HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_262

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 262
Drilling Company: Boart Longyear	Driller: ~~B. Hansen~~ I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: ~~Geoprobe 6600~~ shovel/trowel	Borehole Diameter: ~~4.75"~~ NA	Date/Time Drilling Started: 7/11/12 1138		Date/Time Total Depth Reached: 7/11/12 1140 0.5'
Type of Sampling Device: ~~4.75" macrocore with acetate liner~~ shovel/trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 1 lbs.) 38443 ~~38447~~ (1145) Ni-59		
Geologist: Timothy Morse		Checked By / Date: 7-13-12		
Radiological Background: 34/33/8 CPM	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	84	Silty Sand: dark Yellowish Brown (10YR 4/6) 35% silt, 60% fine grained sand, 5% medium grained sand, dry, no odor, trace rootlets, trace sandstone gravel, loose 0-6"	SM		
1.0			0.0	90			1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

Total depth = 0.5' bgs.
No GW encountered

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 202
Drilling Company: HGL	Driller: ~~I. Stone~~ D. Hansen	Ground Elevation: NA		Total Depth Drilled: 1'2" ft bgs.
Drilling Equipment: ~~Shovel/Trowel~~ Geoprobe 6600	Borehole Diameter: ~~NA~~ 1.75"	Date/Time Drilling Started: 7/11/12 1146		Date/Time Total Depth Reached: 7/11/12 1149
Type of Sampling Device: ~~Shovel/Trowel~~ 1.75" macrocore with acetate liner		Samples Collected: (1) Bag (Approx. 1 lbs.)		30446.(NS) NO Sample Collected
Geologist: Timothy Morse		Checked By / Date: [illegible]		7-13-12
Radiological Background: 34/33/8 cpm	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings NA (CPM)
0.5			0.0	60	Silty Sand: dark Yellowish Brown (10YR 4/6) 35% silt, 60% fine grained sand, 5% medium grained sand, dry, no odor, trace rootlets, 0'3" trace Sandstone gravel, loose	SM		NA
1.0			0.0	72				NA
			0.0	78	Sandstone Bedrock: Light Yellowish Brown (2.5Y 6/4) mechanically weathered to SP poorly graded, fine grained Sand, dry, no odor, hard to very hard	Bedrock	1	NA
					1'2" bgs.	Bedrock		
2.0					Total Depth = 1'2" bgs		2	
					Refusal on Sandstone Bedrock			
3.0					No GW encountered		3	
					NO Sample Collected (Not enough recovery)			
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_263

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 263
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/11/12 1330		Date/Time Total Depth Reached: 7/11/12 BHP 30447 (1345) Ni-59
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 2 lbs.)		30447 (1345) Ni-59
Geologist: Timothy Morse		Checked By / Date:		7-13-12
Radiological Background: 48/2902 CPM	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	78	Silty Sand: dark yellowish Brown (10YR 4/4) 35% silt, 60% fine grained Sand, 5% medium grained Sand, dry, no odor, trace rootlets, Low to no plasticity, loose	SM		
1.0			0.0	66			1	
2.0					Total depth = 0.5' bgs No GW encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 263
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 3.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/11/12 1348		Date/Time Total Depth Reached: 7/11/12 1356
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lbs.) 30448 (1415) Ni-59		
Geologist: Timothy Morse		Checked By / Date: [signature] 7-13-12		
Radiological Background: 48 / 2902 CPM	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5 (CPM)
0.5			0.0	66	Silty Sand: dark Yellowish Brown (10YR 4/4) 35% silt, 60% fine grained sand, 5% medium grained sand, dry, no odor, trace rootlets, Low to no plasticity, loose	SM		3791
			0.0	72				5067
1.0			0.0	66	1'0"		1	5576
					Sandstone cobble bedrock: Light olive Brown (2.5Y 5/6) possible mechanically weathered Sandstone cobble, weathers to SP fine grained sand, dry, no odor, hard	Bedrock (SP)		
			0.0	60	1'6"			6131
2.0			0.0	66	Sandy Silt: dark Yellowish Brown (10YR 3/4) 45% fine grained sand, 55% silt, medium firm, dry, no odors, low strength	ML	2	6034
					2'0"			
			0.0	54	Weathered Sandstone Bedrock: Light Yellowish Brown (2.5Y 6/4), mechanically weathers to fine grained sand SP poorly graded sand, dry, no odor, Pockets of Layered Sandy Silt (possible voids in sandstone bedrock) hard	W(SP) weathered sandstone bedrock		5499
3.0			0.0	60			3	5650
			0.0	72				5773
					3.5' bgs	Bedrock		
4.0					Total depth = 3'6" bgs. Refusal on Sandstone Bedrock NO GW encountered		4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_264

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 264
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/11/12 1023		Date/Time Total Depth Reached: 7/11/12 1029
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 1 lbs.)		30449 (1025) Ni-SA
Geologist: Timothy Morse		Checked By / Date:		7-13-12
Radiological Background: 47 / 3018 cpm	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	84	Silty sand: Yellowish Brown (10YR 5/4) 35% Silt, 60% fine grained Sand, 5% medium grained Sand, dry, no odor, trace rootlets, trace sandstone and fill gravel ≤ 1/2" max diameter	AF/SM	1	
1.0			0.0	90	0'6" Loose, low to no plasticity			
2.0					Total depth = 0.5' bgs. NO GW encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 264
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 8.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/11/12 1030		Date/Time Total Depth Reached: 7/11/12 1045
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lbs.) 30450 (1120) WI-59		
Geologist: Timothy Morse		Checked By / Date: [signature] 7-13-12		
Radiological Background: 47 cpm / 3018	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings for 3043 (CPM)
			0.0	66	Silty Sand: Yellowish Brown (10YR 5/4) 35% silt, 60% fine grained sand, 5% medium grained sand, dry, no odor, trace rootlets, trace sandstone and fill gravel ≈ ½" max diameter loose to medium dense, low to no plasticity	AF/SM		3517
0.5			0.0	78				4873
1.0			0.0	84			1	4999
			0.0	54				5327
					- 18"-20" piece of concrete debris ≈ 1" diameter			
2.0			0.0	54	2'0"		2	5388
			0.0	60	Silty Sand: dark Yellowish Brown (10YR 3/4) 40% silt, 60% fine grained sand, dry, no odor, medium dense, trace rootlets, low to no plasticity	SM		5451
3.0			0.0	42			3	5414
					3'3"			
			0.0	54	Silty Sand: dark Yellowish Brown (10YR 4/6) ~~25%~~ 20% silt, ~~75%~~ 80% fine grained sand, trace medium grained sand, trace rootlets, ~~dense~~ medium dense, no to low plasticity, dry, no odor			5257
4.0			0.0	84			4	5300
			0.0	96		SM		5178
5.0			0.0	90			5	5164
			0.0	78	5'6"			5189
					Same as description below...			
6.0			0.0	72		SM	6	5185

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 1	Location ID: 264
Radiological Background: 47 / 3018 cpm	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	72	Sand with Silt: Dark Yellowish Brown (10YR 4/6), 85% fine grained Sand, 5% med. grained Sand, 10% Silt, dense, slightly moist, no plasticity, no odor	SM	6	5185
			0.0	60				5191
7.0			0.0	60			7	5264
			0.0	84	7'6"			5305
8.0			0.0	72	Weathered Sandstone bedrock: Light olive Brown (2.5Y 5/6) Mechanically weathers to SP poorly grad Sand, 60% fine grained Sand, 40% medium grained Sand, dry, no odor, very dense	Weathered Sandstone Bedrock SP	8	5446
			0.0	66	8'6"			5585
9.0					Total depth = 8'6" bgs. Refusal on Sandstone bedrock NO GW encountered	Bedrock	9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeologic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_265

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 265
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/11/12 0850		Date/Time Total Depth Reached: 7/11/12 0855 ~~30451 (0855) Ni-59 mTN~~
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 1 lbs.) 30451 (0855) Ni-59		
Geologist: Timothy Morse		Checked By / Date: [signature] 7-13-12		

