FLORIDA DEPARTMENT OF HEALTH

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.23

C-HS2 Instrumentation Report

Progress Report

July 2011

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Environmental Engineers & Scientists

In association with

SCHOOL OF MINES 1874 COLORADO

AET
Applied Environmental Technology

OTIS ENVIRONMENTAL CONSULTANTS, LLC

Florida Onsite Sewage Nitrogen Reduction Strategies Study

TASK C.23
PROGRESS REPORT

C-HS2 Instrumentation Report

Prepared for:

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Division of Environmental Health
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C-HS2 Instrumentation Report

1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. This report documents the progress for instrumentation of the second Task C home site (C-HS2) located in Seminole County, Florida.

2.0 Site Description

The C-HS2 field site is located in Seminole County, FL in a neighborhood less than a mile from the Little Wekiva River. The site has a single residence currently being upgraded from a 4 to 5 bedroom, and 4.5 to 5.5 bathroom house and is home to 2 adults. The onsite sewage treatment and disposal system (OSTDS) for the residence consists of a 1,050 gallon fiberglass baffled septic tank located adjacent to the drainfield mound and has a gravity fed standard bed mounded drainfield.

3.0 Installation of Monitoring Points

An initial site investigation was conducted June 1-2, 2011 to determine groundwater flow direction and to identify the OSTDS plume. Six standpipe piezometers were installed in the vicinity of the drainfield mound and the property corners with a hand auger to determine the groundwater flow direction. Soil descriptions were noted and samples collected during augering. These standpipe piezometers consist of ¾-inch diameter PVC with 5-foot screen (0.01-inch slots). Once a piezometer was in place, 20/30 grade silica sand was poured around the piezometer to a height above the piezometer screen. Approximately 6 to 12 inches of bentonite was placed above the sand pack. Native soil was used to fill the remainder of the borehole around the piezometer. A 7-inch diameter irrigation cover was installed over each standpipe piezometer to protect the monitoring point and decrease disturbance to the homeowner.

Groundwater levels were measured using a flat tape water level meter graduated in feet (measurement accuracy is 0.01 feet). Elevations are relative to a benchmark established onsite and not mean sea level. Table 1 summarizes the piezometer survey information and initial groundwater elevations recorded enabling a determination of groundwater flow direction. As depicted in Figure 1, the general groundwater flow direction was to the southwest.

Table 1
Site C-HS2 Piezometers Installed June 1 - 2, 2011

	Identification	Type of Monitoring Point	Top Elevation (feet)	Bottom Elevation (feet)	Groundwater Elevation June 2, 2011
1	BKG01-7	3/4" Standpipe Piezometer, 5' screen	96.11	88.93	91.65
2	BKG02-6	3/4" Standpipe Piezometer, 5' screen	94.48	88.20	91.46
3	BKG03-7	3/4" Standpipe Piezometer, 5' screen	93.52	86.56	90.81
4	BKG04-7	3/4" Standpipe Piezometer, 5' screen	96.00	88.94	92.83
5	BKG05-8	3/4" Standpipe Piezometer, 5' screen	95.21	87.26	92.02
6	BKG06-12	3/4" Standpipe Piezometer, 5' screen	99.55	87.93	91.82

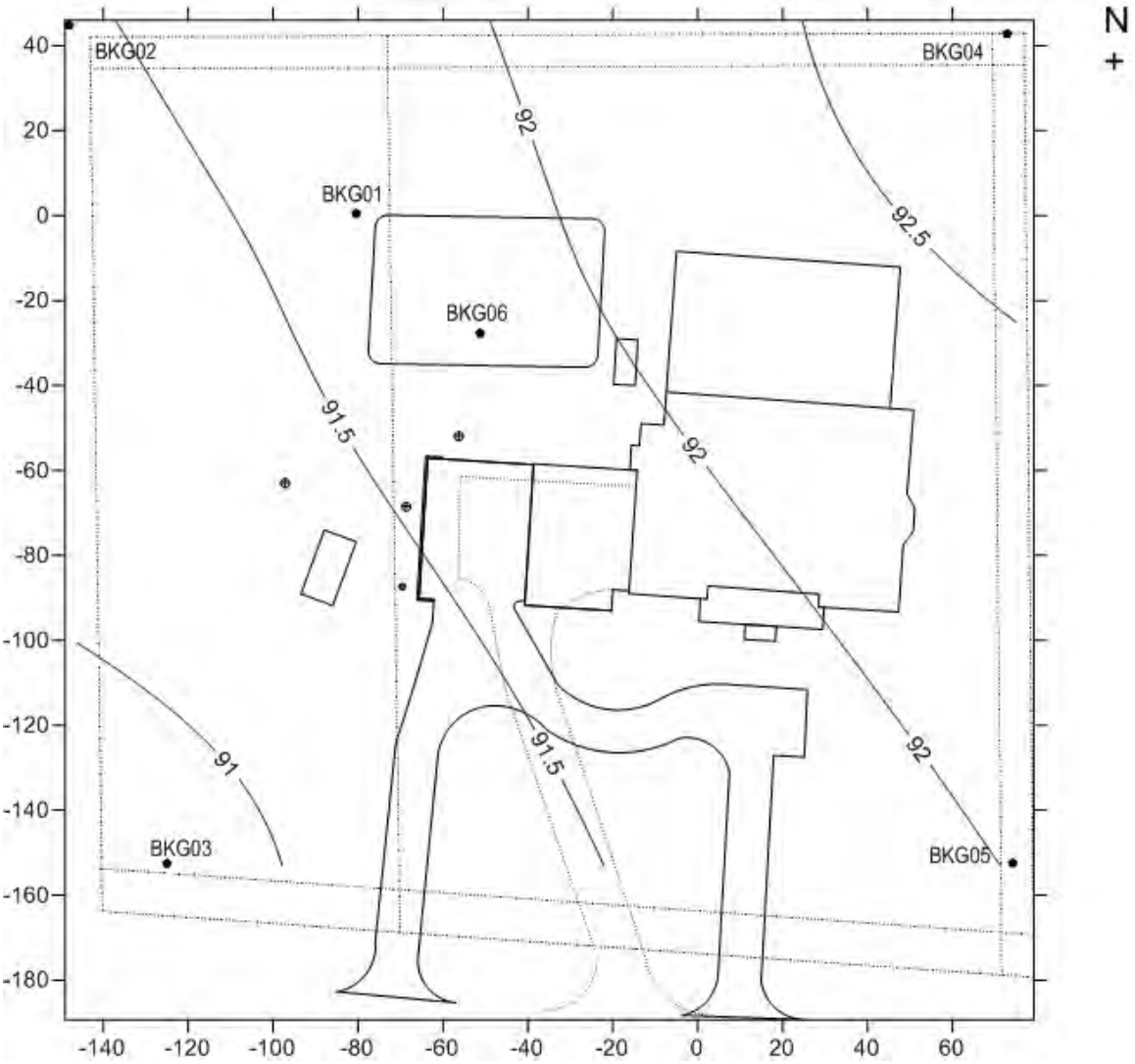


Figure 1
Surficial Groundwater Contours June 2, 2011

During the early June site visit, the OSTDS plume was also located using a push-pull sampler to obtain groundwater samples screened for conductivity from eleven locations around the drainfield mound as shown in Figure 2. Initially, samples were taken from more than one depth at each location, these groundwater profiles indicated that the highest conductivity was in the top portion of the groundwater. In order to sample more locations during the site visit, only the top depth of the groundwater was sampled at several locations. Appendix A summarizes the field measurements taken at the push-pull sampler locations and the standpipe piezometers including: temperature, pH, specif-

ic conductance, and dissolved oxygen concentrations as well as approximate nitrate and nitrite test strip measurements. The highest conductivity and nitrate test strip readings were near the southern edge of the mound at the PP04, PP08 and PP09 locations approximately 6-feet below grade.

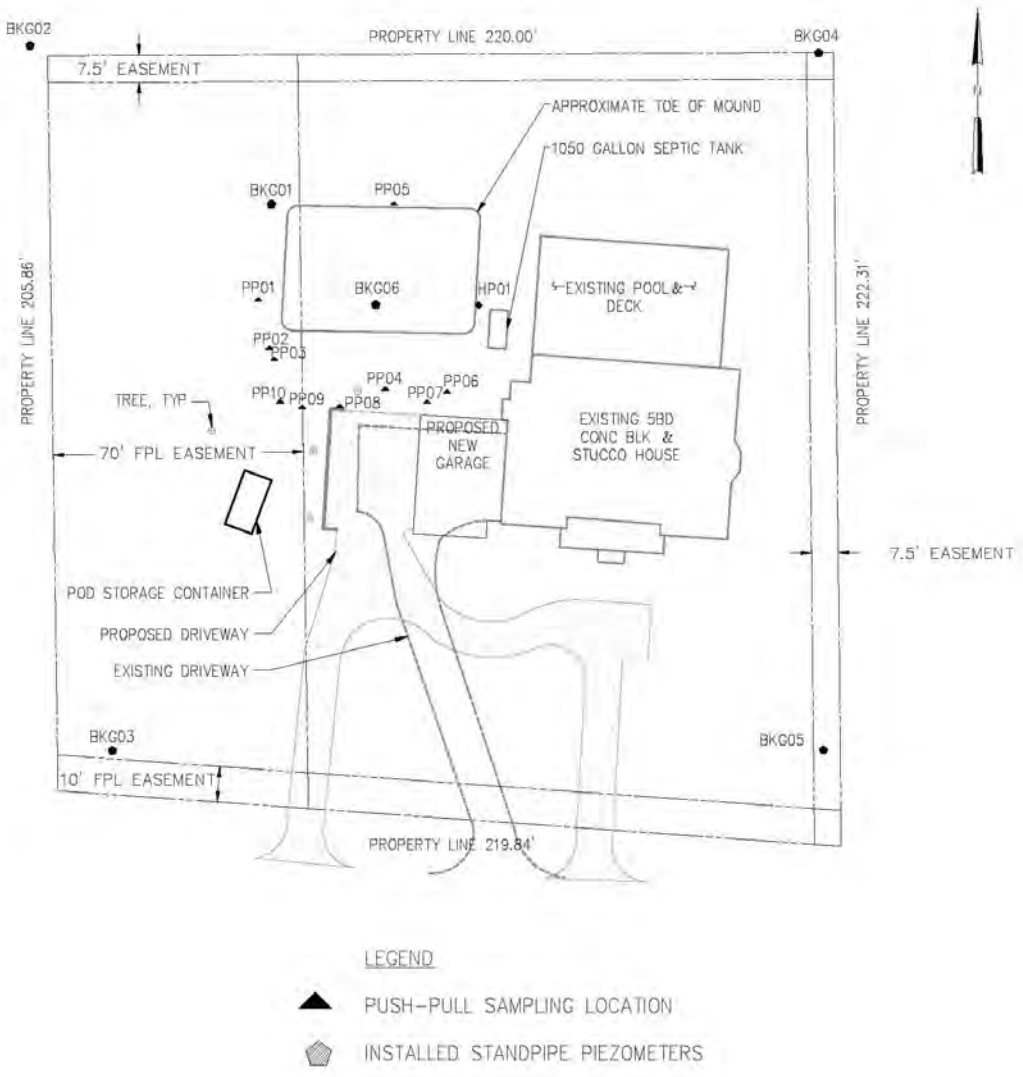


Figure 2
C-HS2 Site Plan

Based on the groundwater flow direction and initial groundwater sampling data, a sampling grid for groundwater screening was developed downgradient of the soil treatment unit. On July 7, 2011, a 10-foot by 40-foot grid was staked then locations surveyed (x, y, and z). Transect lines A through D were located perpendicular to the groundwater flow direction (southwest) and increase (higher letter identification) moving southward from the mound. Transect lines 0 through 15 (from east to west) were located parallel to the groundwater flow direction and increase moving from the southeast to northwest. Based on the initial site screening data, 18 monitoring locations were chosen within the grid for standpipe piezometer installation. Each monitoring location was assigned a unique identification indicating grid location (self explanatory), and depth below ground surface (bottom of the well screen in feet). For example A09-7 is a standpipe piezometer sampler located on the grid at A09 at 7 feet below ground surface.

During the July 7th site visit, the groundwater levels were measured in the previously installed piezometers. Although the groundwater table near the mound was approximately 2 feet lower on June 2, 2011 (Figure 1) than on July 7, 2011 (Figure 3), the direction of the groundwater flow was similar.

