preliminary SE#1
9/5/2013	Checked system
9/8/2013	Homeowner reported alarm went off at 9 pm
9/9/2013	System check - high water level in STE dose tank
	Both filters severely clogged - not able to dose
9/10/2013	System check, still high alarm - high water level in STE dose tank

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Date	Description
9/10/2013	Not able to fix system - need replacement part for hydraulic unit
	Septic tank was pumped at 4 pm
9/11/2013	Homeowner reported no alarms
9/13/2013	System check
9/17/2013	Installed replacement solenoid coil on backwash filter valve #2
	System operational again, septic tank very low volume
9/27/2013	SE#1 prep
	Applied vacuum to lysimeters
	Cleaned STE outlet filter screen
9/30/2013	Sample Event No. 1
10/11/2013	System check
	Uploaded new program
10/17/2013	System check
	Bio valve ahead of pump had sand under the diaphragm in valve
11/8/2013	System check
11/15/2013	System check
11/27/2013	System check
12/2/2013	Sample Event No. 2 preparation
12/4/2013	Sample Event No. 2
12/23/2013	System check
1/23/2014	System check
1/30/2014	Sample Event No. 3 preparation
2/3/2014	Sample Event No. 3
2/4/2014	Sample Event No. 4
2/5/2014	Sample Event No. 5
2/6/2014	Sample Event No. 6
2/7/2014	Sample Event No. 7



Appendix C: Weather Station Data

Table C.1
Weather Station Data

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Wind (mph)			Precip (in)
Dec	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	gust	sum
5	83	75	65	71	68	62	94	80	63	29.72	29.67	29.63	3	0	3	0
6	85	75	67	73	69	64	94	82	63	29.72	29.68	29.65	7	0	7	0
7	84	75	68	71	68	65	93	80	54	29.78	29.74	29.69	0	0	0	0
8	84	74	66	72	68	63	94	83	59	29.77	29.72	29.66	6	0	6	0
9	84	77	67	73	69	65	94	77	60	29.73	29.69	29.65	3	0	5	0
10	84	77	67	72	68	63	93	75	57	29.73	29.67	29.62	7	0	10	0
11	82	71	62	71	64	58	89	81	66	29.78	29.74	29.7	3	0	7	0
12	70	64	57	63	53	38	92	71	36	29.84	29.78	29.72	14	0	14	0
13	74	64	54	60	56	49	91	77	59	29.8	29.73	29.66	5	0	5	0
14	82	73	62	73	67	59	93	84	68	29.66	29.58	29.49	5	0	8	0
15	76	70	63	72	66	59	93	86	75	29.66	29.55	29.43	15	0	15	0.33
16	66	58	51	59	52	48	90	81	61	29.75	29.69	29.64	8	0	8	0
17	71	58	50	59	52	47	92	83	63	29.77	29.73	29.69	8	0	8	0
18	70	59	49	53	50	46	91	75	52	29.81	29.76	29.71	11	0	11	0
19	75	60	48	62	55	46	93	83	59	29.8	29.76	29.72	3	0	3	0
20	82	71	57	67	63	54	94	76	58	29.75	29.7	29.66	5	0	5	0
21	84	74	64	76	69	62	94	85	63	29.7	29.65	29.6	8	0	8	0
22	85	76	68	73	70	66	94	83	63	29.69	29.66	29.63	5	0	8	0
23	86	78	71	74	71	68	94	81	60	29.72	29.67	29.63	7	0	7	0
24	76	66	55	73	57	37	92	76	36	29.78	29.7	29.63	13	0	13	0.17
25	75	62	51	62	54	46	90	78	58	29.77	29.74	29.7	7	0	7	0
26	77	67	60	67	62	58	93	84	70	29.75	29.7	29.65	7	0	7	0
27	73	66	62	67	63	59	92	89	82	29.79	29.75	29.7	8	0	8	0
28	77	72	67	73	69	65	94	92	84	29.76	29.66	29.56	5	0	5	0.29
29	80	75	68	75	72	66	93	90	81	29.57	29.51	29.44	8	0	8	0.42
30	70	64	61	67	60	55	93	86	61	29.73	29.63	29.53	8	0	8	0
31	71	63	59	59	56	52	92	81	59	29.82	29.76	29.69	6	0	6	0