Radiological Background: 41 / 3379 cpm

Radiological Equipment Used: Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	78	Silty Sand: dark Yellowish Brown (10YR 4/4) 35% silt, 60% fine grained Sand, 5% medium grained Sand, dry, loose, no odor, trace rootlets, trace sandstone gravel 1/8" diameter max.	SM	1	
0.5			0.0	90				
1.0					Total depth = 0.5' bgs. No GW encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 265
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 7.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/11/12 0910		Date/Time Total Depth Reached: 7/11/12 0920
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 1/2 Gallon Bag (Approx 1 lbs.) 30452 (0950)		DUP 30499 Ni-59 (NT) Ni-59
Geologist: Timothy Morse		Checked By / Date: Brian 7-13-12		
Radiological Background: 42/3379 CPM	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
			0.0	66				4043
0.5			0.0	60	Silty Sand: dark Yellowish Brown (10YR 4/4) 35% silt, 60% fine grained sand, 5% medium grained sand, dry, ~~loose~~ TM, no odor, Loose to medium dense, trace rootlets, trace sandstone gravel, max diameter ½", low to no plasticity	SM		4949
1.0			0.0	72			1	5393
			0.0	66				5554
2.0			0.0	60	1'10"		2	5717
			0.0	84	Silty Sand: dark Yellowish Brown (10YR 3/6) 45% silt, 55% fine grained sand, dry, no odor, medium dense, trace rootlets, low to no plasticity	SM		5697
3.0			0.0	66			3	5778
			0.0	72	3'9"			5532
4.0			0.0	84	Silty Sand: dark Yellowish Brown (10YR 4/6) 20% silt, 80% fine grained sand, dry, no odor, medium dense to dense, no plasticity, trace rootlets	SM	4	5523
			0.0	78				5503
5.0			0.0	74			5	5357
			0.0	66				5527
6.0			0.0	90			6	5406

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 1	Location ID: 265
Radiological Background: 42/3379 CPM	Radiological Equipment Used: Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	90	- Same as above, except Slightly moist	SM	6	5406
			0.0	96	- - - - - - - - - - - - - - - - - - - -			5639
7.0			0.0	96	Sand with silt; dark Yellowish Brown (10YR 4/6) 85% fine grained sand, 5% medium grained sand, 10% silt, no odor, slightly moist, dense, slight mottling	SM	7	5405
			0.0	90	7'6"			5533
8.0					Total depth = 7'6" bgs. No GW encountered Refusal on Sandstone bedrock	Bedrock	8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_266

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 4	Location ID: 266
Drilling Company: HGL	Driller: ~~T. Morse~~ I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.8" ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/6/12 0844		Date/Time Total Depth Reached: 7/6/12 0850
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.)		30453 (0850) Gamma Spec
Geologist: Timothy Morse		Checked By / Date:		7-10-12

Radiological Background: 41 cpm / 2920 | Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters | PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	84	2" asphalt — 2" asphalt			
1.0			0.0	78	Silty Sand: Yellowish Brown (10YR 5/6) 25% Silt, 65% fine grained sand, 10% medium grained sand, trace asphalt gravel, trace fill gravel (max dimn. 1"), dry, no odor, loose 0-8"	AF/SM	1	
2.0					Total Depth = 8" bgs. (2" asphalt on surface) NO GW encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 266
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 7'0" ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/6/12 0859		Date/Time Total Depth Reached: 7/6/12 0915
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		30454 (0950) DUP collected 30500 (NT)
Geologist: Timothy Morse		Checked By / Date: [illegible]		7-10-12

Radiological Background: 41 cpm / 2920

Radiological Equipment Used: Micro R / Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings 10.5 2826 (CPM)
			0.0	66	2" asphalt			3591
0.5			0.0	78	Silty Sand: Dark Yellowish Brown (10YR 4/4) 25% Silt, 65% fine grained sand, 10% med. grained sand, trace asphalt gravel, trace fill gravel (max size 2" diam.), dry, no odor, loose	AF/SM		4805
1.0			0.0	48			1	5315
			0.0	60	1'6"			5600
2.0			0.0	72	Silty Sand: Yellowish Brown (10YR 5/4) 35% Silt, 50% fine grained sand 10% med. grained sand), 5% Sandstone and Siltstone gravel, max. size 2" diameter, dry, no odor, medium dense, presence of mottling, Pockets of Sand: Light yellowish Brown (2.5Y 6/4) at 1'10" bgs and 2'6" bgs.	AF/SM	2	5727
			0.0	60				5726
3.0			0.0	60	2'10"		3	5706
			0.0	48	Sandy Silt: Dark Brown (10YR 3/3) 30% fine grained sand, 70% Silt, trace med. grained Sand, slight mottling, dry, no odor, stiff/firm, medium strength, medium toughness, Cohesive	ML		5713
4.0			0.0	54			4	5889
			0.0	60				5762
5.0			0.0	66	4'8"		5	5504
			0.0	54	Sandy Silt w/clay: Dark Brown (10YR 3/3) 30% fine grained Sand, 60% Silt, 10% Clay, Slightly moist, no odor, Stiff/firm, med. Strength and toughness, Cohesive	ML		5491
6.0			0.0	48			6	5155

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 266
Radiological Background: 41 cpm / 2920	Radiological Equipment Used: ~~MicroR~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	48	Same as above... Sandy Silt w/clay		6	5155
					6'7"			
			0.0	78	Sandstone, mechanically weathers to SP poorly graded sand. 90% fine grained sand, 10% medium grained sand, dense to very dense,	SP		5296
7.0			0.0	72	7'0" slightly moist, presence of oxy/red. mottling		7	5390
					← Light olive Brown: (2.5Y 5/4) →			
					TD = 7'0" bgs. refusal on Sandstone Bedrock	Bedrock		
					NO GW encountered			
8.0							8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeologic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_267

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 267
Drilling Company: HGL	Driller: ~~T. Morse~~ I. Stone	Ground Elevation: NA		Total Depth Drilled: 0'8" ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/10/12 ~~1120~~ 1100		Date/Time Total Depth Reached: 7/10/12 1114
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.)		30455 (1115) Gamma Spec
Geologist: Timothy Morse		Checked By / Date:		7-11-12
Radiological Background: 48/2837 CPM	Radiological Equipment Used: ~~Micro~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	78	2" asphalt / 2" asphalt			
			0.0	84	Silty Sand: Brown (10YR 4/3) 40% silt, 55% fine grained sand, 5% medium grained sand, trace fill gravel, asphalt, trace rootlets, dry, no odor, medium dense	AF/SM		
1.0					0'8"		1	
					Total Depth: 0'8" bgs. NO GW encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 267
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 5.0' ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/10/12 1126		Date/Time Total Depth Reached: 7/10/12 1154
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 30456 (1155) Gamma Spec		
Geologist: Timothy Morse		Checked By / Date: [illegible] 7-11-12		
Radiological Background: 48 / 2837 CPM	Radiological Equipment Used: ~~MicroR~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
			0.0	66	1111 2" asphalt 1111 2" asphalt			3742
0.5			0.0	90	Silty Sand: Brown (10YR 4/3) 40% silt, 55% fine grained Sand, 5% medium grained Sand, trace fill gravel/asphalt, trace rootlets, dry, no odor, medium dense	AF/SM		4832
1.0			0.0	72			1	4989
			0.0	60	1'9"			4358
2.0			0.0	66	Well graded Sand (fill): Light Yellowish Brown (2.5Y 6/3) 50% fine grained Sand, 35% medium grained Sand, 15% coarse grained Sand, dry, loose, no odor	SW	2	4394
			0.0	60	2'6"			5127
3.0			0.0	54	Sandy Silt w/clay: Dark Brown (10YR 3/3) 35% fine grained Sand, 55% silt, 10% clay, slight mottling, very firm/stiff, medium to high strength, medium toughness, cohesive, slightly moist, no odor	ML	3	5220
			0.0	72				5365
4.0			0.0	84			4	5023
					4'3"			
			0.0	78	Sandstone Bedrock, mechanically weathers to SP, Poorly graded fine grained Sand: Light olive Brown (2.5Y 5/6) slightly moist, no odor, very dense	Weathered Bedrock (SP)		4969
5.0			0.0	84	5'0"		5	4905
					Total depth = 5'0" bgs Refusal on Bedrock (sandstone) NO GW encountered			
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_268

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 268
Drilling Company: HGL	Driller: ~~T. Morse~~ TM I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/10/12 1340		Date/Time Total Depth Reached: 7/10/12 1345
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx 5 lbs.)		30457 (1345) gamma spec
Geologist: Timothy Morse		Checked By / Date:		Ring 7-11-12
Radiological Background: 50 / 2854 CPM	Radiological Equipment Used: ~~Micro R.~~ TM Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	84	Silty Sand: Brown (10YR 4/3) 40% silt, 55% fine grained sand, 5% medium grained sand, trace asphalt, trace fill gravel, trace brick fragments, dry, no odor, loose	AF/SM	1	
			0.0	78				
1.0					Total Depth = 0.5' bgs			
					No GW encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 268
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 8.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/10/12 1346		Date/Time Total Depth Reached: 7/10/12 1410
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 30458 (1435) gamma spec		
Geologist: Timothy Morse		Checked By / Date: [illegible] 7-11-12		
Radiological Background: 50/2854 cpm	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM) ~~10.5~~ 2866
0.5			0.0	84	Silty Sand: Brown (10YR 4/3) 40% silt, 55% fine grained sand, 5% medium grained sand, trace asphalt, trace fill gravel, trace brick fragments, dry, no odor, loose	AF/SM		3241
			0.0	78				4636
1.0			0.0	84	1'0"		1	5076
			0.0	96	Silty Sand: Brown (10YR 4/3) 45% silt, 45% fine grained sand, 5% medium grained sand, 5% coarse grained sand, trace quartzite fill gravel, trace concrete debris, trace brick fragments/possible clay pipe fragment, dry, no odor, medium dense, mottled, trace siltstone fragments 1-1½" diameter			5092
2.0			0.0	66			2	5184
			0.0	60		AF/SM		5188
3.0			0.0	44			3	5147
			0.0	60				5155
4.0			0.0	78			4	5228
			0.0	78				5318
5.0			0.0	72	→ 5' clay pipe fragment/brick fragment? 1" by 2"		5	5528
			0.0	66				5318
6.0			0.0	60	6'0" - 6' bgs Large tree root ~3" diameter		6	5273