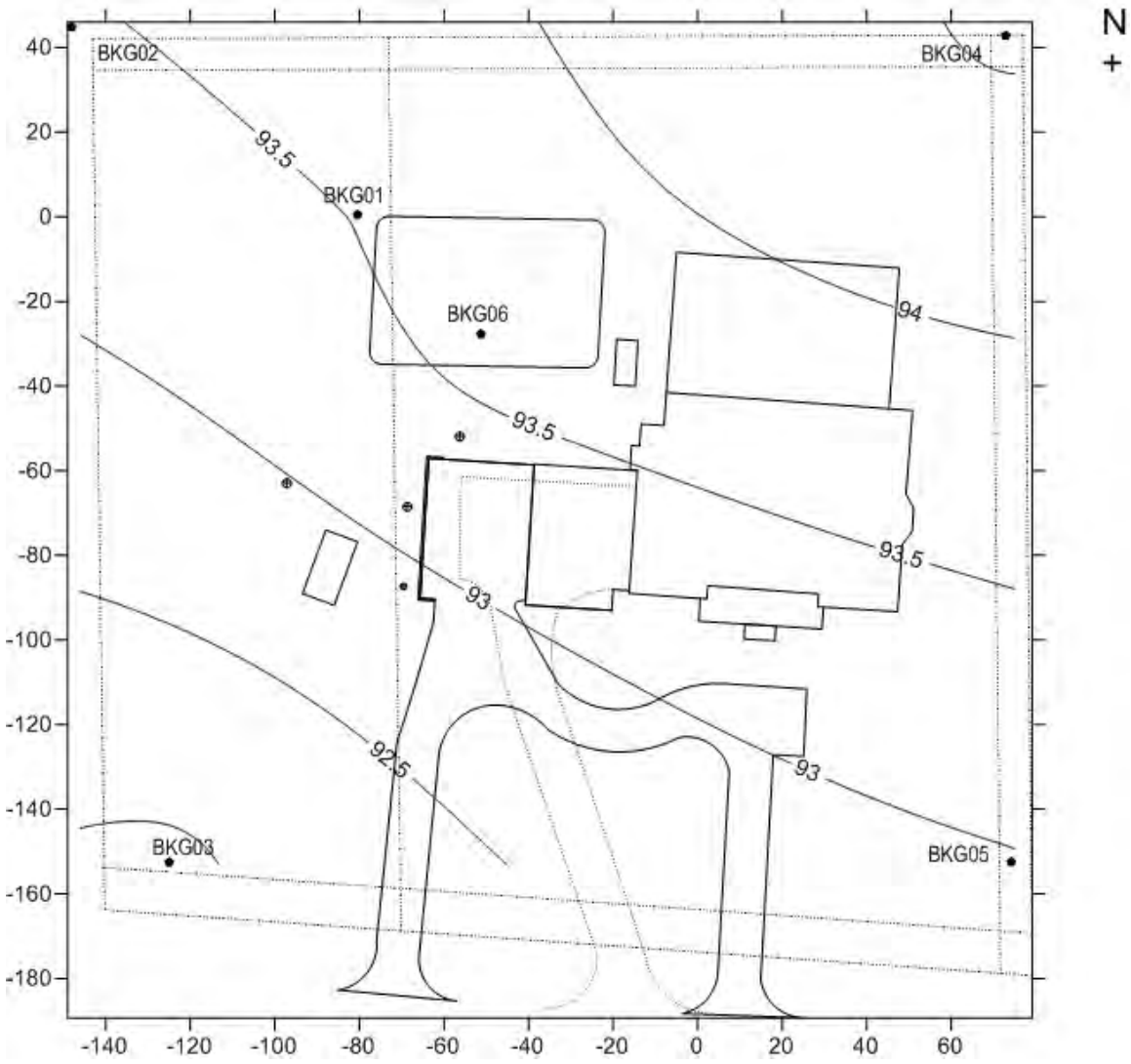


Figure 3
Surficial Groundwater Contours July 7, 2011

Mechling Engineering & Consulting, Inc. completed a soil and water assessment of the site during the week of July 11-15, 2011. Drilling services were provided by Environmental Drilling Service, Inc., Orlando, FL. Groundwater screening using a direct push drilling rig was conducted at four grid locations: A09, A11, B08 and C10. A ¾-inch diameter stainless steel screen covered by a screen sheath was placed via the direct push method at the screened intervals provided in Table 2.

Table 2
Groundwater Screening Intervals
Depth Below Land Surface (feet)

Location A09	Location A11	Location B08	Location C10
5-7	4-6	3-5	5-7
7-9	6-8	5-7	7-9
9-11	8-10	7-9	9-11
11-13	10-12	9-11	11-13
13-15	12-14	11-13	13-15
15-17	14-16	13-15	15-17

When the screen was located at the proper depth, the sheath was retracted to allow groundwater to flow into the screen. Groundwater samples were then collected with a peristaltic pump and dedicated polyethylene tubing as shown in Figures 4 and 5. Sample collection was performed in accordance with FDEP Standard Operating Procedures DEP-SOP-001/01 FS2200. Recorded groundwater field parameters including pH, temperature, conductivity, dissolved oxygen, turbidity, nitrate and nitrite are provided in Appendix B Table B.1. The groundwater sampling logs are also provided in Appendix B. In addition, samples at each depth were collected for laboratory analysis for chloride.

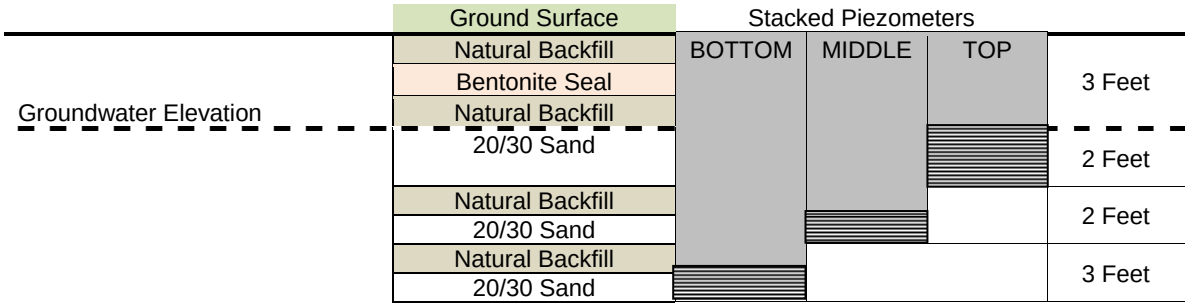
Figure 4
Photo of Groundwater Sample Collection

Figure 5
Photo of Groundwater Sample Collection

A Geoprobe™ rig was also used to install a total of 59 piezometers. Two of these piezometers (at B09 and B13 grid locations) were 2-inch diameter PVC piezometers with 5-foot screens (0.01-inch slots) installed primarily for slug testing to determine hydraulic conductivity.

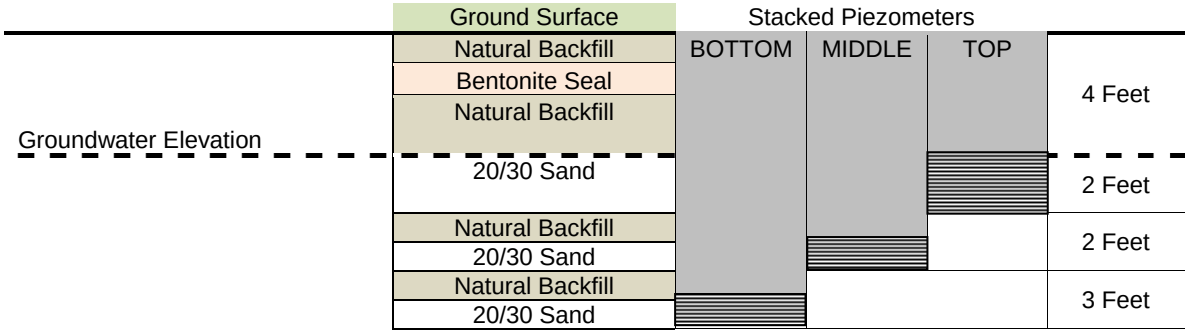
The remaining 57 piezometers were installed at 19 locations in nested clusters at various depths relative to the groundwater elevation as depicted in Figures 6, 7, 8 and 9. The Geoprobe™ rig was used to auger (4.25-inch inner diameter) to 7-feet below the top of the groundwater table. The piezometer nest was placed inside the hollow auger and completed with 20/30 grade silica sand around the screens, natural backfill in-between the screens, and a 1-foot bentonite seal topped off with native soil. To capture the expected groundwater fluctuations, (groundwater depth measurements taken on June 11th indicated that the groundwater table near the mound was approximately 2-feet higher than on June 2nd), a 2-foot screen was used in the shallow piezometer in each set of nested piezometers. The two deeper piezometers at each location had a 1-foot screen. The shallowest of the three nested piezometers at each location was positioned so that the top of the screen was within 6-inches of the groundwater table. A summary of the nested piezometer installations is as follows:

1. Top piezometer (2-foot screen) – bottom of screen 2-feet below top of groundwater table
2. Middle piezometer (1-foot screen) – bottom of screen 2-feet below bottom of "top piezometer" screen, and
3. Bottom piezometer (1-foot screen) – bottom of screen 3-feet below bottom of "middle piezometer" screen.



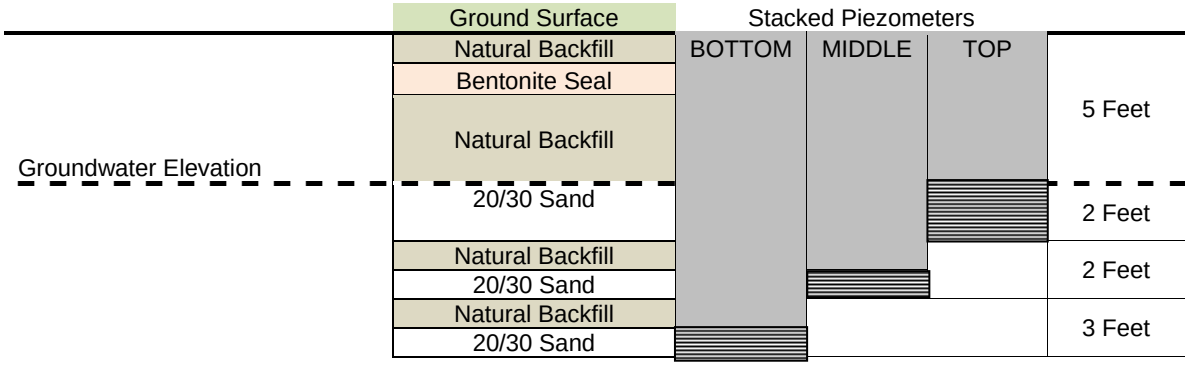
Configuration for grid locations: A11, A13, B08, B10, B15, C00, C04, C06, C08, C11, D04

Figure 6
Nested Standpipe Piezometers Configuration
Groundwater Table Elevation 3-feet BGS



Configuration for grid locations: A07, B02, B06, C10, D07

Figure 7
Nested Standpipe Piezometers Configuration
Groundwater Table Elevation 4-feet BGS



Configuration for grid locations: A09, A10

Figure 8
Nested Standpipe Piezometers Configuration
Groundwater Table Elevation 5-feet BGS

Figure 9
Photo of Nested Standpipe Piezometers Installed

Nested piezometers were placed at grid locations A--07, -09, -10, -11 and -13; B--2, -6, -8, -10 and -15; C--0, -4, -6, -8, -10 and -11; D--4.5 and -07; and at background location north of the grid and soil treatment unit, BKG07. A schematic of the C-HS2 monitoring

network is shown in Figure 10. Table 3 provides a complete list of all the standpipe piezometers installed July 12-15, 2011.

