

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	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: 6/13/12 1355		Date/Time Total Depth Reached: 6/13/12 1359	
Type of Sampling Device: Shovel/Trowel				Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: Ian Stone				Checked By / Date: J. Reilly 6/15/12			
Radiological Background: 2625 / 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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	60	Silty Sand, Dark Yellowish Brown (3/4 107R) 60% fine sand, 20% medium sand, 20% silt, trace pebbles, dry, med dense, no odor or staining	SM	
1.0			0.0	84			
2.0					TD = 0.5 ft bgs no gas encountered		
3.0							
4.0							
5.0							
6.0							
7.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 189
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 0.66 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 6/13/12 1405	Date/Time Total Depth Reached: 6/13/12 1409	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70424 - no sample	
Geologist: I. Stone	Checked By / Date: J Robbins 6/15/12			

Radiological Background: 2625 / 45	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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 RS' = NA (CPM)
0.0			0.0	60	Silty Sand, Dark Yellowish brown (3/4 10YR)	SM		NA
0.5			0.0	84	60% fine sand, 20% medium sand, 20% silt, trace rootlets, dry, med dens, no odor or staining	SM		NA
1.0					Sand (weathered sandstone), light yellowish brown (6/4 2.5Y)	SO		NA
2.0					70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining			
3.0								
4.0								
5.0								
6.0								

TID = 0.66 ft bgs
no gas encountered
refusal on sandstone

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	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: 6/13/12 1420		Date/Time Total Depth Reached: 6/13/12 1429	
Type of Sampling Device: Shovel/Trowel		Geologist: Ian Stone		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70425-1430	
Radiological Background: 3004 / 41		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	72	Silty Sand, Dark yellowish brown (3/4 core) 60% fine sand, 20% medium sand, 20% silt, trace rocks, dry, med dense, no odor or skinning	SM	
1.0			0.0	90			
2.0					TD = 0.5 ft bgs no gw encountered		1
3.0							2
4.0							3
5.0							4
6.0							5
7.0							6

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 190
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 2.0 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 6/13/12 1438	Date/Time Total Depth Reached: 6/13/12 1445	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70426 - 1500	
Geologist: I. Stone	Checked By / Date: J. Robbins 6/15/12			

Radiological Background: 3004 / 41	Radiological Equipment Used: Micro R7 Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5' = 3191 (CPM)
0.5			0.0	54	Silty Sand, Dark Yellowish brown (3/4 10YR) 60% fine sand, 20% medium sand, 20% silt, (0-0.5') trace rootlets, dry, med dense, no odor or staining	SM		3854
1.0			0.0	42	Sand w/silt, Yellowish Brown (5/4 10YR), 70% fine sand, 20% medium sand, 10% silt, dry, med dense, no odor or staining	SP		4740
1.5			0.0	60			1	5220
2.0			0.0	54				5206
2.5			0.0	60	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, (1.75-2.0') very dense, no odor or staining	SP	2	5282
3.0							3	
4.0							4	
5.0							5	
6.0							6	

TD: 2.0 ft bgs
no gw encountered
refusal on sandstone
no anomalies detected

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 191
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: 6/13/12 1143	Date/Time Total Depth Reached: 6/13/12 1152	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70428-1210	
Geologist: I. Stone	Checked By / Date: J. Robbins 6/15/12			

Radiological Background: 3375 / 53	Radiological Equipment Used: Micro R7 Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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' = 3171 (CPM)
0.0			0.0	60	Silty Sand, Dark yellowish brown (4/4 10YR) 60% fine sand, 10% medium sand, 30% silt, trace rootlets, dry, med dense, no odor or staining	SM		4005
0.5			0.0	54			4908	
1.0			0.0	66			4977	
1.5			0.0	60			5244	
2.0			0.0	48	(1.0-2.2')		2	5120
2.5			0.0	60	Sand w/ silt, Pale Brown (6/3 10YR) 60% fine sand, 25% medium sand, 15% silt, trace coarse sand, trace rootlets, dry, med dense, no odor or staining	SP		5138
3.0			0.0	60			5276	
3.5			0.0	78	(2.2-3.5)			5296
4.0			0.0	72	Silty Sand, Pale Yellow (7/4 L ^o 2.5Y) (3.5-3.9') 75% fine sand, 25% silt, dry, med dense, no odor or staining	SM		
4.0			0.0	72	Sand (weathered sandstone), Pale Yellow (7/3 2.5Y) (3.7-4.0') 70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining	SP	4	NA (Unable to widen hole past 3.5')
5.0							5	
6.0							6	

TD = 4.0 ft bgs
Refusal on sandstone
no gw encountered
no anomalies detected

SSFL BORING LOG



Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 192		
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: 6/13/12 1516		Date/Time Total Depth Reached: 6/13/12 1519		
Type of Sampling Device: Shovel/Trowel		Geologist: Ian Stone		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70429 - 1520		
Radiological Background: 3019 / 54		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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)		USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	72	Silty Sand, Dark Yellowish Brown (4/4 10YR) 60% fine sand, 20% medium sand, 20% silt, trace rocklets, dry, loose, no odor or staining TD: 0.5 ft bgs no gw encountered		SM	
1.0			0.0	66			1	
2.0						2		
3.0						3		
4.0						4		
5.0						5		
6.0						6		

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 192
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: 6/13/12 1530	Date/Time Total Depth Reached: 6/13/12 1540	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70430-1610	
Geologist: I. Stone	Checked By / Date: J. Robbins 6/13/12			

Radiological Background: 3019 / 54	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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	Borehole Gamma Readings Feet bgs. to 0.5' = 3065 (CPM)
0.5			0.0	66	Silty Sand, Dark Yellowish brown (4/4 10YR) 60% fine sand, 20% medium sand, 20% silt, trace rootlets, dry, loose, no odor or staining	SM	4116
1.0			0.0	60	Silty Sand, Strong Brown (4/6 10YR)		5036
1.0			0.0	72	60% fine sand, 10% medium sand, 30% silt, trace rootlets, dry, med dense, no odor or staining	SM	5049
2.0			0.0	54			5249
2.0			0.0	66	Silty Sand, Dark Brown (3/3 10YR)		5311
3.0			0.0	72	70% fine sand, 30% silt, moist, med dense, no odor or staining	SM	5163
4.0			0.0	84			5105
4.0			0.0	66			4909
5.0			0.0	72			4885
5.0			0.0	54			4909
6.0			0.0	60			4835
6.0			0.0	48			4848
6.0			0.0	66		SM	5201

SSFL BORING LOG



Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 193	
Drilling Company: HGL		Driller: T. Morse I. Stone		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel/Trowel		Borehole Diameter: NA		Date/Time Drilling Started: 6/14/12 0850		Date/Time Total Depth Reached: 6/14/12 0858	
Type of Sampling Device: Shovel/Trowel		Geologist: L. Robbins		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70431 (0900)	
Radiological Background: 2939/40		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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5	0.0 - 0.5		00	96	surface: senescent weeds, soil AF = Artificial F:1 clayey silt w/ sand: (1042 4/2), 65% silt, 20% clay, 15% fine sand, dry, very soft, trace root lets + twigs, trace subrounded sandstone gravel (0.25 inches), no odor or staining, trace concrete debris TD = 0.5' bgs no GW encountered	OL ML AF	

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 193
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: 6/14/12 0550	Date/Time Total Depth Reached: 6/14/12 1018	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 70432(1018)			
Geologist: L Robbins	Checked By / Date: M. Bin 6-18-12			

Radiological Background: 2939 / 40	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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	Borehole Gamma Readings Feet bgs. +0.5 = 2934 (CPM)
0.0			0.0	60	Surface: Scent weeds, soil	AF = artificial fill	
0.5			0.0	54	clayey silt w/ sand: (10YR 4/2), 65% silt, 20% clay, 15% fine sand, dry, very soft, trace rootlets + twigs.	CLML / AF	3648
1.0			0.0	60	trace subrounded sandstone gravel (0.25 inches), no odor or staining	AF	4625
1.5			0.0	66	Silty sand: dark yellowish brown (10YR 3/4), 60% fine to medium sand, 30% silt, 10% clay, loose, dry, rapid dilatancy, no odor or staining, trace rootlets	SM / AF	5113
2.0			0.0	60			5245
2.5			0.0	48	Concrete: white (6LEY 1 8/N) 2'0"	AF	5282
3.0			0.0	60			5395
3.5			0.0	48			5276
4.0			0.0	42			5291
4.5			0.0	54			5104
5.0			0.0	90	silty sand: brown (10YR 5/3), 75% fine to medium sand, 25% silt, trace clay, med. dense, mica flakes, no odor or staining, trace charcoal, dry	SM	5076
5.5			0.0	78	some iron oxide mottling		5016
6.0			0.0	54			5077
6.5			0.0	60			4952

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 194	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling: Started: 6/6/12 1527		Date/Time Total Depth Reached: 6/6/12 1529	
Type of Sampling Device: Trowel/Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70433 (1530)			
Geologist: L. Robbins				Checked By / Date: M. Birney 6-7-12			
Radiological Background: 2879 / 57		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 <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			00	60	silty sand w/ clay: brown (10YR 7/3), 60% fine sand, 25% silt, 15% clay, dry, loose, low plasticity, med. dilatancy, no odor or staining, trace concrete trashets TD=0.5' bgs no GW encountered	SM / AP	

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 194
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 6.5 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling: 6/6/12 1529	Date/Time Total Depth Reached: 6/6/12 1624	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70434 (1625) / Dup: 70503 (NT)	
Geologist: L Robbins	Checked By / Date: M. Birney			

Radiological Background: 2879/57	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Borehole Gamma Readings 10.5 = 2917 (CPM)
0.0			60		Silty sand w/ clay: brown (10YR 4/3), 60% fine sand, 25% silt, 15% clay, dry, loose, low plasticity, ^{med.} dilatancy; no odor or staining, trace concrete + rootlets	SM	2800
0.5			60			AF	3078
1.0			58.1				3526
			78		Sand w/ silt: light olive brown (2.5Y 5/4) moist, loose, low plasticity, rapid dilatancy; no odor or staining, trace rootlets, 90% sand, 10% silt	SP	3912
2.0			83.9				4262
			8.2	66	trace gravel (subrounded sandstone)		4344
			1.7	54			4270
3.0			7.1	42			4372
			3.1	54			4398
4.0			1.1	42			4530
			1.4	60			4426
5.0			3.4	72			4456
			1.1	66			4644
6.0			3.0	60			

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03	Subarea: 7	Group: 6	Location ID: 194			
Radiological Background: 2879/57		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm				
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			3.0	6.0	<p>LP</p> <p>Silty sand w/ clay pockets: light olive brown (2.5Y 5/4) moist, loose, low plasticity, rapid dilatancy, no odor or staining, 60% fine sand, 25% silt, 15% clay pockets, some (trace) iron oxide nodules.</p> <p>TD = 6.5' bgs, refusal on sandstone, no GW encountered, no anomalies</p>	SM	6	4644
7.0			2.5	7.2			7	5601
8.0							8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 195	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling: Started 6/6/12 1350		Date/Time Total Depth Reached: 6/6/12 1356	
Type of Sampling Device: Trowel/Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70435 (1400)			
Geologist: L Robbins				Checked By / Date: MATTM Bin 6-7-12			
Radiological Background: 3719/39		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	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			6.0	54	<p>AF = artificial fill</p> <p>Silty sand: pale brown (6/3 10YR), dry, loose, low plasticity, no odor or staining. trace rootlets, concrete pieces (trace) 80% fine to med. sand, 20% silt</p> <p>TD = 0.5' bgs no GW encountered</p>	AF SM	
1.0			6.0	66			
2.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 195
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 70 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 6/6/12 1350	Date/Time Total Depth Reached: 6/6/12 1501	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70436 (1505)	
Geologist: L. Robbins	Checked By / Date: Matthew Birney 6-7-12			

Radiological Background: 3719/39	Radiological Equipment Used: Micro 7 Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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	Borehole Gamma Readings Feet bgs. +0.5 = 2778 (CPM)
					AF = artificial fill		
0.5			0.0	54	Silty sand: pale brown (6/3 to 4K), dry, loose, low plasticity, no odor or staining, trace rootlets, concrete pieces (trace), 80% fine to med. sand, 20% silt	SM	2858
			0.0	66		AF	3017
1.0			0.0	42	Sand w/ silt: light olive brown (2.5Y-5/4), moist loose, low plasticity, rapid dilatancy, no odor or staining, trace rootlets, 90% fine sand, 10% silt	SP	3784
			0.0	78			4031
2.0			0.0	72			4045
			0.0	60			3989
3.0			0.0	72			4189
			0.0	48			4229
4.0			0.0	60			4224
			0.0	56			4324
5.0			0.0	60			4481
			0.0	60			4527
6.0			0.0	72			4536

Project Name: SSFL Area IV Radiological Study			Project Number: EP038.01.22.04.03		Subarea: 7	Group: C	Location ID: 195	
Radiological Background: 3719/39			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	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	72	<p>----- gradational contact -----</p> <p>silty sand w/ clay pockets: light olive brown (2.5Y 5/2), moist, loose, low plasticity, rapid dilatancy, no odor or staining, 60% fine sand, 25% silt, 15% clay pockets, some (trace) iron oxide nodules.</p> <p>TD = 7.0' bgs; refusal on sandstone no GW encountered no anomalies</p>	SM	6	4536
			0.0	72			7	4663
7.0			0.0	72			7	4935
8.0							8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

Handwritten mark: a large 'D' with a diagonal slash through it.