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	5A	4	268

Radiological Background:	Radiological Equipment Used:	PID Used:
0 / 5354 cpm	~~Micro R~~ / Downhole / Pancake Meters	Mini Rae 3000 - Background: 00 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	60	6'0"		6	5273
			0.0	60	~6' bgs large tree root ~3" diameter	(SP)		5383
7.0			0.0	54	Sandstone Bedrock, Mechanically weathered to fine grained, Poorly graded Sand (SP) Light olive Brown (2.5Y 5/4) slightly moist, no odor, dense to hard, presence of mottling	weathered Sandstone Bedrock	7	5481
			0.0	60				NA
8.0			0.0	84	~7.5' pocket of fine grained Sand w/silt from 7.5' to 7.75' bgs. dark Brown (10YR 3/3)		8	NA
			0.0	72	8'6"			NA
9.0					Total depth = 8'6" bgs. Refusal on sandstone bedrock NO GW encountered	Bedrock	9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

5A_269

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 269
Drilling Company: HGL	Driller: ~~T. Morse~~ I. Stone	Ground Elevation: NA ?		Total Depth Drilled: 0'8" ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/10/12 0910		Date/Time Total Depth Reached: 7/10/12 0920
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.) 30459 (0920) Gamma Spec		
Geologist: Timothy Morse		Checked By / Date: [signature] 7-11-12		
Radiological Background: 45 / 2638 cpm	Radiological Equipment Used: ~~Micro~~ R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0			0.0	66	2" asphalt ~~2" asphalt~~ AF = Artificial Fill			
0.5			0.0	72	Silty Sand: Dark Yellowish Brown (10YR 4/4) 40% silt, 55% fine grained Sand, 5% medium grained sand, loose, dry, no odor, trace fill gravel, trace asphalt, trace rootlets	AF/SM		
1.0							1	
					TD = 0'8" bgs 2" asphalt at surface			
2.0					NO GW encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 269
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10' ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/10/12 0944		Date/Time Total Depth Reached: 7/10/12 0941
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) 30460 (1015) Gamma Spec		
Geologist: Timothy Morse		Checked By / Date: [signature] 7-11-12		
Radiological Background: 45/3838 cpm	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5 3134 (CPM)
			0.0	66	2" asphalt / 2" asphalt			3280
0.5			0.0	72	Silty Sand: Dark Yellowish Brown (10YR 4/4) 40% silt, 55% fine grained Sand, 5% medium grained Sand, Loose, dry, no odor, trace fill gravel, trace asphalt, trace rootlets	AF / SM		4103
1.0			0.0	72	1'0"		1	5133
			0.0	66	Sandy Silt with Clay: Dark Brown (10YR 3/3), 35% fine grained Sand, 55% Silt, 10% Clay, slightly moist, no odor,			5412
2.0			0.0	60	Stiff/firm to very stiff/firm, medium to high strength, medium toughness, cohesive,		2	5336
			0.0	61	slight mottling	ML		5618
3.0			0.0	48	- 1/2" diameter root found at 2.5' bgs.		3	6536
			0.0	54				5560
4.0			0.0	78	4'0"		4	5481
			0.0	60	Silty Sand: olive Brown (2.5Y 4/3) 45% silt, 55% fine grained Sand, slightly moist, no odor, medium dense to dense, trace			5497
5.0			0.0	66	Calcium carbonate deposits, low to no plasticity	SM	5	5520
			0.0	78	5'6" -			5698
6.0			0.0	72	Description continued on next page...	SM	6	5566

HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	SA	4	269

Radiological Background: 45/2838 cpm

Radiological Equipment Used: ~~Micro-R~~ Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	71	continued from previous page...		6	5566
			0.0	66	Silty Sand: Olive Brown (2.5Y 4/4) 20% Silt, 80% fine grained Sand, slightly moist, no odor, med. dense to dense, no plasticity	SM		5704
					6'6"			
7.0			0.0	54	Weathered Sandstone, mechanically weathers to Sand with Silt: Light olive Brown (2.5Y 5/6), mechanically weathers to 90% fine grained Sand, 10% Silt, slightly moist, no odor, dense, trace siltstone deposits	weathered Bedrock (SP)	7	5302
			0.0	60				5088
8.0			0.0	78			8	5193
			0.0	54				5606
9.0			0.0	60			9	5522
					9'3"			
			0.0	78	Sandstone Bedrock, mechanically weathers to SP fine grained/poorly graded Sand: Yellowish Brown (10YR 5/6) dry, no odor, dense/very dense, trace siltstone	Bedrock		NA
10.0			0.0	77	10'0"		10	NA
					Total depth = 10' bgs. NO refusal No GW encountered			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_270

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 270
Drilling Company: HGL	Driller: ~~T. Morse~~ TM I. STONE	Ground Elevation: NA		Total Depth Drilled: TM ~~0.5~~ 8" bgs ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/9/12 0845		Date/Time Total Depth Reached: 7/9/12 0855
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. ~~5~~ lbs.)		30461 (0855) Gamma Spec
Geologist: Timothy Morse		Checked By / Date: LuDean Robbins 7/13/12		
Radiological Background: 39 / 2892 CPM	Radiological Equipment Used: ~~Micro R~~ TM / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	70	2" asphalt / 2" asphalt			
			0.0	72	Silty Sand; Yellowish Brown (10YR 5/6) 35% Silt, 60% fine grained Sand, 5% med. grained Sand, trace asphalt + fill gravel, trace broken glass, trace rootlets, dry, no odor, loose	AF/SM		
1.0					8" BGS		1	
					Total Depth = 8" bgs. 2" asphalt on surface			
					NO GW encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 270
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10' ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/9/12 0914		Date/Time Total Depth Reached: 7/9/12 0924
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) 3046 (1000) Gamma Spec		
Geologist: Timothy Morse		Checked By / Date: LuAnn Robbins 7/13/12		

Radiological Background: 39 / 2892 CPM
Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters
PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
			0.0	66	2" asphalt / 3" asphalt			4221
0.5			0.0	60	Silty Sand: Yellowish Brown (10YR 5/6) 35% silt, 60% fine grained sand, 5% med. grained sand, trace asphalt + fill gravel max 2" diameter, trace broken glass, trace rootlets, dry, no odor, loose	AF/SM		4377
1.0			0.0	48	1'0"		1	5149
			0.0	66	Silty Sand: Dark Yellowish Brown (10YR 4/4) 45% silt, 50% fine grained sand, 5% medium grained sand, trace sandstone and siltstone gravel, trace rootlets, medium dense to dense, dry, no odor, mottling	AF/SM		5482
2.0			0.0	60			2	5647
			0.0	66				5675
3.0			0.0	72	3'2"		3	5596
			0.0	60	Sandy Silt w/clay: Dark Brown (10YR 3/3) 30% fine grained sand, 60% silt, 10% clay slightly moist, no odor, stiff/firm, medium strength, med. toughness,	ML		5680
4.0			0.0	66			4	5566
			0.0	78				5732
5.0			0.0	72			5	5597
			0.0	60				5563
6.0			0.0	66	6'0"		6	5548

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	SA	4	270

Radiological Background: 39 / 2892 cpm

Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	66	6'0"		6	5548
			0.0	54	Silty Sand: Brown (10YR 4/3) 45% silt, 50% fine grained Sand, 5% med. grained Sand, trace amount of clay,	SM		5463
7.0			0.0	60	slightly moist, no odor, dense, low plasticity		7	5412
			0.0	48				5532
8.0			0.0	54			8	5636
			0.0	72	Sand w/ silt: Light olive Brown (2.5Y 5/6) 70% fine grained Sand, 10% medium grained			5726
9.0			0.0	60	Sand, 10% silt, dry, no odor, dense, no plasticity	SM	9	5554
			0.0	66				5646
10.0			0.0	72	10'0"		10	5579
					Total Depth = 10' bgs. no refusal No GW encountered			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_271

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 4	Location ID: 27H
Drilling Company: HGL	Driller: ~~T. Morse~~ I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5' ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/6/12 1016		Date/Time Total Depth Reached: 7/6/12 1020
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx 5 lbs.)		30463 (1020)
Geologist: Timothy Morse		Checked By / Date:		7-10-12

