HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_143

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 3	Location ID: 143
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 4/30/12 1000		Date/Time Total Depth Reached: 4/30/12 1012
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.)		40331-1050
Geologist: Ian Stone		Checked By / Date:		Lillian Robbins Goldman 5/1/12
Radiological Background: 2971 / 42	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': 3160 (CPM)
			0.0	48	Silty Sand, Yellowish Brown (5/4 10YR)			4141
0.5			0.0	66	60% fine sand, 20% medium sand, 20% silt, trace gravel, trace rootlets, dry, no odor or staining, loose	AF/ SM		5071
1.0			0.0	54	- Sandstone cobble		1	5157
			0.0	66				5427
2.0			0.0	42			2	5670
			0.0	66	- siltstone gravel (mechanically weathered) 0-2.75' artificial fill			6111
.0			0.0	54	Sand w/ silt, Pale Yellow (7/4 2.5Y)	AF/ SP	3	5854
			0.0	54	70% fine sand, 20% medium sand, trace coarse sand, 10% silt, dry, med dense, no odor or staining, trace gravel			5681
0			0.0	60			4	5676
			0.0	66				5843
			0.0	60			5	5626
			0.0	48				5677
			0.0	72	FS 2.75'-6.0' (artificial fill)		6	5568

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	SW	3	143

Radiological Background: 2971 / 42

Radiological Equipment Used: ~~Micro RV~~ 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			6	5568
			0.0	78	Silty Sand, Yellowish brown (5/4 10YR) ~~50~~ 50% fine sand, 20% medium sand, 30% silt, dry, med dense, trace gravel, no odor or staining (subsurface fill)	AF/SM		5539
6.0-6.75'								
7.0			0.0	66	Silty Clay, Dark Yellowish brown (4/4 10YR), 5% fine sand, 30% silt, 65% clay, trace gravel, debris, dry, high strength, high toughness, low plasticity, very stiff, no odor or staining.	AF/CL	7	5296
			0.0	78				5202
8.0			0.0	84			8	5158
			0.0	72				5079
9.0			0.0	54			9	5036
			0.0	42				5220
10.0			0.0	60			10	5075
					TD = 10.0 ft bgs no gw encountered no refusal no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

8N_144

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 3	Location ID: 144
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 4/30/12 1125		Date/Time Total Depth Reached: 4/30/12 1136
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 40332-1210		
Geologist: Ian Stone		Checked By / Date: Jillian Robbins Yaldiman 5/11/12		
Radiological Background: 2712 / 46	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': 2902 (CPM)
			0.0	54	Silty Sand, Dark Yellowish Brown (4/4 10YR), 60% fine sand, 20% medium sand, 20% silt, trace gravel, dry, loose, no odor or staining, trace rootlets	AF/SM		4064
0.5			0.0	60	(0-0.5') (artificial fill)			4755
					Clayey Silt w/ sand, Dark Yellowish brown (4/6 10YR) 10% fine sand, 60% silt, 30% clay, dry, trace gravel), low toughness, low strength, med plasticity, no odor or staining, trace rootlets,	AF/ML	1	4884
1.0			0.0	54				
			0.0	48	(0.5-1.5) slight mottling (artificial fill)			5167
					Silty Sand, Yellowish brown (5/4 10YR) 50% fine sand, 20% medium sand, 30% silt, dry, med dense, trace rootlets, trace gravel, no odor or staining	AF/SM	2	5235
2.0			0.0	60				
			0.0	54				5328
3.0			0.0	66			3	5443
			0.0	72	(1.5-3.5') (artificial fill)			5697
					ASPHAULT 3.5-3.7'			
					Silty Sand, Yellowish brown (5/6 10YR) 50% fine-sand, 30% medium sand, 20% silt, trace gravel), dry, med dense, no odor or staining		4	5720
4.0			0.0	78				
			0.0	66	~~3.7~~ (ES) trace debris (brick)	AF/SM		5705
5.0			0.0	72			5	5627
			0.0	60	~~(3.7-5.5')~~ (FS) (artificial fill)			5633
6.0			0.0	54			6	5603

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	8N	3	144

Radiological Background:	Radiological Equipment Used:	PID Used:
2712 / 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)
6.0			0.0	54	Silty Sand, same as above		6	5603
			0.0	60		AF/SM		5587
7.0			0.0	54			7	5610
			0.0	66	(3.5 - 7.5) artificial fill			5509
8.0			0.0	54	~~Clayey~~ (FI) Silty Clay, Dark Brown (3/3 10YR) 5% fine sand, 30% silt, 65% clay, trace gravel, dry, med strength, med toughness, med plasticity, no odor or staining	AF/CL	8	5200
			0.0	90				5368
9.0			0.0	72			9	5571
			0.0	60				5710
10.0			0.0	72	(7.5 - 10.5) (artificial fill)		10	5542
					TD = 10 ft bgs no gw encountered no refusal no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_145

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 3	Location ID: 145
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 4/30/12 1354		Date/Time Total Depth Reached: 4/30/12 1400
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40333 - 1440 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: Jillian Robbins Goldman 5/1/12		
Radiological Background: 2864 / 39	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': 3022 (CPM)
			0.0	60	Silty Sand, Dark Yellowish brown (4/4 10YR) 50% fine sand, 20% medium sand, 30% silt, trace gravel,	AF/SM		4092
0.5			0.0	66	0-0.5 trace rootlets, dry, loose, no odor or staining (artificial fill)			4655
					Clayey Silt w/ sand, Dark Yellowish brown (3/6 10YR) 10% fine sand, 60% silt, 30% clay, trace gravel, low toughness, low strength, med plasticity, dry, no odor or staining	AF/ML	1	4973
1.0			0.0	60				
			0.0	66	0.5-1.5 (artificial fill)			5131
					Silty Sand w/clay, Dark yellowish brown (4/4 10YR) 50% fine sand, 20% medium sand, 20% silt, 10% clay,	AF/SM		
2.0			0.0	54	trace gravel), dry, med dense, no odor or staining, trace asphault		2	5389
			0.0	66				5124
3.0			0.0	60			3	5317
			0.0	72				5311
4.0			0.0	78	1.5-4.0 (artificial fill)		4	5556
			0.0	66	Silty Sand, Yellowish brown (5/6 10YR) 60% fine sand, 20% medium sand, 20% silt, trace gravel), trace rootlets, dry, med dense, no odor or staining	AF/SM		5728
5.0			0.0	54			5	5499
			0.0	54	4.0-5.5' (artificial fill)			5772
					Sandy Silt w/ clay, Yellowish brown (5/4 10YR) 30% fine sand, 60% silt, 10% clay, trace gravel, dry, low toughness, low strength, med plasticity, no odor or staining (artificial fill)	AF/ML		
6.0			0.0	60			6	5734

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	SN	3	145

Radiological Background: 2864 / 39

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	Sandy Silty/clay, same as above	AF/ML	6	5734
			0.0	78				5673
7.0			0.0	72			7	5614
			0.0	60	5.5-7.75' (Artificial fill)			5557
8.0			0.0	54	Silty Sand, Yellowish brown (5/6 10YR) 50% fine sand, 10% medium sand, 40% silt, trace gravel, dry, med dense, no odor or staining	AF/SM	8	5607
			0.0	78				5641
9.0			0.0	72			9	5607
			0.0	60				5411
10.0			0.0	72	7.75-10.0 (Artificial Fill)		10	5383
					TD = 10.0 ft bgs no gw encountered no refusal no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_146

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 3	Location ID: 146
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 4/30/12 1504		Date/Time Total Depth Reached: 4/30/12 1512
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40334 - 1540 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date:		
Radiological Background: 3001 / 30	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' = 2994 (CPM)
			0.0	60	Silty Sand, Dark Yellowish brown (3/4 10YR) 50% fine sand, 15% medium sand, 30% silt, 5% clay, trace gravel, dry, trace rootlets, loose, no odor or staining	AF/SM		3777
0.5			0.0	72	0-0.75 (artificial fill)			4660
1.0			0.0	66	Sandy Silt, Dark Yellowish brown (3/6 10YR) 30% fine sand, 65% silt, 5% clay, dry, low toughness, low strength, no odor or staining	AF/ML	1	4744
			0.0	54				4851
2.0			0.0	60	0.75-2.25' (artificial fill)		2	4844
			0.0	60	Silty Clay, Dark Brown (3/3 10YR) 5% fine sand, 35% silt, 60% clay, trace gravel, dry, med tough, med strength, med plasticity, no odor, iron oxide staining	AF/CL		4879
3.0			0.0	48			3	5024
			0.0	84	2.25-3.75' (artificial fill)			5158
4.0			0.0	48	Silty Sand, Dark yellowish brown (4/6 10YR) 60% fine sand, 10% medium sand, 30% silt, trace gravel, dry, med dense, no odor or staining	AF/SM	4	5147
			0.0	48				5233
5.0			0.0	60			5	5287
			0.0	54				5308
6.0			0.0	60	(artificial fill)		6	5158

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	8N	3	146

Radiological Background:	Radiological Equipment Used:	PID Used:
300 / 30	~~Micro R7~~ 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	60	Silty Sand, same as above.	AF/SM	6	5158
			0.0	72				5287
7.0			0.0	66			7	5327
			0.0	60	3.75-7.5' (Artificial fill) Silty Sand w/ clay, Dark Yellowish brown (4/4 10YR) 50% fine sand, 10% medium sand, 30% silt, 10% clay, trace gravel, dry, med dense, no odor or staining			5294
8.0			0.0	72		AF/SM	8	5344
			0.0	66				5310
9.0			0.0	54			9	5285
			0.0	72				5142
10.0			0.0	66	7.5-10.0' (Artificial fill)		10	5164
					TD = 10.0 ft bgs no gw encountered no refusal no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

8N_147

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 147
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA	6/8/12 1036	Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: ~~6/1/12 1051~~ (LR)		Date/Time Total Depth Reached: ~~6/1/12 1054~~ (LR) 6/8/12 1039
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) (ES)		~~40335 1055~~ (LR) 40335 (1040) *
Geologist: Ian Stone		Checked By / Date:		Chris Kneuper 6-6-12
Radiological Background: 3171 / 58	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	(ES) Clayey Silt w/ sand, Dark Yellowish brown (4/4 10YR) 10% fine sand, 50% silt, 30% clay, trace Gravel (granite, subangular, max size = 1"), dry, firm, low tough, low strength, med plasticity no odor or staining (artificial fill)	AF/ FL	1	
1.0			0.0	72				
2.0					TD = 0.5 ft bgs no gw encountered		2	
3.0							3	
4.0							4	
5.0							5	
							6	

* location was revisited to collect additional volume need for gamma spec analytes. Original volume was returned to the field. -SR
Sample date: 6/8/12

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

8N_148

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 148
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA 6/8/12 1030		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: ~~6/4/12 1135~~ (LB)		Date/Time Total Depth Reached: ~~6/4/12 1109~~ (LB) 6/8/12 1034
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) (LB)		~~40336 1110~~ (LB) 40336 (1035)*
Geologist: Ian Stone		Checked By / Date:		6/6/12
Radiological Background: 3171 / 58	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 (CPM)
0			0.0	84	Clayey Silt w/ sand, Dark Yellowish Brown (4/4 10YR)	AF/ML		
0.5			0.0	72	15% fine sand, 60% silt, 25% clay, trace gravel (sandstone, subangular, max size = 1.5"), trace organic material, dry, firm, low tough, low strength, low plasticity, slight decomposing organic odor, no staining			
1.0					TD = 0.5 ft bgs		1	
2.0					no gw encountered		2	
3.0					*location was revisited to collect additional volume needed for gamma spec analytes. Original volume returned to the field. -SR		3	
4.0							4	
							5	
							6	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_149

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 149
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: 6/1/12 1123		Date/Time Total Depth Reached: 6/1/12 1128
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) (S5)		40337-1130
Geologist: Ian Stone		Checked By / Date: Cliff Kruft 6/6/12		
Radiological Background: 3171 / 98	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	78	Clayey Silt w/sand. Dark yellowish brown (3/4 10YR)	AF/ML		
0.5			0.0	96	10% fine sand, 60% silt, 30% clay, trace gravel (quartzite, max size = 2.0", subangular), dry, low toughness, low strength, low plasticity, firm, no odor or staining (artificial fill)			
1.0					TD = 0.5 ft bgs			
2.0					no gw encountered			
3.0								
4.0								
5.0								
6.0								

HGL HydroGeoLogic, Inc
Exceeding Expectations

8N_150

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 150
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: 6/1/12 1144		Date/Time Total Depth Reached: 6/1/12 1148
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 1 lbs.) (IS) 40338-1150		
Geologist: Ian Stone		Checked By / Date: Cliff Knight 6-6-12		
Radiological Background: 3171 / 58	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 (IS) (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	78	Clayey Silt w/ sand, Dark Yellowish Brown (3/4 10YR) 10% fine sand, 60% silt, 30% clay, dry, trace rootlets, low strength, low toughness, low plasticity, no odor or staining, firm	ML	0	
0.5			0.0	102			1	
1.0							2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	

TD: 0.5 ft bgs
no gw encountered

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_151

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 151
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: 6/1/12 1334		Date/Time Total Depth Reached: 6/1/12 1338
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40339 - 1340
Geologist: Ian Stone		Checked By / Date:		6/6/12
Radiological Background: 3171 / 58	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	78	Af: Artificial Fill Clayey Silt w/ sand, Dark yellowish brown (3/4 10YR) 10% fine sand, 60% silt, 30% clay, trace gravel (quartzite, max size = 2"), trace rootlets, trace rattlesnake skin, low toughness, low strength, low plasticity, no odor or staining, mod firm, dry (artificial fill)	AF/ML	0	
1.0			0.0	78	TD = 0.5 ft bgs		1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_152

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 152
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: 6/1/12 1345		Date/Time Total Depth Reached: 6/1/12 1349
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.) (13)		40340 - 1350
Geologist: Ian Stone		Checked By / Date: [signature] 6/6/12		
Radiological Background: 3171 / 58	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	72	(13) Af: Artificial Fill Clayey Silt w/sand, Dark yellowish brown (3/4 10YR) 10% fine sand, 60% silt, 30% clay, trace asphalt, trace gravel (quartzite, max 1"), low toughness, low strength, low plasticity, no odor or staining, med firm, dry (artificial fill)	AF/ML		
0.5			0.0	84				
1.0							1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
.0							6	

TD = 0.5 ft bgs
No gw encountered

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

8N_153

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 153
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: 6/1/12 1358		Date/Time Total Depth Reached: 6/1/12 1403
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40341-1405 (x3)
Geologist: Ian Stone		Checked By / Date:		Jeff Knight 6/6/12

Radiological Background: 3171 / 58

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 (CPM)
0.0			0.0	84	Clayey Silt w/ sand, Dark yellowish brown (10YR 3/4) 10% fine sand, 70% silt, 20% clay, dry, low toughness, low strength, low plasticity, med firm, no odor or staining	ML	0	
0.5			0.0	72			1	
1.0					TD = 0.5 ft bgs		2	
2.0					no gw encountered		3	
3.0							4	
4.0							5	
5.0							6	

HGL HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

8N_154

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 154
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA	6/8/12 1025	Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: ~~6/1/12 1409~~ (12)		Date/Time Total Depth Reached: 6/8/12 6/1/12 ~~1409~~ (12) 1029
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.) (15)	~~40342 - 1410~~ (12)	40342 (1030)*
Geologist: Ian Stone		Checked By / Date:		6/6/12
Radiological Background: 3171 / 5Y	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	(15) Af: Artificial Fill Clayey Silt w/ sand, Dark yellowish brown (10YR 3/4) 10% fine sand, 60% silt, 30% clay, trace gravel (quartzite, rounded-subangular, max size = 1"), dry, med firm, low tough, low strength, low plasticity, no odor or staining (artificial fill)	AF/ML		
0.5			0.0	72				
1.0					TD = 0.5 ft bgs No gw encountered		1	
2.0							2	
3.0					* location was revisited to collect additional volume needed for gamma spec analytes. (12)		3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_155

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 155
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 4'7" ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/24/12 0914		Date/Time Total Depth Reached: 5/24/12 0945
Type of Sampling Device: Hand Auger		Samples Collected: 1 lb One Bag (Approx ~~5~~ lbs.)		40343 (100 S)
Geologist: T. Morse		Checked By / Date:		5/25/12
Radiological Background: 3011 / 72 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 3383 (CPM)
					surface: vegetation			
			0.0	60	Sandy Silt: dark Yellowish brown (10YR 4/4) 20% fine grained Sand, 5% med. grained Sand, 70% Silt, 5% Clay, trace rootlets, firm/stiff ~~soft~~, no odor, dry, Low strength, low toughness	ML		4303
0.5			0.0	90				5079
1.0			0.0	78			1	5325
					↳ 0.5' to 2'3" Same as above except soft			
			0.0	66				5363
2.0			0.0	84			2	5255
					2'3"			
			0.0	108	Sandy Silt w/clay: dark Yellowish brown (10YR 3/6) 35% fine grained Sand, 5% medium grained sand, 50% silt, 10% clay, moist, no odor, Low strength, low toughness, slightly cohesive, med. stiff	ML		5085
3.0			0.0	96			3	5096
					3'3"			
			0.0	66	Silty Sand: dark yellowish brown (10YR 4/6) 25% silt, 70% fine grained Sand, 5% med. grained Sand, moist, no odor, dense, presence of mottling	SM		4986
4.0			0.0	72			4	5219
			0.0	96	4'7" weathered Sandstone bedrock: Yellowish Brown (10YR 5/6) to SP fine grained sand			5148
5.0					TD = 4'7" bgs. refusal on Sandstone bedrock NO GW encountered	Bedrock	5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_156

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8 North	Group: 2	Location ID: 156
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 8'4" ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/24/12 1030		Date/Time Total Depth Reached: 5/24/12 1110
Type of Sampling Device: Hand Auger		Samples Collected: One Bag (Appox 1 lbs.)		40344 (1145)
Geologist: T. Morse		Checked By / Date:		5/25/12

Radiological Background: 3011/72 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 3101 (CPM)
					surface: vegetation			
			0.0	72				3716
0.5			0.0	66	Sandy Silt: dark Yellowish Brown (10YR 3/6) 20% fine grained Sand, 5% med. grained Sand, 70% silt, 5% clay, trace rootlets, med. firm, no odor, dry, low strength, low toughness	ML		4772
1.0			0.0	78	1'0"		1	5139
			0.0	96	Silty Sand: dark Yellowish Brown (10YR 4/6) 40% silt, 55% fine grained Sand, 5% med. grained Sand, trace rootlets, med dense, no odor, dry, trace clay deposits	SM		5289
2.0			0.0	48	2'0"		2	5337
			0.0	66	Sandy Silt w/clay: dark Yellowish Brown (10YR 3/6) 35% fine grained Sand 5% medium grained sand, 50% Silt, 10% clay, moist, no odor, dense, cohesive, med. strength, low toughness	ML		5460
3.0			0.0	84			3	5454
			0.0	72	3'9"			5342
4.0			0.0	72			4	5335
			0.0	78	Silty Sand: dark yellowish brown (10YR 4/6) 25% Silt, 70% fine grained Sand, 5% med. grained Sand, trace clay deposits, presence of mottling and oxidation, moist, no odor, dense	SM		5118
5.0			0.0	72			5	5210
			0.0	72	5'6"			5353
6.0			0.0	66	described below...	SM	6	5121