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Table C.1
Weather Station Data (continued)

2014 Jan	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Wind (mph)			Precip (in)
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	gust	
1	66	63	61	64	61	0	95	92	87	29.78	29.69	29.6	8	0	8	0.09
2	80	70	62	73	67	57	96	92	77	29.6	29.49	29.38	22	0	23	0.56
3	62	50	46	57	43	-28	90	75	51	29.89	27.12	24.36	18	1	21	0
4	67	58	49	61	55	45	92	88	79	29.76	29.69	29.61	7	0	7	0
5	80	70	60	71	65	58	93	85	66	29.63	29.56	29.5	6	0	6	0
6	78	64	46	69	57	33	94	80	59	29.8	29.64	29.48	17	2	17	0
7	50	43	36	37	31	22	84	64	42	29.89	29.83	29.78	10	1	14	0
8	67	55	41	58	50	36	91	81	63	29.9	29.85	29.8	5	0	7	0
9	71	65	59	68	63	56	94	92	86	29.83	29.78	29.74	5	0	5	0.04
10	81	73	68	73	69	66	96	88	70	29.75	29.68	29.61	0	0	3	0.01
11	84	75	70	74	70	64	95	84	62	29.68	29.57	29.46	16	1	16	8.95
12	70	63	53	68	54	44	93	75	45	29.73	29.62	29.52	14	0	14	0.01
13	78	64	51	67	59	49	94	83	65	29.69	29.6	29.51	8	0	8	0
14	74	70	62	69	66	59	92	87	77	29.56	29.5	29.44	9	0	13	0.03
15	66	61	56	59	54	48	92	78	56	29.58	29.52	29.47	9	0	10	0.04
16	58	52	46	55	41	33	92	68	42	29.67	29.58	29.48	18	1	18	0.15
17	65	53	40	52	43	-30	91	72	2	29.72	29.66	29.6	9	0	9	0
18	59	53	46	54	38	26	90	59	32	29.77	29.69	29.61	14	1	14	0
19	67	54	41	56	48	38	91	78	56	29.74	29.68	29.63	9	0	14	0
20	70	59	49	55	51	-6	94	76	48	29.67	29.61	29.56	10	0	10	0
21	74	63	58	62	58	50	91	82	61	29.57	29.45	29.33	22	1	24	0.03
22	58	50	44	49	37	33	81	61	44	29.7	29.57	29.43	15	1	15	0
23	61	51	39	44	39	32	89	65	39	29.86	29.76	29.67	9	0	9	0
24	57	50	46	43	38	27	83	65	38	29.96	29.87	29.78	12	0	12	0
25	70	57	47	53	49	42	92	74	51	29.79	29.67	29.55	11	0	11	0.01
26	70	63	56	63	58	50	91	84	74	29.61	29.56	29.51	7	0	7	0
27	75	67	63	67	64	61	93	88	75	29.57	29.52	29.47	11	0	11	0.66
28	80	70	61	66	63	58	93	81	62	29.59	29.55	29.5	6	0	9	0
29	68	54	48	64	51	46	95	92	89	29.72	29.61	29.51	12	0	12	0.54
30	53	50	47	52	49	45	96	95	94	29.69	29.66	29.62	11	0	11	0.42
31	63	57	51	62	56	50	96	96	95	29.66	29.61	29.57	8	0	8	0.55
2014 Feb	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Wind (mph)			Precip (in)
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	gust	
1	75	68	60	73	66	59	97	94	91	29.68	29.62	29.56	0	0	0	0.06
2	81	73	67	74	69	65	95	89	69	29.7	29.65	29.6	0	0	0	0
3	83	73	66	75	68	63	95	86	62	29.66	29.61	29.57	7	0	8	0.08
4	84	75	67	74	70	-3	95	85	3	30	29.78	29.57	5	0	5	0
5	85	77	71	74	72	69	93	84	66	29.61	29.56	29.51	12	0	12	0
6	75	63	53	72	59	0	93	87	74	29.71	29.65	29.58	16	0	16	0.19
7	60	57	53	58	56	51	95	94	92	29.71	29.67	29.63	10	0	10	0.2
8	60	59	57	59	57	55	95	94	93	29.69	29.64	29.58	0	0	8	0.31