Table 3
Site C-HS2 Piezometers Installed July 12-15, 2011

	Identification	Type of Monitoring Point	Top Elevation (feet)	Bottom Elevation (feet)
1	C-HS2-A07-6	3/4" Standpipe Piezometer, 2' screen	97.33	91.67
2	C-HS2-A07-8	3/4" Standpipe Piezometer, 1' screen	97.34	89.69
3	C-HS2-A07-11	3/4" Standpipe Piezometer, 1' screen	97.33	86.78
4	C-HS2-A09-7	3/4" Standpipe Piezometer, 2' screen	98.23	91.34
5	C-HS2-A09-9	3/4" Standpipe Piezometer, 1' screen	98.22	89.01
6	C-HS2-A09-12	3/4" Standpipe Piezometer, 1' screen	98.22	86.47
7	C-HS2-A10-7	3/4" Standpipe Piezometer, 2' screen	97.63	90.76
8	C-HS2-A10-9	3/4" Standpipe Piezometer, 1' screen	97.65	88.84
9	C-HS2-A10-12	3/4" Standpipe Piezometer, 1' screen	97.65	85.65
10	C-HS2-A11-5	3/4" Standpipe Piezometer, 2' screen	96.45	91.46
11	C-HS2-A11-7	3/4" Standpipe Piezometer, 1' screen	96.45	89.63
12	C-HS2-A11-10	3/4" Standpipe Piezometer, 1' screen	96.45	86.59
13	C-HS2-A13-5	3/4" Standpipe Piezometer, 2' screen	95.76	90.77
14	C-HS2-A13-7	3/4" Standpipe Piezometer, 1' screen	95.76	88.78
15	C-HS2-A13-10	3/4" Standpipe Piezometer, 1' screen	95.77	86.03
16	C-HS2-B02-6	3/4" Standpipe Piezometer, 2' screen	95.85	90.29
17	C-HS2-B02-8	3/4" Standpipe Piezometer, 1' screen	95.85	88.06
18	C-HS2-B02-11	3/4" Standpipe Piezometer, 1' screen	95.85	85.12
19	C-HS2-B06-6	3/4" Standpipe Piezometer, 2' screen	95.85	90.17
20	C-HS2-B06-8	3/4" Standpipe Piezometer, 1' screen	95.85	88.03
21	C-HS2-B06-11	3/4" Standpipe Piezometer, 1' screen	95.84	85.08
22	C-HS2-B08-5	3/4" Standpipe Piezometer, 2' screen	95.38	90.41
23	C-HS2-B08-7	3/4" Standpipe Piezometer, 1' screen	95.40	88.62
24	C-HS2-B08-10	3/4" Standpipe Piezometer, 1' screen	95.42	85.52
25	C-HS2-B09-15	2" Standpipe Piezometer, 5' screen	95.37	80.20
26	C-HS2-B10-5	3/4" Standpipe Piezometer, 2' screen	95.40	90.42
27	C-HS2-B10-7	3/4" Standpipe Piezometer, 1' screen	95.40	88.60
28	C-HS2-B10-10	3/4" Standpipe Piezometer, 1' screen	95.40	85.55
29	C-HS2-B13-15	2" Standpipe Piezometer, 5' screen	95.34	80.12
30	C-HS2-B15-5	3/4" Standpipe Piezometer, 2' screen	95.28	90.43

Table 3
Site C-HS2 Piezometers Installed July 12-15, 2011

	Identification	Type of Monitoring Point	Top Elevation (feet)	Bottom Elevation (feet)
31	C-HS2-B15-7	3/4" Standpipe Piezometer, 1' screen	95.28	88.78
32	C-HS2-B15-10	3/4" Standpipe Piezometer, 1' screen	95.26	85.60
33	C-HS2-C00-5	3/4" Standpipe Piezometer, 2' screen	94.50	89.81
34	C-HS2-C00-7	3/4" Standpipe Piezometer, 1' screen	94.50	87.69
35	C-HS2-C00-10	3/4" Standpipe Piezometer, 1' screen	94.51	84.66
36	C-HS2-C04-5	3/4" Standpipe Piezometer, 2' screen	94.61	89.91
37	C-HS2-C04-10	3/4" Standpipe Piezometer, 1' screen	94.60	87.79
38	C-HS2-C04-7	3/4" Standpipe Piezometer, 1' screen	94.61	84.76
39	C-HS2-C06-5	3/4" Standpipe Piezometer, 2' screen	94.53	89.55
40	C-HS2-C06-7	3/4" Standpipe Piezometer, 1' screen	94.53	87.74
41	C-HS2-C06-10	3/4" Standpipe Piezometer, 1' screen	94.53	84.68
42	C-HS2-C08-5	3/4" Standpipe Piezometer, 2' screen	95.18	90.21
43	C-HS2-C08-7	3/4" Standpipe Piezometer, 1' screen	95.25	88.47
44	C-HS2-C08-10	3/4" Standpipe Piezometer, 1' screen	95.20	85.33
45	C-HS2-C10-6	3/4" Standpipe Piezometer, 2' screen	95.77	90.12
46	C-HS2-C10-8	3/4" Standpipe Piezometer, 1' screen	95.78	88.00
47	C-HS2-C10-12	3/4" Standpipe Piezometer, 1' screen	95.78	84.01
48	C-HS2-C11-5	3/4" Standpipe Piezometer, 2' screen	95.30	90.63
49	C-HS2-C11-7	3/4" Standpipe Piezometer, 1' screen	95.30	88.51
50	C-HS2-C11-10	3/4" Standpipe Piezometer, 1' screen	95.31	85.46
51	C-HS2-D04-5	3/4" Standpipe Piezometer, 2' screen	93.98	89.09
52	C-HS2-D04-7	3/4" Standpipe Piezometer, 1' screen	93.98	87.14
53	C-HS2-D04-10	3/4" Standpipe Piezometer, 1' screen	94.00	84.31
54	C-HS2-D07-6	3/4" Standpipe Piezometer, 2' screen	95.41	89.43
55	C-HS2-D07-8	3/4" Standpipe Piezometer, 1' screen	95.39	87.53
56	C-HS2-D07-11	3/4" Standpipe Piezometer, 1' screen	95.43	84.59
57	C-HS2-BKG-5	3/4" Standpipe Piezometer, 2' screen	96.01	91.36
58	C-HS2-BKG-7	3/4" Standpipe Piezometer, 1' screen	96.01	89.43
59	C-HS2-BKG-10	3/4" Standpipe Piezometer, 1' screen	96.01	86.40

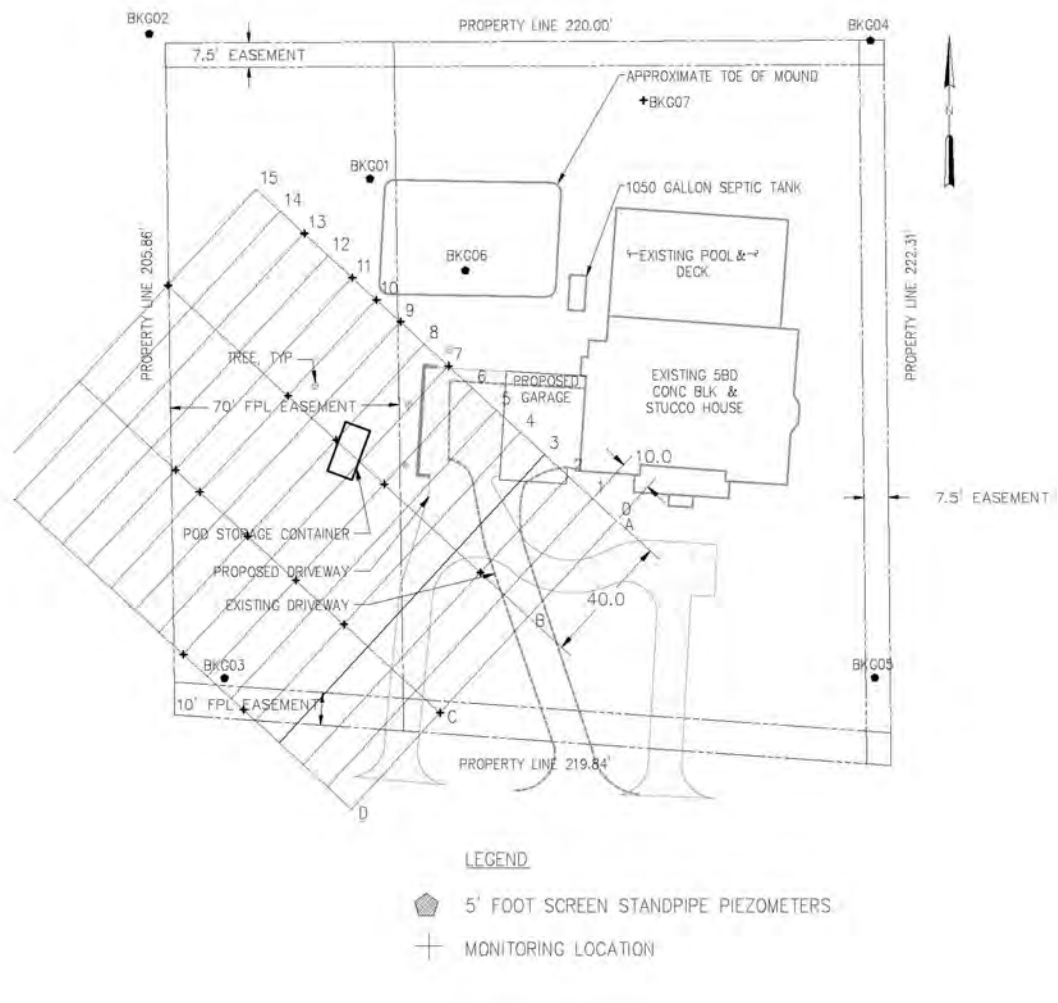


Figure 10
C-HS2 Monitoring Network

4.0 Soil Assessment

Continuous soil samples were collected using the direct push method at grid locations A09, A11, B08 and C10. Soil samples were collected in direct push hollow tubes. The soil descriptions are provided in Appendix C. The samples were sent to a soil laboratory for analysis.

Additionally, soil from the auger flights during installation of standpipe piezometers was classified as the auger was retracted from the ground. Soil encountered generally included tan and brown fine sands. The borings logs from locations A13, B09, B10, B13, C08, and D4.5 are included in Appendix D.

5.0 Slug Testing

Hydraulic conductivity of the surficial aquifer was determined by conducting field "slug" testing. A slug test consists of placing a data logger into a well, allowing the water level to return to its original level, and then rapidly inserting a solid, cylindrical object of known, fixed volume (the "slug") into the well, thereby displacing water. As the slug is inserted into the well the water level rises to a maximum level. The data logger records the increase in the depth of the water level and continuously records the water level versus time as the water returns to its original depth. When the data are plotted on a logarithmic scale, the resulting curve can be used to determine hydraulic conductivity.

Slug testing was performed at two 2-inch diameter piezometers installed at grid locations B09 and B13. Total depth was 15 feet below land surface. An In-Situ Level TROLL 700 datalogger and In-Situ Rugged Reader were utilized to measure and record groundwater depth versus time. The data were analyzed and plotted with United State Geological Survey (USGS) spreadsheets, provided in Microsoft Excel format, using the Bouwer and Rice Method.

The hydraulic conductivity calculation for the two wells varied from 2.9 to 3.2 feet per day. These results are consistent with anticipated values for fine sands. The Bouwer and Rice Method spreadsheets and graphs for the slug tests are provided in Appendix E.

6.0 Preliminary Groundwater Sampling

A groundwater screening event was conducted on July 25-27, 2011. Groundwater screening field parameters are outlined in Appendix F including temperature, pH, specific conductance, dissolved oxygen measurements for the monitoring locations. Figures 11, 12 and 13 illustrate the groundwater specific conductance measured within the standpipe piezometers at the various elevation ranges. Based on the preliminary groundwater specific conductance measurements, the general plume appears to extend to the southwest along with an unexplainable higher conductivity in the southeast where there currently is limited control. Sampling and analysis using standard analytical methods is required to confirm the plume extent and was conducted in late July 2011. Note that based on the preliminary screening data, the average background conductivity

(BKG07) is 167 µS and pH is 5.37 while the septic tank effluent conductivity is 1,028 µS and pH is 7.0.