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	8N	2	156

Radiological Background:	Radiological Equipment Used:	PID Used:
3011 / 72 cpm	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	66	Silty Sand; Dark Yellowish brown (10YR 4/6) 20% silt, 70% fine grained sand, 10% medium grained sand, presence of mottling, moist, no odor, dense	SM	6	5121
			0.0	66				5008
7.0			0.0	96			7	5419
			0.0	66				5575
8.0			0.0	84	8'10" mechanically weathered Sandstone Bedrock, weathers to fine grained sand SP; Yellowish Brown (10YR 5/8) moist, very hard, presence of mottling NO odor	SP Bedrock	8	5857
					TD = 8'4" bgs on sandstone Bedrock NO GW encountered			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

SSFL BORING LOG

8N_157

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8 North	Group: 2	Location ID: 157
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 5'0" ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/24/12 1330		Date/Time Total Depth Reached: 5/24/12 1406
Type of Sampling Device: Hand Auger		Samples Collected: One Bag (Appox 1 lbs.)		40345 (@ 1430 & 1406)
Geologist: T. Morse		Checked By / Date:		5/25/12
Radiological Background: 3011 / 72 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	72	surface: leaves AF = artificial fill			+0.5 3262
					Sandy Silt: dark yellowish Brown (10YR 3/6) 20% fine grained Sand, 5% med. grained sand, 70% Silt, 5% clay, dry, no odor, trace rootlets, med. firm, low strength, low toughness, trace fill gravel 1" to 2.5" diam	AF/ML		4392
0.5			0.0	90				4780
1.0			0.0	72	0.5'		1	5002
			0.0	66	Sandy Silt: dark yellowish Brown (10YR 4/4) 35% fine grained Sand, 5% med. grained Sand, 55% Silt, 5% clay, slightly moist, no odor, medium firm, trace rootlets, ~~low~~ medium strength, low toughness, trace granite cobble/gravel 2" to 3" diameter (fill)	AF/ML		5086
2.0			0.0	72			2	5189
			0.0	60	2.5'			5301
3.0			0.0	90	Sandy Silt w/clay: dark Yellowish Brown (10YR 4/4) ~~40%~~ 35% fine grained Sand, 5% med. grained sand, ~~45%~~ 50% Silt, 10% clay, slightly moist, no odor, firm/stiff, med. strength, low toughness, fill	AF/ML	3	5217
			0.0	72	3.5'			5082
4.0			0.0	78	Sandy Silt w/clay: dark yellowish Brown (10YR 4/4) 30% fine grained Sand, 10% medium grained sand, 50% Silt, 10% clay, moist, no odor, firm/stiff, med. strength, low toughness, trace granite fill cobble	AF/ML	4	4946 ~~5946~~ TM
			0.0	66				4912
5.0			0.0	72	→ 5' bgs granite fill cobble 3" to 4" diameter		5	4988
					TD = 5.0' bgs. refusal on granite fill gravel/cobble NO GW encountered	FILL		
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_158

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 8	Location ID: 158
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 8'0" ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/24/12 1451		Date/Time Total Depth Reached: 5/24/12 1524
Type of Sampling Device: Hand Auger		Samples Collected: One Bag (Appox 1 lbs.)		40346 (1545)
Geologist: T. Morse		Checked By / Date:		

Radiological Background: 3011 / 72 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 3110 (CPM)
			0.0	94	surface: soil + veg.			3702
0.5			0.0	84	Sandy Silt: dark yellowish Brown (10YR 3/6) 20% fine grained Sand, 5% coarse grained Sand, 5% medium grained Sand, 70% silt, trace clay deposits, dry, no odor, trace rootlets, fill broken glass and sandstone gravel present, low strength, low toughness, medium stiff/firm	AF/ML		4706
1.0			0.0	72			1	5093
			0.0	78	-same as above except firm/stiff			5280
2.0			0.0	84	2'0"		2	5152
			0.0	66	Sandy Silt: dark Yellowish Brown (10YR 4/6) 30% fine grained Sand, 5% med. grained sand, 60% silt, 5% clay, slightly moist, no odor, trace concrete fill debris very firm/stiff, medium strength, low toughness	AF/ML		5300
3.0			0.0	72			3	5238
			0.0	60				5168
4.0			0.0	78			4	4863
			0.0	72	4'6"			4906
5.0			0.0	66	Silty Sand: Light olive Brown (2.5Y 5/4) 25% silt, 70% fine grained Sand, 5% med. grained sand, presence of mottling, moist, no odor, medium dense	SM	5	4801
			0.0	72				4856
6.0			0.0	66			6	4898

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	8 North	2	158

Radiological Background:	Radiological Equipment Used:	PID Used:
3011 / 72 cpm	~~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	78 66	same as above...		6	4898
			0.0	78		SM		4843
7.0			0.0	78	7'0"		7	4917
			0.0	54	Silty Sand w/clay: Brown (10YR 4/3) 20% silt, 65% fine grained sand, 5% med. grained sand, 5% clay, mottling present, moist, no odor, low strength, low toughness, medium dense	SM		5228
8.0			0.0	66	8'0"		8	5281
					TD = 8'0" bgs refusal on sandstone bedrock NO GW encountered	SANDSTONE		
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

8N_159

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 159
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: 6/11/12 1005		Date/Time Total Depth Reached: 6/11/12 1019
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40347-1050 (1) 1/2 Gallon Bag (Approx 1 lbs)		
Geologist: I. Shae		Checked By / Date: J Robbins 6/12/12		
Radiological Background: 2869 / 38	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' = 2939 (CPM)
			0.0	78	Gravel w/ sand, light gray (7/1 2.5Y), 90% gravel (road fill), (0-0.3') 10% fine-medium sand, dry, no odor or staining	GW		3961
0.5			0.0	66	Sandy Clay, Dark yellowish brown (3/4 10YR) 30% fine sand, 10% medium sand, 5% silt, 55% clay, trace gravel (quartzite, max size=1.5"),	CL		4972
1.0			0.0	60	(0.3-1.0') dry, soft, med strength, med toughness, low plasticity, no odor or staining		1	5123
			0.0	60	Clay w/ sand, Dark Brown (3/3 10YR), 10% fine sand, 5% silt, 85% clay, moist med stiff, med toughness, med strength, med plasticity, no odor or staining	CL		5049
2.0			0.0	66	(1.0-1.5')		2	5060
			0.0	60	Clay, Dark Brown (3/3 7.5YR) 5% fine sand, 5% silt, 90% clay, moist, stiff, high toughness, high strength, med plasticity, no odor or staining	CL		5176
3.0			0.0	54	(1.5-3.0')		3	5261
			0.0	72	Sandy Clay w/ silt, Dark yellowish brown (4/6 10YR) 20% fine sand, 10% silt, 70% clay, moist, stiff, med tough, med strength, med plasticity, no odor or staining	CL		5278
4.0			0.0	60			4	5233
			0.0	78	(3.0-4.5')			5377
5.0			0.0	84	Sandy Silt, Yellowish Brown (5/6 10YR) (A) ~~20%~~ 25% fine sand, 10% medium sand, 60% silt, 5% clay, moist, low toughness, low strength, med plasticity, no odor or staining, stiff	ML	5	5345
			0.0	60	(4.5-5.5')			5478
6.0			0.0	66	Silty Sand, Yellowish brown (5/6 10YR), 60% fine sand, 10% medium sand, 30% silt, moist, med dense, no odor or staining	SM	6	5668

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	8N	2	159

Radiological Background: 289 / 38

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	Silty Sand, same as above		6	5668
			0.0	72				5897
7.0			0.0	78			7	5823
					(5.5 - 7.3')			
			0.0	66	Sand (weathered sandstone), Brownish Yellow (6/6 10YR), 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining,	SP		5651
8.0							8	
					TD = 7.5 ft bgs			
					no gw encountered			
					Refusal on sandstone			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_160

eet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 160
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 6.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 6/11/12 1337		Date/Time Total Depth Reached: 6/11/12 1352
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lbs.)		40348 - 1415
Geologist: Ian Stone		Checked By / Date: JRobbins 9/14/12		
Radiological Background: 2730 / 43	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 40.5' = 3045 (CPM)
			0.0	54	Gravel, Dark Gray (4/1 2.5Y), road fill, max size = 2", subangular granitic (I-2)	AF/GW		4741
0.5			0.0	60	Clayey Silt, Dark Brown (3/3 10YR) (I-1) 5% fine sand, 55% silt, 40% clay, trace gravel (granitic, granite, max size = 0.75"), moist, med stiff, low toughness, low strength,	AF/ML		5167
1.0			0.0	54	(0.2-1.0) med plasticity, no odor or staining		1	5373
			0.0	60	Sandy Clay w/ silt, Brown (4/4 ~~10YR~~ 7.5YR) 20% fine sand, ~~15%~~ 15% silt, ~~60%~~ 65% clay, moist, stiff, ~~med~~ med toughness, med strength, med plasticity, no odor or staining	CL		5350
2.0			0.0	48			2	5399
			0.0	54	(1.0-2.5)			5385
3.0			0.0	60	Sandy Clay w/ silt, Dark Yellowish Brown (4/6 10YR) 30% fine sand, 10% silt, 60% clay, moist, stiff, med toughness, med strength, med plasticity. no odor or staining	CL	3	5394
			0.0	72				5240
4.0			0.0	60	(2.5-4.5) ~~Sand (weathered sandstone), Brownish yellow (6/6 10YR) 70% fine sand, 20% medium sand, 5% silt, moist, very dense~~		4	5335
			0.0	48	Silty Sand, Yellowish Brown (50% fine sand, 20% medium sand, 30% silt, moist,	SM		5173
5.0			0.0	84	(4.5-5.0') med dense, no odor or staining		5	5235
			0.0	48	Sand (weathered sandstone), Brownish yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP		NA
6.0			0.0	60			6	NA

TD = 6.0 ft bgs, no gw encountered, refusal on sandstone.

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_161

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SN	Group: 2	Location ID: 161
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: 6/11/12 0855		Date/Time Total Depth Reached: 6/11/12 0906
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lbs.)		40349 - 0940
Geologist: I. Shaw		Checked By / Date: J Robbins 6/12/12		
Radiological Background: 271 / 31	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' = 2702 (CPM)
			0.0	84	Gravel, Road fill, max size = 2.0", gray (6/1 2.5Y)	GW		3375
0.5			0.0	60	Sandy Clay w/silt, Dark Yellowish Brown (3/4 10YR) 30% fine sand, 60% clay, 10% silt, dry, soft, med strength, med toughness, med plasticity, no odor or staining (0.1-0.5')	CL		4683
1.0			0.0	48	Clay w/ sand, Dark brown (3/3 10YR) 10% fine sand, 85% clay, 5% silt, moist, med stiff, med toughness, med strength, med plasticity, no odor or staining	CL	1	5151
			0.0	66	(0.5-1.5')			4959
2.0			0.0	72	Clay, Dark Brown (3/3 7.5YR) 5% fine sand, 5% silt, 90% clay, moist, stiff, high tough, high strength, med plasticity, no odor or staining	CL	2	5137
			0.0	90	(1.5-2.75)			5084
3.0			0.0	54	Sandy Clay w/silt, Dark Yellowish Brown (4/6 10YR) 20% fine sand, 10% silt, 70% clay, moist, stiff, med toughness, med strength, med plasticity, no odor or staining (2.75-3.25')	CL	3	5123
			0.0	72	Sandy Clay, Dark yellowish brown (4/6 10YR) 30% fine sand, 65% clay, 5% silt, moist, med stiff, med toughness, med strength, low plasticity, no odor or staining	CL		5298
4.0			0.0	54			4	5175
			0.0	48				5190
5.0			0.0	48	Silty Sand, Yellowish Brown (5/6 10YR) 60% fine sand, 10% medium sand, 30% silt, moist, med dense, no odor or staining	SM	5	5201
			0.0	66				5296
6.0			0.0	42			6	5400

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	8N	2	161

Radiological Background: 2711 / 31

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	42	Silty Sand, same as above	SM	6	5400
			0.0	48				5375
7.0			0.0	78	Sand (weathered Sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP	7	5405
8.0					TD = 7.0 ft bgs no gw encountered refusal on sandstone no anomalies detected		8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

8N_162

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 162
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 6/11/12 1105		Date/Time Total Depth Reached: 6/11/12 1115
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 1 lbs.)		40350-1150
Geologist: I. Shaw		Checked By / Date: JRobins 6/12/12		
Radiological Background: 2854 / 42	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': 3159 (CPM)
			0.0	66	Sandy Silt, Dark Yellowish brown (3/4 10YR) 25% fine sand, 70% silt, 5% clay, dry,	AF/ML		3949
0.5			0.0	72	(0-0.5') low tough, low strength, med plasticity, soft, No odor or staining, trace rootlets, trace gravel (Fill)			4686
					Silty Clay w/ sand, Dark Brown (3/3 7.5YR)	AF/CL		
1.0			0.0	72	10% fine sand, 30% silt, 60% clay, moist, stiff, med toughness, med strength, med plasticity, no odor or staining		1	4958
			0.0	54	(0.5-1.5') (Fill)			5340
					Sandy Clay w/ silt, Dark Yellowish brown (3/4 10YR) 30% fine sand, 10% silt, 60% clay, moist, med	AF/CL		
2.0			0.0	60	(1.5-2.0') Stiff, med tough, med strength, med plasticity, no odor or staining, trace gravel (Fill)		2	5276
					Silty Clay, Dark reddish brown (3/2 5YR)	CL		
			0.0	66	5% fine sand, 40% silt, 55% clay, moist, med stiff, med tough, med strength, med plasticity, no odor or staining			5296
3.0			0.0	60			3	5273
			0.0	84	(2.0-3.5')			5091
					Silty Clay ~~w/ Sand~~ (3) Dark Brown (3/3 7.5YR)			
4.0			0.0	66	5% fine sand, 30% silt, 65% clay, moist, stiff, med-high strength, med-high tough, med plasticity, no odor or staining	CL	4	5072
			0.0	54				5218
5.0			0.0	72			5	5097
			0.0	66	(3.5-5.5')			5146
					Sandy Clay w/ silt, Yellowish Brown (5/6 10YR) 30% fine sand, 10% silt, 60% clay, moist, stiff,			
6.0			0.0	72	med tough, med strength, med plasticity, no odor or staining	CL	6	5027

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	SW	2	162

Radiological Background: 2854 / 42

Radiological Equipment Used: ~~Micro Rem~~ 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	Sandy Clay, same as above w/silt	CL	6	5027
			0.0	60				5008
7.0			0.0	90			7	4849
			0.0	78				5010
8.0			0.0	54	(5.5-8.0')		8	5095
			0.0	60	Silty Sand, Dark Yellowish Brown (4/6 10YR) 50% fine sand, 20% medium sand, 30% silt, moist, med dense, no odor or staining (8.0-8.5')	SM		5000
9.0			0.0	54	Sandy Clay w/silt, Yellowish Brown (5/6 10YR) 30% fine sand, 10% silt, 60% clay, moist, stiff, med tough, med strength, med plasticity, no odor or staining	CL	9	~~5095~~ ES 4906
			0.0	60	(8.5-9.5)			4835
10.0			0.0	54	Silty Sand w/ clay, Dark Yellowish Brown (4/6 10YR) 50% fine sand, 15% medium sand, 25% silt, 10% clay, moist, med dense, no odor or staining	SM	10	4780
					TD = 10.0 ft bgs no gw encountered no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_163

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 163
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: 6/11/12 1450		Date/Time Total Depth Reached: 6/11/12 1505
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40351 - 1530 (1) 1/2 Gallon Bag (Approx 1 lbs.)		
Geologist: I. Shaw		Checked By / Date: J Robbins 6/12/12		
Radiological Background: 2748 / 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' = 295? (CPM)
			0.0	42	Sandy Clay, Dark Brown (3/3 10YR) 30% fine sand, 5% silt, 65% clay, dry, med stiff, med tough, med strength, med plasticity, trace debris (metal), trace rootlets (fill)	AF/CL		3529
0.5			0.0	54	(0-0.75')			4380
1.0			0.0	66	Clay w/ sand, Dark Brown (3/2 ~~10YR~~ 7.5YR) 10% fine sand, 5% silt, 85% clay, dry, stiff, med tough, med strength, med plasticity, no odor or staining, trace gravel	AF/CL	1	4831
			0.0	60				4909
2.0			0.0	66			2	4907
			0.0	54				5013
3.0			0.0	60	Sandy Clay w/ silt, Dark Brown (3/3 10YR) 25% fine sand, 10% silt, 65% clay, moist, med stiff, med tough, med strength, med plasticity, no odor or staining		3	5075
			0.0	66		CL		5432
4.0			0.0	72			4	5231
			0.0	54				5215
5.0			0.0	60	Silty Clay w/ sand, Dark Brown (3/3 7.5YR) 10% fine sand, 20% silt, 70% clay, moist, stiff, med tough, med strength, med plasticity, no odor or staining	CL	5	5310
			0.0	54				5240
6.0			0.0	66			6	5440

HGL 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	SN	2	163

Radiological Background: 2748 / 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 (CPM)
6.0			0.0	66	Silty Clay w/ sand, same as above	CL	6	5440
			0.0	48	Sand (weathered sandstone), Brownish Yellow (6/6 10YR), 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP		5389
7.0			0.0	60			7	5315
					TD = 7.0 ft bgs no gw encountered Refusal on sandstone			
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

8N_164

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 164
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: 6/12/12 0845		Date/Time Total Depth Reached: 6/12/12 0857
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.)		40352 - 0925
Geologist: I. Stone		Checked By / Date: JRobbins 6/13/12		
Radiological Background: 3031 / 39	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' = 2978 (CPM)
			0.0	66	Sandy Clay, Dark yellowish brown (4/4 10YR) 30% fine sand, 5% silt, 65% clay, dry, med stiff, med toughness, med strength, med plasticity, no odor or staining, trace gravel, trace rootlets (0.0-1.0') (FD) (R11)	AF/CL		3541
0.5			0.0	54				4623
1.0			0.0	60			1	4849
			0.0	54	Clay w/ sand, Dark Brown (3/3 10YR) 10% fine sand, 5% silt, 85% clay, trace gravel (quartzite, granite, max size = 1"), moist, stiff, med toughness, med strength, med plasticity, no odor or staining (R11)	AF/CL		4826
2.0			0.0	48			2	4922
			0.0	60				4936
3.0			0.0	54			3	5242
			0.0	60				5314
4.0			0.0	60			4	5235
			0.0	48				5090
5.0			0.0	54	(1.0-5.0')		5	5103
			0.0	72	Silty Sand w/ clay, Dark Yellowish brown (4/6 10YR) 50% fine sand, 10% medium sand, 30% silt, 10% clay, moist, dense, no odor or staining	AF/CL (FD) SM		5216
6.0			0.0	60	~~(1.0-6.0')~~ (FD)		6	5232