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 196
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 1:20 ft bgs.	
Drilling Equipment: Trench Shovel hand auger	Borehole Diameter: 3.0"	Date/Time Drilling Started: 6/7/12 1110	Date/Time Total Depth Reached: 6/7/12 1142	
Type of Sampling Device: Trench Shovel hand auger	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70331 (na)		no sample	
Geologist: L Robbins	Checked By / Date: M. Birney			

Radiological Background: 3439/54	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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	silty sand w/clay: light yellowish brown (2.5Y 6/4)	SM		
0.5			0.0	84	70% fine to med. sand, 20% silt, 10% ^{clay} sand , dry, loose, no odor or staining, low dense, trace rootlets + twigs, rapid dilatancy			
1.0			0.0	34	sandy silty sand: light olive brown (2.5Y 5/4)	SM		
2.0					85% fine sand, 15% silt, moist, loose, no odor or staining, trace rootlets, rapid dilatancy			
2.0					TD = 1.2 ft (14")			
2.0					refusal on a rock (sandstone)			
2.0					no GW encountered			



Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 197
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 6/12 0900	Date/Time Total Depth Reached: 6/12	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70333 (1045)	
Geologist: LR Robbins	Checked By / Date: M. Birney 6-11-12			

Radiological Background: 3184 / 43	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. to 0.5 = 3343 (CPM)
			0.0	54	AF=artificial fill		
0.5			0.0	78	silty sand w/ clay nodules: dark yellowish brown (10YR 3/6), 60% fine sand, 30% silt, 10% clay nodules, dry to moist (lower portion), low dense, trace mica flakes, opagnes, silica, no odor or staining, small concrete + granitic gravel pieces, trace rootlets	SM	3475
			0.0	112		AF	4526
1.0			0.0	78			5362
			0.0	90	trace subrounded granitic gravel		5540
2.0			0.0	72	silty sand w/ clay: dark brown (10YR 3/3), 55% sand, 30% silt, 15% clay, moist, low dense, mica flakes, no odor or staining, trace rootlets + charcoal flakes. some Calcium carbonate pieces (<2mm)	SM	5600
			0.0	90		AF	5562
3.0			0.0	70	trace subrounded sandstone		5565
			0.0	60			5521
4.0			0.0	66			5319
			0.0	72			5369
5.0			0.0	96			5334
			0.0	66			5485
6.0			0.0	60	unit continued on next page		5657 5657

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA 7	Group: 1	Location ID: 199
Drilling Company: HGL	Driller: Le Vangier	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 1005 5-24-12	Date/Time Total Depth Reached: 1005 5-24-12	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 3 lbs.)		5 70334 (1005)	
Geologist: M Birney	Checked By / Date: ms J. Robins 5/31/12			

Radiological Background: 59 / 3413	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 2000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description	USCS Symbol	Borehole Gamma Readings (CPM)
0.0 - 0.5			60	mb	surface - mulch fat + gravel AF=Artificial Fill		
0.5 - 1.0			100	mb	silty sand, dark brown (7.5yr 3/3) 70% fine to coarse sand, 30% silt, trace subangular siltstone + sub rounded sandstone, metal cap, trace asphalt, loose, dry, no odor, no staining, non plasticity	SM / AF	
1.0 - 2.0							
2.0 - 3.0							
3.0 - 4.0							
4.0 - 5.0							
5.0 - 6.0							

TN 0.5 ft bgs
NO GW

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: SA7	Group: 1	Location ID: 148	
Drilling Company: HGL		Driller: J LeVangre		Ground Elevation: NA		Total Depth Drilled: 1.75 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 1010 5-29-12		Date/Time Total Depth Reached: 1022 5-29-12	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: m Birney				Checked By / Date: J. K. [unclear] 5/31/12			
Radiological Background: 52 / 3413		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	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
			0.0	60	Surface: mule fat + grasses	AF = artificial F-1		3348
0.5			0.0	100	Silty sand, dark brown (7.5 _{gr} 3/3)	SM / AF		3368
1.0			0.0	72	70% fine to coarse sand, 30% silt, trace sub angular siltstone + sub rounded sandstone; metal cap, trace asphalt, loose, dry, no odor, no staining, non plasticity	SM / AF		4303
2.0			0.0	70	silty sand, brown (7.5 _{gr} 4/4) 80% fine to med sand, 20% silt, trace granitic gravel @ 3mm, trace asphalt, metal wire @ 15", loose, dry, non plasticity, no odor, no staining	SM / AF		4838
						Pr		5370
								5424 @ 21"
3.0								
4.0								
5.0								
6.0								

TD = 21" bgs | refusal on sandstone
 No GW
 No anomalies

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: SA 7	Group: 1	Location ID: 199
Drilling Company: HGL	Driller: LeVangie	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 0850 5-29-12	Date/Time Total Depth Reached: 0855 5-29-12	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx. 1 lbs.)		70336 (0900)	
Geologist: M Birney	Checked By / Date: J Robbins 5/31/12			

Radiological Background: 3393 / 61	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Mini Rae - Background: 0.0	ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	96	Surface: mustard weed + grasses			
0.5			0.0	78	silty sand, brown (7.5yr 4/3) 75% fine to coarse sand, 25% silt, trace subangular sandstone, silt, dry, loose, non plasticity, no odor, no staining, trace nutrients	sm		
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5 ft bgs
No GW

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: SA 7	Group:	Location ID: 199	
Drilling Company: HGL		Driller: LeVangie		Ground Elevation: NA		Total Depth Drilled: 3.0 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 2100 5-29-12		Date/Time Total Depth Reached: 0925 5-29-12	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: M Birney				Checked By / Date: J Reblings 5/31/12			
Radiological Background: 3393/61		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	96	silty sand, brown (7.5gr 4/3) silt 80% 75% fine to coarse sand, 25% (trace) subangular sandstone silt, dry, loose, non plasticity, no odor, no staining, trace rootlets	SM	3524
0.5			0.0	78		4176	
1.0			0.0	66	silty sand, dark yellowish brown (10gr 4/4) 80% fine to med sand, 20% silt, non plasticity, ~2mm quartz w/ sandstone present on one side, no odor, no staining, loose, dry, trace rootlets, slight foul odor		4923
2.0			0.0	78		SM	4980
2.0			0.0	54	silty sand, brown (7.5gr 4/3) 80% fine sand 20% silt, non plasticity loose, dry, no odor, no staining		5098
3.0			0.0	114		SM	5472
3.0			0.0	90	refused on sandstone NO GW no anomaly TID = 3.0 ft bgs	B2	5403
4.0							
5.0							
6.0							

SSFL BORING LOG



Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 200
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: 6/12/12 1412	Date/Time Total Depth Reached: 6/12/12 1417	
Type of Sampling Device: Shovel/Trowel	Samples Collected: 70338-1420 (1) 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: Ian Stone	Checked By / Date: J Robbins 6/13/12			

Radiological Background: 2814 / 45	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	84	Silty Sand, Dark Yellowish Brown (4/6 10YR) 50% fine sand, 30% medium sand, 20% silt, trace gravel, loose, dry, no odor or staining (fill)	AF/SM	0	
0.5			0.0	78				1
1.0							2	
2.0							3	
3.0							4	
4.0							5	
5.0							6	
6.0								

TID = 0.5 ft bgs
no gw encountered

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 200	
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: 6/12/12 1422		Date/Time Total Depth Reached: 6/12/12 1430	
Type of Sampling Device: 1.75" macrocore with acetate liner		Geologist: I. Stone		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70339-1505	
Radiological Background: 2817 / 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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings +0.5' = 2935 (CPM)
			0.0	60	Silty Sand, Dark Yellowish Brown (4/6 10YR)	AF / SM	4539
0.5			0.0	78	50% fine sand, 30% medium sand, 20% silt, dry, trace gravel, loose, no odor or staining (F11)	AF / SM	5209
1.0			0.0	72	(cont'd)		5263
			0.0	84	Silty Sand, Dark yellowish brown (4/4 10YR)	AF / SM	5370
			0.0	90	50% fine sand, 20% medium sand, 30% silt, trace gravel, trace concrete, moist, med dense, no odor or staining (F11)	AF / SM	5570
2.0			0.0	66	Sandstone fragment (2" diameter)		5726
			0.0	78			5757
			0.0	84			5583
			0.0	72			5524
			0.0	60	(1.0-4.5)		5895
			0.0	54	Silty Sand, Dark Yellowish Brown (4/6 10YR)	AF / SM	6065
			0.0	72	70% fine sand, 30% silt, moist, med dense, no odor or staining, trace charcoal @ 5.25 ft		6470
6.0			0.0	60			6391

SSFL BORING LOG



Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 201
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: 6/13/12 0854	Date/Time Total Depth Reached: 6/13/12 0859	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 70340 - 0900			
Geologist: Ian Stone	Checked By / Date: J Robbins 6/15/12			

Radiological Background: 2886 / 49	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.5			0.0	78	<p>Silty Sand, Yellowish Brown (5/4 10YR) 50% fine sand, 25% medium sand, 5% coarse sand, 20% silt, trace gravel, dry, dense, no odor or staining (fill)</p> <p>TD = 0.5 ft bgs No gw encountered</p>	AK/SW	
0.5			90				
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 201
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: 6/13/12 0903	Date/Time Total Depth Reached: 6/13/12 0912	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70341-0945	
Geologist: I. Stone	Checked By / Date: J. Robbins			

Radiological Background: 2886 / 49	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.0			0.0	54	(73) Silty Sand, Yellowish Brown (5/4 10YR) 50% fine sand, 25% medium sand, 5% coarse sand, 20% silt, trace gravel, dry, dense, no odor or staining	AF/ SM	4720
0.5			0.0	66	(0-0.75') ----- (R11)		5315
1.0			0.0	72	Silty Sand, Brown (4/4 10YR) 50% fine fine sand, 20% medium sand, 30% silt, trace gravel, med dense, moist, no odor or staining	AF/ SM	5448
2.0			0.0	78	(R11)		5429
3.0			0.0	72			5468
4.0			0.0	66			5425
5.0			0.0	48			5545
6.0			0.0	66			5510
			0.0	78			5542
			0.0	66			5737
			0.0	60			5557
			0.0	72			5599
			0.0	48	(0.75' - 6.0')		5679

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 202
Drilling Company: HGL	Driller: Le Vangre	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 1420 5-29-12	Date/Time Total Depth Reached: 1425 5-29-12	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx. 1 lbs.)		Checked By / Date: J Rablin 5/31/12	
Geologist: m Birney	Radiological Background: 77 / 3700			

Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 2000	Mini Rae Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	96	surface - mustard weed, metal beam on surface		
0.5			0.0	76	silty sand, dark brown (7.5yr 3/2) 80% fine to coarse sand, 20% silt, trace subrounded sandstone, 2mm aluminum foil, charcoal, root lts, dry, loose, no odor, no staining	SM AF	
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5 ft bgs
 no groundwater
 Artificial fill

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 203
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 1529	Date/Time Total Depth Reached: 5/22/12 1533	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70343 - 1535	
Geologist: Ian Stone	Checked By / Date: J Roblin 5/24/12			

Radiological Background: 14 / 49	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	96	<p>Silly Sand, yellowish brown (5/4 10YR) 70% fine sand, 25% silt, 5% gravel (sandstone, granitic), trace rootlets, dry, med dense, no odor or staining (artificial fill)</p> <p>TD = 0.5 ft bgs no gw encountered</p>	AK/SM	
0.5		0.0	84				
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 206
Drilling Company: HGL	Driller: J Le Vangie	Ground Elevation: NA	Total Depth Drilled: ^{mb} 0.5 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 150 5-29-12	Date/Time Total Depth Reached: 1400 5-29-12	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx ⁵ lbs.)		70346 (1400)	
Geologist: M Birney	Checked By / Date: ^{mb} J Robbins 5/31/12			

Radiological Background: 77 / 3421	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 300 Mini Rae-2000	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			60	^{mb} pancake	Surface - mustard grass + weed, plastic debris			
0.5			72		silty sand, dark yellowish brown (Dgr 4/4) 85% fine to coarse sand, 15% silt, rootlets, dry, loose, non plasticity, no odor, no staining.	SM		
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5 ft bgs
no groundwater

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group:	Location ID: 206	
Drilling Company: HGL		Driller: J LeVangie		Ground Elevation: NA		Total Depth Drilled: .75 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 1400-5-29-12		Date/Time Total Depth Reached: 1410 5-29-12	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: M Birney				Checked By / Date: J Robbins 5/31/12			
Radiological Background: 77 / 3421		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	Borehole Gamma Readings (CPM)
0.0			0.0	60	surface: mustard weed + grass - plastic debris		
0.5			0.0	72	<p>silty sand, dark yellowish brown (dry r 4/4)</p> <p>85% fine to coarse sand, 15% silt, rootlets.</p> <p>dry, loose, non plasticity, no odor, no staining</p>	sm	
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = .75 ft bgs