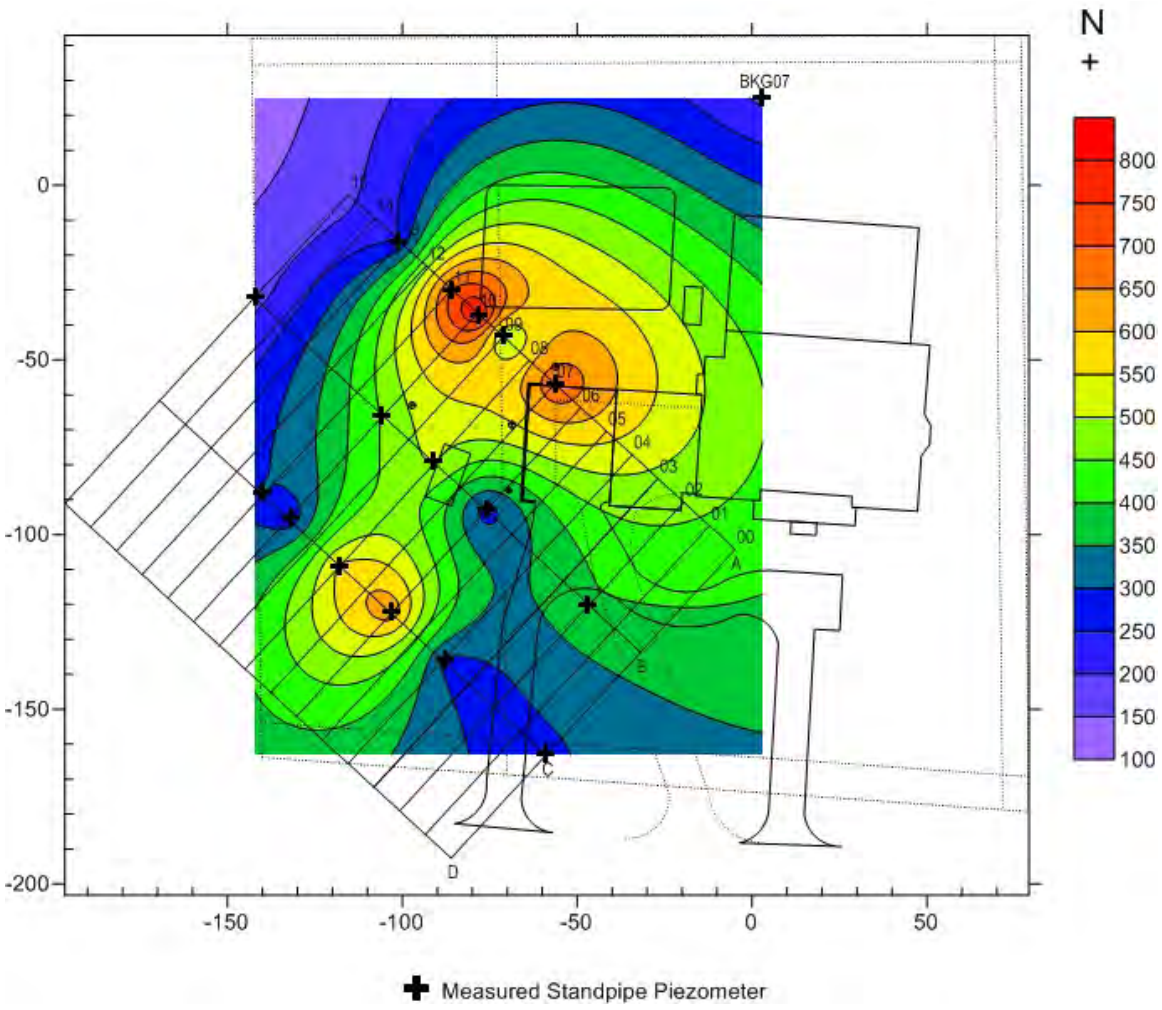


Figure 11
Specific Conductance Contours July 25-27, 2011
Elev. 89.5 – 91.5

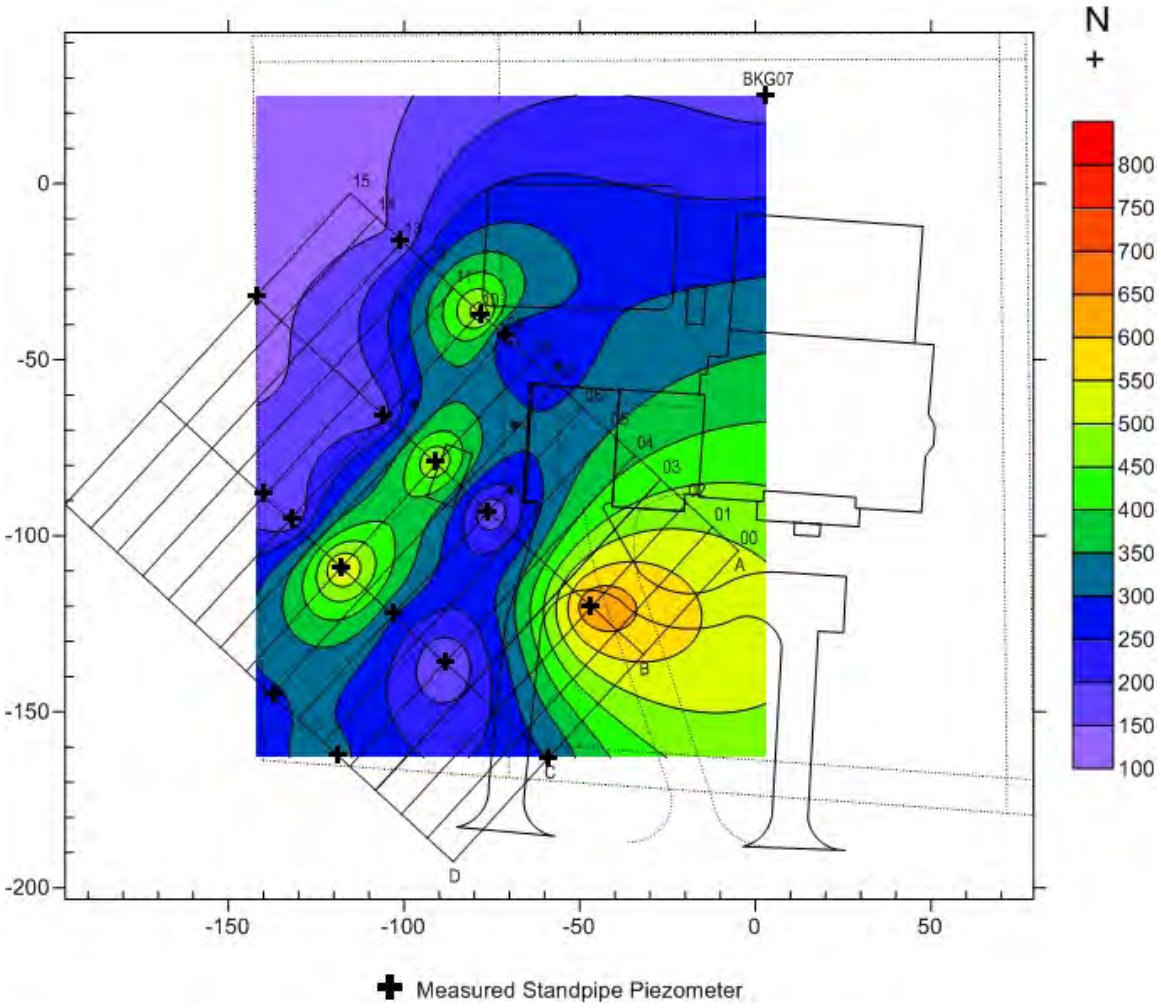


Figure 12
Specific Conductance Contours July 25-27, 2011
Elev. 87 – 89.49

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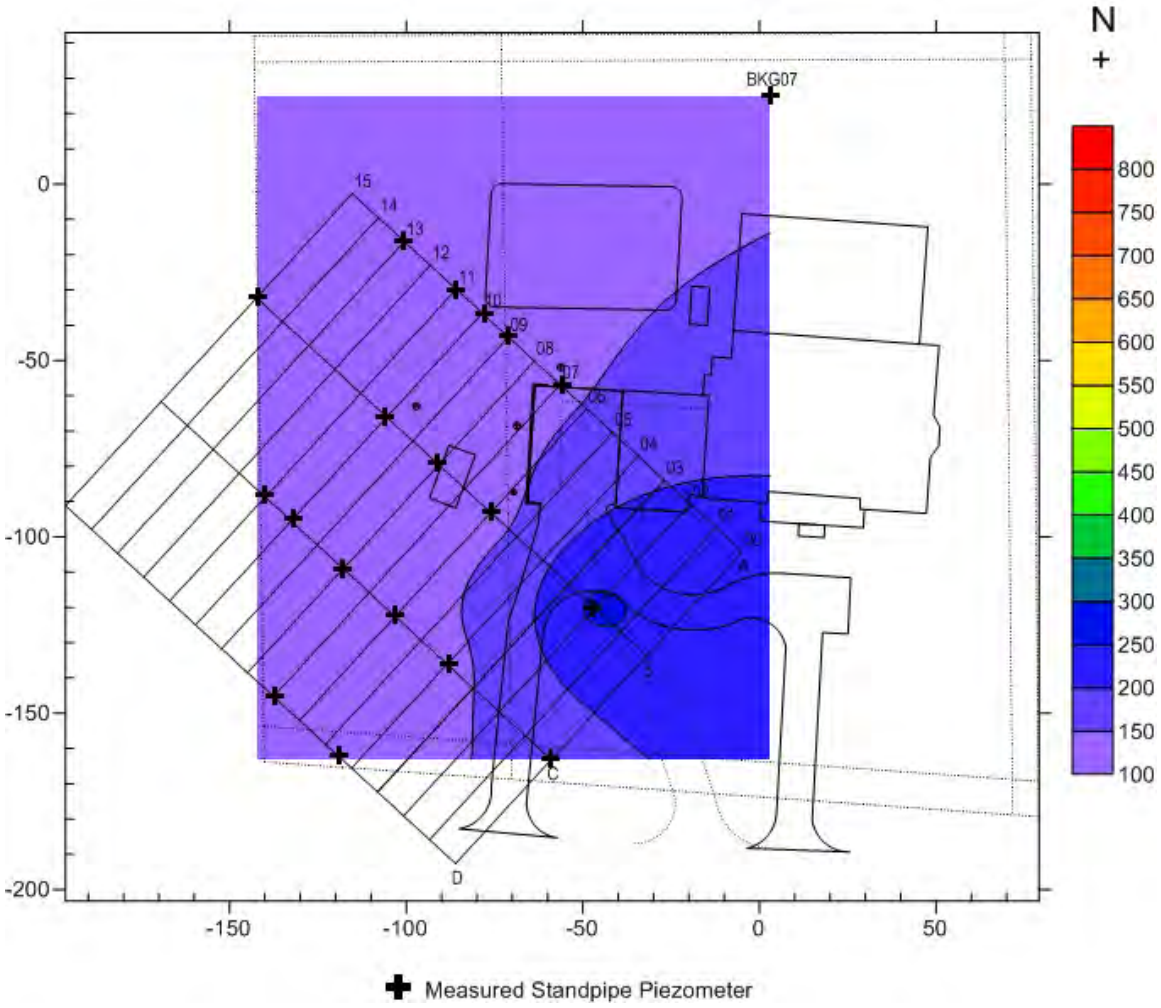

Figure 13
Specific Conductance Contours July 25-27, 2011
Elev. 84 – 86.99

Appendix A: C-HS2 June Sampling Results

Table A.1
Site C-HS2 Initial Site Monitoring June 1-2, 2011

ID	Description	Depth Below Ground Surface (ft)	Temp. (°C)	pH	SC (µS)	Dissolved Oxygen (mg/L)	Estimated NO3 (Test Strip) (mg/L)	Estimated NO2 (Test Strip) (mg/L)
PP01	Push-Pull Sampler	4.5	25.1	4.94	303	1.2	0.5	0
		6.0	24.9	4.90	442	0.6	NR	NR
		12.0	24.9	4.80	125	1.6	0	0
PP02	Push-Pull Sampler	4.5	No water					
		6.0	No water					
		12.0	No water					
PP03	Push-Pull Sampler	6.0	25.7	6.56	740	0.5	0	0
		9.0	27.5	5.84	260	2.4	0	0
PP04	Push-Pull Sampler	4.5	No water					
		6.0	24.3	5.88	890	1.7	10	0
		9.0	No water					
PP05	Push-Pull Sampler	4.5	23.3	4.59	160	0.8	0	0
		6.0	23.1	5.02	170	0.6	0	0
		9.0	22.5	4.86	141	0.7	0	0
PP06	Push-Pull Sampler	6.0	No water					
PP07	Push-Pull Sampler	6.0	25.6	6.29	342	4.8	0	0
PP08	Push-Pull Sampler	6.0	24.8	5.78	859	1.3	20	0
PP09	Push-Pull Sampler	6.0	24.4	5.75	806	0.7	50	0
PP10	Push-Pull Sampler	6.0	24.9	5.94	693	3.6	15	0
HP01	Probe Sampler	4.8	24.0	5.88	374	2.3	2	0
BKG01	3/4" PZ, 5' screen	7.5	24.3	5.00	250	0.5	0.5	0
BKG02	3/4" PZ, 5' screen	6.6	23.1	6.57	360	0.6	0	0
BKG03	3/4" PZ, 5' screen	7.3	25.0	5.65	467	0.5	3	0
BKG04	3/4" PZ, 5' screen	10.0	23.7	7.68	189	0.2	0	0
BKG05	3/4" PZ, 5' screen	8.3	23.8	5.51	295	0.3	0	0
BKG06	3/4" PZ, 5' screen	12.0	24.7	5.81	576	2.8	20	0.15

Appendix B: Groundwater Screening

Table B.1
Site C-HS2 Groundwater Screening July 11, 2011[1]