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SN	Group: 2	Location ID: 164
Radiological Background: 3031 / 39	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	Sand (weathered sandstone), Brownish Yellow (10YR 6/6), 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP	6	5232
			0.0	42				5282
7.0			0.0	66			7	4635
					TD = 7.0 ft bgs			
					no gw encountered			
					refusal ~~at 7.0~~ on sandstone			
8.0					no anomalies detected		8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_165

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 165
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 8.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 6/12/12 0942		Date/Time Total Depth Reached: 6/12/12 0955
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lbs.)		40353-1025
Geologist: I. Stone		Checked By / Date:		JRobbins 6/13/12
Radiological Background: 2775 / 33	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' = 2777 (CPM)
			0.0	54	Sandy Clay, Dark Yellowish brown (4/4 10YR) 30% fine sand, 5% silt, 65% clay, trace gravel, trace rootlets, dry, med stiff, med toughness, med strength, med plasticity, no odor or staining	AF/CL		3173
0.5			0.0	66				4269
1.0			0.0	60	(0.0-1.0') (fill)		1	4704
			0.0	48	Clay w/ sand, Dark Brown (3/3 10YR) 10% fine sand, 5% silt, 85% clay, moist, stiff, med tough, med strength, med plasticity, no odor or staining, trace gravel (quartzite, granite, max size = 1.5") (fill)	AF/CL		4722
2.0			0.0	42	quartzite		2	4786
			0.0	54				5145
3.0			0.0	60			3	4909
			0.0	72	granite			4957
4.0			0.0	60			4	5272
			0.0	60	Silty Clay w/sand, Dark Brown (3/3 7.5YR) 10% fine sand, 30% silt, 60% clay, moist, med stiff, med tough, med plasticity, med strength, no odor or staining	CL		5389
5.0			0.0	54			5	5095
			0.0	48	Clay w/sand, Dark Brown (3/3 10YR), 10% fine sand, 5% silt, 85% clay, moist, stiff, med toughness, med strength, med plasticity, no odor or staining	CL		5080
6.0			0.0	54			6	5086

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	8N	2	165

Radiological Background:	Radiological Equipment Used:	PID Used:
2775 / 33	~~Micro R7~~ 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	54	Clay w/ sand, same as above	CL	6	5086
			0.0	60				5349
7.0			0.0	48	Sandy Clay w/ silt, Brown (4/4 7.5YR) 30% fine sand, 10% silt, 60% clay, moist, stiff, med toughness, med strength, med plasticity, no odor or staining	CL	7	5470
			0.0	60				5064
8.0			0.0	72	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt moist, very dense, no odor or staining	SP	8	4964
					TD = 8.0 ft bgs no gw encountered refusal on sandstone no anomalies detected			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_166

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 166
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: 5/22/12 1138		Date/Time Total Depth Reached: 5/22/12 1142
Type of Sampling Device: Shovel/Trowel		Samples Collected: 40354 - 145 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: JRobino 5/24/12		

Radiological Background: 17 / 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)
0.5			0.0	54	Sandy Silt, Dark Brown (3/3 10YR)	ML		
			0.0	72	30% fine sand, 70% silt, trace rootlets, dry, low tough, low strength, low plasticity, no odor or staining			
1.0					TD = 0.5 ft 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

8N_167

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SN	Group: 2	Location ID: 167
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: 5/22/12 1148		Date/Time Total Depth Reached: 5/22/12 1152
Type of Sampling Device: Shovel/Trowel		Samples Collected: 40355 - 1155 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: JRobbins 5/24/12		
Radiological Background: 17 / 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)
0.5			0.0	72	Sandy Silt, Dark Brown (7/3 10YR) 30% fine sand, 70% silt, trace rootlets, dry, low strength, low toughness, low plasticity, no odor or staining	ML	1	
			0.0	84				
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

8N_168

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 168
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: 5/22/12 1157		Date/Time Total Depth Reached: 5/22/12 1200
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 8 lbs.)		40356-1205
Geologist: Ian Stone		Checked By / Date: [signature] 5/24/12		

Radiological Background: 17 / 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)
0.5			0.0	84	Sandy Silt, Dark Brown (7/3 10YR) 30% fine sand, 70% silt, trace rootlets, dry, low toughness, low strength, low plasticity, no odor or staining	ML	1	
1.0			0.0	72	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

8N_169

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 169
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: 5/22/12 1028		Date/Time Total Depth Reached: 5/22/12 1031
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 6 lbs.) (1)		40357-1035
Geologist: Ian Stone		Checked By / Date: J Robbins 5/24/12		

Radiological Background: 14 / 63	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	72	Sandy Silt, Dark Brown (3/3 10YR) 30% fine sand, 70% silt, trace rootlets, low strength, low toughness, low plasticity, no odor or staining, dry	ML		
1.0			0.0	90	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

8N_170

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 170
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: 5/22/12 1040		Date/Time Total Depth Reached: 5/22/12 1043
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) (IS)		40358-1045
Geologist: Ian Stone		Checked By / Date: J Robbins 5/23/12		

Radiological Background: 14 / 63
Radiological Equipment Used: Micro R / ~~Downhole~~ / Pancake Meters (ES)
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	90	Sandy Silt w/ gravel, Brown (4/3 10yR) 30% fine sand, 60% silt, 10% gravel (fine), low tough, low strength, low plasticity, no odor or staining, dry (artificial fill)	AF/ML	1	
1.0			0.0	60	TD = 0.5 ft bgs no gw encountered		2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

HGL HydroGeoLogic, Inc Exceeding Expectations

8N_171

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 171
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: 5/22/12 1055		Date/Time Total Depth Reached: 5/22/12 1059
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx ½ lbs.) (F3)		40359-1100
Geologist: Ian Stone		Checked By / Date: JRobins 5/24/12		
Radiological Background: 14 / 63	Radiological Equipment Used: Micro R / ~~Downhole~~ (F3) / 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	60	Sandy Silt, Dark Brown (3/3 10YR)	SM	1	
1.0			0.0	84	30% fine sand, 70% silt, trace rootlets, dry, ~~loose~~, (F3) low strength, low toughness, low plasticity, no odor or staining		2	
2.0					TD = 0.5 ft bgs		3	
3.0					no gw encountered		4	
4.0							5	
5.0							6	
6.0								

HGL HydroGeoLogic, Inc Exceeding Expectations

8N_172

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 172
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: 5/2/12 1326		Date/Time Total Depth Reached: 5/2/12 1340
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40360 - 1410
Geologist: Ian Stone		Checked By / Date: Jill Ian Robbins 5/3/12		
Radiological Background: 2616 / 33	Radiological Equipment Used: ~~Micro R~~7 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' = 2643 (CPM)
			0.0	66	Silty Clay, Brown (5/3 10YR)			3064
0.5			0.0	78	5% fine sand, 35% silt, 60% clay, trace rootlets, dry, medium soft, med toughness, medium strength, med plasticity, no odor or staining (0-0.9') [artificial fill]	AF/CL		4034
1.0			0.0	48	Silty Clay, Dark Yellowish Brown (5/4 10YR)		1	4256
			0.0	60	5% fine sand, 25% silt, 70% clay, trace gravel, trace debris (brick), dry, trace rootlets, very stiff, med toughness, med strength, med. plasticity, no odor, some mottling [artificial fill]	AF/CL		4272
2.0			0.0	48			2	4236
			0.0	54				4060
3.0			0.0	42			3	3806
			0.0	60				3885
4.0			0.0	84			4	4000
			0.0	66				3963
5.0			0.0	54			5	3829
			0.0	48				3680
6.0			0.0	60	Silty Clay, same as above	AF/CL	6	3778

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	8N	2	172

Radiological Background:	Radiological Equipment Used:	PID Used:
2616 / 33	~~Micro R7~~ 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	60	Silty Clay, same as above (asphalt fill)	AF/CL	6	3778
			0.0	66				4157
7.0			0.0	84			7	4566
			0.0	72				5021
					TD = 10.0 ft bgs no gw encountered no anomalies detected			
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

8N_173

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 173
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 8.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/2/12 1104		Date/Time Total Depth Reached: 5/2/12 1118
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40361 - 1145 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: Ian Dean Robbins 5/3/12		
Radiological Background: 2748 / 34	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' = 2563 (CPM)
			0.0	54	Silty Clay, Brown (5/3 10YR) 5% fine sand, 35% silt, 60% clay, trace rootlets, trace gravel, dry, medium soft, med tough, med strength, med plasticity, no odor or staining	AF/CL		3092
0.5			0.0	66				4160
					(0-0.8) (Artificial fill)			
1.0			0.0	60	Silty Clay, Brown (4/3 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, trace debris (brick), dry, very stiff, med tough, med strength, no odor, some mottling, trace calcium carbonate	AF/CL	1	4515
			0.0	48				4288
2.0			0.0	48			2	4298
			0.0	54				4190
3.0			0.0	60			3	4068
			0.0	54				4140
4.0			0.0	48			4	4295
			0.0	42				4195
5.0			0.0	46			5	4095
			0.0	54	Silty Clay, same as above			3905
6.0			0.0	48	(0.8-6.0) (Artificial fill)		6	4008

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	SV	2	173

Radiological Background:	Radiological Equipment Used:	PID Used:
2748 / 34	Micro-R7 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	48	Silty Clay w/ sand, Yellowish brown (5/4 10YR)	AF/CL	6	4008
			0.0	42	10% fine sand, 30% silt, 60% clay, dry, medium soft, low plasticity, med toughness, med strength, no odor, some mottling, trace gravel			4282
7.0			0.0	48	(6.0-6.9) Silty Clay, Brown (4/3 10YR)		7	4517
			0.0	66	5% fine sand, 25% silt, 70% clay, trace gravel, ~~stiff,~~ very stiff, med tough, med strength, no odor, some mottling,	AF/CL		5074
8.0			0.0	72	(6.9-8.0) dry (artificial fill)		8	4967
					TD = 8.0 ft bgs			
					no gw encountered			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

8N_174

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 174
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: 5/2/12 1002		Date/Time Total Depth Reached: 5/2/12 1007 @ 1015
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40362 - 1040
Geologist: Ian Stone		Checked By / Date:		Ian Dan Robins 5/3/12
Radiological Background: 2715 / 31	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' = 2606 (CPM)
			0.0	48	Silty Clay, Brown (5/3 10YR) 5% fine sand, 35% silt, 60% clay, dry, medium soft, med. tough, med. strength, med. plasticity, trace rootlets, no odor or staining	AF/CL		2903
0.5			0.0	42				3920
1.0			0.0	48	(0-1.0') (Artificial fill)		1	4277
			0.0	42	Silty Clay, Dark yellowish brown (4/4 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, dry, very stiff, med strength, med toughness, med plasticity, no odor, some mottling, trace @ (artificial fill)	AF/CL		4135
2.0			0.0	54			2	4353
			0.0	60				4191
3.0			0.0	84			3	4004
			0.0	72				3967
4.0			0.0	66			4	4083
			0.0	54				4135
5.0			0.0	42			5	3928
			0.0	60				3919
6.0			0.0	54	Silty Clay, same as above	AF/CL	6	4255

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	8N	2	174

Radiological Background:	Radiological Equipment Used:	PID Used:
2715 / 31	~~Micro RT~~ 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	54	Silty Clay, same as above		6	4255
			0.0	48		ML/CL		4275
7.0			0.0	54			7	4380
					-trace rootlets			
			0.0	66	(1.0-7.5) (artificial fill)			4989
					TD = 7.5 ft bgs			
8.0					no gw encountered		8	
					no anomalies detected			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

8N_175

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 175
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/1/12 1415		Date/Time Total Depth Reached: 5/1/12 1423
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40363-1455 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: Lucian Robbins 5/2/12		
Radiological Background: 2657 / 33	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' = 2605 (CPM)
			0.0	60	Silty Clay, Brown (4/3 10YR)			3366
0.5			0.0	48	5% fine sand, 35% silt, 60% clay, dry, trace rootlets, medium soft, medium tough, medium strength, med plasticity, no odor or staining	AF/CL		4202
1.0			0.0	54	0-1.0' (Artificial fill)		1	4524
			0.0	48	Silty Clay, ~~Dark~~ Yellowish brown (5/4 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, trace debris (brick), dry, stiff, med tough, med strength, med plasticity, no odor, some mottling	AF/CL		4367
2.0			0.0	54			2	4599
			0.0	48	1.0-2.5 (Artificial fill)			4377
3.0			0.0	54	Silty Clay w/ sand, light yellowish brown (6/4 10YR) 10% fine sand, 30% silt, 60% clay, dry, trace gravel, stiff, med tough, med strength, low plasticity, no odor, some mottling (Artificial fill)		3	4209
			0.0	78		AF/CL		4308
4.0			0.0	66			4	4344
			0.0	72				4471
5.0			0.0	78			5	4717
			0.0	78				4776
6.0			0.0	60			6	4387

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: SN	Group: 2	Location ID: 175
Radiological Background: 2657 / 33	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	Silty Clay w/ sand, same as above	AF/CL	6	4387
			0.0	72				4470
7.0			0.0	54			7	4776
			0.0	66	2.5-7.5 (artificial fill) Silty Clay, Dark Yellowish brown (4/4 10YR) 5% fine sand, 20% silt, 75% clay, trace gravel, trace debris (brick, charcoal), dry, very stiff, med tough, med strength, med plasticity, no odor, some mottling			4829
8.0			0.0	54		AF/CL	8	5121
			0.0	48				5446
9.0			0.0	42			9	5236
			0.0	48				5339
10.0			0.0	48	7.5-10.0' (artificial fill)		10	5403
					TD = 10.0 ft bgs no gw encountered no refusal no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_176

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 176
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/1/12 0934		Date/Time Total Depth Reached: 5/1/12 0943
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (2) 1/2 Gallon Bag (Approx 5 lbs) 8 lbs		40364 - 1015 40425-1025
Geologist: Ian Stone		Checked By / Date: Lu Dan Robbins Friedman 5/8/12		
Radiological Background: 2446 / 45	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' = 2573 (CPM)
			0.0	84	Silty Clay, Brown (4/3 10YR) 5% fine sand, 35% silt, 60% clay, dry, trace rootlets, med toughness, med strength,	AF/CL		3508
0.5			0.0	78	0-0.35' med plasticity, no odor or staining, medium soft (artificial fill)			4108
1.0			0.0	66	Silty Clay, Yellowish brown (5/4 10YR) 5% fine sand, 25% silt, 70% clay,	AF/CL	1	4433
			0.0	72	trace gravel, dry, very stiff, med tough, med strength, med plasticity, some mottling,			4403
2.0			0.0	60	no odor. (artificial fill)		2	4452
			0.0	66				4644
3.0			0.0	72			3	4488
			0.0	60				4126
4.0			0.0	54			4	4307
			0.0	66				4183
5.0			0.0	54			5	4190
			0.0	66	Silty Clay, same as above	AF/CL		4281
6.0			0.0	60			6	4527

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: 8N	Group: 2	Location ID: 176
Radiological Background: 2446 / 45	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	Silty Clay, Same as above	AF/CL	6	4527
			0.0	78				4637
7.0			0.0	60			7	4582
			0.0	54	- trace charcoal			4684
8.0			0.0	48			8	5076
			0.0	54				4956
9.0			0.0	72			9	4921
			0.0	60				5321
10.0			0.0	48	(Artificial fill)		10	5457
					TD = 10.0 ft bgs No gw encountered no refusal			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_177

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 177
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/1/12 1042		Date/Time Total Depth Reached: 5/1/12 1054
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 8 lbs.)		40365 - 1130
Geologist: Ian Stone		Checked By / Date: LuDean Robbins		5/2/12
Radiological Background: 2702 / 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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5' = 2743 (CPM)
			0.0	54	Silty Clay, Brown (4/3 10YR), 5% fine sand, 35% silt, 60% clay, dry, medium soft, med tough, med strength,	AF/CL		3094
0.5			0.0	60	0-0.5' med plasticity, no odor or staining, trace rootlets (artificial fill)			4257
					Silty Clay, Yellowish brown (5/4 10YR)	AF/CL		
1.0			0.0	72	5% fine sand, 25% silt, 70% clay, trace gravel, trace debris (brick, charcoal), dry, stiff, med tough, med strength, ~~high~~ plasticity, no odor, some mottling		1	4248
			0.0	54				4337
2.0			0.0	48			2	4727
			0.0	60	0.5 - 2.5' (artificial fill)			4781
					Silty Clay, Dark Yellowish brown (4/4 10YR)	AF/CL		
3.0			0.0	54	5% fine sand, 20% silt, 75% clay, trace gravel, trace debris (asphalt, brick), dry, Very stiff, med tough, med strength, med plasticity, no odor, some mottling (artificial fill)		3	4510
			0.0	72				3991
4.0			0.0	54			4	4051
			0.0	78				4209
5.0			0.0	84			5	4582
			0.0	60				4956
6.0			0.0	54	Silty Clay, same as above	AF/CL	6	4690

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	8N	2	177

Radiological Background:	Radiological Equipment Used:	PID Used:
2702 / 49	~~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	54	Silty Clay, Same as above (artificial fill)	AF/CL	6	4690
			0.0	66				4833
7.0			0.0	72			7	5365
			0.0	60				5285
8.0			0.0	66			8	5079
			0.0	48				5306
9.0			0.0	42			9	5427
			0.0	54				5525
10.0			0.0	66			10	5527
					TD = 10.0 ft bgs No gw encountered No refusal No anomalies detected			
11.0							11	
12.0							12	
13.0							13	

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

8N_178

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 178
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/1/12 1309		Date/Time Total Depth Reached: 5/1/12 1330
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 4036G-1400 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: LuAnn Robbins 5/2/12		
Radiological Background: 2693 / 42	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' = 2693 (CPM)
			0.0	54	Silty Clay, Brown (4/3 10YR), 5% fine sand, 35% silt, 60% clay, dry, medium soft, medium tough, med. strength, low-med. plasticity, no odor or staining, trace rootlets (artificial fill)	AF/CL		3360
0.5			0.0	60	Silty Clay, Dark Yellowish brown (4/4 10YR) 5% fine sand, 20% silt, 75% clay, trace gravel, trace debris (brick, charcoal), dry, very stiff, med tough, med strength, med plasticity, no odor, some mottling (artificial fill)	AF/CL		4082
1.0			0.0	54			1	4391
			0.0	48				4619
2.0			0.0	66			2	4687
			0.0	60				4547
3.0			0.0	54			3	4092
			0.0	48				3906
4.0			0.0	54			4	3954
			0.0	60				4074
5.0			0.0	66			5	4206
			0.0	54	Silty Clay, same as above	AF/CL		4199
6.0			0.0	60			6	4184