NO Ground water

shallow refusal on sandstone

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	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: 5/22/12 1414	Date/Time Total Depth Reached: 5/22/12 1419	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70348-1420	
Geologist: Ian Stone	Checked By / Date: J. Robbins 5/24/12			

Radiological Background: 13 / 45	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0 - 0.5			0.0	66	Silly Sand, Yellowish brown (5/4 wire) 70% fine sand, 10% medium sand, 20% silt, trace gravel, dry, medium dense, no odor or staining (architect fill)	AC / SW	
0.5 - 1.0							
1.0 - 2.0							
2.0 - 3.0							
3.0 - 4.0							
4.0 - 5.0							
5.0 - 6.0							

TD = 0.5 ft bgs
no gas encountered

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	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: 5/22/12 1430		Date/Time Total Depth Reached: 5/22/12 1434	
Type of Sampling Device: Shovel/Trowel				Samples Collected: 70349 - 1435 (1) 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: Ian Stone				Checked By / Date: J. Collins 5/24/12			

Radiological Background: 13 / 45	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)	
							Feet bgs.	
0.0			0.0	84	<p>PS</p> <p>Silty Sand, Dark Yellowish Brown (4/4 1042) 35% GS 60% fine sand, 35% silt, 5% gravel, slightly moist, medium dense, no odor or staining (artificial fill)</p> <p>TD = 0.5 ft bgs no gw encountered</p>	<p>AE/SM</p>		
0.5			0.0	62				
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group:	Location ID: 210
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 6/26/12 10:00	Date/Time Total Depth Reached: 6/26/12 1023	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70351 (1020)	
Geologist: L Robbins	Checked By / Date: Duff Knight 6/29/12			

Radiological Background: 3129/56	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	96	<p>ⓁⓅ (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</p> <p>Surface: asphalt, concrete debris w/ charcoal soil, twigs</p> <p>silty sand: brown (10YR 4/3), 85% fine to med. sand, 15% silt, ^{ⓁⓅ} dry, no odor or staining, low dense, rapid dilatancy, trace subrounded granitic gravel (20mm ^{max} size) + asphalt, concrete debris.</p> <p>no GW encountered</p> <p>TD = 0.5' bgs</p>	SM / AF		

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group:	Location ID: 211	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 6/26/12 0800		Date/Time Total Depth Reached: 6/26/12 1003	
Type of Sampling Device: Trowel/Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70352(1000)			
Geologist: L Robbins				Checked By / Date: Cliff Knight 6/29/12			
Radiological Background: 3233/64			Radiological Equipment Used: Micro R / Downhole / Pancake Meters			PID Used: Mini Rae 3000 - Background: 0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable) soil, + trace, sement weeds Surface: in foil, asphalt, concrete chips	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	102	silty sand @: yellowish brown (10YR 5/4), 70% fine sand, 30% silt, trace clay, dry, med. dense, trace asphalt, rootlets, twigs, trace concrete + sandstone gravel, no odor, no staining	SM AF	
1.0			0.0	96			
2.0							
3.0							
4.0							
5.0							
6.0							

TD=0.5' bgs
no gw encountered

Project Name: SSFL Area IV Radiological Study	Project Number: EPO38.01.22.04.03	Subarea: 7	Group: 1	Location ID: 212
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 6/26/12 0850	Date/Time Total Depth Reached: 6/26/12 0910	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70353 (0902)	
Geologist: L. Robbins	Checked By / Date: Chris Knight, 6/29/12			

Radiological Background: 65	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			60		AF = artificial fill		
0.5			34		<p>60 Silty sand w/ clay: pale brown (10YR 6/3), 70% fine sand, 15% silt, 15% clay, dry, med. dense, low plasticity, med. dilatancy, trace rootlets, trace asphalt, trace concrete, no hair or stringers.</p> <p>no GW encountered</p> <p>TD = 0.5' bgs</p>	SM / AF	
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group:	Location ID: 213	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 6/26/12 0920		Date/Time Total Depth Reached: 6/26/12 0920	
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		Checked By / Date: Ulf R Knight 6/29/12		Geologist: L Robbins	
Radiological Background: 2425/09		Radiological Equipment Used: Micro-R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	78	<p>silty sand w/ clay: brown (10YR 4/3), 78 65% fine sand, 20% silt, 15% clay, dry, med. dense, low plasticity, med. dilatancy, trace rootlets, + charcoal flakes, small concrete debris, no odor nor staining</p> <p>no GW encountered TD = 0.5' bgs</p>	SM / AF	

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group:	Location ID: 214	
Drilling Company: HGL		Driller: M. Orney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 6/26/12 0939		Date/Time Total Depth Reached: 6/26/12 0947	
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70355 (0945)			
Geologist: L. Robbins		Checked By / Date: Cliff Knight 6/29/12					
Radiological Background: 3363/61		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)			
0.0			66		Surface: soil. Scent weeds, thick glass			
0.5			60		Silty sand w/ clay brown (10YR 4/3), 70% fine sand, 15% silt, 15% clay, dry, med. dense, med. dilatancy, low plasticity, trace rootlets, sticks, charcoal, trace concrete debris, rodent droppings, trace subangular sandstone gravel (~5mm avg), no odor, no staining	SM / AF		
2.0					no GW encountered			
					TD = 0.5' bgs			

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	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: 5/16/12 1146	Date/Time Total Depth Reached: 5/16/12 1149	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70409 - 0850 @ 1150 70500 - NT (1) 1/2 gallon bag (5 lbs)	
Geologist: Ian Stone		Checked By / Date: J Robbins 5/16/12		

Radiological Background: 3133 / 42	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	84	Sandy silt, Dark yellowish brown (4/4 10YR) 35% fine sand, 60% silt, 5% clay, trace gravel, dry, low tough, low strength, med plasticity, no odor or shiny	AK/ ML	
0.5			0.0	78			
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5 ft bgs
no gw encountered

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 216
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: 5/16/12 1155	Date/Time Total Depth Reached: 5/16/12 1207	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 70410 - 1245		Checked By / Date: J Robbins 5/16/12	
Geologist: Ian Stone				

Radiological Background: 3133 / 42	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings to 0.5' = 3146 (CPM)
0.0			0.0	60	Sandy Silt, Dark Yellowish brown (4/4 104R) 35% fine sand, 60% silt, 5% clay, trace gravel, dry, low toughness, low strength, med. plasticity, no odor or staining	AF/ML	1	3622
0.5			0.0	66				5026
1.0			0.0	78				5385
			0.0	72	(0-1.75') artificial fill			5325
2.0			0.0	60	Silty Sand, Dark Brown (3/3 7.54R) 60% fine sand, 40% silt, moist, med dense, no odor or staining	SM	2	5578
			0.0	54	(1.75-2.5) Sand Silt/clay, Strong Brown (4/6 7.54R) 30% fine sand, 60% silt, 10% clay, moist, low toughness, low strength, med plasticity, no odor or staining	ML	3	5735
3.0			0.0	72				5580
			0.0	48	(2.5-3.5) Silty Sand, Yellowish Brown (5/6 104R) 70% fine sand, 30% silt, moist, med dense, no odor or staining	SM	4	5519
4.0			0.0	66				5395
			0.0	54				5577
5.0			0.0	48	(3.5-5.0) Silty Sand, Brownish Yellow (6/6 104R) 80% fine sand, 20% silt, moist, med dense, no odor or staining	SM	5	5489
			0.0	54				5369
6.0			0.0	72			6	5408

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 217
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 3.5 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/16/12 1446	Date/Time Total Depth Reached: 5/16/12 1458	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs)		70412 - 1520	
Geologist: Ian Stone	Checked By / Date: J Robbins 5/17/12			

Radiological Background: 3143 / 27	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.0 - 0.5			0.0	60	Sandy silt, Dark yellowish brown (4/4 10YR) 40% fine sand, 60% silt, trace gravel, trace rootlets, dry, low toughness, low strength, low plasticity, no odor or staining	AF/ ML	4686
0.5 - 1.0			0.0	78			5566
1.0 - 1.4			0.0	72			5582
1.4 - 2.0			0.0	60	(0-1.4') (artificial fill) Sandy silt, Dark yellowish brown (3/4 10YR) 30% fine sand, 70% silt, trace gravel, trace rootlets, dry, low toughness, low strength, low plasticity, no odor or staining	AF/ ML	5730
2.0 - 2.9			0.0	72			5765
2.9 - 3.5			0.0	78			5809
3.0 - 3.5			0.0	66	(1.4-2.9') (artificial fill) Sand (weathered sandstone), Brownish yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, dense, no odor or staining	SP	5797
3.5 - 4.0			0.0	72			5785
4.0 - 6.0					TD = 3.5 ft bgs no gw encountered refusal on sandstone no anomalies detected		

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 218
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 1.9 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/17/12 0908	Date/Time Total Depth Reached: 5/17/12 0915	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70359-0935	
Geologist: Ian Stone	Checked By / Date: J Robbins 5/18/12			

Radiological Background: 3323 / 43	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5' = 3606 (CPM)
0.0 - 0.5			0.0	54	Silly Sand, Yellowish Brown (5/4 10YR) 60% fine sand, 40% silt, trace gravel, trace rootlets, dry, at medium dense, no odor or staining	AF/Sm	4768
0.5 - 1.0			0.0	66			5477
1.0 - 2.0			0.0	60			5717
2.0 - 2.17			0.0	54	(2-1.7) (artificial fill)		5859
2.17 - 1.9			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 (1.7-1.9)	SP	5907
1.9 - 6.0					TD = 1.9 ft bgs no gw encountered refusal on sandstone no anomalies detected		



SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 219
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: 5/17/12 10:10	Date/Time Total Depth Reached: 5/17/12 10:14	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70413 - 1015	
Geologist: Ian Stone	Checked By / Date: J. Redington - 5/18/12			

Radiological Background: 3466 / 49	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			48		Silty Sand, Dark yellowish brown (3/4 100µ) 65% fine sand, 5% med. fine sand, 30% silt, trace gravel, trace roots, med dense, dry, no odor or staining	AK/SW		
0.5			78					
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5 ft bgs
no gas encountered

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 219
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 3.5 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/17/12 1020	Date/Time Total Depth Reached: 5/17/12 1038	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70414 - 1055	
Geologist: Ian Stone	Checked By / Date: J Robbins 5/18/12			

Radiological Background: 3466 / 49	Radiological Equipment Used: Micro R1 Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5' = 3272 (CPM)
0.0			0.0	78	Silty Sand, Dark yellowish Brown, (3/4 10yr)	AF/SM	3769
0.5			0.0	90	(0-0.5') gravel, large, rootlets, med dense, no odor or staining (0.6-0.8' 10yr)		4943
1.0			0.0	72	Silty Sand, Dark Brown (3/3 2.5yr) 60% fine sand, 40% silt, moist, med dense, no odor or staining	SM	5445
			0.0	66			5500
2.0			0.0	60			5577
			0.0	54			5586
3.0			0.0	66			5492
			0.0	54	(0.5-3.3') Sand (weathered sandstone), Brownish yellow (6/6 10yr) 70% fine sand, 25% medium sand, 5% silt, moist. Very dense, slight iron oxide staining, no odor (3.3'-3.5')	SP	5434
4.0							
5.0							
6.0							

TD = 3.5 ft bgs
no gw encountered
refusal on sandstone
no anomalies detected

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 220
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: 5/17/12 1130	Date/Time Total Depth Reached: 5/17/12 1134	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70392-1135	
Geologist: Ian Stone		Checked By / Date: J. Roberts 5/18/12		

Radiological Background: 3339 / 27	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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	<p>Silly Sand, Dark yellowish brown (3/4 104R) 65% fine sand, 5% medium sand, 30% silt, trace gravel, trace rootlets, dry, μ(²⁵) loose, no odor or staining</p> <p>TD=0.5 ft bgs no gw encountered</p>			
0.5			0.0	72				
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 220
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 2.5 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/17/12 1141	Date/Time Total Depth Reached: 5/17/12 1149	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70393-1205	
Geologist: Ian Stone		Checked By / Date: J. Robins 5/18/12		

Radiological Background: 3339 / 27	Radiological Equipment Used: Mini R7 Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings to 0.5' = 3261 (CPM)
0.0			0.0	66	Silly Sand, Dark Yellowish brown (3/4 10YR) 65% fine sand, 5% medium sand, 30% silt, trace gravel, trace rootlets, dry, med dense loose no odor or staining	AP/Sm	3755
0.5			0.0	72	(0.0-0.8') ----- (artificial fill)		5222
1.0			0.0	90	Silly Sand, Dark Brown (3/3 7.5YR) 60% fine sand, 40% silt, moist, med dense, no odor or staining	Sm	5440
			0.0	54			5461
2.0			0.0	78	(0.8-2.3')		5362
			0.0	42	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, very dense, moist, slight iron oxide mottling, no odor (2.3-2.5')	SP	5257
3.0							
4.0							
5.0							
6.0							

TD = 2.5 ft bgs
no gas encountered
refusal on sandstone
no anomalies detected

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: <u>781</u> Group: <u>1</u>	Location ID: <u>221</u>
Drilling Company: <u>Beart Longyear HGL</u>	Driller: <u>D. Hansen I. Stone</u>	Ground Elevation: NA	Total Depth Drilled: <u>0.5'</u> ft bgs.
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: <u>5/11/12 0905</u>	Date/Time Total Depth Reached: <u>5/11/12 0909</u>
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx <u>5</u> lbs.) <u>70360 (0910)</u>		
Geologist: <u>Tim Morse</u>	Checked By / Date: <u>J. Holman 5/14/12</u>		