Location	Water Depth (ft bgs)	Screening Interval (ft bgs)	Temp (°C)	pH	SC (µS)	Dissolved Oxygen (mg/L)	Turbidity (FTU)[2]	Estimated NO3 (Test Strip) (mg/L)	Estimated NO2 (Test Strip) (mg/L)
A11	3.36	4-6	27.95	8.14	893	13	21.9	5	0
		6-8	27.23	6.47	352	4.6	380	2	0
		8-10	27.54	6.59	157	3.5	2000	0	0
		10-12	26.74	6.32	133	3.8	2000	0	0
		12-14	26.68	7.14	142	3.9	2000	0	0
		14-16	26.72	5.99	148	5.6	2000	0	0
A09	5.71	5-7	26.31	6.65	704	7.5	875	30	0.25
		7-9	26.85	6.94	532	4.7	2000	20	0.15
		9-11	26.20	7.22	224	2.6	702	<1	<.15
		11-13	26.92	7.17	174	1.9	2000	0	0
		13-15	26.00	5.22	135	2.2	1007	0	0
		15-17	25.55	6.11	138	2.1	2000	0	0
B08	2.56	3-5	26.69	11.37	501	11.8	545	50	<.15
		5-7	26.87	6.27	617	11.5	2000	20	0
		7-9	26.21	5.79	252	10	2000	0	0
		9-11	25.91	5.32	154	5.9	2000	0	0
		11-13	25.01	5.72	138	10.6	2000	0	0
		13-15	25.61	6.64	152	6.6	2000	0	0
C10	3.26	5-7	26.16	7.03	241	5.4	2000	0	0
		7-9	25.88	6.81	148	5.3	2000	0	0
		9-11	25.74	6.8	135	3.8	2000	0	0
		11-13	25.82	6.37	128	3.8	2000	0	0
		13-15	25.24	7.17	151	4.1	2000	0	0
		15-17	25.42	6.32	149	4.2	2000	0	0

[1] Groundwater screening samples collected using a direct push rig
[2] Turbidity upper detection limit is equal to 2000 FTU

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL
WELL NO: 9A @ 5'	SAMPLE ID: 9A @ 5'	DATE: ~~6/11/11~~ 5/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 5'	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (7' feet – 5' feet) X .02 gallons/foot = 0.04 gallons

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 7'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): ~~8'~~ 7'	PURGING INITIATED AT: 8:40	PURGING ENDED AT: 9:00	TOTAL VOLUME PURGED (gallons): 0.40

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
845	0.10	0.10	0.03	—	6.70	26.35	713	13.0	2000+	Brn/cldy	30	~~0.20~~ 2.0
850	~~0.10~~ 0.10	0.20	0.03	—	6.69	26.26	707	9.0	2000+	Lt Brn cldy	30	~~0.20~~ 2.0
855	0.10	0.30	0.02	—	6.66	26.26	705	8.0	1081	cldy	30	~~0.~~ 2.0
900	0.10	0.40	0.02	—	6.65	26.31	704	7.5	875	Lt Brn cldy	30	~~2.0~~

0.2

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 9A @ 7'-9'	SAMPLE ID: 9A @ 7'-9'	DATE: ~~6/14/11~~ CW 7/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 915	PURGING ENDED AT: 937	TOTAL VOLUME PURGED (gallons): 0.40

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or (% saturation)	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
920	0.10	0.10	0.02	—	7.11	27.05	561	5.9	2000+	cldy brn	30	0.2
925	0.10	0.20	0.02	—	7.11	27.05	560	5.8	2000+	cldy brn	30	0.2
930	0.10	0.30	0.02	—	6.96	26.99	554	5.7	2000+	cldy brn	20	0.2
935	0.10	0.40	0.02	—	6.94	26.85	532	4.7	2000+	cldy brn	20	0.15

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout well sampling.

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2		SITE LOCATION: [redacted]	Longwood, FL
WELL NO: 9A @ 9'-11'	SAMPLE ID: 9A @ 9'-11'	DATE: ~~6/11/14~~ 7/11/14	

PURGING DATA

WELL DIAMETER (inches): 1.75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 11'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 11'	PURGING INITIATED AT: 1005	PURGING ENDED AT: 1027	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1010	0.10	0.10	0.07	—	7.27	26.25	224	4.5	2000+	Brn	2	0.15
1015	0.10	0.20	0.07	—	7.27	26.26	226	3.4	2000+	Cld, Brn	<1	<0.15
1020	0.10	0.30	0.07	—	7.23	26.20	227	3.0	2000+	Cld, Brn	<1	<0.15
1025	0.10	0.40	0.07	—	7.22	26.	224	2.6	702	Cld/Brn	<1	<0.15

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 9A @ 11'-13'	SAMPLE ID: 9A @ 11'-13'	DATE: ~~6/11/11~~ 7/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 13'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 13'	PURGING INITIATED AT: 1050	PURGING ENDED AT: 1112	TOTAL VOLUME PURGED (gallons): 0.40

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) ~~mg/L~~ or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1055	0.10	0.10	0.02	—	7.36	26.31	167	13.5	2000+	Brn cldy	0	0
1100	0.10	0.20	0.02	—	7.32	26.41	169	3.1	2000+	Brn cldy	0	0
1105	0.10	0.30	0.02	—	7.25	26.70	172	2.2	2000+	Brn cldy	0	0
1110	0.10	0.40	0.02	—	7.17	26.92	174	1.9	2000+	Brn cldy	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 9A @ 13'-15'	SAMPLE ID: 9A @ 13'-15'	DATE: ~~6/11/11~~ CSM 7/11/11

PURGING DATA

WELL DIAMETER (inches): 1.75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15'	PURGING INITIATED AT: 1125	PURGING ENDED AT: 1147	TOTAL VOLUME PURGED (gallons): 0.90

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1130	0.10	0.10	0.02	—	6.23	26.27	134	3.2	2000+	Cldy Brn	0	0
1135	0.10	0.20	0.02	—	5.17	25.90	135	2.6	2000+	Cldy Brn	0	0
1140	0.10	0.30	0.02	—	5.18	25.92	135	2.4	2000+	Cldy Brn	0	0
1145	0.10	0.40	0.02	—	5.22	26.00	135	2.2	1007	Cldy Brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistant purge rate throughout sampling

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 9A @ 15'-17'	SAMPLE ID: 9A @ 15'-17'	DATE: ~~6/4/11~~ CSM 7/4/11

PURGING DATA

WELL DIAMETER (inches): 1.5	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: BP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 17'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 17'	PURGING INITIATED AT: 1155	PURGING ENDED AT: 1217	TOTAL VOLUME PURGED (gallons): 0.40

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or ~~µS/cm~~	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
~~1200~~	0.10	0.10	0.02	—	6.30	25.37	138	3.5	2000+	Cldy Brn	0	0
1205	0.10	0.20	0.02	—	6.10	25.53	138	2.8	2000+	Cldy Brn	0	0
1210	0.10	0.30	0.02	—	6.21	25.49	138	2.3	2000+	Cldy Brn	0	0
1215	0.10	0.40	0.02	—	6.11	25.55	139	2.1	2000+	Cldy	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y ~~N~~	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 11A @ 4'-6'	SAMPLE ID: 11A @ 4'-6'	DATE: ~~6/11/11~~ 7/11/11

PURGING DATA

WELL DIAMETER (inches): 1.75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 3.36	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 6'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 6'	PURGING INITIATED AT: 1323	PURGING ENDED AT: 1337	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1326	0.06	0.06	0.02	—	8.09	28.15	930	20.6	140	clear	5	0
1329	0.06	0.12	0.02	—	7.93	28.07	918	7.9	34.6	clear	5	0
1332	0.06	0.18	0.02	—	8.01	27.98	901	8.9	119	clear	5	0
1335	0.06	0.24	0.02	—	8.14	27.95	893	13.0	21.9	clear	5	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CR	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Constant purge rate throughout sampling.

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 11A @ 6'-8'	SAMPLE ID: 11A @ 6'-8'	DATE: ~~6/11/11~~ 7/12/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 8'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 8'	PURGING INITIATED AT: 1342	PURGING ENDED AT: 1356	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or ~~µS/cm~~	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1345	0.06	0.06	0.02	—	7.16	27.99	378	25.5	2000+	cldy brn	2	0
1348	0.06	0.12	0.02	—	6.90	27.59	370	7.7	799	cldy brn	2	0
1351	0.06	0.18	0.02	—	6.44	27.32	366	5.7	510	cldy brn	2	0
1354	0.06	0.24	0.02	—	6.47	27.23	352	4.6	380	clear/cldy	2	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Constant purge rate throughout sampling.

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 11A @ 8'-10'	SAMPLE ID: 11A @ 8'-10'	DATE: ~~6/11/11~~ 7/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 10'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 10'	PURGING INITIATED AT: 1401	PURGING ENDED AT: 1415	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) ~~mg/L or~~ % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1404	0.06	0.06	0.02	—	7.39	28.65	159	7.8	2000+	Cldy Brn	0	0
1407	0.06	0.12	0.02	—	6.38	27.54	157	5.0	2000+	Cldy Brn	0	0
1410	0.06	0.18	0.02	—	6.38	27.66	155	4.0	2000+	Cldy Brn	0	0
1413	0.06	0.24	0.02	—	6.59	27.54	157	3.5	2000+	Cldy Brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling.

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2		SITE LOCATION: [redacted]	Longwood, FL
WELL NO: 11A @ 10'-12'	SAMPLE ID: 11A @ 10'-12'	DATE: ~~6/11/14~~ CJR 7/1/14	

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 12'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 12'	PURGING INITIATED AT: 1418	PURGING ENDED AT: 1432	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1421	0.06	0.06	0.02	—	5.84	28.61	140	11.1	2000+	cl/brn	0	0
1424	0.06	0.12	0.02	—	5.96	27.90	137	6.2	2000+	cl/brn	0	0
1427	0.06	0.18	0.02	—	6.15	27.13	133	4.2	2000+	cl/brn	0	0
1430	0.06	0.24	0.02	—	6.32	26.74	133	3.8	2000+	cl/brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CJR	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

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

REMARKS: Consistent purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 11A @ 12'-14'	SAMPLE ID: 11A @ 12'-14'	DATE: ~~6/11/11~~ 7/11/11 CI

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 14'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 14'	PURGING INITIATED AT: 1436	PURGING ENDED AT: 1450	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1439	0.06	0.06	0.02	—	6.85	28.11	146	6.2	2000+	Cldybrn	0	0
1442	0.06	0.12	0.02	—	7.10	27.25	144	4.8	2000+	cldybrn	0	0
1445	0.06	0.18	0.02	—	7.10	27.03	143	4.4	2000+	cldybrn	0	0
1448	0.06	0.24	0.02	—	7.14	26.08	142	3.9	2000+	cldybrn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CI	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling.

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 11A @ 14'-16'	SAMPLE ID: 11A @ 14'-16'	DATE: ~~6/11/11~~ 7/11/11

PURGING DATA

WELL DIAMETER (inches): .25	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 16'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 16'	PURGING INITIATED AT: 1456	PURGING ENDED AT: 1510	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1459	0.06	0.06	0.02	—	5.99	28.10	155	8.7	2000+	Cldy Brn	0	0
1502	0.06	0.12	0.02	—	6.13	27.24	152	6.3	2000+	Cldy Brn	0	0
1505	0.06	0.18	0.02	—	5.77	26.92	151	5.9	2000+	Cldy Brn	0	0
1508	0.06	0.24	0.02	—	5.99	26.72	148	5.6	2000+	Cldy Brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent Purge rate throughout sampling.

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: BBQ 3'-5'	SAMPLE ID: BB @ 3'-5'	DATE: ~~6/11/11~~ 7/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 2.56	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 5'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 5'	PURGING INITIATED AT: 1525	PURGING ENDED AT: 1539	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1528	0.06	0.06	0.02	—	10.47	28.60	473	14.5	2000+	cldy brn	50	<0.15
1531	0.06	0.12	0.02	—	10.72	27.78	508	13.4	2000+	cldy brn	50	<0.15
1534	0.06	0.18	0.02	—	11.36	27.12	509	12.1	2000+	cldy brn	50	<0.15
1537	0.06	0.24	0.02	—	11.37	26.69	501	11.8	545	cldy brn	50	<0.15

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): C. Rivera	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: BB @ 5'-7'	SAMPLE ID: BB @ 5'-7'	DATE: ~~6/11/11~~ CJL 7/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 7'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7'	PURGING INITIATED AT: 1544	PURGING ENDED AT: 1558	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (mS/cm)	DISSOLVED OXYGEN (circle units) mg/L or (% saturation)	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1547	0.06	0.06	0.02	—	10.52	28.35	513	7.5	2000+	Cldy Brn	20	0
1550	0.06	0.12	0.02	—	9.00	27.53	620	8.6	2000+	Cldy Brn	20	0
1553	0.06	0.18	0.02	—	6.29	26.97	622	11.4	2000+	Cldy Brn	20	0
1556	0.06	0.24	0.02	—	6.27	26.87	617	11.5	2000+	Cldy Brn	20	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CJL	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING (Y) ~~N~~ N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Constant purge rate throughout Sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: BB@ 7'-9'	SAMPLE ID: BB @ 7'-9'	DATE: 6/11/11 CSR 7/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 9'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 9'	PURGING INITIATED AT: 1603	PURGING ENDED AT: 1617	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or (% saturation)	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1606	0.06	0.06	0.02	—	5.63	27.30	232	13.5	2000+	cldy brn	0	0
1609	0.06	0.12	0.02	—	5.74	26.85	241	2.5	2000+	cldy brn	0	0
1612	0.06	0.18	0.02	—	5.83	26.47	249	9.3	2000+	cldy brn	0	0
1615	0.06	0.24	0.02	—	5.79	26.21	252	10.0	2000+	cldy brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling.