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	8N	2	178

Radiological Background:	Radiological Equipment Used:	PID Used:
2693 / 42	~~Micro R7~~ 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	60	Silty Clay, same as above	AF/CL	6	4184
			0.0	66				4083
7.0			0.0	48			7	4247
			0.0	42				4598
8.0			0.0	60			8	4812
			0.0	48				4864
9.0			0.0	60			9	5093
			0.0	54				5225
					0.5-9.75' (artificial fill)			
10.0			0.0	66	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, dense, no odor or staining 9.75'-10.0'	SP	10	5346
					TD = 10.0 ft bgs no gw encountered Refusal on sandstone @ 10.0 ft no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_179

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 179
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: 5/2/12 0842		Date/Time Total Depth Reached: 5/2/12 0856
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40367-0930 40437-(NS) (1) ½ gallon bag (5lbs)
Geologist: Ian Stone		Checked By / Date: Hull Dan Robbins 5/3/12		
Radiological Background: 2737 / 31	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' = 2661 (CPM)
			0.0	48	Silty Clay, Brown (4/3 10YR) 5% fine sand, 35% silt, 60% clay, trace rootlets, dry, medium soft, medium toughness, medium strength, medium plasticity, no odor or staining	AF/CL		2778
0.5			0.0	54				3938
1.0			0.0	60	0.0-1.0' (artificial fill) Silty Clay, Dark yellowish brown (4/4 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, trace debris (brick), ~~stiff~~ (E) very stiff, med toughness, med strength, med plasticity, no odor, some mottling, dry	AF/CL	1	4462
			0.0	66				4244
2.0			0.0	54			2	3963
			0.0	72				3856
3.0			0.0	48			3	3893
			0.0	66	(1.0-3.25') (artificial fill) Silty Clay w/ sand, Yellowish brown (5/4 10YR) 20% fine sand, 30% silt, 60% clay, dry, medium soft, trace gravel, trace rootlets, medium toughness, medium strength, low plasticity, no odor, some mottling (artificial fill)	AF/CL		4067
4.0			0.0	54			4	4094
			0.0	66				3969
5.0			0.0	60			5	4163
			0.0	60				4558
6.0			0.0	54			6	4518

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	SW	2	179

Radiological Background:	Radiological Equipment Used:	PID Used:
2737 / 31	~~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	54	Silty Clay w/ sand, same as above	AF/CL	6	4518
			0.0	66				4939
7.0			0.0	72	(3.25-7.0) (artificial fill) Silty Clay; Brown (5/3 10YR), 5% fine sand, 25% silt, 70% clay, trace gravel, very	AF/CL	7	5231
			0.0	54	(7.0-7.5) stiff, dry, med strength, med toughness, med plasticity, no odor, some mottling (artificial fill)			5079
8.0					TD = 7.5 ft bgs; no gw encountered refusal on sandstone, no anomalies detected		8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_180

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 180
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: 5/2/12 1508		Date/Time Total Depth Reached: 5/2/12 1517
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40368 - 1540 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: J Robbins 5/3/12		
Radiological Background: 2744 / 34	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' = 2505 (CPM)
			0.0	60	Silty Clay, Brown (5/3 10YR), 5% fine sand, 35% silt, 60% clay, trace rootlets, dry, medium soft, med strength, med toughness, med plasticity, no odor or staining	AF/CL		2788
0.5			0.0	78				3796
1.0			0.0	66	(0-1.0') Anthropogenic fill		1	4362
			0.0	66	Silty Clay, Dark Yellowish Brown (4/4 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, trace debris (brick), dry, stiff, med toughness, med strength, no odor, some mottling, med plasticity	AF/CL		4341
2.0			0.0	78			2	4427
			0.0	66				4560
3.0			0.0	72			3	4520
			0.0	48				4623
4.0			0.0	66	(1.0-4.0') Anthropogenic fill		4	4932
			0.0	66	Silty Clay w/ sand, Yellowish brown (5/4 10YR) 20% fine sand, 30% silt, 60% clay, trace gravel, med soft, med tough, med strength, dry, no odor, some mottling, low plasticity	AF/CL		4592
5.0			0.0	42			5	4369
			0.0	60				4502
6.0			0.0	48	(4.0-6.0') Anthropogenic fill		6	5110

HGL 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	SN	2	180

Radiological Background: 2744 / 34

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 (CPM)
6.0			0.0	48	Silty Clay, Dark Yellowish brown (4/4 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, dry, very stiff, mod strength, mod toughness, mod plasticity, no odor, some mottling (6.0-6.4) (artificial fill)	AF/CL	6	5110
			0.0	72				5288
7.0							7	
					Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, ~~dense~~ very dense, dry, no odor or staining (6.4-6.5)	SP		
8.0							8	
					TD = 6.5 ft bgs No gw encountered Refusal on sandstone No anomalies detected.			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_181

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 181
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: 5/3/12 0848		Date/Time Total Depth Reached: 5/3/12 0900
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 40369-0925 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: JaDean Rollins 5/4/12		
Radiological Background: 2584 / 42	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' = 2552 (CPM)
			0.0	60	Silty Clay, Brown (5/3 10YR) 5% fine sand, 35% silt, 60% clay, trace rootlets, dry, medium soft, medium strength, med toughness, medium plasticity, no odor or staining	AF/CL		2835
0.5			0.0	54				3925
					(0-0.75) (artificial fill)			
1.0			0.0	66	Silty Clay, Dark Yellowish brown (4/4 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, trace debris, trace calcium carbonate, dry, stiff, med toughness, med strength, med plasticity, no odor, some mottling	AF/CL	1	4199
			0.0	60				4398
2.0			0.0	54			2	4639
			0.0	48				4378
3.0			0.0	60			3	4398
			0.0	54				4330
4.0			0.0	54			4	4728
			0.0	48				5143
					(0.75-4.8) (artificial fill)			
5.0			0.0	60	Silty Clay w/sand, Yellowish brown (5/4 10YR) 10% fine sand, 30% silt, 60% clay, trace gravel, dry, medium soft, med strength, med plasticity, med toughness, no odor, some mottling	AF/CL	5	5056
			0.0	66				4528
6.0			0.0	54	(artificial fill)		6	4639

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	8N	2	181

Radiological Background:	Radiological Equipment Used:	PID Used:
2584 / 42	~~Micro R7~~ 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	54	Silty Clay w/sand, same as above (6.5 - 6.4) (artificial fill)	AF/CL	6	4639
			0.0	60	Sand (weathered sandstone), Pale Yellow (7/4 2.5Y) 70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining (6.4-6.5)	SP		4756
7.0							7	
					TD = 6.5 ft bgs			
					no gw encountered			
					refusal on sandstone			
8.0					no anomalies detected		8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_182

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 182
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 5.8 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/3/12 1032		Date/Time Total Depth Reached: 5/3/12 1043
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 1 (1/2 Gallon Bag (Approx 5 lbs.) (16) 40370-1105		
Geologist: Ian Stone		Checked By / Date: LeDean Robbins 5/4/12		
Radiological Background: 2571 / 29	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' = 2443 (CPM)
0.0			0.0	54	Silty Clay, Brown (5/3 10YR), 5% fine sand, 35% silt, 60% clay, trace rootlets, dry, medium soft, med tough, med strength, med plasticity, no odor or staining (artificial fill)	AF/CL		2742
0.5			0.0	48	(0.0-0.5)			2572
					Silty Clay, Dark Yellowish brown (4/4 10YR) 5% fine sand, 25% silt, 70% clay, trace gravel, trace debris (brick), dry, stiff, med toughness, med strength, med plasticity, no odor, ~~or staining~~ (E3) Some mottling	AF/CL	1	3740
1.0			0.0	72				
			0.0	78				4153
					(0.5-1.75) (artificial fill)			
2.0			0.0	60	Clayey Silt, Dark yellowish brown (3/4 10YR), 5% fine sand, 60% silt, 35% clay, trace gravel, dry, low strength, low toughness, low plasticity, no odor or staining (artificial fill)	AF/ML	2	4474
					(1.75-2.25)			
			0.0	54	Silty Clay, Dark Yellowish Brown (4/4 10YR) 5% fine sand, 25% (E5) silt, 70% clay, trace gravel, trace debris, dry, stiff, med tough, med strength, med plasticity, no odor, Some mottling	AF/CL		4903
3.0			0.0	66			3	4641
			0.0	54				4431
4.0			0.0	66			4	4359
			0.0	54				4729
5.0			0.0	48	(artificial fill)		5	4909
			0.0	66	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining			4947
					(2.25-5.7) (5.7-5.8)	SP		
6.0					TD = 5.8 ft bgs, no gw encountered, refusal on sandstone		6	

no anomalies detected

HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_183

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 2	Location ID: 183
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: 5/3/12 0951		Date/Time Total Depth Reached: 5/3/12 1000
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: 1 (1/2 Gallon Bag (Approx. 5 lbs.)		40371 - 1015
Geologist: Ian Stone		Checked By / Date: Ian Robbins 5/4/12		
Radiological Background: 2759 / 29	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' = 2747 (CPM)
			0.0	54	Silty Clay, Brown (5/3 10YR), 5% fine sand, 35% silt, 60% clay, trace gravel, trace debris (shell), dry, medium silt, medium strength, medium toughness, medium plasticity, no odor or staining, trace rootlets (0-1.2) (Earthfill)	AF/CL		3005
0.5			0.0	60				4100
1.0			0.0	66			1	4761
			0.0	42	Silty Clay, Dark Brown (3/2 7.5YR) 5% fine sand, 30% silt, 65% clay, ~~moist~~ dry, very stiff, med tough, med strength, med plasticity, no odor or staining	CL		5021
2.0			0.0	60			2	5226
			0.0	42				5468
3.0			0.0	54			3	5663
			0.0	66	(1.2-3.6)			5680
4.0			0.0	66	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, dense, no odor or staining (3.6-4.0)	SP	4	5802
5.0					TD = 4.0 ft bgs no gw encountered refusal on sandstone no anomalies detected		5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_184

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 184
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: 5/3/12 1338		Date/Time Total Depth Reached: 5/3/12 1353
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 8 lbs.)		40372-1420 * see page 2
Geologist: Ian Stone		Checked By / Date: Jim Dan Robbins 5/4/12		
Radiological Background: 2787 / 37	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' = 2728 (CPM)
			0.0	48	Clayey Silt w/ Sand, Dark yellowish brown (4/4 10YR) 10% fine sand, 60% silt, 30% clay, dry, low tough, low strength, med plasticity, no odor or staining, trace rootlets	ML		3400
0.5			0.0	60				4725
1.0			0.0	66	(0-1.0)		1	5172
			0.0	72	Clayey Silt, Brown (4/4 7.5YR) 5% fine sand, 55% silt, 40% clay, dry, low strength, low toughness, med plasticity, no odor or staining	ML		5367
2.0			0.0	54			2	5228
			0.0	54	(1.0-2.5)			5018
3.0			0.0	60	Silty Clay, ~~Yellowish~~ Reddish Brown (4/4 5YR) 5% fine sand, 25% silt, 70% clay, dry, very stiff, med tough, med strength, med plasticity, no odor or staining	CL	3	5059
			0.0	96				5014
4.0			0.0	72			4	5115
			0.0	78				5250
5.0			0.0	60	(2.5-5.0)		5	5282
			0.0	72	Sandy Silt w/clay, Yellowish Brown (5/4 10YR) 30% fine sand, 60% silt, 10% clay, dry, moist, low strength, low toughness, med plasticity, no odor or staining	ML		5344
6.0			0.0	66			6	5924

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	8N	1	184

Radiological Background:	Radiological Equipment Used:	PID Used:
2787 / 37	~~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	66	Sandy Silt w/clay, same as above (5.0-6.5)	ML	6	5924
			0.0	54	Sand (weathered sandstone), light yellowish brown (6/4 10YR), 70% fine sand, 25% medium sand, 5% silt, dense, moist, no odor or staining (6.5-7.0)	SP		4889
7.0			0.0	66			7	4860
8.0					TD = 7.0 ft bgs no gw encountered refusal on sandstone no anomalies detected		8	
9.0							9	
10.0					# location was revisited to collect additional volume for gamma spec analytes. Additional sample I.D. # 40447 collected on 6/12/12. -JR		10	
11.0							11	
12.0							12	
13.0							13	

HydroGeoLogic, Inc
Exceeding Expectations

8N_185

SSFL BORING LOG

Sheet 1 of 1

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	8N	1	185
Drilling Company:	**Driller:**	**Ground Elevation:**		**Total Depth Drilled:**
Boart Longyear	D. Hansen	NA		6.0 ft bgs.
Drilling Equipment:	**Borehole Diameter:**	**Date/Time Drilling Started:**		**Date/Time Total Depth Reached:**
Geoprobe 6600	1.75"	5/3/12 1446		5/3/12 1458
Type of Sampling Device:		**Samples Collected:**		
1.75" macrocore with acetate liner		(1) 1/2 Gallon Bag (Approx. 6 lbs.)		1@ 40373-1520* 40448(1115) - additional volume collected 6/13/12
Geologist: Ian Stone		**Checked By / Date:**		JuLean Rollins 5/4/12

Radiological Background:	Radiological Equipment Used:	PID Used:	
2753 / 35	~~Micro R7~~ 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 +0.5' = 2674 (CPM)
			0.0	42	Clayey Silt w/ sand, Dark Yellowish brown (4/4 10YR) 10% fine sand, 60% silt, 30% clay, dry, low toughness, low strength, med plasticity, no odor or staining	ML		3100
0.5			0.0	36	(0'-0.7')			4513
1.0			0.0	54	Clayey Silt, Brown (4/4 7.5YR) 5% fine sand, 55% silt, 40% clay, dry, low strength, low toughness, med plasticity, no odor or staining	ML	1	5004
			0.0	48				5290
2.0			0.0	72	(0.7'-2.0')		2	5049
			0.0	66	Silty Clay, Reddish brown (4/4 5YR) 5% fine sand, 25% silt, 70% clay, dry, Very stiff, med tough, med strength, med plasticity, no odor or staining	CL		4939
3.0			0.0	60			3	4984
			0.0	72	(2.0'-3.75')			5061
4.0			0.0	84	Sandy Silt w/ clay, Yellowish Brown (5/4 10YR) 30% fine sand, 60% silt, 10% clay, moist, low strength, low toughness, med plasticity, no odor or staining	ML	4	5124
			0.0	78				5450
5.0			0.0	66			5	5517
			0.0	48	(3.75'-5.8') Sand (weathered sandstone), Brownish Yellow (10YR 6/6) 70% fine sand, 25% medium sand, 5% silt, dense, moist, no odor or staining			5534
6.0			0.0	66	(5.8'-6.0')	SP	6	5458

TD = 6.0 ft bgs, no gw encountered, refusal on sandstone

HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_186

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 186
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 5.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/4/12 0905		Date/Time Total Depth Reached: 5/4/12 0912
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 8 lbs.)		40374-0945 / 40449 (1135) additional volume collected on 6/12/12
Geologist: Ian Stone		Checked By / Date: J Robbins		5/7/12

Radiological Background: 2064 / 52

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' = 2734 (CPM)
			0.0	54	Clayey Silt w/ sand, Dark Yellowish Brown (4/4 10YR) 10% fine sand, 60% silt, 30% clay, dry, trace rootlets, low toughness, low strength, med plasticity, no odor or staining	ML		3383
0.5			0.0	60	(0-0.75')			4471
1.0			0.0	66	Clayey Silt, Dark brown (3/3 7.5YR) 5% fine sand, 55% silt, 40% clay, dry, low toughness, low strength, med plasticity, no odor or staining	ML	1	5095
			0.0	48	(0.75-1.8')			5324
2.0			0.0	54	Silty Clay, Reddish brown (4/4 5YR) 5% fine sand, 25% silt, 70% clay, dry, med toughness, med strength, med plasticity, stiff, no odor or staining	CL	2	5405
			0.0	66				5268
3.0			0.0	72	(1.8-3.0')		3	5365
			0.0	54	Sandy Silt w/ clay, Dark yellowish brown (4/6 10YR) 30% fine sand, 60% silt, 10% clay, dry, low toughness, low strength, med plasticity, no odor or staining	ML		5203
4.0			0.0	36			4	5355
			0.0	48				5123
5.0			0.0	42	(3.0-5.0')		5	5013
			0.0	60	Sand (weathered sandstone) Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, (5.0-5.5') moist, dense, no odor or staining	SP		5069
6.0					TD = 5.5 ft bgs, no gw encountered, refusal on sandstone		6	

8N_187

SSFL BORING LOG

HGL HydroGeoLogic, Inc — Exceeding Expectations

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N / Group: i	Location ID: 187
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: 5/4/12 1003	Date/Time Total Depth Reached: 5/4/12 1015
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 40375-1040	40440-(NT)* (1) bag (1lb)
Geologist: Ian Stone		Checked By / Date: J Robbins 5/4/12	
Radiological Background: 2692 / 42	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm	

Depth (ft bgs)	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' = 2758 (CPM)
	0.0	48	Clayey Silt w/ sand, Dark Yellowish brown (4/4 10YR) 10% fine sand, 60% silt, 30% clay, trace rootlets, dry, low toughness, low strength, med plasticity, no odor or staining			2851
0.5	0.0	66		ML		4094
1.0	0.0	78	(0-1.0') Clayey Silt, Dark Brown (3/3 7.5YR) 5% fine sand, 55% silt, 40% clay, dry, low tough, low strength, med plasticity, no odor or staining		1	4771
	0.0	60		ML		5238
2.0	0.0	54			2	5470
	0.0	66	(1.0-2.5') Silty Clay, Reddish Brown (4/4 5YR) 5% fine sand, 25% silt, 70% clay, dry, med tough, med strength, med plasticity, stiff, no odor or staining			5350
3.0	0.0	60		CL	3	5133
	0.0	84	(2.5-3.25) Silty Clay w/ sand, Strong Brown (4/6 7.5YR) 10% fine sand, 30% silt, 60% clay, dry, med toughness, med strength, med plasticity, stiff, no odor or staining			5056
4.0	0.0	72		CL	4	5263
	0.0	60				5560
5.0	0.0	54	(3.25-5.0') Sandy Silt w/ clay, Dark Yellowish Brown (4/6 10YR) 30% fine sand, 60% silt, 10% clay, moist, low tough, low strength, low plasticity, no odor or staining		5	5375
	0.0	54		ML		5570
6.0	0.0	72			6	5652