Radiological Background: <u>42 cpm / 3187</u>	Radiological Equipment Used: <u>Micro R / Downhole / Pancake Meters</u>	PID Used: Mini Rae 3000 - Background: <u>0.0</u> ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	72	Surface: Soil rev.		
0.5			0.0	60	Silty Sand w/gravel; Yellowish Brown (10YR 5/6) 30% Silt, 45% fine grained sand, 10% medium grained sand, 5% coarse grained sand, 10% sub-rounded sandstone gravel 1/8" - 1/4" and subangular fill 0.5' gravel, dry, no odor, med. dense, trace rootlets	AF / sm	
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs no refusal
NO GW encountered

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: <u>7</u>	Group: <u>1</u>	Location ID: <u>221</u>	
Drilling Company: Boart Longyear		Driller: D. Hansen		Ground Elevation: NA		Total Depth Drilled: <u>10'</u> ft bgs.	
Drilling Equipment: Geoprobe 6600		Borehole Diameter: 1.75"		Date/Time Drilling Started: <u>5/11/12 0915</u>		Date/Time Total Depth Reached: <u>5/11/12 0925</u>	
Type of Sampling Device: 1.75" macrocore with acetate liner				Samples Collected: (1) 1/2 Gallon Bag (Approx <u>5</u> lbs.) <u>70361 (1000)</u>			
Geologist: <u>Timose</u>				Checked By / Date: <u>J Robbins 5/14/12</u>			
Radiological Background: <u>42 cpm / 3187</u>		Radiological Equipment Used: <u>Micro R / Downhole / Pancake Meters</u>		PID Used: Mini Rae 3000 - Background:		<u>0.0</u> ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. (CPM)	
					surface: Soil + Veg.		<u>40.5 3197</u> (CPM)	
0.5			0.0	60	Silty Sand w/ gravel; Yellowish Brown (10YR 5/6) 30% silt, 45% fine grained sand, 10% medium grained sand, 5% coarse grained sand, 10% sub-rounded sandstone gravel $\frac{1}{2}$ - $1\frac{1}{2}$ " and subangular fill gravel, dry, no odor, medium dense, trace rootlets	AF / SM	<u>4293</u>	
			0.0	60			<u>5270</u>	
1.0			0.0	54			<u>5525</u>	
			0.0	66			<u>5510</u>	
2.0			0.0	78			<u>5549</u>	
			0.0	7A			<u>5334</u>	
3.0			0.0	60	3'0" - 2" sandstone gravel: light yellowish brown (2.5Y 6/4)		<u>4913</u>	
			0.0	60	Silty Sand: dark Yellowish Brown (10YR 4/6) 30% silt, 50% fine grained sand, 10% medium grained sand, 5% coarse grained sand, 5% subangular sandstone gravel, slightly moist, no odor, medium dense, trace rootlets	SM	<u>4479</u>	
4.0			0.0	48			<u>5472</u>	
			6.0	60			3'6" - thin piece of black roofing shingle type material	<u>5654</u>
5.0			0.0	66			<u>6006</u>	
			0.0	66			<u>6042</u>	
6.0			0.0	78			<u>6121</u>	

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: <u>7</u>	Group: <u>4</u>	Location ID: <u>222</u>
Drilling Company: Beart Longyear TM <u>HGL</u>	Driller: D. Hansen TM <u>I. Stone</u>	Ground Elevation: NA	Total Depth Drilled: <u>0.5'</u> ft bgs.	
Drilling Equipment: Geoprobe 6600 TM <u>shovel</u>	Borehole Diameter: <u>1.75" TM</u> <u>NA</u>	Date/Time Drilling Started: <u>5/11/12</u> <u>1024</u>	Date/Time Total Depth Reached: <u>5/11/12</u> <u>1028</u>	
Type of Sampling Device: <u>1.75" macrocore with acetate liner</u> TM <u>shovel</u>	Samples Collected: (1) 1/2 Gallon Bag (Approx <u>5</u> lbs.) <u>70362 (1030)</u>		Checked By / Date: <u>J Robbins</u> <u>5/14/12</u>	
Geologist: <u>T. Morse</u>				

Radiological Background: <u>22 cpm / 3200</u>	Radiological Equipment Used: <u>Micro R / Downhole / Pancake Meters</u>	PID Used: Mini Rae 3000 - Background: <u>0.0</u> ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			66		Surface: soil + veg.		
0.5			72		Sandy silt w/ gravel; Yellowish Brown (10YR 5/6) 20% fine grained sand, 10% med. grain sand, 5% coarse sand, 55% silt, 10% sandstone and fill gravel trace rootlets, dry, no odor, soft to med. firm	AF/ML	
0.5'							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs. no refusal
no SW encountered

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 222
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: 5/11/12 1040	Date/Time Total Depth Reached: 5/11/12 1045	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70363 (1120)	
Geologist: T. Moore	Checked By / Date: J. Robbins 5/14/12			

Radiological Background: Sh. cpm / 3200	Radiological Equipment Used: Mini R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. (CPM)
			0.0	60	Surface & Soil + veg.		3042
0.5			0.0	72	Sandy silt w/ gravel; Yellowish Brown (10YR 5/6) 20% fine grain sand, 10% med. grain sand, 5% coarse sand, 55% silt, 10% sandstone and fill gravel, trace rootlets, dry, no odor, soft to medium firm	AF/ML	3432
1.0		0.0	66	1'3"			4928
		0.0	72				5250
2.0			0.0	54	Silty sand; dark yellowish brown (10YR 4/6) 25% silt, 55% fine grain sand, 10% med. sand, 5% coarse sand, 5% sandstone gravel 1/4" to 1" diameter, slightly moist, no odor, medium dense, presence of mottling	SM	5401
		0.0	66				5500
		0.0	60				5570
3.0			0.0	60	- 16" bgs: 2" diameter sandstone gravel; Grayish Brown (2.5Y 5/2)		5632
		0.0	66	3'6"			5626
		0.0	72				5699
4.0			0.0	66	Silty sand; Brown (7.5YR 4/10) 30% silt, 55% fine grain sand, 10% med. sand, 5% sandstone gravel, slightly moist, no odor, medium dense, sandstone gravel 1/2" to 1/2" diameter, mottling and trace rootlets	SM	5586
5.0		0.0	60				5660
		0.0	66				5585
6.0			0.0	78	6'0"		5721

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 3	Group: 1	Location ID: 223	
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: 5/25/12 0908		Date/Time Total Depth Reached: 5/25/12 0911	
Type of Sampling Device: Shovel/Trowel		Geologist: Ian Stone		Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.)		70364-0915	
Radiological Background: 3234 / 47		Radiological Equipment Used: MicroR / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	78	Silty Sand, Dark Yellowish Brown (4/6 104R 60% fine sand, 10% medium sand, 30% silt, trace gravel, trace concrete, dry, med dense, trace roots, no odor or staining (artificial fill))	AF/SM	
0.5			0.0	78			
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

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 223
Drilling Company: Boat Longyear HGL	Driller: T. Morse D. Hansen (SS)	Ground Elevation: NA	Total Depth Drilled: 5.25 ft bgs.	
Drilling Equipment: Geoprobe 6600 Hand Auger	Borehole Diameter: 1.75" 2.75"	Date/Time Drilling Started: 5/25/12 0918	Date/Time Total Depth Reached: 5/25/12 0952	
Type of Sampling Device: 1.75" macrocore with acetate liner 2.75" hand auger	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)	70365-1015		
Geologist: Ian Stone	Checked By / Date: J Robbins 5/31/12			

Radiological Background: 3234 / 47	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5" = 3513 (CPM)
0.0			78		Silly Sand, Dark Yellowish Brown (4/6 104R)	AF/SM	3875
0.5			78		60% fine grained sand, 10% medium sand, 30% silt, trace gravel, trace concrete, dry, med dense, no odor or staining,		5025
1.0			66		(0-1.0') trace rootlets (artificial fill)		5487
			90		Silly Sand, Yellowish Brown (5/4 104R)	AF/SM	5442
			54		60% fine sand, 20% medium sand, 20% silt, trace gravel (sandstone, max size=1"), trace debris, dry, med. dense, no odor or staining (artificial fill)		5594
2.0			84		Silly Sand, Dark yellowish Brown (4/6 104R)	AF/SM	5733
			46		60% fine fine sand, 10% medium sand, 30% silt, moist, trace gravel, med dense, no odor or staining		5685
			78		(2.0-3.3') (artificial fill)		5930
			66		Silly Sand, Dark Yellowish Brown (4/6 104R)	AF/SM	5862
			66		60% fine sand, 20% medium sand, 20% silt, trace gravel (sandstone, max size=1"), moist, dense, no odor or staining		5913
5.0			72		(3.3-5.1) Sand (weathered sandstone), Brownish Yellow (6/6 104R) very dense, moist, no odor or staining (5.1-5.25) 70% fine sand, 25% medium sand, 5% silt. (artificial fill)	SP/adr	5882
					(5.25-5.25) 5% silt.		
					TD: 5.25 ft bgs, no gw encountered refusal on sandstone no anomalies detected		

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 224	
Drilling Company: Beart Long, Inc. HGL		Driller: B. Hansen T. Morse		Ground Elevation: NA		Total Depth Drilled: 3.25 ft bgs.	
Drilling Equipment: Geoprobe 6600		Borehole Diameter: 2.75" (2.75")		Date/Time Drilling Started: 5/25/12 1039		Date/Time Total Depth Reached: 5/25/12 1111	
Type of Sampling Device: 2.75" hand auger 4.75" macrocore with acetate liner		Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70367-1130			
Geologist: Ian Stone		Checked By / Date: J. Robling 5/31/12					
Radiological Background: 3262 / 65		Radiological Equipment Used: Micro-R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.3 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5' = 3470 (CPM)
0.0			0.0	66	Silty Sand, Dark yellowish brown (4/14 104R) 60% fine sand, 10% medium sand, 30% silt, trace gravel (non-natural), trace debris (asphalt, concrete, metal), dry, med dense, no odor or staining (artificial fill)	AF/Sm	4250
0.5			0.0	72			5401
1.0			0.0	66	(0-1) - - - - - Silty Sand, Dark yellowish brown (4/6 104R) 60% fine sand, 20% medium sand, 20% silt, trace gravel (max size = 1"), moist, med dense, no odor or staining	AF/Sm	5682
2.0			0.0	78			5769
			0.0	66			5581
			0.0	60			5718
3.0			0.0	72	(1-3.25') TI = 3.25 ft bgs no gw encountered refusal on sandstone/sandstone cobble no anomalies detected		5764
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: i	Location ID: 225
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA	Total Depth Drilled: 2.75 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0"	Date/Time Drilling Started: 5/31/12 0904	Date/Time Total Depth Reached: 5/31/12 0933	
Type of Sampling Device: 3.0" Hand Auger	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70395-0950	
Geologist: Ian Stone	Checked By / Date: J Robbins 6/1/12			

Radiological Background: 3797 / 72	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. ±0.5 = 4023 (CPM)
0.0			0.0	66	Silty Sand, Brown (5/3 10YR)	AF/SM	4258
0.5			0.0	90	60% fine sand, 10% medium sand, 30% silt, trace gravel, trace concrete, asphalt, dry, loose, no odor or staining, (artificial fill)	AF/SM	4691
1.0			0.0	72	Silty Sand, Yellowish brown (5/6 10YR)	AF/SM	5178
			0.0	72	60% fine sand, 20% medium sand, 20% silt, trace concrete, trace metal, dry, loose, no odor or staining (artificial fill)	AF/SM	5613
2.0			0.0	102			5529
			0.0	90			5751
3.0					TD= 2.75 ft bgs no groundwater refusal on sandstone boulder or debris no anomalies detected		
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group:	Location ID: 226
Drilling Company: HGL	Driller: J LeVangie	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 1115 5-29-12	Date/Time Total Depth Reached: 1115 5-29-12	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx-8 lbs.)	6 70396 (1115)		
Geologist: M Birney	Checked By / Date: J Robbins 5/31/12			

Radiological Background: 100 / 3524	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 2000 - Background:	0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.0			54	mb	surface - tall grasses		
0.5			129	mb	silty sand, brown (10yr 4/3) 80% fine to coarse sand, 20% silt, trace sub rounded sandstone, trace concrete + asphalt, trace rustlets, loose, dry, no odor, no staining, non plasticity	SM / AF	
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5 ft bgs
no gw.