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: SB-9'-11'	SAMPLE ID: SB-9'-11'	DATE: 6/11/11 cln 7/11/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 11'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 11'	PURGING INITIATED AT: 1623	PURGING ENDED AT: 1637	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (mS/cm)	DISSOLVED OXYGEN (circle units) mg/L or (% saturation)	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1626	0.06	0.06	0.02	—	5.67	26.71	152	5.9	2000+	Cldy Brn	0	0
1629	0.06	0.12	0.02	—	5.60	26.17	149	5.9	2000+	Cldy Brn	0	0
1632	0.06	0.18	0.02	—	5.34	25.94	151	6.1	2000+	Cldy Brn	0	0
1635	0.06	0.24	0.02	—	5.32	25.91	154	5.9	2000+	Cldy Brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 8B- 11'-13'	SAMPLE ID: 8B-11'-13'	DATE: ~~6/11/11~~ CH 7/14/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .75	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 13'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 13'	PURGING INITIATED AT: 1642	PURGING ENDED AT: 1656	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or ~~mS/cm~~	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1645	0.06	0.06	0.02	—	5.44	26.88	141	5.9	2000+	Cldy Brn	0	0
1648	0.06	0.12	0.02	—	5.63	26.47	140	7.4	2000+	Cldy Brn	0	0
1651	0.06	0.18	0.02	—	6.17	26.05	139	10.4	2000+	Cldy Brn	0	0
1654	0.06	0.24	0.02	—	5.72	25.01	138	10.6	2000+	Cldy Brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

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

REMARKS: Consistent purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 8B-13'-15'	SAMPLE ID: 8B 13'-15'	DATE: ~~6/11/11~~ 7/15/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15'	PURGING INITIATED AT: 1703	PURGING ENDED AT: 1717	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or ~~µS/cm~~	DISSOLVED OXYGEN (circle units) ~~mg/L~~ or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1706	0.06	0.06	0.07	—	6.43	26.45	154	5.5	2000+	cldy Brn	0	0
1709	0.06	0.12	0.07	—	6.59	26.20	154	5.5	2000+	cldy Brn	0	0
1712	0.06	0.18	0.07	—	6.85	25.69	152	6.3	2000+	cldy Brn	0	0
1715	0.06	0.24	0.07	—	6.64	25.61	152	6.6	2000+	cldy Brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CJ	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

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

REMARKS: Consistent purge rate throughout sampling

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted]ngwood, FL	
WELL NO: 10C @ 5'-7'	SAMPLE ID: 10C @ 5'-7'	DATE: 7/12/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): BLS 3.26	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 7'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7'	PURGING INITIATED AT: 825	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or (% saturation)	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
828	0.06	0.06	0.02	—	7.27	26.19	246	14.9	2000+	cldybrn	0	0
831	0.06	0.12	0.02	—	6.63	26.14	241	9.0	2000+	cldybrn	0	0
834	0.06	0.18	0.02	—	7.15	26.14	241	6.3	2000+	cldybrn	0	0
837	0.06	0.24	0.02	—	7.03	26.16	241	5.4	2000+	cldybrn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CR	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Constant purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 10C 7'-9'	SAMPLE ID: 10C 7'-9'	DATE: 7/12/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 9'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 9'	PURGING INITIATED AT: 847	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
850	0.06	0.06	0.02	—	6.79	26.17	162	6.9	2000+	cldybrn	0	0
853	0.06	0.12	0.02	—	6.91	25.97	150	5.7	2000+	cldybrn	0	0
856	0.06	0.18	0.02	—	6.78	25.91	153	5.4	2000+	cldybrn	0	0
859	0.06	0.24	0.02	—	6.81	25.99	148	5.3	2000+	cldybrn	0	0

WELL CAPACITY (Gallons Per Foot) **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 10C 9'-11'	SAMPLE ID: 10C 9'-11'	DATE: 7/12/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 11'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 11'	PURGING INITIATED AT: 911	PURGING ENDED AT: 925	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
914	0.06	0.06	0.02	—	6.61	25.96	130	5.7	2000+	cldy brn	0	0
917	0.06	~~0.12~~	0.02	—	6.69	25.74	129	4.3	2000+	cldy brn	0	0
920	0.06	B.18	0.02	—	6.81	25.74	134	3.9	2000+	cldy brn	0	0
923	0.06	0.24	0.02	—	6.80	25.74	135	3.8	2000+	cldy brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CJL	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 10C @ 11'-13'	SAMPLE ID: 10C @ 11'-13'	DATE: 7/12/11

PURGING DATA

WELL DIAMETER (inches): 2"	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 13'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 13'	PURGING INITIATED AT: 932	PURGING ENDED AT: 946	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
935	0.06	0.06	0.02	—	5.78	25.92	130	5.0	2000+	cldy brn	0	0
938	0.06	0.12	0.02	—	6.12	25.86	133	7.1	2000+	cldy brn	0	0
941	0.06	0.18	0.02	—	6.29	25.89	133	5.4	2000+	cldy brn	0	0
944	0.06	0.24	0.02	—	6.37	25.82	128	3.8	2000+	cldy brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent purge rate throughout sampling

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted] Longwood, FL	
WELL NO: 10 C @ 13'-15'	SAMPLE ID: 10 C @ 13'-15'	DATE: 7/12/11

PURGING DATA

WELL DIAMETER (inches): 1.75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15'	PURGING INITIATED AT: 953	PURGING ENDED AT: 1007	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
956	0.06	0.06	0.02	—	6.63	26.65	161	11.0	2000+	cldy brn	0	0
959	0.06	0.12	0.02	—	6.80	25.74	153	4.6	2000+	cldy brn	0	0
1002	0.06	0.18	0.02	—	7.01	25.70	155	4.2	2000+	cldy brn	0	0
1005	0.06	0.24	0.03	—	7.17	25.24	151	4.1	2000+	cldy brn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S): CR	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y N (replaced)	DUPLICATE: Y (N)	

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

REMARKS:
Consistent Purge rate throughout sampling

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

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

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

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

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

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: C-HS2	SITE LOCATION: [redacted]	
WELL NO: 10C @ 15'-17'	SAMPLE ID: 10C @ 15'-17'	DATE: 7/12/11

PURGING DATA

WELL DIAMETER (inches): .75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): —	PURGE PUMP TYPE OR BAILER: PP

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

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

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 17'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 17'	PURGING INITIATED AT: 1012	PURGING ENDED AT: 1026	TOTAL VOLUME PURGED (gallons): 0.24

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or (% saturation)	TURBIDITY (NTUs)	COLOR (describe)	Nitrate	Nitrite
1015	0.06	0.06	0.02	—	6.21	27.01	162	14.0	2000+	Cldybrn	0	0
1018	0.06	0.12	0.02	—	6.39	25.01	145	6.8	2000+	Cldybrn	0	0
1021	0.06	0.18	0.02	—	6.40	25.33	152	4.8	2000+	Cldybrn	0	0
1024	0.06	0.24	0.02	—	6.32	25.42	149	4.2	2000+	Cldybrn	0	0

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: C. Rivera/Mechling Engineering	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP ~~Y~~ N TUBING Y (N (replaced)) DUPLICATE: Y (N)

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

REMARKS:
Consistent purge rate throughout sampling

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

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

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

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

Revision Date: February 12, 2009

Appendix C: Soil Sample Descriptions

Table C.1
Site C-HS2 Descriptions[1]

Location	Depth (ft bgs)	Munsell Soil Color	Description
A11	0-2.0	10YR 3/1	very dark gray fine sand
	2.0-2.7	10YR 5/2	grayish brown fine sand
	2.7-4.0	10YR 2/1	black fine sand
	4.0-5.0	10YR 3/2	dark brown fine sand
	5-5.9	10YR 3/4	dark yellowish brown fine sand
	5.9-10	10YR 5/3	brown fine sand
	10.0-20.0	10YR 3/2	very dark grayish brown fine sand
	20.0-21.2	10YR 5/2	grayish brown fine sand
	21.2-21.8	10YR 5/2	grayish brown clayey fine sand
	21.8-23.0	10YR 5/1	gray clay
	23.0-30	10YR 6/2	light brownish gray fine sand
A09	0-1.0	10YR 5/2	grayish brown fine sand
	1.0-2.6	10YR 8/2	very pale brown very fine sand
	2.6-3.1	10YR 6/3	pale brown very fine sand
	3.1-4.3	10YR 5/1	gray fine sand
	4.3-5.7	10YR 2/2	very dark brown fine sand
	5.7-6.9	10YR 3/6	dark yellowish brown fine sand
	6.9-7.5	10YR 6/4	light yellowish brown fine sand
	7.5-8.5	10YR 4/4	dark yellowish brown fine sand
	8.5-15	10YR 3/3	dark brown fine sand w/black intermittent
	15-21.5	10YR 5/3	brown fine sand
	21.5-23.9	10YR 5/2	grayish brown clayey fine sand
	23.9-25.5	10YR 5/1	gray clay
	25.5-30	10YR 6/2	light brownish gray fine sand
B08	0-1.1	10YR 4/1	dark gray fine sand
	1.1-2.3	10YR 2/2	very dark brown fine sand
	2.3-3.5	10YR 3/6	dark yellowish brown fine sand
	3.5-7.5	10YR 5/3	brown fine sand
	7.5-13.7	10YR 3/2	very dark grayish brown fine sand

Table C.1
Site C-HS2 Descriptions[1]

Location	Depth (ft bgs)	Munsell Soil Color	Description
B08	13.7-19.0	10YR 5/3	brown fine sand
	19.0-21.5	10YR 5/2	grayish brown clayey fine sand
	21.5-22.6	10YR 5/1	gray clay
	22.6-30	10YR 6/2	light brownish gray fine sand
C10	0-1.2	10YR 4/1	dark gray fine sand
	1.2-2.0	10YR 5/2	grayish brown fine sand
	2.0-3.9	10YR 3/2	very dark grayish brown fine sand
	3.9-4.9	10YR 3/3	dark brown fine sand
	4.9-6.4	10YR 5/3	brown fine sand
	6.4-6.9	10YR 2/1	black fine sand
	6.9-14.3	10YR 4/3	brown fine sand
	14.3-22.2	10YR 5/2	grayish brown clayey fine sand
	22.2-23.5	10YR 5/1	gray clay
	23.5-30	10YR 6/2	light brownish gray fine sand

[1]Soil samples collected from direct push intact soil cores and described in the field using the Munsell tools.