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	8N	1	187

Radiological Background:	Radiological Equipment Used:	PID Used:
2692 / 42	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	Sandy Silt w/ clay, same as above		6	5652
			0.0	66		ML		5433
					(5.0-6.7')			
7.0			0.0	54	Sand (weathered sandstone), Brownish Yellow (10YR 6/6) 70% fine sand, 25% medium sand, 5% silt, moist, dense, no odor or staining	SP	7	5503
					(6.7-7.0')			
8.0					TD = 7.0 ft bgs no gw encountered refusal on sandstone no anomalies detected		8	
9.0							9	
10.0							10	
					* location revisited to collect additional volume for gamma spec analytes. Sample I.D.: 40450 collected on 6/12/12			
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc
Exceeding Expectations

8N_188

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 188
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: 5/21/12 0909		Date/Time Total Depth Reached: 5/21/12 0913
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 1 lbs.)		40876-0915
Geologist: Ian Stone		Checked By / Date: JRobins 5/22/12		
Radiological Background: 12 / 34	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	60	Sandy Silt w/ clay, Yellowish brown (5/4 10YR) 30% fine sand, 60% silt, 10% clay, dry, low tough, low strength, low plasticity, no odor or staining	ML	1	
			0.0	72				
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

8N_189

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 189
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: 5/21/12 0928		Date/Time Total Depth Reached: 5/21/12 0931
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) (5)		40377-0935
Geologist: Ian Stone		Checked By / Date: JRobbins 5/22/12		
Radiological Background: 17(5)12/(5) 29 34	Radiological Equipment Used: Micro R / ~~Downhole~~ / Pancake Meters (1)	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 w/ clay, Yellowish Brown (5/4 10YR) 25% fine sand, 60% silt, 15% clay, dry low strength, low toughness, low plasticity, no odor or staining	ML		
0.5			0.0	66				
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

8N_190

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 190
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: 5/21/12 0938		Date/Time Total Depth Reached: 5/21/12 0942
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 6 lbs.)		40378 - 0945
Geologist: Ian Stone		Checked By / Date: JRobbins 5/22/12		

Radiological Background: 12 / 34
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	Sandy Silt w/ clay, Dark yellowish brown (4/4 10YR) 25% fine sand, 55% silt, 20% clay, dry, low tough, low strength, low plasticity, trace Concrete, no odor or staining (artificial fill)	AF/ML		
1.0			0.0	60				
					TD = 0.5 ft bgs no gw encountered			
2.0								
3.0								
4.0								
5.0								
6.0								

HGL HydroGeoLogic, Inc Exceeding Expectations

8N_191

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 191
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: 5/21/12 0950		Date/Time Total Depth Reached: 5/21/12 0953
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. ~~5~~ lbs) ES		40379-0955
Geologist: Ian Stone		Checked By / Date: JRobbins 5/22/12		
Radiological Background: 12 / 34	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	54	Sandy Silt w/ clay, Dark Yellowish brown (4/4 10YR) 25% fine sand, 55% silt, 20% clay, dry, low tough, low strength, low plasticity. No odor or staining	ML	0	
0.5			0.0	66				
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

8N_192

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 192
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 9.5 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/7/12 1343		Date/Time Total Depth Reached: 5/7/12 1353
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		16 40380 - 1430
Geologist: Ian Stone		Checked By / Date: J Robins 5/8/12		

Radiological Background: 2812 / 45

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': 2721 (CPM)
			0.0	60	Clayey Silt, Dark Yellowish Brown (3/4 10YR) 5% fine sand, 65% silt, 30% clay, trace rootlets,	AF/		3099
0.5			0.0	66	dry, low toughness, low strength, med plasticity, no odor or staining	ML		4143
1.0			0.0	72	(0-1.0') (artificial fill)		1	4783
			0.0	54	Clayey Silt, Dark Brown (3/3 7.5YR) 5% fine sand, 55% silt, 40% clay, moist, low strength, low toughness, med plasticity, no odor or staining	AF/ML		5076
2.0			0.0	60	(1.0-2.25') (artificial fill)		2	5256
			0.0	66	Silty Clay, Dark Brown (3/4 7.5 YR) 5% fine sand, 35% silt, 60% clay, moist, med toughness, med strength, stiff, medium plasticity, no odor or staining	AF/CL		5156
3.0			0.0	72			3	5191
			0.0	84				5366
4.0			0.0	78			4	5375
			0.0	60				5667
5.0			0.0	60			5	5699
			0.0	66				5722
6.0			0.0	54	(2.25-6.0') (artificial fill)		6	5543

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	SW	1	192

Radiological Background: 2812 / 45
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	54	Silty Sand, Yellowish brown (5/6 10YR)		6	5543
			0.0	54	50% fine sand, 30% medium sand, 20% silt, trace gravel, dense, moist,	AE / SM		5484
7.0			0.0	78	no odor or staining		7	5344
			0.0	54				5499
8.0			0.0	42	(6.0-8.25') (artificial fill)		8	5483
			0.0	72	Sand (weathered sandstone), Yellowish Brown (5/6 10YR) 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP		5391
9.0			0.0	66			9	5558
			0.0	66	(8.25-9.0')			5295
10.0					TD = 9.5 ft bgs no gw encountered Refusal on sandstone no anomalies detected		10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc Exceeding Expectations

SSFL BORING LOG

8N_193

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 193
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/7/12 1005		Date/Time Total Depth Reached: 5/7/12 1016
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		1 40381 - 1050
Geologist: Ian Stone		Checked By / Date: MS		5-8-12
Radiological Background: 2702 / 35	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' = 2864 (CPM)
			0.0	84	Clayey Silt, Dark yellowish brown (3/4 10YR)			3741
0.5			0.0	54	5% fine sand, 65% silt, 30% clay, trace rootlets, dry, low toughness, low strength, med plasticity, no odor or staining	ML		4841
1.0			0.0	66			1	5144
			0.0	72				5229
2.0			0.0	78	(0-2.0)		2	5246
					Silty Clay, Dark Brown (3/4 7.5YR)			
			0.0	72	5% fine sand, 25% silt, 70% clay, moist, med tough, med strength, stiff, no odor or staining, med plasticity	CL		5327
3.0			0.0	60			3	5483
			0.0	54				5251
4.0			0.0	66	(2.0-4.0)		4	5197
					Sandy Silt w/ clay, Yellowish Brown (5/6 10YR)			
			0.0	54	20% fine sand, 10% medium sand, 60% silt, 10% clay, moist, trace gravel, low tough, low strength, low plasticity, no odor; some mottling	ML		5321
5.0			0.0	48			5	5188
			0.0	48				5393
6.0			0.0	48	(4.0-7.5')		6	5163

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	8N	1	193

Radiological Background: 2702 / 35

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	48	Sandy Silty clay, same as above		6	5163
			0.0	78				5134
						ML		
7.0			0.0	66			7	5361
			0.0	60				5384
					(4.0-7.8)			
8.0			0.0	72	Silty Clay, Strong Brown (4/6 7.5YR) 5% fine sand, 25% silt, 70% clay, trace gravel, ~~trace debris (charcoal, brick)~~, trace med strength, med toughness, med plasticity, ~~no~~ stiff, no odor, some mottling, moist		8	5148
			0.0	60		CL		5209
9.0			0.0	48			9	5489
					(7.8-9.4)			
			0.0	42	Silty Clay w/ sand, Dark Yellowish Brown (4/6 10YR) 10% fine sand, 30% silt, 60% clay, moist, trace charcoal, med toughness, stiff, med strength, no odor, some mottling, ~~stiff~~	CL		5368
10.0			0.0	60			10	5320
					TD = 10.0 ft bgs no gw encountered no refusal no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

8N_194

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 194
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/7/12 0845		Date/Time Total Depth Reached: 5/7/12 0900
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 5 lbs.)		40382-0935
Geologist: Ian Stone		Checked By / Date: [illegible], Brian 5-8-12		
Radiological Background: 2882 / 35	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' = 2907 (CPM)
			0.0	66	Clayey Silt, Dark yellowish brown (3/4 10YR) 5% fine sand, 65% silt, 30% clay, trace rootlets, dry, low tough, low strength, med plasticity,			3085
0.5			0.0	72	(0-0.75') no odor or staining	ML		4672
1.0			0.0	84	Clayey Silt, Dark yellowish brown (4/4 10YR) 5% fine sand, 55% silt, 40% clay, dry, low toughness, low strength, med. plasticity,	ML	1	5108
			0.0	78	(0.75-1.5) no odor or staining			5026
2.0			0.0	72	Silty Clay, Reddish Brown (4/4 5YR) 5% fine sand, 35% silt, 60% clay, moist, med toughness, med strength, low plasticity, stiff, no odor or staining		2	5166
			0.0	66		CL		5234
3.0			0.0	66			3	5305
			0.0	54				5353
4.0			0.0	72	(1.5-4.0)		4	5368
			0.0	78	Sandy Silt w/ clay, Yellowish Brown (5/6 10YR) 30% fine sand, 55% silt, 15% clay, moist, low toughness, low strength, low plasticity, no odor, slight mottling	ML		5332
5.0			0.0	66			5	5334
			0.0	60				5193
6.0			0.0	42			6	5184

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	8N	1	194

Radiological Background: 2882 / 35

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	42	Sandy Silt w/ clay, same as above	ML	6	5184
			0.0	48				5176
7.0			0.0	54			7	5143
			0.0	60				5037
8.0			0.0	54	(4-8.0)		8	5179
			0.0	72	Silty Clay, Strong Brown (4/6 7.5YR) 5% fine sand, 25% silt, 70% clay, moist, med toughness, med. strength, med plasticity, stiff, no odor, slight mottling	LL		5070
9.0			0.0	66			9	5062
			0.0	72	(8.0-9.5') Silty Clay w/ Sand, Dark Yellowish Brown (4/6 10YR) 10% fine sand, 30% silt, 60% clay, moist, med toughness, med strength, med plasticity, no odor, slight mottling	CL		5148
10.0			0.0	60	(9.5-10.0)		10	5094
11.0					TD = 10.0 ft bgs no gw encountered no refusal no anomalies detected		11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_195

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 195
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 10.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/7/12 1112		Date/Time Total Depth Reached: 5/7/12 1120
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 8 lbs.)		1 @ 40383 - 1155
Geologist: Ian Stone		Checked By / Date: JRobbins 5/8/12		

Radiological Background: 2745 / 40

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' = 2879 (CPM)
			0.0	66	Clayey Silt, Dark Yellowish Brown (3/4 10YR) 5% fine sand, 65% silt, 30% clay, trace rootlets, ~~med tough~~ (E3) dry, low toughness, low strength, med plasticity, no odor or staining	ML		3153
0.5			0.0	78				4358
1.0			0.0	54			1	4851
			0.0	48				5134
2.0			0.0	66	(0-2.1)		2	5131
			0.0	72	Silty Clay, Dark Brown (3/4 7.5YR) 5% fine sand, 25% silt, 70% clay, moist, med toughness, med strength, med plasticity, stiff, no odor or staining	CL		5090
3.0			0.0	54			3	5284
			0.0	60				5306
4.0			0.0	72			4	5168
			0.0	66				5296
5.0			0.0	72	(2.1-5.0) Sandy Silt w/clay, Yellowish Brown (5/6 10YR) 30% fine sand, 60% silt, 10% clay, trace gravel, ~~trace debris (charcoal, brick)~~ (E3), low toughness, low strength, low plasticity, no odor, some mottling, moist	ML	5	5208
			0.0	54				5332
6.0			0.0	84			6	5042

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	SN	1	195

Radiological Background: 2745 / 40 | 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	84	Sandy Silt w/ clay, same as above		6	5042
			0.0	72				4990
7.0			0.0	66		ML	7	5211
			0.0	48				5175
8.0			0.0	54			8	5149
			0.0	48	(5.0-8.6)			5134
9.0			0.0	66	Silty Clay, Strong brown (4/6 7.5YR) 5% fine sand, 35% silt, 60% clay, moist, med toughness, med strength, med plasticity, stiff, no odor, some mottling	CL	9	5082
			0.0	60	(8.6-9.4) Silty Clay w/ sand, Dark yellowish brown (4/6 10YR) 10% fine sand, 30% silt, 60% clay, moist, trace gravel, med strength, med toughness, med plasticity, no odor, some mottling	CL		5336
10.0			0.0	66	(9.4-10.0)		10	5388
					TD=10.0 ft bgs; no gw encountered no refusal no anomalies detected			
11.0							11	
12.0							12	
13.0							13	

8N_196

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: 8N	Group: 1	Location ID: 196
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: 5/21/12 1035		Date/Time Total Depth Reached: 5/21/12 1038
Type of Sampling Device: Shovel/Trowel		Samples Collected: 1 40384-1040 * (1) 1/2 Gallon Bag (Approx. 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: LR L Robbins 5/22/12		
Radiological Background: 11 / 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 (CPM)
0.5			0.0	60	Sandy Clay w/gravel, Strong brown (4/6 7.5YR) 30% fine sand, 5% silt, 50% clay, 15% fine gravel, dry	AF/CL	1	
1.0			0.0	60	med tough, med strength, med plasticity, no odor or staining (artificial fill)			
2.0					TD=0.5 ft bgs no gw encountered		2	
3.0					* location was revisited to collect additional volume for gamma spec analytes. sample I.D. for additional sample is 40443. sampled on 6/8/12.		3	
4.0							4	
5.0							5	
6.0							6	

8N_197

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: 8N	Group: 1	Location ID: 197
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: 5/21/12 1050		Date/Time Total Depth Reached: 5/21/12 1054
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.)		1 @ 40385 - 1055 *
Geologist: Ian Stone		Checked By / Date: JRobbins 5/22/12		

Radiological Background: 11 / 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 (FS) (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	Sandy Clay w/ gravel, Strong Brown (4/6 7.5YR) 30% fine sand, 50% clay, 20% gravel, dry, med strength, med toughness, med plasticity, no odor or staining (artificial fill)	AF/CL		
			0.0	66				
1.0					TD = 0.5 ft bgs no gw encountered		1	
2.0							2	
3.0					*location was revisited to collect additional volume for gamma spec analytes. Sample I.D. for additional volume is 40444, collected on 6/8/12.		3	
4.0							4	
5.0							5	
6.0							6	

8N_198

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: 8N	Group: 1	Location ID: 198
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: 5/21/12 1108		Date/Time Total Depth Reached: 5/21/12 1114
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) (TS)		40386 - 1115 *
Geologist: Ian Stone		Checked By / Date: JRobins 5/22/12		

Radiological Background: 11 / 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 (CPM)
0.5			0.0	66	Sandy Silt w/ gravel, Dark Yellowish Brown (4/4 10YR) 30% fine sand, ~~60%~~ (FS) 55% silt, 5% clay, 10% fine gravel, dry, low toughness, low strength, low plasticity, no odor or staining (artificial fill)	AF/ML		
1.0			0.0	72			1	
					TD = 0.5 ft bgs no gw encountered			
2.0							2	
					* location was revisited to collect additional volume for gamma spec analytes. Sample I.D. for additional sample is 40445 collected on 6/8/12.			
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc
Exceeding Expectations

8N_199

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 199
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: 5/21/12 1140		Date/Time Total Depth Reached: 5/21/12 1144
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) (#1)		40387 - 1145 *
Geologist: Ian Stone		Checked By / Date:		L Robbins 5/22/12
Radiological Background: 11 / 46	Radiological Equipment Used: Micro R ~~/ Downhole~~ / Pancake Meters	PID Used: Mini Rae 3000 - Background:		2.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (#1) (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	72	Sandy Silt w/ gravel, Dark Yellowish Brown (4/4 10YR) 30% fine sand, 55% silt, 5% clay, 10% fine gravel, dry, low strength, low toughness, low plasticity, no odor or staining (artificial fill)	AP/ML	1	
1.0			0.0	66				
2.0					TD = 0.5 ft bgs no gw encountered		2	
3.0					* location was revisited to collect additional volume for gamma spec analytes. Sample I.D. 40446 (additional sample). Collected on 6/8/12.		3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, INC. Exceeding Expectations

8N_200

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 200
Drilling Company: Boart Longyear	Driller: Don Hansen	Ground Elevation: NA		Total Depth Drilled: 10' ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/9/12 1459		Date/Time Total Depth Reached: 5/9/12 1506
Type of Sampling Device: 1.75 inch Macrocore		Samples Collected: One 1/2 Gallon Bag (Appox ~~6 lbs.~~ 1 lb) TM 40388 (1535)		Field Dup. NT 40442 (1540 TM)
Geologist: T. Morse		Checked By / Date: J Robbins 5/10/12		
Radiological Background: 49 cpm / 2495	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: ~~2000~~ 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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5 2850 (CPM)
					Surface: Soil + Veg.			
			0.0	60	Silt w/sand: dark Yellowish Brown (10YR 4/4) 85% silt, 10% fine grained sand, 5% med. grained sand, dry, soft, no odor, low toughness, low strength, trace rootlets	ML		3372
0.5			0.0	72				4301
					0'9"		1	4508
1.0			0.0	78	Sandy Silt: brown (10YR 4/3) 80% silt (fine), 15% fine grained sand, 5% med. grained sand, medium stiff/firm, trace rootlets, trace $CaCO_3$ nodules, dry, no odor, low toughness, medium strength, tr TM			4555
			0.0	72		ML		4742
2.0			0.0	66			2	
			0.0	60				4827
					3'0"		3	4961
3.0			0.0	72				
			0.0	60	Sandy Silt: dark Yellowish Brown (10YR 4/4) 85% silt, 10% fine grained sand, 5% med. grained sand, stiff/firm, increased presence of $CaCO_3$ nodules and stringers, dry, no odor, low toughness, med. strength, pinhole pores and mottling			4947
4.0			0.0	66			4	4887
			0.0	54		ML		4435
5.0			0.0	60			5	5074
			0.0	66				4992
6.0			0.0	72			6	4914

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: 8N	Group: 1	Location ID: 200
Radiological Background: 49 cpm / 2495	Radiological Equipment Used: ~~Micro~~ R / Downhole / Pancake Meters	PID Used: ~~2000~~ 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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	49 / 72	Same as above...	ML	6	4914
			0.0	54	6' 6"			4929
7.0			0.0	72	Sandy Silt: Yellowish Brown (10YR 5/6) 80% Silt, 15% fine grained sand, 5% clay, very stiff/firm, dry, no odor, low toughness, medium strength, increased presence of $CaCO_3$ nodules and stringers, presence of pinhole pores and mottling		7	4888
			0.0	60				5023
8.0			0.0	60		ML	8	4881
			0.0	48				4825
9.0			0.0	60			9	4867
			0.0	54	---- Same as above except Larger presence of $CaCO_3$ nodules and stringers in bottom 6" of sample			4773
10.0			0.0	54	10'		10	4567
11.0					TD = 10' bgs no refusal total sample depth reached NO GW encountered NO Gamma anomalies found		11	
12.0							12	
13.0							13	

HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_201

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 201
Drilling Company: Boart Longyear	Driller: Don Hansen	Ground Elevation: NA		Total Depth Drilled: 10 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/9/12 0920		Date/Time Total Depth Reached: 5/9/12 0932
Type of Sampling Device: 1.75 inch Macrocore		Samples Collected: One 1/2 Gallon Bag (Appox 8 lbs.)		1lb TM 40389 (1015)
Geologist: T. Morse		Checked By / Date:		J Robbins 5/10/12
Radiological Background: 45 cpm / 2343	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: ~~2000~~ 3000 Mini Rae	TM	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: soil + veg		+0.5	2560
			0.0	66	Sandy Silt TM ~~Silt w/ Sand~~: dark yellowish Brown (10YR 4/4)			2923
0.5			0.0	78	85% Silt, 10% fine grained Sand, 5% med. sand,			3409
					cohesive, low strength, low toughness, no odor,	AF/		
1.0			0.0	42	dry, trace calcium carbonate nodules, trace	ML	1	3256
					rootlets, trace fill gravel (sub rounded 1/4"			
			0.0	60	to 1/2" gravel), pinhole pores, soft			2789
					2'0" - 2'0" bgs small cluster of fill gravel (1/4" to 1/2")			
2.0			0.0	66	2'0"		2	3410
					Sandy Silt			
			0.0	78	TM ~~Silt w/ Sand~~: Yellowish Brown (10YR 5/6)			4347
					80% Silt, 15% fine grained Sand, 5% med.			
					Sand, cohesive, Low strength, low toughness,	ML		
3.0			0.0	60	no odor, firm, ~~TM~~ dry, trace $CaCO_3$		3	4334
					nodules, pinhole pores			
			0.0	48				4715
4.0			0.0	60	4'0"		4	4749
					Sandy Silt			
			0.0	54	TM ~~Silt w/ Sand~~: Strong Brown (7.5YR 4/6)			4822
					85% Silt, 10% fine grained Sand, 5% med.			
					grained sand, cohesive, low strength, low toughness,	ML		
5.0			0.0	48	no odor, firm, dry, trace $CaCO_3$ nodules,		5	5075
					pinhole pores, mottling present			
			0.0	72				4969
6.0			0.0	60			6	4948

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG (cont'd)

Sheet 2 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 201
Radiological Background: 45, 2343	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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	60	6' to 10' same as above except:		6	4998
			0.0	78	• very stiff/firm			4865
7.0			0.0	54	• Color: Strong Brown (7.5YR 5/6)		7	4762
			0.0	72		ML		4730
8.0			0.0	60	8'-10'		8	4686
			0.0	60	Same as above - increased $CaCO_3$ nodules + veins			4276
9.0			0.0	42			9	4476
			0.0	54				4419
10.0			0.0	60	10'0"		10	4499
11.0					TD = 10 ft. Bgs. Full sampling depth reached No GW encountered No anomalies found		11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_202

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 202
Drilling Company: Boart Longyear	Driller: Don Hansen	Ground Elevation: NA		Total Depth Drilled: 10' ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/9/12 1330		Date/Time Total Depth Reached: 5/9/12 1341
Type of Sampling Device: 1.75 inch Macrocore		Samples Collected: One 1/2 Gallon Bag ~~(Appox 8 lbs.)~~ ~1 lb		40390 (1425)
Geologist: T. Morse		Checked By / Date: [signature]		5-10-12
Radiological Background: 47 cpm/2568	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: ~~2000~~ 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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5 2848 (CPM)
					Surface: Soil + Veg.			
			0.0	60	Silt w/sand: dark Yellowish Brown (10YR 4/4)			3215
0.5			0.0	48	90% silt, 10% fine grained sand, dry, no odor,	ML		4245
1.0			0.0	54	cohesive, low toughness, low strength, soft, trace rootlets		1	4628
			0.0	54				4784
2.0			0.0	66	2'0"		2	4666
			0.0	42	Sandy Silt: dark Yellowish Brown (10YR 4/4) 80% silt, 15% fine grained sand, 5% medium grained sand, low toughness,			4810
3.0			0.0	48	med. strength, stiff/firm, dry, no odor, trace CaCO3 nodules and mottling		3	4869
			0.0	72		ML		4926
4.0			0.0	60			4	4794
			0.0	48				4833
5.0			0.0	66	5'0"		5	4851
			0.0	66	Sandy Silt: Yellowish Brown (10YR 5/6) 80% silt, 20% fine grained sand, low toughness, medium strength, very stiff/firm	ML		4850
6.0			0.0	60	... continued on next page		6	5028

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	8N	1	202

Radiological Background: 47 cpm / 2568 | 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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	60	continued from previous page... Dry, no odor, trace $CaCO_3$ and mottling, pinhole pores	ML	6	5028
			0.0	60				4854
7.0			0.0	54			7	4823
			0.0	60				4924
8.0			0.0	60	8'0"		8	4907
			0.0	60	Sandy Silt: Yellowish Brown (10YR 5/6) 80% silt, 15% fine grained Sand, 5% clay, low toughness, medium strength, very stiff, very firm, dry, no odor, trace $CaCO_3$ deposits/veins			4754
9.0			0.0	72		ML	9	4758
			0.0	66				4737
10.0			0.0	60	10'0"		10	4784
11.0					TD = 10' bgs total sampling depth completed NO GW encountered NO Gamma anomalies found		11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_203

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 203
Drilling Company: Boart Longyear	Driller: Don Hansen	Ground Elevation: NA		Total Depth Drilled: 10 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/9/12 1045		Date/Time Total Depth Reached: 5/9/12 (1057)
Type of Sampling Device: 1.75 inch Macrocore		Samples Collected: One 1/2 Gallon Bag (Appox ~~8 lbs.~~ 2 lb)		40391 (1140)
Geologist: T. Morse		Checked By / Date:		5-10-12
Radiological Background: 44 cpm / 2929	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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					surface: soil + veg.		10.5	2775
			0.0	66	Sandy silt: dark Yellowish brown (10YR 4/4) 85% silt, 10% fine grained sand, 5% med. sand,			3846
0.5			0.0	78	Dry, no odor, cohesive, low strength, low toughness, trace rootlets, soft	ML		4279
1.0			0.0	54	0'7"		1	4840
			0.0	60	Sandy silt: Yellowish brown (10YR 5/4) 80% silt, 15% fine grained sand, 5% med. sand, dry, no odor, cohesive, low strength, low toughness, low plasticity, trace rootlets, trace $CaCO_3$ deposits, firm/stiff	ML		4628
2.0			0.0	54			2	4931
			0.0	48				4753
3.0			0.0	54	3'0"		3	4939
			0.0	66	Sandy Silt: dark Yellowish brown (10YR 4/4), very fine silt, 10% fine grained sand, 5% med. grained sand, 85% silt,			5023
4.0			0.0	60	Dry, no odor, cohesive, medium strength, low toughness, trace $CaCO_3$ nodules, presence of pinhole pores, very stiff/firm	ML	4	4926
			0.0	54				5096
5.0			0.0	60			5	5146
			0.0	66				4962
6.0			0.0	78			6	4990

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: 8N	Group: 1	Location ID: 203
Radiological Background: 44cpm / 2929	Radiological Equipment Used: ~~Micro R~~ IM / Downhole / Pancake Meters		PID Used: Mini Rae ~~2000~~ 3000 IM 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	78	same as above...		6	4990
			0.0	54		ML		4897
7.0			0.0	60			7	5089
			0.0	72	7'6"			4864
8.0			0.0	66	Sandy Silt: dark Yellowish Brown (10YR 4/6) 80% fine silt, 15% fine grained Sand, 5% med. grained Sand, dry, no odor, cohesive, medium strength, low toughness, trace $CaCO_3$ nodules, very stiff/firm		8	4904
			0.0	48		ML		4864
9.0			0.0	54			9	4388
			0.0	60				4154
10.0			0.0	54	9'10-10' Large amount of $CaCO_3$ deposits		10	4180
					10'0"			
11.0					TD = 10' bgs full sample depth completed to 10' NO GW encountered No anomalies found (gamma)		11	
12.0							12	
13.0							13	

HGL HydroGeoLogic, Inc. Exceeding Expectations

8N_204

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 204
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: 5/10/12 1101		Date/Time Total Depth Reached: 5/10/12 1126
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lbs.) 40392 (1145)		
Geologist: Tim Morse		Checked By / Date: JRobbins 5/11/12		
Radiological Background: 41 cpm / 2825	Radiological Equipment Used: ~~Micro R.~~ TB / 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' 2779 (CPM)
			60	60	surface: soil + veg.			3048
0.5			0.0	66	Silt w/clay: dark Yellowish Brown (10YR 4/4) 85% silt, 10% clay, 5% fine grained sand, Dry, soft, slightly cohesive, trace rootlets, trace charcoal, no odor	NF/ML		3890
1.0			0.0	78			1	4612
			0.0	72				4704
2.0			0.0	54			2	4906
			0.0	48	2'6"			4963
3.0			0.0	48	Clayey Silt: Brown (7.5YR 4/4) 20% clay, 75% silt, 5% fine grained sand, Dry, medium stiff/firm, noncohesive, low strength, trace $CaCO_3$ deposits and stringers, no odor	ML	3	4973
			0.0	66	3'6"			4811
4.0			0.0	84	Clayey Silt: Light Yellowish Brown (10YR 6/4) 20% clay, 75% silt, 5% fine grained sand, Large amounts of $CaCO_3$ present (stringers + deposits) dry, no odor, medium stiff/firm, noncohesive, low strength	ML	4	4441
			0.0	78	4'6"			3966
5.0			0.0	60	Silty clay: Yellowish Brown (10YR 5/6) 60% clay, 40% silt, Dry, no odor, medium toughness, medium strength, very stiff, trace $CaCO_3$ nodules and stringers	CL	5	3953
			0.0	66				4282
6.0			0.0	72			6	4429

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	8N	1	204

Radiological Background: 41 cpm / 2825

Radiological Equipment Used: ~~Micro RV~~ 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	Same as above...	CL	6	4429
			0.0	66	Clayey silt: Light yellowish Brown (10YR 6/4) 25% clay, 75% silt, Larger amounts of $CaCO_3$ deposits, dry, no odor, medium stiff, low strength			4281
7.0			0.0	66		ML	7	4042
			0.0	54	7'6"			3577
					Silty clay: Strong Brown (10YR 4/6) 55% clay, 40% silt, 5% fine grained sand, Large presence of $CaCO_3$ nodules and stringers, dry, no odor, very stiff, medium strength, medium toughness			
8.0			0.0	60			8	3620
			0.0	48		CL		4062
9.0			0.0	54			9	4420
			0.0	48				4870
10.0			0.0	60	10'0"		10	4786
					TD = 10' bgs. no refusal Total sample depth reached NO GW encountered No anomolies found			
11.0							11	
12.0							12	
13.0							13	

8N_205

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 205
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: 5/10/12 1338		Date/Time Total Depth Reached: 5/10/12 (1349)
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx. 1 lbs.) 40393 (1425)		
Geologist: Tim Morse		Checked By / Date: JRobbins 5/11/12		
Radiological Background: 40 / 2924	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)
					surface: soil + veg.		+0.5	1877
			0.0	66	Silt w/clay: dark Yellowish Brown (10YR 4/4)			3487
0.5			0.0	60	85% silt, 10% clay, 5% fine grained sand,	AF/ML		4366
1.0			0.0	72	dry, soft, non cohesive, trace rootlets, no odor, concrete 1-2" diameter chunk at 1' bgs		1	4426
			0.0	36	1'7"			4161
					Clayey Silt: Yellowish Brown (10YR 5/6)			
2.0			0.0	42	20% clay, 75% silt, 5% fine grained and med. grained sand, presence of $CaCO_3$ nodules and stringers, dry, no odor, medium stiff, slightly cohesive	ML	2	4237
			0.0	74				4366
					2'6"			
3.0			0.0	66	Silty Clay: Dark Yellowish Brown (~~7.5~~ 10YR 4/4)		3	4502
			0.0	48	65% clay, 30% silt, 5% fine-med. grained sand, $CaCO_3$ nodules and stringers, dry, no odor, very stiff, medium strength, medium toughness	CL		4291
4.0			0.0	66	4'0" dashed line		4	4464
			0.0	48	Silty clay: Strong Brown (7.5YR 4/6)			4356
5.0			0.0	60	55% clay, 40% silt, 5% fine to med grained sand, $CaCO_3$ nodules and stringers (increased presence), dry, no odor, very stiff to hard, med. to high strength, med. toughness	CL	5	4173
			0.0	66				4280
6.0			0.0	60			6	4350

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	8N	1	205

Radiological Background:	Radiological Equipment Used:	PID Used:
40 / 2924	~~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			60	0.0	Same as above...		6	4350
			66	0.0				4392
7.0			60	0.0		CL	7	4513
			54	0.0				4488
8.0			66	0.0	8'3"		8	4241
			48	0.0	Weathered Sandstone: mechanically weathered to SP fine to medium grained Sand, dry, no odor, dense, 90% fine grained Sand, 10% med grained sand,	SP / Bedrock		4349
9.0			54	0.0	• Brownish Yellow (10YR 6/6) 8'3" to 9' bgs		9	NA
			66	0.0	Yellow (2.5Y 7/6) 9' to 10'0" bgs			NA
10.0			48	0.0	10'0"		10	NA
					TD = 10' bgs. no refusal NO GW encountered NO Gamma anomalies found			
11.0							11	
12.0							12	
13.0							13	

8N_206

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 206
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA		Total Depth Drilled: 9'0" ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/10/12 1452		Date/Time Total Depth Reached: 5/10/12 1507
Type of Sampling Device: 1.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lbs.)		40394 (1550)
Geologist: Tim Morse		Checked By / Date: LRobbins 5/11/12		
Radiological Background: 24 cpm / 2770	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 2787 (CPM)
					surface: soil + veg			
			0.0	66				3120
0.5			0.0	54	Silt w/ clay: dark Yellowish Brown (10YR 4/4) 80% silt, 10% clay, 5% fine-med. grained Sand, Dry, soft, no odor, non cohesive, trace rootlets, trace $CaCO_3$ nodules, trace fill gravel 1/4" to 1/2" diameter	AF/ML		4164
1.0			0.0	66			1	4316
					1'0"			
			0.0	54	Silty clay: Dark Yellowish Brown (10YR 4/4) 65% clay, 30% silt, 5% fine-med. grained Sand, presence of $CaCO_3$ nodules and stringers, Dry, no odor, medium strength and toughness	CL		4049
2.0			0.0	72			2	4061
			0.0	54				4038
					2'1"			
3.0			0.0	66			3	4412
			0.0	60	Silty clay: Strong Brown (7.5YR 4/6) 60% clay, 35% silt, 5% fine-med. grained Sand, Large amount of $CaCO_3$ nodules and stringers, no odor, dry, very stiff to hard, med to high strength, med. toughness	CL		4527
4.0			0.0	54			4	4489
					→ Pocket of $CaCO_3$ deposits 4'1-4'3" bgs. Yellowish Brown (10YR 5/4)			
			0.0	42				4124
5.0			0.0	60			5	4106
			0.0	60				4436
6.0			0.0	66			6	4325

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 206
Radiological Background: 24 cpm / 2770	Radiological Equipment Used: ~~Micro R~~ TA / 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	Same as above...		6	4325
			0.0	54		CL		4531
7.0			0.0	66			7	4464
			0.0	60				4266
8.0			0.0	54			8	4365
			0.0	60	8'6" weathered Sandstone; mechanically weathered to SP fine grained Sand, 90% fine grained Sand, 10% med. grained Sand, no odor dry, hard			4378
9.0		5	0.0	54	9'0"	SP / Bedrock	9	4915
					TD = 9'0" bgs. refusal on Sandstone bedrock			
10.0					NO GW encountered		10	
					NO Gamma anomalies found			
11.0							11	
12.0							12	
13.0							13	

8N_207

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: 8N	Group: 1	Location ID: 207
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: 5/21/12 - 1206		Date/Time Total Depth Reached: 5/21/12 - 1209
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		1@ 40395-1210
Geologist: Ian Stone		Checked By / Date: JRobbins 5/22/12		
Radiological Background: 14 / 75	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	Sandy Silt w/clay, Dark Yellowish Brown (4/4 10YR) 20% fine sand, 70% silt, 10% clay, trace gravel, low strength, low strength, low plasticity, no odor or staining, dry	ML	1	
0.5			0.0	66				
1.0					TD: 0.5 ft bgs no gw encountered		2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

8N_208

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: 8N	Group: 1	Location ID: 208
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: 5/21/12 1215		Date/Time Total Depth Reached: 5/21/12 1219
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.) (ES)		1 40396 - 1220
Geologist: Ian Stone		Checked By / Date: JRobins 5/22/12		

Radiological Background: 14 / 75

Radiological Equipment Used: Micro R / ~~Downhole~~ / Pancake Meters (ES)

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, Dark yellowish brown (4/4 10YR) 20% fine sand, 80% silt, dry, low tough, low strength, low plasticity, no odor or staining	ML		
			0.0	84				
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	

8N_209

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: 8N	Group: 1	Location ID: 209
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: 5/21/12 1230		Date/Time Total Depth Reached: 5/21/12 1234
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) (ES)		1 40397 - ~~1234~~ (ES) 1235
Geologist: Ian Stone		Checked By / Date: JRobbins 5/22/12		
Radiological Background: 14 / 75	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	90	Sandy Silt, Dark yellowish brown (4/4 10YR) 20% fine sand, 80% silt, dry, trace rootlets, low toughness, low strength, low plasticity, no odor or staining	ML	1	
1.0			0.0	72	TD = 0.5 ft bgs no gw encountered		2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

8N_210

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: 8N	Group: 1	Location ID: 210
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: 5/21/12 1238		Date/Time Total Depth Reached: 5/21/12 1242
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.)		1 40398 - 1245 (LP)
Geologist: Ian Stone		Checked By / Date: JRolling 5/22/12		

Radiological Background: 14 / 75

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) (LP)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	66	Silty Sand, Dark Yellowish Brown (3/4 10YR)	SM		
			0.0	96	60% fine sand, 40% silt, trace rootlets, moist, loose, 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	

8N_211

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: 8N	Group: 1	Location ID: 211
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: 5/21/12 1443		Date/Time Total Depth Reached: 5/21/12 1447
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 8 lbs.)		40399-1450
Geologist: Ian Stone		Checked By / Date:		Jordan Robbins 5/22/12

Radiological Background: 12 / 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			0.0	60	Clayey Silt w/ sand, Brown (4/3 10YR) 10% fine sand, 60% silt, 30% clay, trace gravel, low toughness, low strength, low plasticity, no odor or staining, (artificial fill)	AK/ML		
0.5			0.0	60				
1.0							1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

TD = 0.5 ft bgs

no gw encountered

8N_212

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: 8N	Group: 1	Location ID: 212
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: 5/21/12 1453		Date/Time Total Depth Reached: 5/21/12 1457
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.) ED		40400-1500
Geologist: Ian Stone		Checked By / Date: JRobbins 5/22/12		
Radiological Background: 12 / 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 (HS) (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	60	Clayey Silt w/ Sand, Brown (4/3 10YR) 10% fine sand, 60% silt, 30% clay, trace gravel, trace concrete, low toughness, low strength, low plasticity, no odor or staining, dry (Artificial fill)	AF/ML	1	
1.0			0.0	72				
					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