Radiological Background: 41 cpm / 2704

Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0			0.0	90	AF = artificial fill Silty Sand: Yellowish Brown (10YR 5/6) 35% Silt, 60% fine grained Sand, 5% medium grained Sand, trace fld gravel (1.5" max dim) dry, no odor, loose	AF/SM	0	
0.5			0.0	78			1	
1.0					Total depth = 0.5' bgs. NO GW encountered		2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

HGL HydroGeoLogic, INC Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 271
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 6.5' ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/6/12 1021		Date/Time Total Depth Reached: 7/6/12 1100
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) 30464 (1100)		
Geologist: Timothy Morse		Checked By / Date: [illegible] 7-10-12		
Radiological Background: 41 cpm / 1704	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5' 2914 (CPM)
			0.0	66				3041
0.5			0.0	48	Silty Sand: Yellowish Brown (10YR 5/6) 35% silt, 60% fine grained Sand, 5% med. grained Sand, trace fill gravel (1.5" max dimeto) dry, no odor, loose	AF/SM		4229
1.0			0.0	78			1	5015
			0.0	66	1'6"			5304
2.0			0.0	60	Silty Sand: Dark Yellowish Brown (10YR 4/4) 40% silt, 55% fine grained Sand, 5% med. grained Sand, trace sandstone and fill gravel, medium dense, dry, no odor	AF/SM	2	5526
			0.0	54	2'6" - 2" piece of quartzite gravel at 30" bgs			5574
3.0			0.0	60	Sandy Silt: Dark Brown (10YR 3/3) 30% fine grained Sand, 5% med. grained sand, 65% silt, presence of mottling, dry, no odor, medium stiff/firm, medium strength/toughness, Cohesive	ML	3	5590
			0.0	60				5422
4.0			0.0	66	4'0"		4	5639
			0.0	72	Sandy Silt w/ clay: Dark Brown (10YR 3/3) 30% fine grained Sand, 60% silt, 10% clay, slightly moist, no odor, stiff/firm to very stiff/firm, med. to high strength, med. toughness, Cohesive			5532
5.0			0.0	72		ML	5	5510
			0.0	66				5342
6.0			0.0	60			6	5356

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 271
Radiological Background: 41 cpm / 2704	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:	0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	60	Same as above...		6	5356
					6' Sandstone mechanically weathers to SP, Poorly graded Sand; Light olive Brown (2.5Y 5/4) slightly moist, very dense, no odor	weathered Sandstone		
			0.0	66	6'6"	Bedrock		5362
					Total depth = 6.5' bgs.			
					Refusal on sandstone Bedrock			
					No GW encountered			
7.0							7	
8.0							8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

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HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 1	Location ID: 273 272
Drilling Company: ~~Boart Longyear~~ HGL	Driller: S Lafevre-Montes	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel/shovel	Borehole Diameter: NA	Date/Time Drilling Started: 7/10/12 1300		Date/Time Total Depth Reached: 7/10/12 1327
Type of Sampling Device: Trowel/shovel		Samples Collected: One 1/2 Gallon Bag (Appox 8 lbs.)		30465 (1325)
Geologist: LRobbins		Checked By / Date:		7-11-12
Radiological Background: 14/3385/49	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0			0.0	14/66	Silty sand: dark yellowish brown (10YR 4/4) low dense, no odor or staining, ~~dry~~ dry, 65% fine to med. sand, 35% silt, trace rootlets, trace asphalt	AF/SM		
0.5			0.0	15/72				
1.0					TD>0.5' bgs no GW encountered		1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 1	Location ID: 272
Drilling Company: HGL	Driller: S. Lapeyre-Montrose	Ground Elevation: NA		Total Depth Drilled: 2.75 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 7/10/12 1327		Date/Time Total Depth Reached: 7/10/12 1433
Type of Sampling Device: Handauger		Samples Collected: One 1/2 Gallon Bag (Appox 8 lbs.)		30466 (1430)
Geologist: L Robbins		Checked By / Date: [signature]		7-11-12
Radiological Background: 14/3385/49	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings 10.5 = 3041 (CPM)
			0.0	66	silty sand: dark yellowish brown (10YR 4/4) low dense, no odor or staining, dry, 65% fine to medium sand, 35% silt, trace rootlets, trace asphalt debris	SM / AF		3127
0.5			0.0	72				4136
1.0			0.0	108			1	5100
			0.1	72 (LR)				5372
2.0			0.0	84			2	5564
			0.0	180				5652
3.0					TD = 2.75' no GW encountered refusal on sandstone		3	5527
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

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SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 2	Location ID: 273
Drilling Company: ~~Boart Longyear~~ HGL	Driller: T. LeVangie	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel/shovel	Borehole Diameter: NA	Date/Time Drilling Started: 7/11/12 1405		Date/Time Total Depth Reached: 7/11/12 1416
Type of Sampling Device: Trowel/shovel		Samples Collected: One 1/2 Gallon Bag (Appox. 8 lbs.)		(W) ~~30467~~ 30468 (1415) 30467 (1415)
Geologist: LRobbins		Checked By / Date:		7-13-12
Radiological Background: 13/2990/74	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = Artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0 1.1	13/60 14/60	Silty sand: dark yellowish brown (10YR 4/4) 75% fine sand, 25% silt, loose, dry, low plasticity, rapid dilantancy, trace asphalt debris, no odor or staining	AF SM		
1.0					TD=0.5' bgs no GW encountered (W) 1405 S		1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 2	Location ID: 273
Drilling Company: HGL	Driller: J. Lelangie	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 7/11/12 1416		Date/Time Total Depth Reached: 7/11/12 1424
Type of Sampling Device: Handauger		Samples Collected: One 1/2 Gallon Bag (Appox 3 lbs.)		304168 (n/a)
Geologist: L. Robbins		Checked By / Date:		7-13-12
Radiological Background: 13/2990/74	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000 Mini Rae ~~2000~~ - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	60	Silty Sand: dark yellowish brown (10YR 4/4), 75% fine sand, 25% silt, loose, dry; low plasticity, rapid dilantancy, trace asphalt debris, no odor or staining	AF/SM	0	
0.5			1.1	60			0.5	
1.0					TD = 0.5' bgs no GW encountered no sample collected due to Shallow refusal		1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

SSFL BORING LOG

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Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: ~~NBZ~~ 5A (LR)	Group: 2	Location ID: 274
Drilling Company: HydroGeoLogic, Inc.	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel/Shovel	Borehole Diameter: NA	Date/Time Drilling Started: 7/11/12 0859		Date/Time Total Depth Reached: 7/11/12 0906
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Appox. ~~8~~ 1 lbs.)		30469 (0905)
Geologist: L Robbins		Checked By / Date: (LR) Norman Ring		7-13-12
Radiological Background: 15/3307/61	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	14/60	silty sand: dark yellowish brown (10YR 4/4), 75% fine sand, 25% silt, loose, dry, low plasticity, asphalt + crushed metal (aluminum) debris, no odor or staining	AF/SM	1	
1.0			0.0	16/96	TD = 0.5' no GW encountered		2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 2	Location ID: 274
Drilling Company: ~~Boart Longyear~~ HGL	Driller: J. Lebrigie	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: ~~Trowel/shovel~~ hand auger	Borehole Diameter: ~~NA~~ 30in	Date/Time Drilling Started: 7/11/12		Date/Time Total Depth Reached: 7/11/12 1059
Type of Sampling Device: ~~Trowel/shovel~~ hand auger		Samples Collected: One 1/2 Gallon Bag (Appox 8 lbs.)		30470 (1100)
Geologist: L Robbins		Checked By / Date:		
Radiological Background: 15/3307/61	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = Artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings 10.5 = 3334 (CPM)
			0.0	60	Silty sand: dark yellowish brown (10YR 4/4), 75% fine sand, 25% silt, loose, dry, low	AF/SM		3502
0.5			0.0	96	plasticity, asphalt + crushed metal (aluminum) debris, trace concrete, trace rootlets,			3942
1.0			0.3	31.0	no odor or staining		1	4947
			19.8	66 ~~88~~	---large root			5406
2.0			10.3	60			2	5370
			19.5	54				5567
3.0			21.6	60			3	5534
			29.5	78	Silty sand: strong brown (7.5YR 4/4), 75% fine sand, 25% silt, loose, moist, low plasticity, trace rootlets + charcoal, no odor or staining	SM		5711
4.0			9.0	66			4	5547
			5.6	96				5613
5.0			5.1	78			5	5566
			1.0	60	Sand ~~w/ silt~~: yellowish brown (10YR 5/4) 90% fine sand, 10% silt, low dense, moist, low plasticity, no odor or staining	SP		5392
6.0		↓	0.8	102			6	5604