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Appendix D: Soil Boring Logs

BORING LOG

Page 1 of _____

Boring/Well Number: A-13	Permit Number:		FDEP Facility Identification Number:
Site Name: C-HS2	Borehole Start Date: 7/14/11 End Date: 7/14/11	Borehole Start Time: 1305 ☐ AM ☑ PM End Time: ☐ AM ☑ PM	
Environmental Contractor: Mechling Engineering	Geologist's Name: Mark Mechling		Environmental Technician's Name: Chris Rivera
Drilling Company: Environmental Drilling Service	Pavement Thickness (inches):	Borehole Diameter (inches): 4.25"	Borehole Depth (feet): 10'
Drilling Method: Hollow Auger	Apparent Borehole DTW (in feet from soil moisture content): 3.3	Measured Well DTW (in feet after water recharges in well):	OVA (list model and check type): ☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☑ Spread ☐ Backfill ☐ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☑ Well ☐ Grout ☐ Bentonite ☐ Backfill ☐ Other (describe)

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	med brn FS		D	
							2	med brn/gry FS		D	
							3	Drk Tan FS	DTW 3.3	M/S	
						▽ 3.3	4	med Tan FS		S	
							5	LHT Tan FS			
							6	med Tan FS			
							7	med Tan FS			
							8	med Brn FS			
							9	med Brn FS			
							10	med Brn FS			
							11				
							12				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

BORING LOG

Page 1 of 2

Boring/Well Number: ~~SB~~ cm B-9	Permit Number:	FDEP Facility Identification Number:
Site Name: C-H52	Borehole Start Date: 7/12/11 End Date: 7/12/11	Borehole Start Time: 1651 ☐ AM ☑ PM End Time: 1730 ☐ AM ☑ PM
Environmental Contractor: Mechling Engineering	Geologist's Name: Mark Mechling	Environmental Technician's Name: Chris Rivera
Drilling Company: Environmental Drilling Services	Pavement Thickness (inches): N/A	Borehole Diameter (inches): 4.25"
Borehole Depth (feet): 15'		
Drilling Method: Hollow Auger	Apparent Borehole DTW (in feet from soil moisture content): 3.5'	Measured Well DTW (in feet after water recharges in well):
OVA (list model and check type): ☐ FID ☐ PID		

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☑ Spread ☐ Backfill ☐ Stockpile ☐ Other

(describe if other or multiple items are checked)

Borehole Completion (check one): ☑ Well ☐ Grout ☐ Bentonite ☐ Backfill ☐ Other (describe)

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	Drk Brn FS		D	
							2	Drk Brn/gry FS		D	
							3	Med Brn/gry FS		M	
							3.5				
							4	Med Brn/gry FS		S	
							5	Med Brn FS			
							6	Med Brn FS			
							7	Med Brn FS			
							8	Med Brn FS			
							9	Med Brn FS			
							10	Med Brn FC			
							11	Med Brn/Tan FS			
							12	Med Brn/Tan FS			

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Boring/Well Number:	FDEP Facility Identification Number:	Site Name:	Borehole Start Date: / End Date:
B-9		C-HS2	7/12/11 / 7/12/11

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	med brn/Tan FS		S	
							14	med brn/Tan FS			
							15	med brn/Tan FS			
							16				
							17				
							18				
							19				
							20				
							21				
							22				
							23				
							24				
							25				
							26				
							27				
							28				
							29				
							30				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings
Moisture Content Codes: **D** = Dry; **M** = Moist, **W** = Wet; **S** = Saturated

BORING LOG

Page 1 of _____

Boring/Well Number: B-10	Permit Number:	FDEP Facility Identification Number:
Site Name: C-H52	Borehole Start Date: 7/14/11 End Date: 7/14/11	Borehole Start Time: 1351 ☐ AM ☑ PM End Time: 1418 ☐ AM ☑ PM
Environmental Contractor: Mechling Engineering	Geologist's Name: Mark Mechling	Environmental Technician's Name: Chris Rivera
Drilling Company: Env. Chemical Drilling Services	Pavement Thickness (inches): N/A	Borehole Diameter (inches): 4.25"
Drilling Method: Hollow Auger	Apparent Borehole DTW (in feet from soil moisture content): 3.4	Measured Well DTW (in feet after water recharges in well):
Borehole Completion (check one): ☑ Well ☐ Grout ☐ Bentonite ☐ Backfill ☐ Other (describe)		OVA (list model and check type): ☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☑ Spread ☐ Backfill ☐ Stockpile ☐ Other

(describe if other or multiple items are checked)

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	Med brn/gry FS		D	
							2	LHT brn FS		M	
							3	Drk Brn FS W/organic material		M/S	
							3.2	Med brn/Tan W/organic material			
						3.4	4	Tan/brn FS LHT Tan FS		S	
							5	Med brn/Tan FS			
							6	Med brn/Tan FS			
							7	Med brn FS			
							8	Med brn FS			
							9	Med brn FS			
							10	Med brn FS			
							11				
							12				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Page 1 of 2

Boring/Well Number:	Permit Number:	FDEP Facility Identification Number:
~~B-13~~ B-13		
Site Name: C-HS2	**Borehole Start Date:** 7/12/11 **End Date:** 7/12/11	**Borehole Start Time:** 1540 ☐ AM ☑ PM **End Time:** 1635 ☐ AM ☐ PM
Environmental Contractor: Mechling Engineering	**Geologist's Name:** Mark Mechling	**Environmental Technician's Name:** Chris Rivera
Drilling Company: Environmental Drilling	**Pavement Thickness (inches):** N/A	**Borehole Diameter (inches):** 4.25"	**Borehole Depth (feet):** 15'
Drilling Method: Hollow Auger	**Apparent Borehole DTW (in feet from soil moisture content):** 3.5'	**Measured Well DTW (in feet after water recharges in well):**	**OVA (list model and check type):** ☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☑ Spread ☐ Backfill ☐ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☑ Well ☐ Grout ☐ Bentonite ☐ Backfill ☐ Other (describe)

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	med brn FS		D	
							2	med brn/gry fs		D	
							3	med brn/tan FS		M	
							4	med brn/tan FS		~~M~~ S	
							5	med brn FS		S	
							6	med brn FS			
							7	Med brn FS			
							8	med brn FS			
							9	Med brn FS			
							10	med brn FS			
							11	med brn/LHT brn FS			
							12	LHT brn FS			

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Boring/Well Number:	FDEP Facility Identification Number:	Site Name:	Borehole Start Date: / End Date:
B-13		C-HS2	7/12/11 / 7/12/11

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	LHT brn FS		S	
							14	LHT brn FS			
							15	LHT brn FS			
							16				
							17				
							18				
							19				
							20				
							21				
							22				
							23				
							24				
							25				
							26				
							27				
							28				
							29				
							30				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings
Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

BORING LOG

Page 1 of _____

Boring/Well Number:	Permit Number:	FDEP Facility Identification Number:
C-8		

Site Name:	Borehole Start Date: 7/14/11 End Date: 7/14/11	Borehole Start Time: 1425 ☐ AM ☑ PM End Time: 1505 ☐ AM ☐ PM
C-HS2		

Environmental Contractor: ~~Environmental Drilling Service~~ Mechling	Geologist's Name: Mark Mechling	Environmental Technician's Name: Chris Rivera

Drilling Company: Environmental Probing Service	Pavement Thickness (inches): N/A	Borehole Diameter (inches): 4.25"	Borehole Depth (feet): ~~30'~~ 10'

Drilling Method: Hollow Auger	Apparent Borehole DTW (in feet from soil moisture content): 3.3	Measured Well DTW (in feet after water recharges in well):	OVA (list model and check type): ☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☑ Spread ☐ Backfill ☐ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☑ Well ☐ Grout ☐ Bentonite ☐ Backfill ☐ Other (describe)

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	med brn FS Med brn/gry FS w/organic mat.		D D	
							2	med brn/Tan FS		M	
							3	LHT brn/Tan FS LHT brn/Tan FS		M	
							3.3	LHT brn FS	▽	M/S	
							4	med brn FS		S	
							5	med brn FS			
							6	med brn FS			
							7	med brn FS			
							8	med brn FS			
							9	med brn FS			
							10	med brn FS			
							11				
							12				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Page 1 of _____

Boring/Well Number:	Permit Number:	FDEP Facility Identification Number:
D-4.5		

Site Name:	Borehole Start Date: 7/13/11 End Date: 7/13/11	Borehole Start Time: 1048 End Time: 1136
C-HS2		☐ AM ☒ PM ☐ AM ☐ PM

Environmental Contractor:	Geologist's Name:	Environmental Technician's Name:
Mechling Engineering	Mark Mechling	Chris Rivera

Drilling Company:	Pavement Thickness (inches):	Borehole Diameter (inches):	Borehole Depth (feet):
Environment Drilling Service	N/A	4.25"	10'

Drilling Method:	Apparent Borehole DTW (in feet from soil moisture content):	Measured Well DTW (in feet after water recharges in well):	OVA (list model and check type):
Hollow Auger	2.6		☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☑ Spread ☐ Backfill ☐ Stockpile ☐ Other

(describe if other or multiple items are checked)

Borehole Completion (check one): ☑ Well ☐ Grout ☐ Bentonite ☐ Backfill ☐ Other (describe)

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	SPT Blows (per six inches)	Unfiltered OVA	Filtered OVA	Net OVA	Depth (feet)	Sample Description (include grain size based on USCS, odors, staining, and other remarks)	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	med brn FS		D	
							2	med brn FS		D	
						2.6	3	med brn/tan FS		M	
							4	LH brn/tan FS		S	
							5	med brn FS		S	
							6	med brn FS			
							7	med brn FS			
							8	med brn FS			
							9	med brn FS			
							10	med brn FS			
							11				
							12				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

Appendix E: Slug Test Data

H&S_C-HS2_Bouwer-Rice_spreadsheet_for_B-9

WELL ID: C-HS-2, B-9

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	8.25	Inch
Screen Length (L)	5	Feet

Depths to:

water level (DTW)	2.64	Feet
top of screen (TOS)	10	Feet
Base of Aquifer (DTB)	15.2	Feet

Annular Fill:

across screen -- Fine Sand
above screen -- Backfill

Aquifer Material -- Fine Sand

COMPUTED

L_{wetted}	5	Feet
D =	12.56	Feet
H =	12.36	Feet
L/r_w =	14.55	
$y_{0\text{-DISPLACEMENT}}$ =	4.86	Feet
$y_{0\text{-SLUG}}$ =	1.91	Feet

From look-up table using L/r_w

Fully penetrate C =	1.488	
ln(Re/rw) =	2.443	
Re =	3.96	Feet
Slope =	0.008519	$\log_{10}$/sec
$t_{90\%}$ recovery =	117	sec

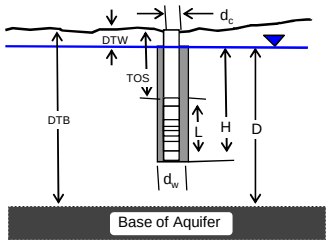
Input is consistent.

K = 2.9 Feet/Day

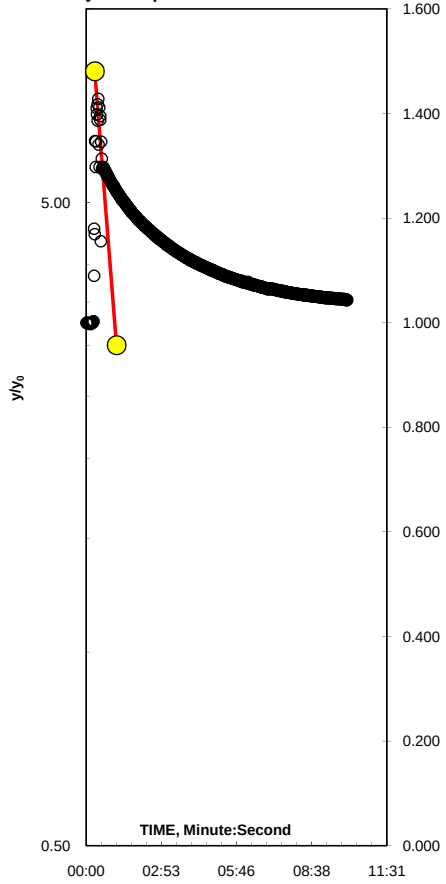
K= 2.9 is less than likely minimum of 3 for Fine Sand