8N_213

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 213
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: 5/21/12 1505		Date/Time Total Depth Reached: 5/21/12 1509
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 6 lbs.) (FS)		1 4040t - 1510
Geologist: Ian Stone		Checked By / Date: JRobins 5/22/12		
Radiological Background: 12 / 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 (FS) (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	72	Clayey Silt, Dark yellowish brown (4/4 10YR). 5% fine sand, 55% silt, 40% clay, trace gravel, dry, low-med toughness, low-med strength, med plasticity, no odor or staining	AF/ML	1	
0.5			0.0	66				
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	

8N_214

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: 8N	Group: 1	Location ID: 214
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: 5/21/12 1517		Date/Time Total Depth Reached: 5/21/12 1523
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.) (#3)		40402-1525
Geologist: Ian Stone		Checked By / Date:		YRollins 5/22/12

Radiological Background: 12 / 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 (#3) (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	Clayey Silt, Dark Yellowish Brown (4/4 10YR) 5% fine sand, 55% silt, 40% clay, trace gravel, trace debris (glass), dry, low and tough, low-med strength, med plasticity, no odor or staining	ML	1	
1.0			0.0	78				
					TD = 0.5ft bgs 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

8N_215

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 215
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: 5/22/12 0901		Date/Time Total Depth Reached: 5/22/12 0904
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.) @		40403 - 0905
Geologist: Ian Stone		Checked By / Date: JRobbins 5/23/12		

Radiological Background: 14 / 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)
0.0			0.0	78	Sandy Silt w/ gravel, Dark Yellowish Brown (4/4 10YR) 40% fine sand, 50% silt, 10% gravel, trace debris (brick), low toughness, low strength, low plasticity, no odor or staining, dry (artificial fill)	AF/ML		
0.5			0.0	108				
1.0							1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

TD = 0.5 ft bgs

no gw encountered

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_216

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 216
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: 5/22/12 0916		Date/Time Total Depth Reached: 5/22/12 0919
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.) (F)		40404-0920
Geologist: Ian Stone		Checked By / Date: J Robbins 5/23/12		

Radiological Background: 14 / 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)
0.5			0.0	72	Silty Sand, ~~not~~ (F) Dark Yellowish Brown (3/4 10YR) 60% fine sand, 40% silt, trace gravel, trace debris (metal), dry, loose, no odor or staining, (artificial fill)	AF/SM		
0.5			0.0	66				
1.0					TD = 0.5 ft bgs no gw encountered			
2.0								
3.0								
4.0								
5.0								
6.0								

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_217

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: i	Location ID: 217
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: 5/22/12 0931		Date/Time Total Depth Reached: 5/22/12 0934
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 6 lbs.) (FS)		42405-0935
Geologist: Ian Stone		Checked By / Date: JRobbins 5/23/12		

Radiological Background: 14 / 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 (FS) (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 (3/4 10YR) 60% fine sand, 40% silt, trace gravel, trace rootlets, dry, loose, no odor or staining, (artificial fill)	AF/SM		
1.0			0.0	84				
2.0					TD = 0.5 ft bgs			
3.0								
4.0								
5.0								
6.0								

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

8N_218

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 218
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: 5/22/12 0941		Date/Time Total Depth Reached: 5/22/12 0944
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 6 lbs.) (2)		40906-0945
Geologist: Ian Stone		Checked By / Date:		J Robbins 5/23/12
Radiological Background: 14 / 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 (1) (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	102	Silty Sand, Dark yellowish brown (3/4 10YR) 60% fine sand, 40% silt, trace gravel, trace roots, dry, loose, no odor or staining (artificial fill)	AF/SM	1	
			0.0	78				
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

8N_219

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 219
Drilling Company: ~~Boart Longyear~~ HGL	Driller: ~~Don Hudson~~ I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: ~~Geoprobe 6600~~ shovel/trowel	Borehole Diameter: ~~1.75 inches~~ NA	Date/Time Drilling Started: 5/8/12 0850		Date/Time Total Depth Reached: 5/8/12 0855
Type of Sampling Device: ~~1.75 inch Macrocore~~ shovel/trowel		Samples Collected: One 1/2 Gallon Bag (Appox ~~8 lbs.~~ 1 lb)		40407 (0855)
Geologist: T. Morse		Checked By / Date: Robbins 5/9/12		
Radiological Background: 3600/2096	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: Mini Rae ~~2000~~ 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: Soil + Vegetation			
0.5			0.0	66	Sandy Silt, Dark Yellowish Brown (10YR 3/4) 55% silt, 40% fine grained Sand, 5% clay Dry, low strength, low toughness, low plasticity no odor, medium firm consistency	ML	1	
1.0			0.0	72	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: 8N	Group: 1	Location ID: 219
Drilling Company: Boart Longyear	Driller: Don Hansen	Ground Elevation: NA		Total Depth Drilled: 5.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/8/12 0910		Date/Time Total Depth Reached: 5/8/12 (0924)
Type of Sampling Device: 1.75 inch Macrocore		Samples Collected: One 1/2 Gallon Bag (Approx ~~8 lbs.~~ 1 lb)		40404 (0950)
Geologist: T. Morse		Checked By / Date: JRobbins 5/9/12		
Radiological Background: 36 cpm / 2096	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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					Surface: soil + vegetation		0.5	2771
0.5			0.0	72	Sandy Silt, Dark Yellowish Brown (10yr 3/4) 55% Silt, 40% fine grained Sand, 5% clay. Dry, Low strength, low toughness, low plasticity, no odor, medium firm consistency	SM ML		3758
			0.0	66				4312
1.0			0.0	90	1'0"		1	4441
			0.0	96	Silty Sand, Yellowish Brown (10yr 5/4) 20% Silt, 70% fine grain Sand, 10% med. grain Sand, Calcium Carbonate deposits and striations, Dry, no odor, medium density	SM		4616
2.0			0.0	78			2	4565
			0.0	84	2'7"			4808
3.0			0.0	84	Sand w/Silt, Yellowish Brow (10YR 5/6) 10% Silt, 80% fine grained Sand, 10% med. grained Sand, Calcium Carbonate deposits and striations, Dry, no odor, medium dense to dense	SP	3	4694
			0.0	72				4928
4.0			0.0	66			4	4837
			0.0	60	• 2'7" → 2'9" Fine grained Sand + Calcium Carbonate deposit, Pale Yellow (2.5Y 7/3)			4741
5.0			0.0	48	4'10" Sandstone Bedrock, Light olive Brown (2.5Y 5/4) poorly graded Sandstone 5'0" bgs		5	4678
					TD = 5'0 bgs. Bedrock Sandstone No GW encountered No anomalies encountered	BG rock		
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_220

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 220
Drilling Company: ~~Boart Longyear~~ HGL	Driller: ~~Don Hansen~~ I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: ~~Geoprobe 6600~~ Trowel	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/8/12 1025		Date/Time Total Depth Reached: 5-8-12 / 1030
Type of Sampling Device: ~~1.75 inch Macrocore~~ Trowel/shovel		Samples Collected: One 1/2 Gallon Bag (Approx ~~8 lbs.~~ 1 lb) 40409 (1030)		
Geologist: T. Morse		Checked By / Date: LaDean Robbins		5/9/12
Radiological Background: 54 cpm/2974	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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					surface: soil + vegetation			
0.5			0.0	66	Sandy Silt w/clay: Dark Yellowish Brown (10YR 3/4) 15% fine grained sand, 75% silt, 10% clay, slightly moist, no odor, low toughness, low strength, low plasticity, soft	ML	1	
1.0			0.0	96	TD = 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 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 220
Drilling Company: Boart Longyear	Driller: Don Hansen	Ground Elevation: NA		Total Depth Drilled: 5.0 ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/9/12 1041		Date/Time Total Depth Reached: 5-8-12 / 1100
Type of Sampling Device: 1.75 inch Macrocore		Samples Collected: One 1/2 Gallon Bag (Approx. ~~3~~ 1lbs.)		40410 (1125)
Geologist: T. Morse		Checked By / Date: JRobbins		5/9/12

Radiological Background: 54 cpm / 2974 (1)

Radiological Equipment Used: Micro R / Downhole / Pancake Meters

PID Used: Mini Rae ~~2000~~ 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: soil + Veg.			3537
0.5			0.0	84	Sandy Silt w/clay: Dark yellowish Brown (10YR 3/4) 15% fine grained Sand, 75% silt, 10% clay, slightly moist, no odor, low toughness, low strength, low plasticity, soft.	ML		4736
1.0			0.0	66			1	4906
			0.0	60				5218
					1'9"		2	5197
2.0			0.0	66	Silty Sand: Yellowish Brown (10YR 5/6) 30% silt, 70% fine grained sand, dry, no odor, medium dense	SM		5242
			0.0	72			3	5463
3.0			0.0	66				5578
			0.0	72			4	5555
4.0			0.0	60	4'0"			
			0.0	60	Sand w/silt: Brownish Yellow (10YR 6/6) 80% fine grained Sand, 10% medium grained sand, 10% clay, dry, no odor, med. dense	SP	5	5350
5.0			0.0	60	4'10" Calcium carbonate concretions on top of weathered Sandstone, dry, dense, Pale Yellow (2.5Y 7/3) 5'0"	Bedrock		4692
6.0					TD = 5'0" bgs Sandstone Bedrock: Light olive Brown (2.5Y 5/4) Poorly graded Sand NO GW encountered, NO anomalies (gamma) found		6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8N_221

1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 221
Drilling Company: ~~Boart Longyear~~ TM HGL.	Driller: ~~Don Hansen~~ TM I. Stone	Ground Elevation: NA		Total Depth Drilled: 0.5' ft bgs.
Drilling Equipment: ~~Geoprobe 6600~~ TM shovel	Borehole Diameter: ~~1.75 inches~~ TM NA	Date/Time Drilling Started: 5/8/12 1325		Date/Time Total Depth Reached: 5/8/12 / 1330
Type of Sampling Device: ~~1.75 inch Macrocore~~ TM shovel / trowel		Samples Collected: One 1/2 Gallon Bag (Appox 8 lbs.) 40411 (1330)		
Geologist: T. Morse		Checked By / Date: [illegible] Robbins 5/9/12		
Radiological Background: 46 cpm / 2791	Radiological Equipment Used: ~~Micro R~~ / Downhole / Pancake Meters	PID Used: ~~3000~~ Mini Rae ~~2000~~ TM	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: Soil + Veg.			
0.5			0.0	54	Sandy Silt w/clay: Dark Yellowish Brown (10YR 3/4), 15% fine grained sand, 75% silt, 10% clay, Dry, no odor, low toughness, low strength, low plasticity, soft.	ML		
0.5			0.0	60				
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

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8N	Group: 1	Location ID: 221
Drilling Company: Boart Longyear	Driller: Don Hansen	Ground Elevation: NA		Total Depth Drilled: 8'0" ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75 inches	Date/Time Drilling Started: 5/8/12 1325		Date/Time Total Depth Reached: 5/8/12 1350
Type of Sampling Device: 1.75 inch Macrocore		Samples Collected: One 1/2 Gallon Bag (Appox 8 lbs.)		40412 (1420)
Geologist: T. Morse		Checked By / Date: JRobins 5/9/12		

Radiological Background: 48 cpm / 2791

Radiological Equipment Used: ~~Micro~~R / Downhole / Pancake Meters (12)

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)	USCS Symbol
					Surface: soil + veg.	
0.5			0.0	54	Sandy Silt w/clay: Dark Yellowish Brown (10YR 3/4) 15% fine grained Sand, 75% silt, 10% clay, Dry, no odor, low toughness, low strength, low plasticity, soft.	ML
1.0			0.0	66	1'0"	
			0.0	66	Sandy Silt w/clay: Dark Yellowish Brown (10YR 3/6) 25% fine grained Sand, 65% silt, 10% clay, Dry, no odor, low toughness, low strength, low plasticity, medium stiff/firm	ML
2.0			0.0	72		
			0.0	60		
3.0			0.0	66	3'0"	
			0.0	60	Silty Sand: Yellowish Brown (10YR 5/6) 25% Silt, 65% fine grained Sand, 5% med. grained Sand, 5% Clay. Dry, no odor, dense Presence of mottling, trace calcium carbonate veins and deposits, trace rootlets	SM
4.0			0.0	54		
			0.0	66		
5.0			0.0	54		
			0.0	66		
6.0			0.0	60		

Borehole Gamma Readings (CPM)

Feet bgs.	
	+0.5 2819
	3388
	3476
1	4697
	4995
2	5027
	5048
3	5203
	5077
4	5066
	5150
5	5039
	5164
6	5221

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: 8N	Group: 1	Location ID: 221
Radiological Background: ~~48 cpm~~ (279)	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)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	60	Same as above...	SM	6	5221
			0.0	54	6'4"			5149
7.0			0.0	66	Weathered Sandstone: Pale Yellow (2.5Y 7/4) 85% fine grained Sand, 10% medium grained Sand, 5% coarse grained Sand. Sandstone Weathers to SP Sand. Dry, no odor, loose	SP	7	5220
			0.0	90				5077
8.0			0.0	60	8'0"	Bedrock	8	4801
					TD = 8'0" BGS on Sandstone Bedrock NO GW encountered NO anomolies found (Gamma)			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

8S_025

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8S	Group: 1	Location ID: 25
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: 5/18/12 1126		Date/Time Total Depth Reached: 5/18/12 1123
Type of Sampling Device: Shovel/Trowel		Samples Collected: 40413-1125 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: JRobbins 5/21/12		
Radiological Background: 10 / 43	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	54	Sandy Silt, Dark Yellowish Brown (4/4 10YR) 30% fine sand, 65% silt, 5% clay, dry, low toughness, low strength, low plasticity, no odor or staining	ML	0	
0.5			0.0	66				
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	

8S_026

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: 8S	Group: 1	Location ID: 26
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: 5/18/12 1130		Date/Time Total Depth Reached: 5/18/12 1134
Type of Sampling Device: Shovel/Trowel		Samples Collected: 40414 - 1135 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: L Robbins 5/21/12		

Radiological Background: 10 / 43

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	54	Sandy Silt, Dark Yellowish brown (4/4 10YR)			
					30% fine sand, trace med sand, 65% silt, 5% clay	ML		
0.5			0.0	66	dry, low strength, low toughness, 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	

8S_027

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: 65	Group: 1	Location ID: 27
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: 5/18/12 1136		Date/Time Total Depth Reached: 5/18/12 1139
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 40415-1140		
Geologist: Ian Stone		Checked By / Date: JRobbins 5/21/12		
Radiological Background: 10 / 43	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	Sandy Silt, light yellowish brown (6/4 10YR)	ML		
			0.0	60	20% fine sand, 75% silt, 5% clay, dry, low toughness, low strength, low plasticity, no odor or staining			
1.0					TD = 0.5 ft bgs		1	
					no gw encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

8S_028

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: 85	Group: 1	Location ID: 28
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: 5/18/12 1143		Date/Time Total Depth Reached: 5/18/12 1147
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs)		40416 - 1150
Geologist: Ian Stone		Checked By / Date:		JRobbins 5/21/12
Radiological Background: 10 / 43	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	Sandy Silt w/clay, yellowish brown (5/4 10YR) 30% fine sand, 60% silt, 10% clay, dry, low toughness, low strength, low plasticity, no odor or staining	ML	1	
1.0			0.0	60	TD = 0.5 ft bgs no gw encountered		2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

8S_029

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: 85	Group: 1	Location ID: 29
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: 5/18/12 0857		Date/Time Total Depth Reached: 5/18/12 0859
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 6 lbs.)		40417-0900
Geologist: Ian Stone		Checked By / Date: JRobbins 5/21/12		
Radiological Background: 11 / 35	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	60/hr	Sandy Silt, Dark Yellowish brown (10YR 4/4)	ML	0	
0.5			0.0	66	40% fine sand, 60% silt, trace gravel (max size = 0.75", sandstone), dry, no odor or staining, low toughness, low strength, low plasticity		1	
1.0					TD = 0.5 ft bgs no gw encountered		2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

8S_030

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: 85	Group: 1	Location ID: 30
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: 5/18/12 0910		Date/Time Total Depth Reached: 5/18/12 0913
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40418-0915 40441-(QT) (1) 1lb bag
Geologist: Ian Stone		Checked By / Date: (IS) JRobbins 5/21/12		
Radiological Background: 11 / 35	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 (IS) (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	Sandy Silt, Dark Yellowish Brown (4/4 10YR) 40% fine sand, 60% silt, trace gravel (sandstone, max size = 0.75"), dry, low toughness, low strength, low plasticity, no odor or staining	ML		
1.0			0.0	66				
					TD = 0.5 ft bgs.			
2.0								
3.0								
4.0								
5.0								
6.0								

8S_031

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: 8S	Group: 1	Location ID: 31
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: 5/18/12 0931		Date/Time Total Depth Reached: 5/18/12 0934
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40419- 0935
Geologist: Ian Stone		Checked By / Date: JRobbins 5/21/12		
Radiological Background: 11 135	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	60	Sandy Silt, Dark Yellowish brown (4/4 10YR) 40% fine sand, 60% silt, trace gravel (sandstone, max size = 1"), dry, low toughness, low strength, low plasticity	ML	1	
1.0			0.0	66				
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

8S_032

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8S	Group: 1	Location ID: 32
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: 5/18/12 0920		Date/Time Total Depth Reached: 5/18/12 0923
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx. 1 lbs.)		40420-0925
Geologist: Ian Stone		Checked By / Date: JRobbins 5/21/12		
Radiological Background: 11 / 35	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	72	Sandy Silt, Dark Yellowish Brown (4/4 10YR) 40% fine sand, 60% silt, trace gravel (sandstone, max size = 1"), dry, no odor or staining, low toughness, low strength, low plasticity.	ML	1	
			0.0	78				
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	

8S_033

HGL HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG

Sheet 1 of 2

Project Name:	Project Number:	Subarea:	Group:	Location ID:
SSFL Area IV Radiological Study	EP038.01.22.04.03	8S	1	33
Drilling Company:	**Driller:**	**Ground Elevation:**		**Total Depth Drilled:**
HGL	T. Morse	NA		8.0 ft bgs.
Drilling Equipment:	**Borehole Diameter:**	**Date/Time Drilling Started:**		**Date/Time Total Depth Reached:**
Hand Auger	3.0"	5/29/12 0935		5/29/12 1032
Type of Sampling Device:		**Samples Collected:**		1 40421-1050
3.0" Hand Auger		(1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		**Checked By / Date:**		5-29-12