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Sheet 2 of 2

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	5A	2	274

Radiological Background:	Radiological Equipment Used:	PID Used:
15/3307/61	Micro R / Downhole / Pancake Meters	Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.8	102	continued from above: sand ~~w/ silt~~ (LR)	(LL) SM	6	5604
			4.6	84		SP		5600
								5680 (LL)
7.0			0.0	66		(LL)	7	5757 (LR)
			1.1		Sand: brownish yellow (10YR6/6), 90% fine sand, 10% silt, moist, low dense, (LL) no plasticity, no odor or staining	SM		5757
			0.0 (LR)	60		SP		6026 (LR)
8.0			2.1	90			8	6026
								~~5947~~ (LL)
			1.6	60				5947
								~~6041~~ (LR)
9.0			2.0	66			9	6041
								~~6256~~ (LL)
			2.6	90				6256
10.0			0.8	102		(LL)	10	6306
					TD = 10.0' bgs, ~~no refusal on s~~ (LL) no refusal			
					no GW encountered			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

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Sheet 1 of 1

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 2	Location ID: 275
Drilling Company: Boart Longyear (HGL)	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 0.8 ft bgs.
Drilling Equipment: Trowel/shovel	Borehole Diameter: NA	Date/Time Drilling Started: 7/12/12 0822		Date/Time Total Depth Reached: 7/12/12 0825
Type of Sampling Device: Trowel/shovel		Samples Collected: One 1/2 Gallon Bag (Appox 3 lbs.)		30471 (0825)
Geologist: L. Robbins		Checked By / Date: [illegible] 7-13-12		
Radiological Background: 14/3295/59	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					Surface = twigs, leaves, asphalt AF = artificial fill			
			0.0	14/54	2" thick asphalt			
0.5			0.0	15/72	silty sand: dark grayish brown (10YR 4/2), 70% fine to med. sand, 15% coarse sand, 15% silt, abundant asphalt + granitic gravel fragments, trace rootlets + sticks, dry, loose, no odor or staining	SM / AF		
1.0							1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

TD = 0.8' bgs
no GW encountered

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 2	Location ID: 275
Drilling Company: HGL	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 4.33 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 7/12/12 0826		Date/Time Total Depth Reached: 7/12/12 0905
Type of Sampling Device: Handauger		Samples Collected: One 1/2 Gallon Bag (Appox ~~8~~ 4 lbs.)		30472 (0910)
Geologist: L Robbins		Checked By / Date: MS		7-13-12
Radiological Background: 14/3295/99	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: (LR) Mini Rae ~~2000~~ 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID (LR)	Radiological (LR)	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5= 3216 (CPM)
			0.0	54	Surface = 2" thick asphalt AF = artificial fill			3418
					2" thick asphalt			
			0.0	54	2"			
0.5					Silty sand: dark grayish brown (10YR 4/2), 55% fine sand, 15% medium sand, 15% coarse sand, 15% silt, abundant asphalt + granitic gravel fragments, trace rootlets + sticks, dry, loose, no odor, no staining	SM/AF		3873
1.0			0.0	72			1	
			0.0	90				4776
					1'0"	SM/AF		
			0.0	72	Silty sand: dark yellowish brown (10YR 3/4), 75% sand, 25% silt, dry, low dense, no odor or staining low plasticity, trace asphalt + granitic gravel pieces, trace rootlets			5220
2.0			0.0	72			2	5559
			0.0	54	Silty sand: yellowish brown (10YR 5/6), 85% fine sand, 15% silt, moist, med. dense, low plasticity, trace asphalt + gravel fragments some calcium carbonate concretions	SM/AF		5633
3.0			0.0	114 441 (LR)			3	5679
			0.0	36	Sand: yellowish brown (10YR 5/6), 90% fine to medium sand, 10% silt, moist, low dense, no plasticity, asphalt + granitic gravel debris (trace amount)	SP SM (LR) /AF		5623
4.0			0.0	96			4	5765
			0.0	72				
					TD = 4'4" (or 4.33') bgs, refusal on sandstone no GW encountered no anomalies			
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

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SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 2	Location ID: 276
Drilling Company: ~~Boart Longyear~~ HGL	Driller: J. Lebarque	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel/shovel	Borehole Diameter: NA	Date/Time Drilling Started: 7/11/12 1120		Date/Time Total Depth Reached: 7/11/12 1129
Type of Sampling Device: Trowel/shovel		Samples Collected: 1 One 1/2 Gallon Bag (Appox 8 lbs.)		30473 (1130)
Geologist: LRobbins		Checked By / Date: ~~MMH~~ Bmm		7-13-12
Radiological Background: 15/3408/50	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological (uR/ pancake)	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = Artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	14/66	silty sand: dark yellowish brown (10YR 4/4) 75% fine sand, 25% silt, loose, dry, low plasticity, glass debris, no odor or staining	AF/SM		
0.5			0.0	15/96				
1.0					TD = 0.5' no GW encountered		1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 2	Location ID: 276
Drilling Company: HGL	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 3.75 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 7/11/12 1131		Date/Time Total Depth Reached: 7/11/12 1343
Type of Sampling Device: Handauger		Samples Collected: One 1/2 Gallon Bag (Appox 8 lbs.)		30474(1345)
Geologist: L. Robbins		Checked By / Date: LR		Bicay
Radiological Background: 15/3408/50	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 2000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings #2 5-3287 (CPM)
0.5			0.2	66	Silty Sand: dark yellowish brown (10YR 4/4), 75% fine sand, 25% silt, loose, dry, low plasticity, glass debris, no odor or staining, rapid dilantancy	AF/SM		3378
			0.0	96				4137
1.0			1.7	78			1	4932
			1.5	66				5252
2.0			3.2	78			2	5405
			3.3	60				5462
3.0			3.2	60	Silty Sand: brownish yellow (10YR 6/6), 60% fine sand, 25% silt, 15% subangular siltstone gravel, no odor or staining, slow dilantancy, ~~rapid dilantancy~~ moist, low dense	SM	3	5471
			4.4	72				5508
								5318
4.0							4	5412 LR
					TD=3.75', refusal on sandstone			
					no GW encountered			
					no anomalies			
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

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SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 2	Location ID: 277
Drilling Company: HGL (LE)	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 0.8 ft bgs.
Drilling Equipment: ~~Hand Auger~~ trowel	Borehole Diameter: ~~3.0 inches~~ (LE) n/a	Date/Time Drilling Started: 7/12/12 0920		Date/Time Total Depth Reached: 7/12/12 0926
Type of Sampling Device: ~~Handauger~~ (LE) trowel		Samples Collected: (LE) One 1/2 Gallon Bag (Appox ~~8~~ 4 lbs.) TWD		30475 (0925) / 30501 (NT) Field Dup
Geologist: L. Robbins		Checked By / Date: MS 7-13-12		
Radiological Background: 13/3037/68	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000 Mini Rae ~~2000~~ - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological (← uR/cpm)	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) (LE) AF=artifical fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0					2" thick asphalt			
0.5			0.0	14/12	silty sand: dark yellowish brown (10YR 4/4), 75% fine sand, 25% silt, dry, low dense, no odor or staining, low plasticity, trace asphalt + granitic gravel debris (max size 10mm), trace rootlets, small malleable metal piece (≈10mm)	SM/AF		
1.0			0.0	14/84		(LE)	1	
2.0					TD = 0.8' no GW encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 2	Location ID: 277
Drilling Company: ~~Boart Longyear~~ HGL	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 4.0 ft bgs.
Drilling Equipment: ~~Trowel/shovel~~ handauger	Borehole Diameter: ~~NA~~ 3.0"	Date/Time Drilling Started: 7/12/12 0910		Date/Time Total Depth Reached: 7/12/12 1007
Type of Sampling Device: ~~Trowel/shovel~~ handauger		Samples Collected: One 1/2 Gallon Bag (Appox ~~8~~ lbs.)	4	30476(1010)
Geologist: L-Robbins		Checked By / Date:		7-13-12
Radiological Background: 13/3037/68	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5=3340 (CPM)
			0.0	72	2" thick asphalt 2"			3745
0.5			0.0	84	Silty sand: dark yellowish brown (10YR 4/4), 75% fine sand, 25% silt, dry, loose, no odor or staining, low plasticity, trace asphalt + granitic gravel debris (max size 10mm), trace rootlets, small metal piece (~10mm) malleable metal	SM/AF		4792
1.0			0.0 ~~0.0~~ 28.0	72			1	5357
			3.6	64				5723
2.0			6.2	54			2	5678
			28.4	54	2'7"			5716
3.0			5.5	36	Silty sandy clay: dark yellowish brown (10YR 3/6), 65% fine sand, 25% silt, 10% clay, trace subangular siltstone gravel, moist, medium dense, no odor or staining, trace asphalt pieces	SM/AF	3	5918
			16.6	78				5843
4.0			19.9	72			4	5370
					TD = 4.0' bgs, refusal on siltstone no GW encountered no anomalies			
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

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Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 278
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/12/12 0950		Date/Time Total Depth Reached: 7/12/12 0954
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.)		30477-0955
Geologist: Ian Stone		Checked By / Date:		7-13-12