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 226
Drilling Company: HGL	Driller: Le Vang, J	Ground Elevation: NA	Total Depth Drilled: 1 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 11/20/5-29-12	Date/Time Total Depth Reached: 11/30/5-29-12	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 5-lbs.)	70397 (NA)		
Geologist: M Birney	Checked By / Date: MB J Robbins 5/31/12			

Radiological Background: 120 / 3524	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	54	surface - tall grasses		
0.5			0.0	124	<div style="border: 1px solid black; padding: 5px;"> silty sand, brown (10yr 4/3) 80% fine to coarse sand, 20% silt, trace sub rounded sandstone, trace concrete + asphalt, trace rootlets, loose, dry, no odor, no staining, non plasticity </div>	SM/AP	
1.0		0.0	126				
2.0					TD = 1.0 ft bgs		
3.0					no gw		
4.0					No sample		
5.0					shallow refusal on sandstone		
6.0							

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 227
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 3.0 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 5/3/12 1418	Date/Time Total Depth Reached: 5/3/12 1509	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		7 0369 (1510)	
Geologist: L Robbins	Checked By / Date: M. Birney 6-1-12			

Radiological Background: 3693/64	Radiological Equipment Used: Micro R+ Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0				60	Silty sand: dark yellowish brown (8YR 4/4) 75% fine to med. sand, 25% silt, dry, loose, rapid dilatancy, low plasticity, no odor or staining, trace rootlets, twigs + charcoal bits, trace subangular sandstone gravel	SM	3859
0.5				96	rapid dilatancy, low plasticity, no odor or staining, trace rootlets, twigs + charcoal bits, trace subangular sandstone gravel	SP	4131
1.0				54	Sand w/ silt: light olive brown (2.5Y 5/4) (2.5Y 5/4)		4635
1.5				48	90% fine to coarse sand, 10% silt, loose, low plasticity, rapid dilatancy, no odor or staining, moist, mica flakes		4945
2.0				48	Small opaque minerals, trace charcoal. gradational contact @ 2.0'		5203
2.5				72	Sand: light olive brown (2.5Y 5/4), 95% sand, 5% silt, sand is fine to med sand, loose, moist, no plasticity, rapid dilatancy, no odor or staining, mica flakes + opaque minerals	SP	5604
3.0				84	Sandstone: light olive brown (2.5Y 5/6), fine to coarse grained, quartz, mica grains, no odor or staining, moist	bed-rock	6199
3.0					TP=3.0' bgs, no refusal on sandstone, no GW encountered, no anomalies		



7_228



SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 228	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel		Borehole Diameter: NA		Date/Time Drilling Started: 5/31/12 1200		Date/Time Total Depth Reached: 5/31/12 1130	
Type of Sampling Device: Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70370 (1130)			
Geologist: LRobbins				Checked By / Date: M. Birney 6-1-12			
Radiological Background: 3886/71		Radiological Equipment Used: Micro R Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	96	silty sand: dark yellowish brown (10YR 4/4), 75% fine to med. sand, 25% silt, dry, loose, rapid dilatancy, low plasticity, no odor or staining, trace rootlets, twigs + charcoal bits TD = 0.5' bgs no gw encountered	SM	
			0.0	60			

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 228
Drilling Company: HGL		Driller: M. Birney	Ground Elevation: NA		Total Depth Drilled: 2.2 ft bgs.
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches	Date/Time Drilling Started 5/31/12 1126		Date/Time Total Depth Reached: 5/31/12 1158
Type of Sampling Device: Hand Auger		Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70371 (1130) (1200)	
Geologist: L Robbins		Checked By / Date: AMM/Birney 6-1-12			
Radiological Background: 3886/71		Radiological Equipment Used: Micro R+Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
			0.0	96	<p>pancake</p> <p>Silty sand: dark yellowish brown (10YR 4/4), 75% fine to med. sand, 25% silt, dry, loose, rapid dilatancy, low plasticity no odor or staining, trace rootlets, twigs, charcoal bits, *12</p> <p>---increase in trace gravel ~20mm size (sandstone gravel, subrounded)</p>	SM	3949
0.5			0.0	60		4067	
1.0			7.3	66		4600	
2.0			11.6	72		5248	
2.2			2.5	102		5314	
					<p style="border: 1px solid black; padding: 5px;">sandstone bedrock: light yellowish brown (10YR 6/4), dry, dense, no odor or staining</p> <p>TD: 2.2' bgs, refusal on sandstone no GW encountered no anomalies</p>	bedrock	

SSFL BORING LOG

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 229	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel		Borehole Diameter: NA		Date/Time Drilling Started: 5/31/12 1024		Date/Time Total Depth Reached: 5/31/12 1024	
Type of Sampling Device: Shovel				Samples Collected: One 1/2 Gallon Bag (Approx. 1 lb): 70469 (1025)* DUP: 70505 (NT)*			
Geologist: L Robbins				Checked By / Date: AMMAMA Bin 6-1-12			
Radiological Background: 3754/71		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	USCS Symbol	Borehole Gamma Readings (CPM)
					(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)		
0.0			0.0	102	(LA) silty sand w/ clay: dark yellowish brown (10YR2, 4/4), 70% fine to med. sand, 20% silt, 10% clay, trace subrounded gravel, low plasticity, dry, loose, no odor or staining, med. dilatancy, trace rootlets & twigs	SM	
0.5			0.0	90			
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs
no GW encountered

* location was revisited to collect additional volume for gamma spec analytes, sample ID for additional sample is 70507. An additional duplicate was not collected. Sampled on 6/8/12.

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 229
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 1.75 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 5/31/12 1021	Date/Time Total Depth Reached: 5/31/12 1058	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (7 lbs.)		70470 (1100) / 8000 (LR)	
Geologist: LRobbins	Checked By / Date: M. Birney 6-1-12			
Radiological Background: 3754/71	Radiological Equipment Used: Master / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	102	Silty sand w/ clay: dark yellowish brown (10YR 4/4)	SM	3915
0.5			0.0	90	70% fine to med. sand, 20% silt, 10% clay, trace subrounded sandstone gravel, low plasticity, dry, loose, no odor or staining, med. dilatancy, trace rootlets + twigs		4284
1.0			11.9	66	Sand w/ silt: light olive brown (2.5Y 5/4), 90% fine to coarse grained sand, 10% silt, loose, low plasticity, rapid dilatancy, no odor or staining, moist, trace rootlets + twigs	SP	5018
2.0			15.2	90	sandstone bedrock: light yellowish brown (10YR 6/4), dense, moist, no odor or staining	Bedrock	5403
3.0					TD = 21" or 1.75'		
4.0					no GW encountered		
5.0					no anomalies		
6.0					refusal @ 1.75' on sandstone		

SSFL BORING LOG

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 230	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 075' 0.75 ft bgs.	
Drilling Equipment: Shovel		Borehole Diameter: NA		Date/Time Drilling Started: 5/31/12 0917		Date/Time Total Depth Reached: 5/31/12 0923	
Type of Sampling Device: Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 3 lbs.) 70471 (0925) *			
Geologist: L Robbins				Checked By / Date: M. Birney 6-1-12			
Radiological Background: 3416/16		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	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			72	pancake	AF = artificial fill (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable) Surface: gravel + wood chips	AF		
0.0			84		Silty Sand w/ silt: light yellowish brown (2.5Y 6/4), 90% fine to med sand, 10% silt. trace subrounded sandstone gravel, trace subangular granitic (road fill) gravel moist, loose, rapid dilatancy, non plastic, trace rootlets + wooden twigs, no odor. no staining TD = 0.75' no GW encountered	SP AF		
0.5								
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

* location was revisited to collect additional volume for gamma spec analytes, sample I.D. for additional sample is 70508. Sampled on 6/8/12

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 230	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 3.5 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 5/31/12 09:07		Date/Time Total Depth Reached: 5/31/12 1004	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: L Robbins				Checked By / Date: M. Birney 6-1-12			
Radiological Background: 3416/16		Radiological Equipment Used: Miele R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5=3641 (CPM)
			0.0	72	pancake granitic road gravel, subangular - 0.25	AF	3894
0.5			0.0	84	sand w/ silt: light yellowish brown (25Y 6/4) 90% fine to med. sand, 10% silt, trace sub- rounded sandstone gravel, trace subangular.	SP AF	4367
1.0			5.4	60	granitic (road fill) gravel, moist, loose, rapid dilatancy, nonplastic, trace rootlets + wooden twigs, no odor or staining		5143
			6.9	78			5358
2.0			0.1	84			5558
			11.5	98	--- charcoal "grains" < 5mm		5672
3.0			3.6	90			5891
			6.9	66			6172
4.0					TD= 3.5' bgs. refusal on sandstone (not in bucket) no bw encountered no anomalies	bedrock	
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 231
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel	Borehole Diameter: NA	Date/Time Drilling Started: 6/1/12 1018	Date/Time Total Depth Reached: 6/1/12 1023	
Type of Sampling Device: Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 1/2 lbs.)		70473(1025)*	
Geologist: L Robbins	Checked By / Date: M. Birney			

Radiological Background: 3911/60	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.0			60		Surface: glass, charcoal, twigs, soil		
0.5			56		Silty sand: light yellowish brown (2.5 Y 6/3), 75% fine to coarse grained sand, 25% silt, trace subrounded sandstone gravel + trace subangular siltstone gravel, no odor or staining, loose/dry, no plasticity, concrete debris, glass on surface, charcoal flakes	SM AF	
1.0							
2.0					TD = 0.5' no GW encountered refusal on sandstone (none in HA bucket) (LR)		
3.0							
4.0					* location was revisited to collect additional volume for gamma spec analytes, sample I.D. for additional sample is 70509. An addition (L). Sample collected on 6/8/12.		
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 231	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 2.0 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3 inches		Date/Time Drilling Started: 6/1/12 1058		Date/Time Total Depth Reached: 6/1/12 1058	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx. 5 lbs.)		70474 (1100)	
Geologist: L. Robbins				Checked By / Date: M. Birney 6/1/12			
Radiological Background: 3821/59		Radiological Equipment Used: Micro / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 10.5 = 3915 (CPM)
0.0	0.0		60	60	Surface: glass, charcoal, twigs, soil Silty sand: light yellowish brown (2.5Y 6/3), 75% fine to coarse grained sand, 25% silt, 10% (L) trace subrounded sandstone gravel + trace subangular siltstone gravel, no odor or staining, loose, dry, no plasticity, concrete debris, glass on surface, charcoal flakes	SM / AF	4021
0.5	0.0		56	56			4447 (L)
1.0	7.8		72	72			5353
2.0	5.3		102	102			6258
2.0	6.4		84	84	refusal on sandstone (none in HA bucket) TD = 2.0 bgs no GW encountered no anomalies		6421
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 232	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 3.5 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling: Started: 6/1/12 0859 6/1/12 0904 (E) 0957		Date/Time Total Depth Reached:	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70373(1000)(0985)			
Geologist: L Robbins				Checked By / Date: MTM Bmj			
Radiological Background: 3774 #9		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 <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as graphite, concrete, applicable)</small>	USCS Symbol	Borehole Gamma Readings <small>Feet bgs.</small>
			0.0	78	Surface: asphalt, canvas material / AF = artificial fill		405 = 3343 (CPM)
0.5			0.0	78	silty sand: light yellowish brown (2.5Y 6/3), 75% fine to coarse grained sand, 15% silt, 10% subangular/subrounded gravel, no odor or staining, loose, dry, no plasticity, concrete debris, asphalt + magnetite flakes	SM	3198
						AF	3342
1.0			7.1	96			3444
			9.1	54	----- gradational contact -----		5801
2.0			3.0	70	unit same as above except different constituents: 85% fine to coarse grain sand, 10% silt, trace subangular gravel	SM / AF	5638
			11.4	84			3577
3.0			25	60			5351
			11.0	78			5117
4.0					refusal on sandstone (not brought up) in bucket		
					TD = 3.5'		
					no GW encountered		
					no anomalies		
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 233
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: 5/30/12 1143	Date/Time Total Depth Reached: 5/30/12 1147	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 70437-1150			
Geologist: Ian Stone	Checked By / Date: <i>[Signature]</i> 6/5/12			

Radiological Background: 3884 / 54	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	84	<p>Silty Sand, Dark Yellowish brown (4/4 104R) 50% fine sand, 10% medium sand, 40% silt, trace rocklets, dry, loose, no odor or staining</p> <p>TD = 0.5 ft bgs no gw encountered</p>	SM	
0.5		0.0	84	1			
1.0							2
2.0							3
3.0							4
4.0							5
5.0							6
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 236 237
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: 5/30/12 1410	Date/Time Total Depth Reached: 5/30/12 1414	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70441-1415	
Geologist: Ian Stone		Checked By / Date: Cliff Knight 6-5-12		

Radiological Background: 3884 / 54	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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			90					
0.5			84		Silty Sand, Yellowish Brown (5/6 109R) 70% fine sand, 30% silt, trace sandstone subangular gravel (max size = 1.5"), dry, med dense, no odor or staining	SM		
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5 ft bgs
no gw encountered

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 238
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: 5/30/12 1432	Date/Time Total Depth Reached: 5/30/12 1434	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70442 - 1435	
Geologist: Ian Stone		Checked By / Date: <i>Will Hummel</i> 6-5-12		

Radiological Background: 3884 / 54	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			84		Silty Sand, Yellowish Brown (5/4 10YR) 60% fine sand, 10% medium sand, 30% silt, trace cobbles (8" sandstone), dry, loose, no odor or staining	SM		
0.5			78					
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5 ft bgs
no gw encountered

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 238
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA	Total Depth Drilled: 4.0 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0"	Date/Time Drilling Started: 5/30/12 1500	Date/Time Total Depth Reached: 5/30/12 1522	
Type of Sampling Device: 3.0" Hand Auger	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70443-1540	
Geologist: Ian Stone		Checked By / Date: <i>Jeff Knott</i> 6-5-12		