REMARKS:
Bouwer and Rice analysis of slug test, WRR 1976

Date: 7/13/2011
Time: 14:58



Adjust slope of line to estimate K



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level	Entry	Time, Hr:Min:Sec	Water Level
1	14:58:30.0	10.94	51	15:03:30.0	11.41
2	14:58:36.0	10.93	52	15:03:36.0	11.40
3	14:58:42.0	10.94	53	15:03:42.0	11.39
4	14:58:48.0	11.82	54	15:03:48.0	11.38
5	14:58:54.0	12.88	55	15:03:54.0	11.37
6	14:59:00.0	12.39	56	15:04:00.0	11.37
7	14:59:06.0	12.38	57	15:04:06.0	11.36
8	14:59:12.0	12.36	58	15:04:12.0	11.35
9	14:59:18.0	12.31	59	15:04:18.0	11.34
10	14:59:24.0	12.27	60	15:04:24.0	11.33
11	14:59:30.0	12.23	61	15:04:30.0	11.32
12	14:59:36.0	12.18	62	15:04:36.0	11.32
13	14:59:42.0	12.15	63	15:04:42.0	11.31
14	14:59:48.0	12.11	64	15:04:48.0	11.30
15	14:59:54.0	12.08	65	15:04:54.0	11.30
16	15:00:00.0	12.05	66	15:05:00.0	11.29
17	15:00:06.0	12.02	67	15:05:06.0	11.28
18	15:00:12.0	11.98	68	15:05:12.0	11.28
19	15:00:18.0	11.95	69	15:05:18.0	11.27
20	15:00:24.0	11.93	70	15:05:24.0	11.26
21	15:00:30.0	11.90	71	15:05:30.0	11.26
22	15:00:36.0	11.88	72	15:05:36.0	11.26
23	15:00:42.0	11.85	73	15:05:42.0	11.25
24	15:00:48.0	11.83	74	15:05:48.0	11.25
25	15:00:54.0	11.81	75	15:05:54.0	11.24
26	15:01:00.0	11.79	76	15:06:00.0	11.24
27	15:01:06.0	11.76	77	15:06:06.0	11.23
28	15:01:12.0	11.74	78	15:06:12.0	11.23
29	15:01:18.0	11.72	79	15:06:18.0	11.23
30	15:01:24.0	11.71	80	15:06:24.0	11.22
31	15:01:30.0	11.69	81	15:06:30.0	11.22
32	15:01:36.0	11.67	82	15:06:36.0	11.21
33	15:01:42.0	11.65	83	15:06:42.0	11.21
34	15:01:48.0	11.64	84	15:06:48.0	11.20
35	15:01:54.0	11.61	85	15:06:54.0	11.20
36	15:02:00.0	11.60	86	15:07:00.0	11.20
37	15:02:06.0	11.58	87	15:07:06.0	11.19
38	15:02:12.0	11.57	88	15:07:12.0	11.19
39	15:02:18.0	11.55	89	15:07:18.0	11.19
40	15:02:24.0	11.54	90	15:07:24.0	11.18
41	15:02:30.0	11.53	91	15:07:30.0	11.18
42	15:02:36.0	11.51	92	15:07:36.0	11.18
43	15:02:42.0	11.50	93	15:07:42.0	11.18
44	15:02:48.0	11.49	94	15:07:48.0	11.17
45	15:02:54.0	11.48	95	15:07:54.0	11.17
46	15:03:00.0	11.47	96	15:08:00.0	11.17
47	15:03:06.0	11.46	97	15:08:06.0	11.16
48	15:03:12.0	11.45	98	15:08:12.0	11.16
49	15:03:18.0	11.43	99	15:08:18.0	11.16
50	15:03:24.0	11.42	100	15:08:24.0	11.16

H&S_C-HS2_Bouwer-Rice_spreadsheet_for_B-13

WELL ID: C-HS-2, B-13

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	8.25	Inch
Screen Length (L)	5	Feet

Depths to:

water level (DTW)	2.32	Feet
top of screen (TOS)	10	Feet
Base of Aquifer (DTB)	15.25	Feet

Annular Fill:

across screen -- Fine Sand
above screen -- Backfill

Aquifer Material -- Fine Sand

COMPUTED

L_{wetted}	5	Feet
D =	12.93	Feet
H =	12.68	Feet
L/r_w =	14.55	
$y_{0\text{-DISPLACEMENT}}$ =	4.31	Feet
$y_{0\text{-SLUG}}$ =	1.91	Feet

From look-up table using L/r_w

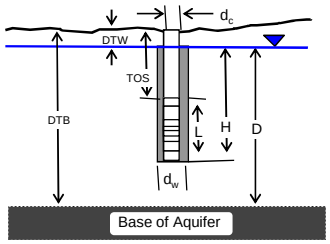
Fully penetrate C =	1.488	
ln(Re/rw) =	2.456	
Re =	4.01	Feet
Slope =	0.00932	$\log_{10}$/sec
$t_{90\%}$ recovery =	107	sec

Input is consistent.

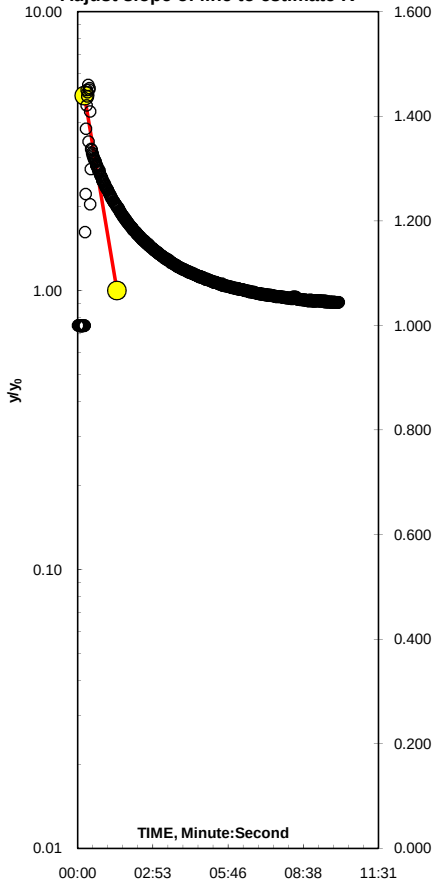
K = 3.2 Feet/Day

REMARKS:
Bouwer and Rice analysis of slug test, WRR 1976

Date: 7/13/2011
Time: 14:43



Adjust slope of line to estimate K



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level	Entry	Time, Hr:Min:Sec	Water Level
1	14:43:44.0	10.39	51	14:48:44.0	10.76
2	14:43:50.0	10.39	52	14:48:50.0	10.75
3	14:43:56.0	10.39	53	14:48:56.0	10.74
4	14:44:02.0	12.01	54	14:49:02.0	10.74
5	14:44:08.0	11.90	55	14:49:08.0	10.73
6	14:44:14.0	11.84	56	14:49:15.3	10.73
7	14:44:20.0	11.77	57	14:49:20.0	10.72
8	14:44:26.0	11.71	58	14:49:26.0	10.71
9	14:44:32.0	11.66	59	14:49:32.0	10.71
10	14:44:38.0	11.61	60	14:49:38.0	10.70
11	14:44:44.0	11.56	61	14:49:44.0	10.70
12	14:44:50.0	11.52	62	14:49:50.0	10.69
13	14:44:56.0	11.47	63	14:49:56.0	10.68
14	14:45:02.0	11.43	64	14:50:02.0	10.69
15	14:45:08.0	11.40	65	14:50:08.0	10.68
16	14:45:14.0	11.36	66	14:50:15.3	10.67
17	14:45:20.0	11.33	67	14:50:20.0	10.66
18	14:45:26.0	11.30	68	14:50:26.0	10.66
19	14:45:32.0	11.27	69	14:50:32.0	10.66
20	14:45:38.0	11.23	70	14:50:38.0	10.65
21	14:45:44.0	11.21	71	14:50:44.0	10.65
22	14:45:50.0	11.18	72	14:50:50.0	10.65
23	14:45:56.0	11.16	73	14:50:56.0	10.64
24	14:46:02.0	11.14	74	14:51:02.0	10.64
25	14:46:08.0	11.11	75	14:51:08.0	10.63
26	14:46:15.3	11.09	76	14:51:15.3	10.63
27	14:46:20.0	11.07	77	14:51:20.0	10.63
28	14:46:26.0	11.05	78	14:51:26.0	10.62
29	14:46:32.0	11.03	79	14:51:32.0	10.62
30	14:46:38.0	11.01	80	14:51:38.0	10.62
31	14:46:44.0	11.00	81	14:51:44.0	10.62
32	14:46:50.0	10.98	82	14:51:50.0	10.62
33	14:46:56.0	10.96	83	14:51:56.0	10.61
34	14:47:02.0	10.94	84	14:52:02.0	10.63
35	14:47:08.0	10.93	85	14:52:08.0	10.61
36	14:47:15.3	10.92	86	14:52:15.3	10.60
37	14:47:20.0	10.91	87	14:52:20.0	10.60
38	14:47:26.0	10.89	88	14:52:26.0	10.60
39	14:47:32.0	10.87	89	14:52:32.0	10.59
40	14:47:38.0	10.86	90	14:52:38.0	10.60
41	14:47:44.0	10.85	91	14:52:44.0	10.59
42	14:47:50.0	10.85	92	14:52:51.0	10.60
43	14:47:56.0	10.83	93	14:52:56.0	10.59
44	14:48:02.0	10.82	94	14:53:02.0	10.59
45	14:48:08.0	10.81	95	14:53:09.1	10.59
46	14:48:15.3	10.80	96	14:53:14.0	10.58
47	14:48:20.0	10.79	97	14:53:20.0	10.58
48	14:48:26.0	10.79	98	14:53:26.0	10.58
49	14:48:32.0	10.78	99	14:53:32.0	10.58
50	14:48:38.0	10.77	100	14:53:38.0	10.58

Appendix F: July Groundwater Sampling

Table F.1
Field Parameter Results
(July 25, 2011 through July 27, 2011)

Sample Identification	Temperature (°C)	pH	Specific Conductance (µS)	Dissolved Oxygen (mg/L)
C-HS2-BKG01-7	26.5	4.9	248	0.8
C-HS2-BKG02-6	26.1	6.9	442	1.2
C-HS2-BKG03-7	27.5	5.7	436	0.1
C-HS2-BKG04-7	26.3	5.2	212	1.2
C-HS2-BKG06-12	26.7	6.1	425	1.3
C-HS2-A07-6	26.1	6.3	701	0.9
C-HS2-A07-8	25.8	6.0	508	0.8
C-HS2-A07-11	24.7	5.8	140	0.3
C-HS2-A09-7	29.2	6.1	482	0.0
C-HS2-A09-9	27.7	6.1	238	0.0
C-HS2-A09-12	26.4	5.2	129	0.0
C-HS2-A10-7	28.3	6.8	809	0.3
C-HS2-A10-9	26.9	6.6	548	0.4
C-HS2-A10-12	25.9	5.7	135	0.3
C-HS2-A11-5	29.3	6.3	706	0.6
C-HS2-A11-7	27.8	6.3	509	0.3
C-HS2-A11-10	26.9	5.3	132	0.4
C-HS2-A13-5	29.6	5.8	252	0.0
C-HS2-A13-7	28.7	4.6	159	0.1
C-HS2-A13-10	27.9	4.7	125	0.1
C-HS2-B02-6	27.8	6.2	393	0.2
C-HS2-B02-8	26.9	6.5	654	0.2
C-HS2-B02-11	26.1	6.0	261	0.2
C-HS2-B06-6	25.4	6.0	275	0.1
C-HS2-B06-8	24.8	5.8	144	0.1
C-HS2-B06-11	24.3	5.7	130	0.1

Sample Identification	Temperature (°C)	pH	Specific Conductance (µS)	Dissolved Oxygen (mg/L)
C-HS2-B08-5	26.4	5.5	506	0.0
C-HS2-B08-7	26.5	5.9	518	0.1
C-HS2-B08-10	27.0	5.5	132	0.2
C-HS2-B10-5	27.4	6.5	452	0.1
C-HS2-B10-7	27.4	6.3	173	0.5
C-HS2-B10-10	26.7	5.4	123	0.0
C-HS2-B15-5	27.7	5.4	184	0.4
C-HS2-B15-7	26.4	5.5	140	0.5
C-HS2-B15-10	27.0	5.1	125	0.7
C-HS2-C00-5	27.6	4.4	291	0.0
C-HS2-C00-7	26.9	5.5	303	0.0
C-HS2-C00-10	26.1	5.7	163	0.0
C-HS2-C04-5	26.3	5.8	289	0.8
C-HS2-C04-10	25.4	5.6	142	1.3
C-HS2-C04-7	25.0	5.4	136	1.0
C-HS2-C06-5	26.8	6.1	634	0.2
C-HS2-C06-7	25.7	5.4	305	0.5
C-HS2-C06-10	24.7	5.1	141	0.0
C-HS2-C08-5	27.2	6.0	558	0.0
C-HS2-C08-7	26.6	6.1	576	0.0
C-HS2-C08-10	25.9	5.3	123	0.0
C-HS2-C10-6	26.9	5.1	264	0.1
C-HS2-C10-8	26.3	5.6	141	0.0
C-HS2-C10-12	25.7	5.2	124	0.1
C-HS2-C11-5	26.4	4.8	304	0.2
C-HS2-C11-7	26.1	5.3	190	0.0
C-HS2-C11-10	25.2	5.0	125	0.1
C-HS2-D04-5	26.6	5.8	478	0.1
C-HS2-D04-7	25.4	5.9	312	0.1
C-HS2-D04-10	25.3	5.7	144	0.0
C-HS2-D07-6	27.1	5.9	364	0.1
C-HS2-D07-8	26.2	5.8	294	0.0
C-HS2-D07-11	25.8	6.2	147	0.0

Sample Identification	Temperature (°C)	pH	Specific Conductance (µS)	Dissolved Oxygen (mg/L)
C-HS2-BKG07-5	26.4	5.2	189	0.1
C-HS2-BKG07-7	25.4	5.7	182	0.2
C-HS2-BKG07-10	25.2	5.2	131	0.1
C-HS2-STE	29.6	7.0	1028	1.3