Radiological Background: 2982 / 50	Radiological Equipment Used: ~~Micro~~ R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 90 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	60	Sandy Silt w/gravel, Yellowish brown (5Y4 10YR) 20% fine sand, 70% silt, 10% gravel, trace concrete, dry, ~~wet~~ (F) soft, low tough, low strength, low plasticity, no odor or staining	AF/ML		
1.0			0.0	72			1	
2.0					TD = 0.5 ft bgs no gw encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 278
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 3.75 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/12/12 1010		Date/Time Total Depth Reached: 7/12/12 1020
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		30278-1045
Geologist: I. Stone		Checked By / Date: [illegible] 7-13-12		
Radiological Background: 2982 / 50	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5': 3051 (CPM)
0.5			0.0	60	Sandy Silt w/gravel, Yellowish brown (5/4 10YR) 20% fine sand, 70% silt, 10% gravel, trace concrete, dry, ~~med stiff~~, low tough, low strength, low plasticity, no odor or staining, soft	AF/ML		3586
			0.0	54	(0.0-0.8')			4485
1.0			0.0	66	Silty Sand, Yellowish brown (5/6 10YR) 60% fine sand, 10% medium sand, 30% silt, dry, med dense, no odor or staining, trace gravel	AF/SM	1	4958
			0.0	78	(0.8'-2.0')			5384
2.0			0.0	54	Sand, very pale brown (7/3 10YR) 30% fine sand, 50% medium sand, 15% coarse sand, 5% silt, dry, med dense, no odor or staining	AF/SW	2	5630
			0.0	54	(2.0-2.5')			5397
3.0			0.0	60	Silty Sand, Yellowish brown (5/6 10YR), 50% fine sand, 30% medium sand, 20% silt, dry, med dense, no odor or staining	SM	3	NA
					(2.5'-3.3')			
4.0			0.0	72	Sand (weathered sandstone), Brownish yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining	SP Bedrock	4	NA
					(3.3-3.75')			
5.0					TD = 3.75 ft bgs no gw encountered no anomalies detected refusal on sandstone unable to widen hole past 2.5 ft bgs		5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_279

Sheet 1 of 1

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	5A	3	279
Drilling Company:	**Driller:**	**Ground Elevation:**		**Total Depth Drilled:**
HGL	T. Morse	NA		0.5 ft bgs.
Drilling Equipment:	**Borehole Diameter:**	**Date/Time Drilling Started:**		**Date/Time Total Depth Reached:**
Shovel/Trowel	NA	7/13/12 0916		7/13/12 0919
Type of Sampling Device:		**Samples Collected:**		
Shovel/Trowel		(1) Bag (Approx. 5 lbs.) 30479 - 0920		
Geologist: Ian Stone		**Checked By / Date:** LuAnn Robbins 7/16/12		

Radiological Background:	Radiological Equipment Used:	PID Used:
2443 / 46	~~Micro R~~ / Downhole / Pancake Meters	Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0			0.0	90	Sandy Silt, Yellowish Brown (5/4 10YR)			
0.5			0.0	78	40% fine sand, 60% silt, dry, soft, low tough, low strength, low plasticity, no odor or staining	ML		
1.0					TD = 0.5 ft bgs no gw encountered		1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 279
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 4.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/13/12 0925		Date/Time Total Depth Reached: 7/13/12 0935
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 30480 - 0955		
Geologist: T. Stan		Checked By / Date: J Robbins 7/16/12		
Radiological Background: 2443 / 46	Radiological Equipment Used: ~~Micro R+~~ Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5 = 3170 (CPM)
			0.0	54	Sandy Silt, Yellowish Brown (5/4 10YR), 40% fine sand, 60% silt, soft, dry, low tough, low strength, low plasticity, no odor or staining	ML		3545
0.5			0.0	66				4941
1.0			0.0	90	Sand w/ silt, Brownish Yellow (6/6 10YR) 70% fine sand, 20% medium sand, 10% silt, dry, dense, no odor or staining	SP	1	5115
			0.0	72				5311
2.0			0.0	78	Siltstone, light olive brown (5/3 2.5Y 5/3) interbedded siltstone weathered to ML, dry, very hard, slatey, fractured texture, no odor or staining	Bedrock	2	5495
			0.0	84				NA
3.0			0.0	72	Sand (weathered sandstone), Brownish yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining	SP/ Bedrock	3	NA
			0.0	66				NA
4.0			0.0	60			4	NA
					TD: 4.0 ft bgs no gw encountered refusal on sandstone no anomalies detected unable to widen hole past 2.0 ft for gamma scanning			
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_280

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 280
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/13/12 0830		Date/Time Total Depth Reached: 7/13/12 0834
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.)		30481-0835
Geologist: Ian Stone		Checked By / Date: LeAnn Robbins 7/16/12		
Radiological Background: 3243 / 48	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0			0.0	72	Sandy Silt, Yellowish brown (5/4 10YR)	ML		
0.5			0.0	90	40% fine sand, 60% silt, dry, soft, low tough, low strength, low plasticity no odor or staining			
1.0					TD = 0.5 ft bgs; no gw encountered		1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 3	Location ID: 280
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 2.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/13/12 0839		Date/Time Total Depth Reached: 7/13/12 0846
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		30482-0900
Geologist: I. Shaw		Checked By / Date: LuAnn Robbins 7/16/12		
Radiological Background: 3248 / 48	Radiological Equipment Used: ~~Micro R7~~ Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5' = 3134 (CPM)
0			0.0	60	Sandy Silt, Yellowish brown (5/4 10YR) 40% fine sand, 60% silt, dry, soft low toughness, low strength, low plasticity, no odor or staining	ML		3699
0.5			0.0	84	(0-0.5')			3674
					Silty Sand, Strong Brown (4/6 ~~7.5~~ 7.5YR) 70% fine sand, 30% silt, dry, med dense, no odor or staining	SM	1	5168
1.0			0.0	72	(0.5-1.2')			
					Sand (weathered sandstone). Brownish Yellow (6/6 10YR) 80% fine sand, 15% medium sand, 5% silt, dry, very dense, no odor or staining	SP		5556
2.0			0.0	90			2	5528
			0.0	60				NA
3.0					TD = 2.5 ft bgs No gw encountered refusal on sandstone no anomalies detected unable to widen hole past 2.0 ft for downhole		3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_281

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 281
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/12/12 1340		Date/Time Total Depth Reached: 7/12/12 1344
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.)		30483 ~~1330~~ 1345
Geologist: Ian Stone		Checked By / Date:		7-13-12

Radiological Background: 3141 / 56

Radiological Equipment Used: ~~Micro~~ R / Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	84	Sandy Silt, light yellowish brown (6/4 10YR) 40% fine sand, 60% silt, dry, soft, low tough, low strength, low plasticity, no odor or staining.	ML	1	
			0.0	120				
1.0								
					TD = 0.5 ft bgs			
					no gw encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 3	Location ID: 281
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 3.75 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/12/12 1359		Date/Time Total Depth Reached: 7/12/12 1409
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		30484 - 1430
Geologist: I. Stone		Checked By / Date: [signature] 7-13-12		
Radiological Background: 3141 / 56	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5' = 3223 (CPM)
			0.0	60	Sandy Silt, light yellowish brown (6/4 10YR) 40% fine sand, 60% silt, ~~trace gravel~~ (F3)			4084
0.5			0.0	114	dry, ~~loose~~ (F3) soft, low tough, low strength, low plasticity, no odor or staining	ML		5359
1.0			0.0	96	(0-1.0')		1	5777
			0.0	84	Sandy Silt, Brownish yellow (6/6 10YR) 30% fine sand, 70% silt, dry, mod stiff, low tough, low strength, low plasticity, no odor or staining	ML		5741
2.0			0.0	72	(1.0-1.75') Siltstone, Olive Brown (4/3 2.5Y) weathered siltstone to ML, very ~~soft~~ (F3) hard, slaty/flaky texture, no odor or staining	Bed-rock	2	5785
			0.0	60	dry			5890
3.0			0.0	60			3	5875
			0.0	72	(1.75-3.75')			NA
4.0					TD = 3.75 ft bgs no gw encountered refusal on sandstone no anomalies detected		4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