Radiological Background: 3884 / 54	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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	Borehole Gamma Readings to 0.5' = 3923 (CPM)
0.0			0.0	84	Silty Sand, Yellowish Brown (5/4 10YR), 60% fine sand, 10% medium sand, 30% silt, trace gravel (sandstone, max size = 1"), dry loose, no odor or staining	SM	4317
0.5			0.0	78			5016
1.0			0.0	84			5433
1.5			0.0	66	(0-1.5') Sandy Silt, Dark Brown (3/3 10YR @ 7.5YR) 40% fine sand, 60% silt, trace gravel (sandstone, max size = 1"), dry, soft, low strength, low toughness, low plasticity, no odor or staining	ML	5646
2.0			0.0	90	(1.5-2.25')		5705
2.5			0.0	60	Silty Sand, Yellowish Brown (5/6 10YR) 65% fine sand, 15% medium sand, 20% silt, dry, med dense, no odor or staining	SM	5616
3.0			0.0	72			5390
3.5			0.0	78			5345
4.0			0.0	102	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, dry very dense, no odor or staining	SP	5337
4.0					TD = 4.0 ft bgs no gw encountered refusal on sandstone no anomalies detected		

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 239	
Drilling Company: Boart Longyear		Driller: D. Hansen		Ground Elevation: NA		Total Depth Drilled: 5.0 ft bgs.	
Drilling Equipment: Geoprobe 6800		Borehole Diameter: 1.75"		Date/Time Drilling Started: 6/27/12 1408		Date/Time Total Depth Reached: 6/27/12 1413	
Type of Sampling Device: 1.75" macrocore with acetate liner				Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: I. Stone				Checked By / Date: J Robbins 6/28/12			
Radiological Background: 3336 / 64		Radiological Equipment Used: Micro R / Downhole / Pancake Meters			PID Used: Mini Rae 3000 - Background: 0.0 ppm		

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
					Dark AF = artificial fill		40.5' = 3581 (CPM)
0.5			0.0	54	Silty Sand, Yellowish brown (4/4 10YR) 60% fine sand, 10% medium sand, 40% silt, trace gravel, trace rootlets, dry, loose, no odor or staining	AF/SM	3790
			0.0	66	(0-0.8')		4909
1.0			0.0	114	Silty Sand, Yellowish Brown (5/4 10YR) 60% fine sand, 10% medium sand, 30% silt, dry, med dense, no odor or staining	SM	5288
			0.0	96			5389
2.0			0.0	54	Sand w/ silt, light yellowish brown (6/4 10YR) 60% fine sand, 25% medium sand, 15% silt, moist, med dense, no odor or staining	SP	5395
			0.0	60			5454
3.0			0.0	84			5587
			0.0	78			5521
4.0			0.0	72			5597
			0.0	66	Silty Sand, Dark yellowish brown (4/4 10YR) 60% fine sand, 10% medium sand, 30% silt, moist, dense, no odor or staining	SM	5495
5.0			0.0	60	Sand (weathered sandstone), Brownish Yellow (6/6 10YR) 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP	5489
6.0					TD = 5.0 ft bgs, no gw encountered refusal on sandstone, no anomalies detected		

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 240	
Drilling Company: Boart Longyear		Driller: D. Hansen		Ground Elevation: NA		Total Depth Drilled: 5.3 ft bgs.	
Drilling Equipment: Geoprobe 6600		Borehole Diameter: 1.75"		Date/Time Drilling Started: 6/28/12 0909		Date/Time Total Depth Reached: 6/28/12 0913	
Type of Sampling Device: 1.75" macrocore with acetate liner				Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: I. Stone				Checked By / Date: J. Robbins 6/29/12			
Radiological Background: 3629 / 59cpm		Radiological Equipment Used: Micro-R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 10.5' = 3440 (CPM)
			0.0	66	Silty Sand, Dark Yellowish Brown (4/6 104R) 60% fine sand, 10% medium sand, 30% silt, trace gravel, trace rootlets, med dense, no odor or staining	AF/SM	4254
0.5			0.0	66	Silty Sand, Dark Yellowish Brown (4/4 104R)		5253
1.0			0.0	60	dry, med med dense, no odor or staining	SM	5509
			0.0	78			5526
2.0			0.0	54	Silty Sand, Brownish Yellow (6/6 104R) 40% fine sand, 10% medium sand, 20% silt, moist, med dense, no odor or staining	SM	5505
			0.0	66			5385
3.0			0.0	72			5511
			0.0	66			5710
4.0			0.0	66			5527
			0.0	54			5482
5.0			0.0	96	Sand (weathered sandstone), Brownish Yellow (6/8 104R) 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP	5486
6.0					TDE 5.3 ft bgs, no gw encountered refusal on sandstone		

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 242	
Drilling Company: Boart Longyear		Driller: D. Hansen		Ground Elevation: NA		Total Depth Drilled: 5.25 ft bgs.	
Drilling Equipment: Geoprobe 6600		Borehole Diameter: 1.75"		Date/Time Drilling Started: 6/27/12 0947		Date/Time Total Depth Reached: 6/27/12 0959	
Type of Sampling Device: 1.75" macrocore with acetate liner				Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 70447-1020			
Geologist: I. Stone				Checked By / Date: J. Robbins 6/28/12			
Radiological Background: 3620 / 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	Borehole Gamma Readings +0.5' = 3512 (CPM)
					AF = artificial fill		
			0.0	78	Silty Sand, Yellowish brown (5/4 10YR), 60% fine sand, (0.0-0.3) 10% medium sand, 30% silt, trace gravel, dry, loose, no odor or staining	AF/SM	4203
0.5			0.0	72	Silty Sand, Dark yellowish brown (4/6 10YR)		5243
1.0			0.0	90	50% fine sand, 10% medium sand, 40% silt, trace gravel (sandstone, max size = 0.5'), moist, dry, med dense, no odor or staining	SM	5665
			0.0	72	Silty Sand, Dark yellowish brown (4/6 10YR)		5599
2.0			0.0	84	60% fine sand, 15% medium sand, 25% silt, moist, med dense, no odor or staining	SM	5570
			0.0	66			5185
3.0			0.0	72			5245
			0.0	72			5485
4.0			0.0	60	Silty Sand, Dark yellowish brown (4/4 10YR)		5297
			0.0	66	70% fine sand, 10% medium sand, 20% silt, moist, dense, no odor or staining	SM	5353
5.0			0.0	60	Sand (weathered sandstone), Brownish yellow (6/6 10YR)		5355
					70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP	
6.0					TID = 5.25 ft bgs; no gas encountered; refusal on sandstone; no anomalies detected		

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 243	
Drilling Company: Boart Longyear		Driller: D. Hansen		Ground Elevation: NA		Total Depth Drilled: 1.8 ft bgs.	
Drilling Equipment: Geoprobe 6600		Borehole Diameter: 1.75"		Date/Time Drilling Started: 6/27/12 0846		Date/Time Total Depth Reached: 6/27/12 0854	
Type of Sampling Device: 1.75" macrocore with acetate liner				Samples Collected: (1) 1/2 Gallon Bag (Approx. 5 lbs.)		70408-0915	
Geologist: I. Stone				Checked By / Date: J. Robbins 6/28/12			
Radiological Background: 3461 / 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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. ±0.5' = 3490 (CPM)
0.0			0.0	84	Silty Sand, Yellowish brown (5/4 104R) (0-0.2') 60% fine sand, 10% med. sm. sand, 30% silt, dry, loose, no odor or staining, trace gravel	AF/Sm	3924
0.5			0.0	108	Silty Sand, Brownish yellow (6/6 104R) 70% fine sand, 10% med. sm. sand, 20% silt, dry, med dense, no odor or staining	Sm	4760
1.0			0.0	84	(0.2-1.2')		5273
			0.0	90	Sand (weathered sandstone), Yellow (7/6 104R) 70% fine sand, 25% medium sand, 5% silt, dry; very dense, no odor or staining	SP	5375
					(1.2-1.8')		
2.0					TD = 1.8 ft bgs No gas encountered Refusal on sandstone No anomalies detected		
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 245
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 2.25 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 6/26/12 1400	Date/Time Total Depth Reached: 6/26/12 1407	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70449-1425	
Geologist: I. Stone	Checked By / Date: Cliff Knight 6/28/12			

Radiological Background: 3641 / 45	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5' = 3219 (CPM)
			0.0	66	AF- artificial fill		
0.5			0.0	64	Silty Sand, yellowish brown (5/4 10YR) 60% fine sand, 10% medium sand, 30% silt, trace gravel (granite, max size = 1"), dry, dense, no odor or staining	AF/ SM	4507 5244
1.0			0.0	78			5341
			0.0	84			5366
2.0			0.0	90	Sand (weathered sandstone), light yellowish brown (6/4 10YR) 70% fine sand, 25% medium sand, 5% silt, dry, very dense, no odor or staining	SP	5433
3.0					TD = 2.25 ft bgs no gw encountered refusal on sandstone no anomalies detected		
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 247	
Drilling Company: HGL		Driller: J. LeVangie		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 6/5/12 1504		Date/Time Total Depth Reached: 6/5/12 1513	
Type of Sampling Device: Trowel/Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70329 (1510)			
Geologist: L Robbins				Checked By / Date: <i>[Signature]</i> 6-6-12			
Radiological Background: 1916 / 69		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	84	silty sand: 75% sand (fine to coarse grain), 25% silt, dry, loose, no odor or staining, no plasticity, trace rootlets, bark twigs, brown (10YR 4/3)	SM	
0.5			0.0	66			
1.0					TD=0.5' bgs no GW encountered		
2.0					background downhole reading is a 30 second count		
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 248
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA	Total Depth Drilled: 5.5 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0"	Date/Time Drilling Started: 5/31/12 1443	Date/Time Total Depth Reached: 5/31/12 1504	
Type of Sampling Device: 3.0" Hand Auger	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70451 - 1530	
Geologist: Ian Stone	Checked By / Date: J. Robbins 6/1/12			

Radiological Background: 4036 / 56	Radiological Equipment Used: Micro RT Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. #0.5' = 4022 (CPM)
0.0 - 0.5			0.0	84	Silty Sand, Dark Yellowish Brown (4/4 104R) 50% fine sand, 10% medium sand, 40% silt, trace sandstone gravel (max size < 0.5"), dry, trace roots, med dense, no odor or staining	SM	4909
0.5 - 1.0			0.0	78			5303
1.0 - 1.5			0.0	90			5752
1.5 - 2.0			0.0	66	(0-1.5') Sandy Silt, Dark Brown (3/3 104R) 35% fine sand, 65% silt, dry, low strength, low toughness, low plasticity, dry, ^{IS} no odor or staining, firm ^{IS} med firm	ML	5902
2.0 - 2.5			0.0	90			5821
2.5 - 3.0			0.0	84	(1.5'-2.5') Silty Sand w/ clay, Yellowish brown (5/6 104R) 60% fine sand, 30% silt, 10% clay, moist, dense, no odor or staining	SM	5560
3.0 - 3.5			0.0	78			5476
3.5 - 4.0			0.0	78	(2.5-3.3') Sandy Silt w/ clay, Brown (4/3 104R) 30% fine sand, 70 55% silt, 15% clay, moist, low strength, low toughness, low plasticity, no odor or staining, firm	ML	5578
4.0 - 4.5			0.0	96	(3.3-4.0') Silty Sand, Yellowish brown (5/6 104R) 70 65% fine sand, 30% silt, 5% clay, moist, dense, no odor or staining	SM	5338
4.5 - 5.0			0.0	84			4986
5.0 - 5.5			0.0	96	(4.0-5.2') Sand (weathered sandstone), Brownish Yellow (6/6 104R) 70 70% fine sand, 25% medium sand, 5% silt, moist, very dense, no odor or staining	SP	4914
5.5 - 6.0			0.0	78			4892
TD = 5.5 ft bgs					rebasal on sandstone no gravel encountered no anomalies detected		

SSFL BORING LOG

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 250
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel	Borehole Diameter: NA	Date/Time Drilling: Started: 6/4/12 1042	Date/Time Total Depth Reached: 6/4/12 1048	
Type of Sampling Device: Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70454 (1050)	
Geologist: L. Robbins	Checked By / Date: M. Birney 6-4-12			

Radiological Background: 3784/64	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			60	(LE)	AF = artificial fill			
0.5			72		Sand: yellowish brown (10YR 5/4), 90% fine to med. sand, 10% subangular sandstone gravel, trace silt, dry, loose, no odor or staining, trace subrounded sandstone and subangular siltstone gravels, trace rootlets + twigs, charcoal flakes, small concrete pieces	SA AF		
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5' bgs
no GW encountered

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 250	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 2.5 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 6/4/12 1042		Date/Time Total Depth Reached: 6/4/12 1146	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (5 lbs.) 70455(150)			
Geologist: L Robbins				Checked By / Date: M. Birney 6-5-12			
Radiological Background: 3784/64		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	Borehole Gamma Readings Feet bgs. *0.5' = 3632 (CPM)
			0.0	60	AF artificial fill		
0.5			0.0	72	sand: yellowish brown (10YR 5/4), 90% fine to med. sand, 10% subangular sandstone gravel, trace silt, dry, loose, no odor or staining, trace subrounded sandstone gravel + subangular siltstone gravel, trace rootlets + twigs, charcoal flakes, small concrete pieces	SP AF	3680
1.0			0.0	62			3963
2.0			0.0	60	--- a "chlorine/swimming pool" odor present to total depth		4630
			41.2	60			4794
			81.8	92			5118
			50.1	84	TP=25' bgs, refusal on siltstone (none in bucket) no GW encountered	Bedrock	5627
3.0							
4.0							
5.0							
6.0							