Radiological Background:	Radiological Equipment Used:	PID Used:	
2511 / 73	~~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 +0.5' = 2712 (CPM)
			0.0	78	Sandy Silt, Brown (5/3 10YR)			2774
0.5			0.0	78	35% fine sand, 60% silt, 5% clay, trace rootlets, dry, low strength, low toughness, no odor or staining, low plasticity, soft	ML		3416
1.0			0.0	84			1	3648
			0.0	60				3430
2.0			0.0	72	Sandy Silt, light yellowish brown (6/4 10YR) 30% fine sand, 65% silt, 5% fine subangular gravel (siltstone, max size = 0.5"), low strength, low toughness, firm, low plasticity, dry, no odor or staining	ML	2	3278
			0.0	60				3049
3.0			0.0	54			3	3344
			0.0	66				3350
4.0			0.0	42			4	3501
			0.0	54				3440
5.0			0.0	60			5	3640
			0.0	66	- root			3577
6.0			0.0	72			6	3710

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: 88	Group: 1	Location ID: 33
Radiological Background: 2511 / 73	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	Sandy Silt, Same as above except very firm	ML	6	3710
			0.0	78				3942
7.0			0.0	96			7	4006
			0.0	60				3989
8.0			0.0	48			8	4141
					TD = 8.0 ft bgs no gw encountered refusal on siltstone no anomalies detected			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

8S_034

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: 85	Group: 1	Location ID: 34
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 8.25 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0"	Date/Time Drilling Started: 5/29/12 1111		Date/Time Total Depth Reached: 5/29/12 1159
Type of Sampling Device: 3.0" Hand Auger		Samples Collected: (1) 1/2 Gallon Bag (Approx 8 lbs.) EP		40422 - 1230
Geologist: Ian Stone		Checked By / Date: [signature] 5-30-12		
Radiological Background: 2511 / 73	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' = 2595 (CPM)
			0.0	72	Sandy Silt, Brown (5I3 10YR)			2969
0.5			0.0	60	35% fine sand, 60% silt, 5% clay, trace gravel (sandstone, subangular, max size = 1"), trace rootlets, dry, low toughness, low strength, low plasticity, no odor or staining, soft	ML		3705
1.0			0.0	84			1	3723
			0.0	90	Sandy Silt, light yellowish brown (6/4 10YR)	ML		3735
2.0			0.0	66	30% fine sand, 65% silt, 5% gravel (sandstone, subangular, max size = 0.5"), dry, low toughness, low strength, no odor or staining, firm		2	3722
			0.0	72				3652
3.0			0.0	78			3	3875
			0.0	66				3847
4.0			0.0	66			4	4041
			0.0	90				3967
5.0			0.0	84			5	3878
			0.0	72	- very firm	ML		4029
6.0			0.0	66			6	4126

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: 85	Group: 1	Location ID: 34
Radiological Background: 2511 / 73	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	Sandy silt, same as above	ML	6	4126
			0.0	60				4560
7.0			0.0	96	Sandy silt w/ gravel, Yellowish Brown (5Y4 10YR) 25% fine sand, 65% silt, 10% subangular siltstone gravel, dry, very firm, low strength, low toughness, low plasticity, no odor or staining	ML	7	4791
			0.0	78				4929
8.0			0.0	54			8	4824
					TD = 8.25 ft bgs no gw encountered Refusal on siltstone No anomalies detected			
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

8S_035

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: 8S	Group: 1	Location ID: 35
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 8.5 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0"	Date/Time Drilling Started: 5/29/12 1425		Date/Time Total Depth Reached: 5/29/12 1525
Type of Sampling Device: 3.0" Hand Auger		Samples Collected: (1) 1/2 Gallon Bag (Approx 6 lbs.) (ES)		40423 - 1555
Geologist: Ian Stone		Checked By / Date:		

Radiological Background: 2511 / 73

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 40.5' = 2601 (CPM)
			0.0	84	Sandy Silt, Brown (5/3 10YR)			2718
0.5			0.0	72	35% fine sand, 60% silt, 5% clay, trace rootlets, dry, low plasticity, low strength, low toughness, no odor or staining, soft	ML		3553
1.0			0.0	54			1	4021
			0.0	84	(0-1.5')			4081
					Sandy Silt, light yellowish Brown (6/4 10YR)			
2.0			0.0	54	30% fine sand, 65% silt, 5% gravel (subangular, siltstone, sandstone, max size = 0.5"), dry, firm, low strength, low toughness, low plasticity, no odor or staining (ES)	ML	2	3664
			0.0	78				3766
3.0			0.0	72			3	3793
			0.0	72				3862
4.0			0.0	54			4	4158
			0.0	66	- trace calcium carbonate ~~(1.5-5.5')~~ (4.5-7.0')			4097
5.0			0.0	84		ML	5	4272
			0.0	78				4291
6.0			0.0	48			6	4176

HydroGeoLogic, Inc
Exceeding Expectations

SSFL BORING LOG (cont'd)

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 85	Group: 1	Location ID: 35
Radiological Background: 2511 / 73	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	48	Sandy Silt, same as above	ML	6	4176
			0.0	72				4023
7.0			0.0	78			7	3823
			0.0	54				3746
8.0			0.0	84			8	3840
			0.0	72				3940
9.0					TD = 8.5 ft bgs no gw encountered Refusal on siltstone No anomalies		9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

8S_036

SSFL BORING LOG

Sheet 1 of 2

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 85	Group: 1	Location ID: 36
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA		Total Depth Drilled: 8.5 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0"	Date/Time Drilling Started: 5/30/12 0855		Date/Time Total Depth Reached: 5/30/12 0932
Type of Sampling Device: 3.0" Hand Auger		Samples Collected: (1) 1/2 Gallon Bag (Approx 8 lbs.)		40424 - 1000
Geologist: Ian Stone		Checked By / Date:		Cliff Kuyl 6/5/12

Radiological Background: 2503 / 42

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' = 2612 (CPM)
			0.0	60	Sandy Silt, Brown (5/3 10YR), 35% fine sand, 60% silt, 5% clay, trace rootlets, dry, low toughness, low strength, low plasticity, soft, no odor or staining	ML		2985
0.5			0.0	54				3450
					Sandy Silt, light yellowish brown (6/4 10YR) 30% fine sand, 65% silt, 5% subangular gravel (siltstone, sandstone, max size = 0.5"), mod firm, dry, low toughness, low strength, low plasticity, no odor or staining	ML	1	3432
1.0			0.0	66				
			0.0	60				3500
2.0			0.0	48			2	3697
			0.0	72				3702
3.0			0.0	66			3	3853
			0.0	90	- firm			3802
4.0			0.0	60			4	3647
			0.0	66				3746
5.0			0.0	54			5	3621
			0.0	48	- very firm			3556
6.0			0.0	72			6	3634

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: 85	Group: 1	Location ID: 36
Radiological Background: 2503 / 42	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	Sandy Silt, same as above	ML	6	3634
			0.0	84				3916
7.0			0.0	60			7	4329
			0.0	72		ML		4654
8.0			0.0	66	(0.5-8.0') Sandy Silt w/ gravel, light yellowish brown (2.5Y 6/4) no odor, stain, 25% fine sand, 65% silt, 10% subangular siltstone gravel, dry, very firm, low toughness, low strength	ML	8	4608
			0.0	66	(8.0-8.5')			4838
9.0					TD = 8.5 ft bgs no gw encountered refusal on siltstone no anomalies detected		9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

HGL HydroGeoLogic Inc. Exceeding Expectations

SSFL BORING LOG

8S_037

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8S	Group: 1	Location ID: 37
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: 5/23/12 0857		Date/Time Total Depth Reached: 5/23/12 0859
Type of Sampling Device: Shovel/ trowel		Samples Collected: One Bag (Appox. 5 lbs.)		40425 (0900)
Geologist: T. Morse		Checked By / Date:		5/24/12

Radiological Background: 2323 / 37 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)
					surface: soil + veg.			
0.5	X	X	0.0	96	Sandy Silt: dark yellowish brown (10YR 4/4) 25% fine grained sand, 5% med. grained sand, 70% silt, dry, no odor, trace rootlets, trace sandstone gravel, soft, low strength, low toughness	ML		
			0.0	72				
1.0							1	
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

TD = 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: 8S	Group: 1	Location ID: 37
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 2'10" ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/23/12 0907		Date/Time Total Depth Reached: 5/23/12 0942
Type of Sampling Device: Hand Auger 2.75 in		Samples Collected: One Bag (Appox 5 lbs.)		40426 (1005)
Geologist: T. Morse		Checked By / Date:		5/24/12
Radiological Background: 2323 / 37 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)
					surface: soil + veg.		+0.5	2507
			0.0	96	Sandy Silt: dark Yellowish Brown (10YR 4/4) 25% fine grained sand, 5% medium grained sand, 70% silt, dry, no odor, trace rootlets, trace Sandstone gravel, soft, low strength, low toughness	ML		2932
0.5			0.0	72				3447
1.0			0.0	66			1	3596
			0.0	78	1'6" ---------- Silt w/Sand: Light yellowish brown (2.5Y 6/4) 10% very fine grained sand, 90% silt, Dry, no odor, firm to hard, trace rootlets, trace siltstone gravel ½" to 1" diameter			3298
2.0			1:1 0.0 ppm	72		ML	2	3221
			0.0	90	↳ 2'6"-2'10" Same as above except very hard, Large presence of siltstone gravel			3106
3.0					2'10"	BEDROCK	3	
					TD = 2'10" bgs refusal on siltstone bedrock NO GW encountered NO Gamma anomalies		4	
4.0								
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8S_038

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8S	Group: 1	Location ID: 38
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: 5/23/12 1042		Date/Time Total Depth Reached: 5/23/12 1045
Type of Sampling Device: Shovel/ trowel		Samples Collected: One Bag (Appox 5 lbs.)		40427 (1045)
Geologist: T. Morse		Checked By / Date:		5/24/12

Radiological Background: 2323 / 37	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)
					Surface: soil + veg.			
	X	X	0.0	54	Sandy Silt: dark Yellowish Brown (10YR 4/4) 25% fine grained sand, 5% med. grained sand, 70% silt, dry, no odor, trace rootlets, trace Sandstone gravel, soft, low toughness, low strength	ML		
0.5			0.0	78	0.5'			
1.0					TD = 0.5' bgs no refusal		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: 8S	Group: 1	Location ID: 38
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 3'0" ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/23/12 1050		Date/Time Total Depth Reached: 5/23/12 1122
Type of Sampling Device: Hand Auger 2.75 in		Samples Collected: One Bag (Appox. 5 lbs.)		40428 (1140)
Geologist: T. Morse		Checked By / Date:		5/24/12

Radiological Background: 2323 / 37

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 2331 (CPM)
					Surface: Soil + veg.			
0.5			0.0	54	Sandy Silt: dark Yellowish Brown (10YR 4/4) 25% fine grained sand, 5% med. grained sand, 70% silt, dry, no odor, trace rootlets, trace sandstone gravel, soft, low strength, low toughness	ML		2674
1.0			0.0	78				3078
			0.0	60	0'10"		1	3046
			0.0	66	Silt w/sand): Light yellowish brown (2.5Y 6/4) 10% very fine grained Sand, 90% silt, Dry, no odor, hard, trace rootlets, trace mechanically weathered siltstone Gravel ½" to 1" diameter	ML		2824
2.0			0.0	84			2	3084
			0.0	72	↳ same as above 2'-3' except very hard mechanically weathered Siltstone			3398
3.0			0.0	74	3'0"		3	3373
					TD = 3'0" bgs refusal on siltstone bedrock NO GW encountered NO Gamma anomalies	BEDROCK		
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8S_039

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8S	Group: 1	Location ID: 39
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: 5/23/12 1350		Date/Time Total Depth Reached: 5/23/12 1359
Type of Sampling Device: Shovel/ trowel		Samples Collected: One Bag (Appox 5 lbs.)		40433 (1400) + 40438 (NT) 1 Dup; 1 Sib Bag
Geologist: T. Morse		Checked By / Date:		5/24/12

Radiological Background: 2323/57 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)
					Surface: Soil + Veg.			
0.5			0.0	66	Sandy Silt: Light olive brown (2.5Y 5/4) 25% fine grained Sand, 5% med. grained sand, 70% Silt, Dry, no odor, trace rootlets, trace Sandstone gravel, soft, Low strength, Low toughness	ML	1	
1.0			0.0	60	TD: 0.5' bgs no refusal NO GV 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: 8S	Group: 1	Location ID: 39
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 4'7" ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/23/12 1401		Date/Time Total Depth Reached: 5/23/12 1440
Type of Sampling Device: Hand Auger 2.75 in		Samples Collected: One Bag (Approx 5 lbs.)		40434 (1510)
Geologist: T. Moke		Checked By / Date:		5/24/12
Radiological Background: 2323 / 37 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 +10.5 2264 (CPM)
					surface: soil + veg			
			0.0	66	Sandy Silt: Light olive brown (2.5Y 5/4) 25% fine grained sand, 5% med. grained sand, 70% silt, dry, no odor, trace rootlets, trace sandstone gravel, soft, low strength, low toughness	ML		2790
0.5			0.0	60				3275
1.0			0.0	66			1	3581
			0.0	78	1'6"			4041
			0.0	72	Sandy Silt w/gravel: Light olive brown (2.5Y 5/4) 25% fine grained sand, 5% med. grained sand, 60% silt, 10% mechanically weathered siltstone gravel 1/4" to 1" diameter, very hard, low strength, low toughness, trace $CaCO_3$ deposits, dry, no odor	ML	2	4021
2.0			0.0	66				4955
3.0			0.0	72	3'0"		3	4905
			0.0	72	Sandy Silt w/gravel: Light olive brown (2.5Y 5/6) 15% fine grained sand, 5% med. grained sand, 70% silt, 10% mechanically weathered siltstone gravel 1/4" to 3/4" diameter, very hard, trace $CaCO_3$ deposits, dry, no odor	ML		4887
4.0			0.0	66			4	4853
			0.0	78	→ 4' to 4'7" same as above except less gravel Sandy Silt			4739
					4'7"			
5.0					TD = 4'7" bgs. refusal on siltstone bedrock NO GW encountered NO Gamma anomalies	Bedrock	5	
6.0							6	

HGL HydroGeoLogic, Inc. Exceeding Expectations

SSFL BORING LOG

8S_040

sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8S	Group: 1	Location ID: 40
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: 5/23/12 1515		Date/Time Total Depth Reached: 5/23/12 1519
Type of Sampling Device: Shovel/ trowel		Samples Collected: One Bag (Appox 5 lbs.)		40435 (1520)
Geologist: T. Morse		Checked By / Date:		5/24/12

Radiological Background: 2323/37 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)
					Surface: soil + veg.			
0.5			0.0	66	Sandy Silt: Brownish Yellow (10YR 6/6) 20% fine grained sand, 5% med. grained, 75% silt, Dry, no odor, trace rootlets, trace mechanically weathered siltstone gravel 1/4" to 3/4" diam, soft, low toughness, low strength	ML	1	
1.0			0.0	60	TD = 0.5' bgs no refusal 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: 8S	Group: 1	Location ID: 40
Drilling Company: HGL	Driller: I. Stone	Ground Elevation: NA		Total Depth Drilled: 2.5 ft bgs.
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 in	Date/Time Drilling Started: 5/23/12 1525		Date/Time Total Depth Reached: 5/23/12 1540
Type of Sampling Device: Hand Auger 2.75 in		Samples Collected: One Bag (Appox 5 lbs.)		40436 (1555)
Geologist: T. Morse		Checked By / Date:		5/24/12
Radiological Background: 2323 / 37 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 2301 (CPM)
					surface: soil + veg.			
			0.0	66	Sandy Silt: Brownish yellow (10YR 6/6) 20% fine grained sand, 5% med. grained sand, ~~30%~~ 75% silt, Dry, no odor, trace rootlets, trace sandstone/siltstone gravel 1/4" to 3/4" diam., soft, low toughness, low strength			2538
0.5			0.0	60		ML		3140
1.0			0.0	54			1	3369
					1'3"			
			0.0	78	Sandy Silt w/gravel: Light yellowish brown (2.5Y 6/4) 10% very fine grained sand, 5% med. grained sand, 75% silt, 10% mechanically weathered siltstone gravel 1/4" to 3/4" diam., dry, no odor, very hard			3590
2.0			0.0	66		ML	2	3551
			0.0	84	2'6"			3333
					TD = 2.5' bgs refusal on siltstone bedrock NO GW encountered NO gamma anomalies	Bedrock	3	
3.0								
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc
Exceeding Expectations

8S_041

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 85	Group: 1	Location ID: 41
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: 5/18/12 1000		Date/Time Total Depth Reached: 5/18/12 1003
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40429-1005
Geologist: Ian Stone		Checked By / Date:		JRobins 5/21/12

Radiological Background: 10 / 42
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	72	~~Clayey~~ Sandy Silt w/ ~~Sand~~, Clay, Brown (5/3 10YR)	ML		
0.5			0.0	60	30% fine sand, 60% silt, 10% clay, dry, low hard tough, med 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	

8S_042

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: 8S	Group: 1	Location ID: 42
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: 5/12/12 1015		Date/Time Total Depth Reached: 5/12/12 1018
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40430-1020
Geologist: Ian Stone		Checked By / Date: J Robbins 5/21/12		
Radiological Background: 10 / 42	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	~~Clayey~~ Sandy Silt w/ ~~clay~~ clay, Brown (5/3 10YR)	ML		
0.5			0.0	84	20% fine sand, 70% silt, 10% clay, dry, trace rootlets, low strength, low toughness, low plasticity, no odor or staining		1	
1.0					TD = 0.5 ft bgs			
2.0					no gw encountered		2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	

HGL HydroGeoLogic, Inc
Exceeding Expectations

8S_043

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 8S	Group: 1	Location ID: 43
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: 5/15/12 1030		Date/Time Total Depth Reached: 5/15/12 1034
Type of Sampling Device: Shovel/Trowel		Samples Collected: 40431-1035 (1) 1/2 Gallon Bag (Approx 5 lbs.)		
Geologist: Ian Stone		Checked By / Date: J Robbins 5/21/12		
Radiological Background: 10 / 42	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	Sandy Silt, Brown (5/3 10YR?)			
0.5			0.0	54	20% fine sand, 75% silt, 5% clay, dry, low toughness, low strength, low plasticity, no odor or staining	ML		
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

8S_044

SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 85	Group: 1	Location ID: 44
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: 5/18/12 1040		Date/Time Total Depth Reached: 5/18/12 1044
Type of Sampling Device: Shovel/Trowel		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		40432-1045
Geologist: Ian Stone		Checked By / Date: JRollins 5/21/12		
Radiological Background: 10 / 42	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	Clayey Silt w/ sand, Brown (5/3 10YR)	ML		
			0.0	84	10% fine sand, 70% silt, 20% clay, dry, trace rootlets, low strength, low toughness, low plasticity, no odor or staining			
1.0					V		1	
					TD: 0.5 ft bgs			
					no gw encountered			
2.0							2	
3.0							3	
4.0							4	
5.0							5	
6.0							6	