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SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 5	Location ID: 282
Drilling Company: HGL	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 7/5/12 0908		Date/Time Total Depth Reached: 7/5/12 0916
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		30485(0915)
Geologist: LRobbins		Checked By / Date:		7-12-12
Radiological Background: 15/3696/68	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological (uR/cpm)	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	16/60	Silty Sand: grayish brown (10YR 5/2), 65% fine sand, 35% silt, trace clay, dry, loose, trace rootlets + grass seeds, no plasticity, no odor or staining	SM		
			0.0	17/96				
1.0					TD=0.5' bgs		1	
					no GW encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 5	Location ID: 282
Drilling Company: HGL	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 3.0 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 7/9/12 0917		Date/Time Total Depth Reached: 7/9/12 0954
Type of Sampling Device: Hand Auger		Samples Collected: One 1/2 Gallon Bag (5 lbs.) 30486(0955)		
Geologist: LRobbins		Checked By / Date: [illegible] 7-10-12		
Radiological Background: 15/3696/68	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +05=3792 (CPM)
			0.0	60	Silty sand: grayish brown (10YR 5/2) 65% fine sand, 35% silt, trace clay, dry, loose, trace rootlets + grass seeds, no plasticity, no odor or staining. trace subangular gravel (sandstone), dry	SM		3959
0.5			0.0	96				4455
1.0			0.0	42			1	5508
			0.0	78	~~Sand~~ Sand w/ silt: dark yellowish brown (10YR 4/4), 85% fine sand, 15% ~~clay~~ silt, trace subangular gravel (sandstone), moist, loose, trace rootlets, no odor or staining	SM		5847
2.0			0.0	42			2	5647
			0.0	60				5542
3.0			0.0	66	weathered Sandstone bedrock: light olive brown (10YR 5/4), fine grained, no odor or staining, dry	bedrock	3	5390
					TD = 3.0' bgs, refusal on sandstone			
					no GW encountered			
					no anomalies			
.0							4	
0							5	
							6	

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HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 5	Location ID: 283
Drilling Company: HGL	Driller: J. LaVangie	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 7/9/12 1003		Date/Time Total Depth Reached: 7/9/12 1005
~~Type of Sampling Device:~~ Trowel/Shovel		~~Samples Collected:~~ One 1/2 Gallon Bag (Approx 5 lbs.)		30487 (1005)
Geologist: L Robbins		Checked By / Date: MMMMM / Rm		7-10-12
Radiological Background: 15 / 13657 / 72	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological (cpm/uR)	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5	0.5	0.5	0.0	78 / 15	Silty sand: grayish brown (10YR 5/2), 65% fine sand, 35% silt, trace clay, dry, loose, trace rootlets, + grass seeds, no plasticity, no odor or staining, trace subangular sandstone gravel	SM	1	
1.0	0.5	0.5	0.0	84 / 16				
2.0					no GW encountered		2	
3.0					TD = 0.5' bgs		3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2 (1R)

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	5A	5	283
Drilling Company:	**Driller:**	**Ground Elevation:**		**Total Depth Drilled:**
HGL	J. LeVangie	NA		3.67 ft bgs.
Drilling Equipment: Hand Auger	**Borehole Diameter:**	**Date/Time Drilling Started:**		**Date/Time Total Depth Reached:**
	3.0 inches	7/9/12 1006		7/9/12 1044
Type of Sampling Device:		**Samples Collected:**		
Hand Auger		One 1/2 Gallon Bag (5 lbs.) 30488 (1045)		
Geologist: L Robbins		**Checked By / Date:** [signature] 7-10-12		
Radiological Background:	**Radiological Equipment Used:**	**PID Used:**		
15/36/57/72	Micro R / Downhole / Pancake Meters	Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +105 = 3643 (CPM)
			0.0	78	Silty sand: grayish brown (10YR 5/2), 65% fine sand, 35% silt, trace clay, dry, loose, trace rootlets + grass seeds, no plasticity, no odor or staining, trace subangular gravel (Sandstone)	SM		3816B
0.5			0.0	84				4900
1.0			0.0	76	Sand w/ silt: dark yellowish brown (10YR 4/4), 85% fine sand, 15% ~~clay~~ silt, trace subangular sandstone gravel, moist, loose, trace rootlets no odor or staining	SM		5405
			0.0	72				5723
2.0			0.0	90			2	5529
			0.0	54				5723 5608 (2R)
3.0			0.0	42	Unit same as above: note color change yellowish brown (10YR 5/4)	SM	3	5608
3.R			0.0	60				NM
					TD = 3.67' bgs, refusal on bedrock no GW encountered	bedrock		5540
4.0							4	
.0							5	
.0							6	

3.0

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HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 5	Location ID: 284
Drilling Company: HGL	Driller: J. Lefangie	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 7/9/12 1118		Date/Time Total Depth Reached: 7/9/12 1127
~~Type of Sampling Device:~~ Trowel/Shovel		~~Samples Collected:~~ One 1/2 Gallon Bag (Approx 5 lbs.)		30489 (1125)
Geologist: LRobbins		Checked By / Date:		7-10-12
Radiological Background: 16/3632/87	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological (← MR/pancake)	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5	1		0.0	15/54	silty sand: grayish brown (10YR 5/2), 60% fine sand, 40% silt, trace clay + subangular sandstone gravel, trace rootlets + grass seeds, no plasticity, no odor or staining, loose, dry, soft	SM	1	
1.0	2		0.0	16/60	TD = 0.5'			
					no GW encountered		2	
2.0								
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 5	Location ID: 284
Drilling Company: HGL	Driller: J. LeVangie	Ground Elevation: NA		Total Depth Drilled: 7.0' ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 7/9/12 1127		Date/Time Total Depth Reached: 7/9/12 1224
Type of Sampling Device: Hand Auger		Samples Collected: One 1/2 Gallon Bag (5 lbs.) 30490 (1225)		
Geologist: L Robbins		Checked By / Date: [signature] 7-10-12		
Radiological Background: 16/36/32/87	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5=3446 (CPM)
			0.0	54	Silty sand: grayish brown (10YR 5/2), 60% fine sand, 40% silt, trace clay, dry, loose, trace rootlets + grass seeds, no plasticity, no odor or staining, trace subangular sandstone gravel	SM		3679
0.5			0.0	60				4472
					- - - - - - - - gradational contact - - - - - - - -			
1.0			0.0	114	Sand w/ silt: dark yellowish brown (10YR 4/4), 85% sand, 15% silt, trace subangular gravel moist, loose, trace rootlets, no odor or staining	SM	1	5192
			0.0	90				5335
2.0			0.0	114			2	5289
			0.0	102				5308
					- - - - - - - - gradational contact - - - - - - - -			
					Silty sand: Strong brown (7.5YR 5/6), 65% fine sand, 25% silt, 10% clay (LL), dry, loose, moist, no odor or staining, med. plasticity	SM	3	5096
3.0			0.0	54				5117
			0.0	90				5262 (LL)
4.0			0.0	72			4	(LL) 72 5262
			0.0	66				5171
5.0			0.0	84			5	5271
			0.0	96	Sand w/ silt: brownish yellow (10YR 6/6), 80% fine sand, 20% silt, trace clay, med. dense, moist, no odor or staining, med. plasticity	SM		5441
6.0			0.0	72			6	5421

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	5A	5	284

Radiological Background:	Radiological Equipment Used:	PID Used:
16/3632/87	Micro R / Downhole / Pancake Meters	Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	72	Sand w/ Silt (Same as above)	SM	6	5421
			0.0	66	Sand: 90% sand, 10% Silt, light yellowish brown (2.5Y 6/4), moist, low dense, low plasticity	SP		5705
7.0			0.0	54	some iron oxide nodules, no odor or staining	Bed-rock	7	5584
					TD = 7.0' bgs, refusal on sandstone no GW encountered no anomalies			
8.0							8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_285

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 4	Location ID: 285
Drilling Company: HGL	Driller: ~~T. Morse~~ I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.75 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/9/12 1348		Date/Time Total Depth Reached: 7/9/12 1359
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.)		30491 (1400) Gamma Spec
Geologist: Timothy Morse		Checked By / Date: Lyndon Robbins 7/13/12		
Radiological Background: 46/2843 CPM	Radiological Equipment Used: ~~Micro R.~~ Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	78	3" asphalt / 3" asphalt		0	
0.5			0.0	84	Silty Sand: Brown (10YR 4/3) 40% silt, 55% fine grained sand, 5% medium grained sand, trace fill gravel/asphalt, trace rootlets, loose, dry, no odor 9" bgs.	AF/SM	1	
1.0								
2.0					TD = 0.75' (9") bgs., 3" asphalt at surface NO GW encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 285
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 6 1/2" ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/9/12 1410		Date/Time Total Depth Reached: 7/9/12 1451
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) (30492)(1455) Gamma Spec		
Geologist: Timothy Morse		Checked By / Date: Jun Dean Rabirius 7/13/12		
Radiological Background: 46 / 2843 CPM	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					AF = artificial fill			0.5 2895
			0.0	60	3" asphalt 3" asphalt			3035
0.5			0.0	78	Silty Sand: Brown (10YR 4/3) 40% silt, 55% fine grained Sand, 5% medium grained Sand, trace fill gravel/asphalt, trace rootlets, loose to med. dense, dry, no odor	AF/SM		3124
1.0			0.0	84			1	4997
			0.0	72	1'6"			5503
2.0			0.0	60	Sandy Silt: Brown (10YR 4/3) 55% silt, 40% fine grained Sand, 5% medium grained sand, trace rootlets, trace Calcium Carbonate deposits, dry, no odor, medium stiff to stiff,	ML	2	5250
			0.0	54	2'8" medium strength, Low toughness			5350
3.0			0.0	60	Sandy Silt w/ clay: Dark Brown (10YR 3/3) 40% fine grained Sand, 50% Silt, 10% clay,		3	5237
			0.0	54	trace rootlets, pinhole pores, stiff/firm, medium strength, medium toughness, slightly moist,	ML		5369
4.0			0.0	60	no odor		4	5533
			0.0	66	4'8"			5575
5.0			0.0	66	~~Sandstone~~ ~~Siltstone~~: Light olive Brown (2.5Y 5/4) Weathered Sandstone, mechanically weathers to sp fine grained Sand, slightly moist, no odor, dense, trace layers of siltstone embedded	Sandstone Bedrock	5	5761
			0.0	60	5'6"			5804
6.0			0.0	72	Sandstone Bedrock: Light yellowish Brown (2.5Y 6/4) mechanically weathers to SP Sand, dry, no odor, dense		6	5852