0

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 251
Drilling Company: HGL	Driller: M. Bimey	Ground Elevation: NA	Total Depth Drilled: 4.0 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 6/4/12 1339	Date/Time Total Depth Reached: 6/4/12 1432	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70457 (1435)	
Geologist: L Robbins	Checked By / Date: M. Bimey 6-5-12			

Radiological Background: 3805/64	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 10.5 = 3724 (CPM)
					AF = artificial fill		
0.0			66		Silty sand: dark yellowish brown (10YR 4/4), 65% fine to coarse sand, 25% silt, 10% siltstone/	SM	4154
0.5			84		Sandstone gravel, dry, loose, no plasticity, no odor or staining, trace rootlets + twigs.	AF	4683
1.0			102		a 2" x 2" ^{piece} size of erosional wadde pulled up in bucket @ 6", trace charcoal flakes		5264
			96		w/it same as above except color change. (LP)		5607
2.0			56	66			6012
			256	72	... root present		6378
3.0			10.6	102	Silty sand: yellowish brown (10YR 5/4), 80% fine to coarse sand, 20% silt, dry, loose, trace Sandstone gravel, low plasticity, trace rootlets	SM	6842
			24.3	122			6937
4.0			4.2	102	Sandstone bedrock: (2.5Y 5/4) light olive brown (mechanically weathered to SP), dry, dense, no odor or staining	sp	6318
5.0					TID = 4.0' bgs, refusal on sandstone no GW encountered no anomalies		
6.0							

0

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 252
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 2.25 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 6/1/12 1135	Date/Time Total Depth Reached: 6/1/12 1224	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70459 (1225)			
Geologist: L. Robbins	Checked By / Date: M. Birney 6/1/12			

Radiological Background: 311/60	Radiological Equipment Used: Micro R/L Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. (CPM)
0.0			76	(LE)	Surface: Soil, twigs, plant litter		+0.5 = 3801
0.5			2.8	66	Silty sand dark yellowish brown (10YR 4/4), 75% fine to coarse sand, 25% silt, trace gravels (subrounded sandstone + granitic), dry, no odor or staining, non plastic, loose, mica flakes, small opaque minerals, rat poop	SM AF	3792
1.0			3.2	60			4288
1.5			5.9	102			5121
2.0			2.0	72			5595
2.0					TD = ^(LE) 27" bgs, refusal on sandstone no GW encountered (none in bucket) no anomalies		5502
3.0							
4.0							
5.0							
6.0							



Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 253
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: 5/31/12 1201	Date/Time Total Depth Reached: 5/31/12 1204	
Type of Sampling Device: Shovel/Trowel	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70460 - 1205	
Geologist: Ian Stone		Checked By / Date: J Robbins 6/1/12		

Radiological Background: 4036 / 56	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.0			0.0	96	Silty Sand, Dark yellowish brown (4/4 1042) 50% fine sand, 10% medium sand, 40% silt, trace sandstone gravel, trace rootlets, dry, loose, no odor or staining TD = 0.5 ft bgs no gw encountered	SM	
0.5		0.0	90				
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 253	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 6.5 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 6/4/12 0849		Date/Time Total Depth Reached: 6/4/12 1004	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70461 (1005)	
Geologist: L Robbins				Checked By / Date: MMMM Birney 6-5-12			
Radiological Background: 4006 / 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	Borehole Gamma Readings Feet bgs. +05 = 4128 (CPM)	
					Surface: Weeds, Soil			
			0.0	60	Silty sand: dark yellowish brown (10YR 4/4), 75% fine to med. sand, 25% silt, trace sub- rounded sandstone gravel, loose, dry, no odor or staining, trace sticks, charcoal flakes, + rootlets, rat droppings	SM	4261	
0.5			0.0	102			4588	
1.0			0.0	84			5266	
			0.0	120			----- gradational contact -----	5514
2.0			0.0	78			Silty sand: brown (10YR 4/3), 60% fine to medium grained sand, 30% silt, 10% subangular + sub-rounded sandstone gravel, dry, loose, no odor or staining, trace rootlets + twigs, rat droppings	5669
			0.0	66	Silty clay w/ sand: (2.5Y 4/4), 60% clay, 30% silt, 15% fine sand, trace olive brown calcium carbonate nodules, dry, very soft, no odor or staining, trace rootlets.	CL	5789	
3.0			0.0	54			5614	
			0.0	60			5777	
4.0			6.4	48	Silty sand: yellowish brown (10YR 5/6), 70% fine to medium sand, 30% silt, 10% clay nodules, dry, low dense, trace rootlets, no odor or staining	SM	5432	
			5.9	60			5094	
5.0			2.1	66			4981	
			5.6	72			4974	
6.0			12.1	96	---increase in clay nodules---		5017	

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 253			
Radiological Background: 4006/63		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)
6.0			12.1	96	Sand: yellowish brown (10YR 5/4), 90% fine to med. sand, 10% silt, trace subrounded sandstone gravel, moist, dense, no odor or staining TD = 6.5', no GW encountered refusal on sandstone	SP	6	5017
			5.6	86			7	5203
7.0							7	
8.0							8	
9.0							9	
10.0							10	
11.0							11	
12.0							12	
13.0							13	

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 255
Drilling Company: HGL	Driller: J. Leborgne	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 6/5/12 1340	Date/Time Total Depth Reached: 1359	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70463(1350)	
Geologist: L Robbins	Checked By / Date: <i>[Signature]</i> Bm			

Radiological Background: 1986/74	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0	0.5		0.0	92	<p>Ⓢ</p> <p>Sand w/ silt: brown (10YR 4/3), 85% fine to coarse grained sand, 15% silt, dry, loose, trace subrounded sandstone gravel + subangular siltstone gravel, abundant twigs + bark, trace rootlets, mica flakes, no odor <i>no staining</i></p> <p>TD = 0.5' bgs no GW encountered Borehole (downhole) reading was a 30 sec count.</p>	<p>SP</p> <p>SM</p>		
0.5		0.0	78					
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 256
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 6/5/12 1410	Date/Time Total Depth Reached: 6/5/12 1421	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70464 (1420)	
Geologist: LRobins	Checked By / Date: <i>[Signature]</i>			

Radiological Background: 2226/82	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			72	LA	Sand w/ silt: brown (10YR 4/3), 85% fine to coarse grained sand, 15% silt, dry, loose, trace subrounded sandstone gravel + subangular siltstone gravel, abundant twigs + bark, trace rootlets, mica flakes, no odor or staining.	SM SP ①	
0.5		00	132				
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs
NO GW encountered

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 257
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 6/4/12 1510	Date/Time Total Depth Reached: 6/4/12 1513	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70465 (1515)	
Geologist: L Robbins	Checked By / Date: M. Birney 6-5-12			

Radiological Background: 3758/56	Radiological Equipment Used: Micro-R Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable) AF = Artificial Fill	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	54	<p>Sand w/ silt: 85% fine to coarse sand, 15% silt, yellowish brown (10YR 5/4), dry, loose, no plasticity, rapid dilatancy, no odor or staining, trace subangular granitic gravel + subangular siltstone/subrounded sandstone gravel, asphalt/concrete pieces in trace amounts, some charcoal flakes, twigs + bark + rootlets</p>	SP AF		
0.5			66					
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5'
no GW encountered
AD = 13

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 257	
Drilling Company: HGL		Driller: M. Brney		Ground Elevation: NA		Total Depth Drilled: 5.5 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 6/4/12 1510 6/4/12 1552		Date/Time Total Depth Reached:	
Type of Sampling Device: Hand Auger		Geologist: L Robins		Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70466 (1605)	
Radiological Background: 3788/50		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings ft bgs. (CPM)
					Artificial fill		405-3746
0.5			0.0	54	Silty sand w/ silt: 85% fine to coarse sand, 15% silt, yellowish brown (10YR 5/4), dry, loose, no plasticity, rapid dilatancy, no odor or staining, trace subangular granitic gravel.	Sp / AF	3820
			0.0	66			4064
1.0			0.0	84			4705
			0.0	102			5193
2.0			0.0	72			5323
			0.0	66	Silty sand: yellowish brown (10YR 5/4), 65% fine to med sand, 35% silt, dry, loose, low plasticity, no odor or staining, trace rootlets & bark	SM / AF	5489
3.0			0.0	66			5502
			0.0	78			5611
4.0			0.0	60			5517
			0.0	54	-- concrete piece		6111
5.0			0.0	60			5243
			0.0	102			5176
					refusal on sandstone (none in bucket) TD = 5.5' bgs		

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 258	
Drilling Company: HGL		Driller: S. Lapeyre-Montrose		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 6/6/12 0900		Date/Time Total Depth Reached: 6/6/12 0928	
Type of Sampling Device: Trowel/Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70467 (0925)			
Geologist: L. Robbins				Checked By / Date: M. Brin 6-7-12			
Radiological Background: 354/101		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	Borehole Gamma Readings (CPM)
0.0					AF = artificial fill		
0.5				96	Silty sand: brown (10YR 5/3), 75% fine to med sand, 25% silt; dry, loose, no odor or staining, low plasticity, rapid dilatancy, trace rocklets mica flakes, trace concrete	SM AF	
1.0				72			
TD = 0.5' bgs no GW encountered							
2.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 258
Drilling Company: HGL	Driller: S. Lapeyre-Montrose	Ground Elevation: NA	Total Depth Drilled: 3.67 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling: Started 6/6/12 0900	Date/Time Total Depth Reached: 6/6/12 1120	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70468 (1125)	
Geologist: L Robbins	Checked By / Date: MATT BING 6-7-12			

Radiological Background: 3854 / 101	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5 = 3403 (CPM)
			0.0	96	AF-artificial fill		
0.5			0.0	72	silty sand: brown (10YR 5/3), 75% fine to medium sand, 25% silt, dry, loose, no odor or staining, low plasticity, rapid dilatancy, trace rootlets, mica flakes, trace concrete	SM / AF	3765
1.0		0.0	84	4579			
		0.0	108	5253			
2.0		0.0	102	5359			
			0.0	90	-Subangular granitic gravel pieces (trace amount)		5414
3.0			0.0	78			5554
			0.0	66	sand w/ silt: (10 YR 5/6) yellowish brown, 90% fine to med. sand, 10% silt, moist, loose, no odor or staining, no plasticity, rapid dilatancy, trace rootlets, trace granitic gravel	SP / AF	5851
4.0							5995
5.0							
6.0							

TD = 3.67' (44") bgs, refusal on sandstone
no GW encountered

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 259	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling: 6/5/12 1059		Date/Time Total Depth Reached: 6/5/12 1103	
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70475 (1105)			
Geologist: L Robbins		Checked By / Date: M. Birney 6-6-12					
Radiological Background: 3785 / 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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			66		AF = artificial fill		
0.5			90	90	sitty sand w/ silt: (104R 4/3) brown, 85% fine sand, 15% silt, dry, loose, no odor or staining, no plasticity, trace concrete	SP S AF	
1.0					TP: 0.5' bgs no GW encountered		
2.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 260	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 6/5/12 1108		Date/Time Total Depth Reached: 6/5/12 1113	
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70476(1115)			
Geologist: L Robbins		Checked By / Date: M. Birney					
Radiological Background: 3970/59		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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			78		Surface: charcoal	AF=artificial fill	
0.5			60		Sand w/ silt: (2.5Y 5/4) light olive brown, 85% fine to med sand, 15% silt, dry, loose, no plasticity, opagnes, charcoal flakes, trace rootlets, small concrete pieces	SM SP AF	
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							
					TD: 0.5' bgs no GW encountered		

SSFL BORING LOG



Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 261	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 6/5/12 1119		Date/Time Total Depth Reached: 6/5/12 1123	
Type of Sampling Device: Trowel/Shovel		Geologist: L Robbins		Samples Collected: One 1/2 Gallon Bag (Approx 1/2 lbs.)		70477(1125)	
Radiological Background: 3701/65		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			00	72	Silty sand: (10YR 4/3) brown, 70% fine to med sand, 30% silt, dry, loose, no odor or staining, trace rootlets + twigs, trace subangular granitic gravel, charcoal flakes + mica	SM AF	
1.0			00	96			
2.0					TD = 0.5 bgs no GW encountered		
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 262
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 4/5/12 1130	Date/Time Total Depth Reached: 6/5/12 1134	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70478 (1135)	
Geologist: L Robbins		Checked By / Date: MMAHAM Rinn 6-6-12		

Radiological Background: 809/00	Radiological Equipment Used: Micro RT Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	SCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			72	(LP)	Artificial fill Sand w/ silt. light olive brown (2.5Y 5/4), 85% fine to med. sand, 15% silt, dry; loose, no plasticity, trace opagues + charcoal flakes; trace rootlets + twigs; trace subangular granitic gravel, no odor or staining	AF		
0.5			00	gt				
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5' bgs
no GW encountered