HydroGeoLogic, Inc.
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 285
Radiological Background: 46/2843 CPM	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:	0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0		I	0.0	7d	Same as above / weathered Sandstone		6	5852
					6'2"	Bedrock		
					TD = 6'2" bgs			
					Refusal on Sandstone Bedrock			
					No GW encountered			
7.0							7	
8.0							8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_286

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 286
Drilling Company: HGL	Driller: ~~T. Morse~~ I. Stone.	Ground Elevation: NA		Total Depth Drilled: 8" ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/9/12 1024		Date/Time Total Depth Reached: 7/9/12 1029
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx 5 lbs.)		30493 (1030) Gamma Spec
Geologist: Timothy Morse		Checked By / Date:		LuAnn Robbins 7/13/12

Radiological Background: 53 / 3906 GM

Radiological Equipment Used: ~~Micro~~ R / Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	66	2" asphalt / 2" asphalt			
			0.0	96	Silty Sand: ~~Yellowish Brown (10YR 5/6)~~ BROWN (10YR 4/3) 35% Silt, 60% fine grained Sand, 5% med. grained Sand, trace asphalt + fill gravel max diam to 1", dry, loose, no odor 8" bgs.	AF/SM		
1.0							1	
					TD = 8" bgs 2" asphalt on surface			
2.0					NO GW encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA	Group: 4	Location ID: 286
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 8.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/9/12 1100		Date/Time Total Depth Reached: 7/9/12 1118
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 30494 (~~1145~~ 1145) Gamma Spec		
Geologist: Timothy Morse		Checked By / Date: LuAlan Robbins 7/13/12		
Radiological Background: 53/2906 CPM	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
			0.0	66	1 1/2" asphalt / 2" asphalt			3389
0.5			0.0	54	Silty Sand: Brown (10YR 4/3), 35% silt, 60% fine grained sand, 5% med. grained sand, trace asphalt + fill gravel (quartzite) max diameter 1", dry, loose, no odor, trace rootlets	AF/SM		4720
1.0			0.0	72	- 6" to 1'6" same as above except medium dense		1	5272
			0.0	60	1'6"			5430
2.0			0.0	54	Silty Sand: Light olive brown (2.5Y 5/6) 15% silt, 80% ~~fine~~ fine grained sand, 5% med. grained sand, trace rootlets, trace calcium carbonate deposits, dry, no odor, medium dense	AF/SM	2	5699
			0.0	78	2'0" Sandy Silt: Brown (10YR 4/3), ~~35%~~ 40% fine grained sand, 5% med. grained sand, 55% silt, trace rootlets, trace calcium carbonate deposits, medium stiff/firm, low to medium strength, low toughness	ML		5777
3.0			0.0	72			3	5800
			0.0	60	3'6"			5954
4.0			0.0	72	Sandy Silt w/ clay: Dark Brown (10YR 3/3) 35% fine grained sand, trace med. grained sand, 55% silt, 10% clay, trace rootlets, presence of mottling and pinhole pores, stiff/firm, medium to high strength, med. toughness	ML	4	5935
			0.0	60				5823
5.0			0.0	60			5	6057
			0.0	66	5'6"			6426
6.0			0.0	72	continued on next page...		6	6453

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	SA	4	286

Radiological Background: 53 / 2906 CPM
Radiological Equipment Used: ~~Micro R.~~ / Downhole / Pancake Meters
PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	72	Siltstone Bedrock: Light Yellowish Brown (2.5Y 6/4), mechanically weathers to fine grind sand and silt, dry, no odor, hard	Siltstone Bedrock	6	6453
			0.0	66				6594
7.0			0.0	66			7	6569
			0.0	54				NA
8.0			0.0	60	Same as above → 8'0" bgs. small pocket of weathered and oxidized Sandstone bedrock: (Brown 7.5YR 5/4)		8	NA
			0.0	72	8'6"			NA
9.0					Total depth = 8'6" bgs. Refusal on Siltstone Bedrock No GW encountered	Bedrock	9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_287

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 287
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/12/12 1056		Date/Time Total Depth Reached: 7/12/12 1102
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5 lbs.)		30495 - 1105
Geologist: Ian Stone		Checked By / Date: [signature]		7-13-12
Radiological Background: 3052 / 41	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:		0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					AF = artificial fill			
0			0.0	78	Sandy Silt w/ gravel, Yellowish brown (5/4 10YR)	AF/ML		
0.5			0.0	78	25% fine sand, 65% silt, 10% gravel, dry, soft, low tough, low strength, low plasticity, no odor or staining			
1.0							1	
					TD = 0.5 ft bgs			
					no gw encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 287
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 5.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/12/12 1111		Date/Time Total Depth Reached: 7/12/12 1122
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		30496-1140 30502-NS (1) 5th bag
Geologist: I. Stone		Checked By / Date:		7-13-12
Radiological Background: 3052 / 41	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings 0.5 = 3444 (CPM)
0.5			0.0	66	Sandy Silt w/ gravel, Yellowish brown (5/4 10YR) 25% fine sand, 65% silt, 10% gravel, dry, soft, low tough, low strength, low tough, low plasticity, no odor or staining	AF/ ML		4664
			0.0	72	(0-0.8')			6898
1.0			0.0	78	Silty Clay, light olive brown (5/4 2.5Y) 5% fine sand, 35% silt, 60% clay, dry, med stiff - stiff, med tough, med strength, med plasticity, no odor or staining	AF/ CL	1	8447
			0.0	78				8151
2.0			0.0	54			2	7743
			0.0	78				7504
3.0			0.0	96			3	7436
					(0.8' - 3.3')			
			0.0	66	Sand, Very pale brown (7/3 10YR) 30% fine sand, 50% medium sand, 15% coarse sand, 5% silt, dry, dense, no odor or staining	AF/ SW		6906
					(3.3-3.9')			
4.0			0.0	60	Sand (weathered sandstone), Pale Yellow (7/4 2.5Y) 80% fine sand, 15% medium sand, 5% silt, dry, very dense, no odor or staining	SP/ Bed-rock	4	6688
			0.0	66				NA
5.0			0.0	78	(3.9-5.0')		5	NA
					TD = 5.0 ft bgs no gw encountered refusal on sandstone no anomalies detected			
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

5A_288

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 288
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 7/12/12 0850		Date/Time Total Depth Reached: 7/12/12 0854
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) Bag (Approx. 5lbs.)		30197-0855
Geologist: Ian Stone		Checked By / Date:		7-13-12

Radiological Background: 3117 / 47

Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters

PID Used: Mini Rae 3000 - Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF: Artificial fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	60	Sandy Silt w/ gravel, Yellowish Brown (5/4 10YR) 25% fine sand, 65% silt, 10% gravel, trace concrete, trace asphalt, dry, med stiff, low strength, low tough, low plasticity, no odor or staining	AF/ML		
0.5			0.0	78				
1.0							1	
2.0					TD = 0.5 ft bgs no gw encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 5A	Group: 3	Location ID: 288
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 3.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 7/12/12 0907		Date/Time Total Depth Reached: 7/12/12 0916
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		30498-0935
Geologist: I. Stone		Checked By / Date: [illegible] 7-13-12		
Radiological Background: 3117 / 47	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings 0.5' = 3225 (CPM)
					AF = artificial fill			
0.5			0.0	60	Sandy Silt w/ gravel, Yellowish brown (5/4 10YR) 25% fine sand, 65% silt, 10% gravel, trace concrete, trace asphalt, dry, med stiff, low tough, low strength, low plasticity, no odor or staining (0-0.5')	AF/ML		3785
			0.0	66				5304
1.0			0.0	54	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining	SP/Bedrock	1	5274
			0.0	79				5304
2.0			0.0	84			2	5329
			0.0	78				5267
3.0			0.0	66	(0.5-3.0')		3	NA
					TD = 3.0 ft bgs no gw encountered Refusal on sandstone no anomalies detected Unable to widen hole past 2.5 ft bgs			
4.0							4	
5.0							5	
6.0							6	