SSFL BORING LOG

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 263	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel		Borehole Diameter: NA		Date/Time Drilling Started: 6/5/12 0912		Date/Time Total Depth Reached: 6/5/12 0918	
Type of Sampling Device: Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		Checked By / Date: M. Robbins 6-6-12		DWP: 70398(0920) / 70502 (NT)	
Geologist: L. Robbins		Radiological Background: 3078/68		Radiological Equipment Used: Micro R+ Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	78	AP = artificial fill	SP/SM	
0.5			0.0	72	sand w/ silt: brown (10YR 4/3), 85% fine to coarse sand, 15% silt, trace subrounded sandstone + siltstone (subangular) gravel, dry, loose, no plasticity, trace rootlets, bark, twigs + charcoal pieces (~5mm), small mica flakes + opagones, concrete debris, aluminium tubing + 22 gauge electrical wire, no odor or staining	AP	
2.0					TD = 0.5' bgs no GW encountered		
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 263	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 1.65 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 4/5/12 0912		Date/Time Total Depth Reached: 6/5/12 0951 0912	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (5 lbs.)		70399 100 (0955)	
Geologist: L. Robbins				Checked By / Date: Rm 6-6-12			
Radiological Background: 3678/68		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. (CPM)
			0.0	78	AF=artificial fill		405 = 4018
0.5			0.0	72	Sand w/ silt: brown (10YR 4/3), 85% fine to coarse sand, 15% silt. trace subrounded sandstone + siltstone (subangular) gravels, dry, loose, no plasticity, trace rootlets, bark, twigs, + charcoal pieces (<5mm); small mica flakes + opague. concrete debris, aluminum tubing + 22 gauge electrical wire.	SPSM AF	4315
1.0			0.0	78			4632
			0.0	96			5025
					TD = 1.65' (20"), refusal on sandstone no GW encountered no anomalies		5093
2.0							
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 264	
Drilling Company: HGL		Driller: J LeVangie		Ground Elevation: NA		Total Depth Drilled: 0.5' ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 5-24-12 1500		Date/Time Total Depth Reached: 5-24-12 1510	
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 3 lbs.)		5 70374 (1510)			
Geologist: M Birney		Checked By / Date: mb					
Radiological Background: 3679 / 104		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: 3000		Background: 0.0 ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Feet bgs.	(CPM)
0.0			0.0	114	Surface: gravel			
0.5			0.0	66	silty sand, brown (7.5 yr 4/4), 80% fine to med sand, 20% silt; sub angular rounded sandstone; dry, loose, non plasticity, no odor, no staining mica flakes, trace rootlets.	sm		3449
1.0								4139
2.0								
3.0								
4.0								
5.0								
6.0								

TD 0.5' ft bgs
NO Groundwater

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group:	Location ID: 265	
Drilling Company: HGL		Driller: J LeVangie		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling: Started: 1145 5-29-12		Date/Time Total Depth Reached: 1150 5-29-12	
Type of Sampling Device: Trowel/Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		5 70375 (1155)	
Geologist: M Birney				Checked By / Date: MB J Robbins 5/31/12			
Radiological Background: 83/4139		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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5	0-0.5	+	0.0	90	Surface-scattered grasses silty sand, dark yellowish brown (10gr 4/4) 65% fine to med sand, 35% silt, trace rootlets, charcoal, loose, dry, low plasticity no odor, no staining	SM	
1.0	0.5-1.0		0.0	76			
2.0	1.0-2.0						
3.0	2.0-3.0						
4.0	3.0-4.0						
5.0	4.0-5.0						
6.0	5.0-6.0						

TD = 0.5 ft bgs
no gw

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 266
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 3.0 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/17/12 1439	Date/Time Total Depth Reached: 5/17/12 1447	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70377-1505	
Geologist: Ian Stone	Checked By / Date: J Robins 5/18/12			

Radiological Background: 371 / 41	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings +0.5' = 3502 (CPM)
0.0			84		Silty Sand, Yellowish Brown (5/6 10YR), 60% fine sand, 10% medium sand, 30% silt, trace gravel, trace (0.05') rootlets, no odor or staining, dry, med dense (ack soil fill)	AF/SM	3765
0.5			96		Sand w/ silt, Brownish Yellow (6/6 10YR)		5138
1.0			102		60% fine sand, 30% medium sand, 10% silt, moist, dense, no odor or staining	SP	5634
			60				6215
2.0			54		Sandstone (weathered), light yellowish brown (6/4 10YR)	Bedrock	6664
			48		dry, very dense, no odor or staining, mechanically weathered to SP		6603
3.0			72				6434
4.0					TD = 3.0 ft bgs no gw encountered refusal on sandstone no anomalies detected		
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 267
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Hand Auger shovel (L)	Borehole Diameter: 3 inches (L) n/a	Date/Time Drilling Started: 5/23/12 1510	Date/Time Total Depth Reached: 5/23/12 1512	
Type of Sampling Device: Hand Auger shovel (L)	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70400 (1514)	
Geologist: L Robbins	Checked By / Date: M. Birney, 5-24-12			
Radiological Background: 3193/54	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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. (CPM)
0.0			60	(L)	AF = artificial fill (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)		no 5 = 3119 (CPM) (L)
0.5			84		sand w/ silt: light yellowish brown (2.5Y 6/3), 85% fine to coarse grained sand, 15% silt, trace asphalt + concrete, low plasticity, loose, dry, no odor or staining, trace subrounded sandstone + subangular siltstone gravels, trace rootlets + mica flakes	SM / AF	
1.0							
2.0					no GW encountered no refusal TD = 0.5'		
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: <u>7</u>	Group: <u>1</u>	Location ID: <u>267</u>	
Drilling Company: HGL		Driller: <u>M. Birney</u>		Ground Elevation: NA		Total Depth Drilled: <u>1.75</u> ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3 inches		Date/Time Drilling Started: <u>5/23/12 1510</u>		Date/Time Total Depth Reached: <u>5/23/12 1542</u>	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) <u>70401 (545)</u>			
Geologist: <u>L Robbins</u>				Checked By / Date: <u>MMMAA Bm</u>			
Radiological Background: <u>3193/54</u>		Radiological Equipment Used: <u>Micro R / Downhole / Pancake Meters</u>		PID Used: Mini Rae 3000 - Background: <u>0.0</u> ppm			

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. <u>+0.5 = 3119 (CPM)</u>
			0.0	60	<u>AP = artificial fill</u>		
0.5			0.0	84	sand w/ silt: light yellowish brown (2.5Y 6/3), 85% fine to coarse grained sand, 15% silt, trace asphalt + concrete, low plasticity, loose, dry, no odor or staining, trace sub-rounded sandstone + subangular silts tone gravels, trace rootlets + mica flakes	SM / AF	3303 3720
1.0			3.1	66		SM / AF	4503
			2.3	78	silty sand: light olive brown (2.5Y 5/4), 80% fine to coarse sand, 20% silt, trace rootlets, moist, low dense, abundant asphalt pieces (~5mm), non plastic, mica flakes	SM / AF	5013 5137
2.0			NM	NM	refusal on a rock, possibly gravel TD = 1.75 no anomalies no BW encountered		
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 268
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Hand Auger (to shovel)	Borehole Diameter: 3 inches N/A	Date/Time Drilling Started: 5/23/12 0838	Date/Time Total Depth Reached: 5/23/12 0843	
Type of Sampling Device: Hand Auger shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70378 (0845)	
Geologist: L Robbins	Checked By / Date: MM/RR Rm 5-29-12			

Radiological Background: 3950 / 57	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			96		<p>pancake Silty sand: pale brown (2.5Y 7/4), 65% fine to medium sand, 25% silt, 10% subrounded to subangular sandstone + silty fine gravel, dry, loose, non plastic, no odor or staining, trace asphalt, trace no. of metal debris encountered @ 10" bgs (crushed aluminum or tin metal 1/3" long, 2" wide), red plastic debris layer @ 1' bgs</p> <p>TD = 0.5' bgs no GW encountered</p>	<p>SU AF</p>	
0.5			114				
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: <u>7</u>	Group: <u>1</u>	Location ID: 268 <u>268</u>	
Drilling Company: HGL		Driller: <u>M. Birney</u>		Ground Elevation: NA		Total Depth Drilled: <u>3.25'</u> 3.3' ^u ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3 inches		Date/Time Drilling Started: 5/23/12 0838 <u>5/23/12 0932</u>		Date/Time Total Depth Reached: <u>0932</u>	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) <u>70379 (0935)</u>			
Geologist: <u>L Robbins</u>				Checked By / Date: <u>MMR to Birney 5-24-12</u>			
Radiological Background: <u>3950/57</u>		Radiological Equipment Used: <u>Micro R / Downhole / Pancake Meters</u>		PID Used: Mini Rae 3000 - Background:		<u>0.0</u> ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. (CPM)
0.0			90		<p><u>pancake</u></p> <p>Silty sand: pale brown (2.5Y 7/4), 65% fine to medium sand, 25% silt, 10% subrounded to subangular sandstone + siltstone gravel, dry, loose, non plastic, no odor or staining, trace asphalt, trace rooflets, metal debris encountered @ 10" bgs (crushed aluminum or tin metal 23" long, 2" wide), red plastic debris @ 11' bgs</p>	SM	3606
0.5			114			AF	4244
1.0			84				4930
1.5			102				5135
2.0			84				5188
2.5			84				5327
3.0			78			5360	
					TD=3'3" (3.25'), refusal on sandstone no GW encountered		
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 269	
Drilling Company: HGL		Driller: J LeVangie		Ground Elevation: NA		Total Depth Drilled: ^{mb} 0.5 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel		Borehole Diameter: N/A		Date/Time Drilling Started: 5-24-12 1350		Date/Time Total Depth Reached: 5-24-12 1357	
Type of Sampling Device: Trowel/Shovel		Samples Collected: One 1/2 Gallon Bag (Approx 1/2 gal.)		70320 (1357)			
Geologist: M Birney		Checked By / Date: J [Signature] 6/25/12					
Radiological Background: 3560 / 61		Radiological Equipment Used: Micro RT Downhole / Pancake Meters		PID Used: 3000		Mini Ra-2000 - Background: 0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	66	Surface: tall mustard weeds AF = artificial fill	SM /AF	
1.0			0.0	78	silty sand, dark yellowish brown (DTR 4/4) 75% fine to med coarse sand, 25% silt, trace sub rounded sandstone - sub angular siltstone, trace concrete, rootlets, dry, base, non plasticity, mica flakes, no odor, no staining		
2.0					TD 0.5' ft bgs NO Groundwater		
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 7-269	
Drilling Company: HGL		Driller: J LeVangie		Ground Elevation: NA		Total Depth Drilled: 1.5' ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 5-24-12 1420		Date/Time Total Depth Reached: 5-24-12 1420	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)			
Geologist: M Birney				Checked By / Date: Jim [Signature] 5/25/12			
Radiological Background: 3560/61		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 3327 (CPM)
0.0			0.0	66	Surface: tall mustard weed	AF=Artificial Fill	3530
0.5			0.0	70	Silty sand, dark yellowish brown (10YR 4/4)	SM/AF	4361
1.0			0.0	84	75% fine to med coarse sand, 25% silt, trace subrounded sandstone + subangular siltstone, trace concrete, rootlets, dry, loose, non plasticity, mica flakes, no color, no staining	SM/AF	4864
2.0			0.0	78	Silty sand, olive brown (2.5Y 4/3)	SM/AF	5129
					75% fine to med coarse sand, 25% silt, trace subrounded sandstone + subangular siltstone, trace asphalt, dry, loose, non plasticity, mica flakes, no color, no staining		
<p>TD = 1.5' ft bgs refired on bedrock</p> <p>no GW</p> <p>no anomalies</p>							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 270
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 5/24/12 0938	Date/Time Total Depth Reached: 5/24/12 0938	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		70386(0940)	
Geologist: L Robbins	Checked By / Date: 5/25/12			

Radiological Background: 3419/65	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 2000	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0				72	Silty sand, yellowish brown (10YR 5/6), 65% fine to coarse grained sand, 35% silt, trace subrounded sandstone & subangular siltstone	SM AF	
0.5			0.0	48	gravels, dry, low dense, trace rootlets, trace asphalt, concrete & metal debris, mica flakes, no odor or staining		
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs
no GW encountered

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 270
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 5.1 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 5/24/12 0933	Date/Time Total Depth Reached: 5/24/12 1033	
Type of Sampling Device: Hand Auger 3.00"	Samples Collected: 2 1/2 Gallon Bag (Approx 5 lbs.)		70387(1035) Dup: 70504(NT)	
Geologist: L Robbins	Checked By / Date: Jan [Signature] 5/25/12			

Radiological Background: 3419/65	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill	USCS Symbol	Feet bgs.	3611 Borehole Gamma Readings (CPM)
0.0			72		Silty sand: yellowish brown (10YR 5/6), 65% fine to coarse grained sand, 35% silt, trace subrounded sandstone + subangular siltstone gravels, dry, low dense, trace rootlets, some mica flakes, no odor or staining	SM / AF		3721
0.5			48					4160
1.0			54					4959
			84					5337
2.0			96		gradational contact			5222
			78		Silty sand: light olive brown (2.5Y 5/4), 75% fine to med. sand, 25% silt, trace subrounded sandstone + subangular siltstone gravels, dry, loose, trace rootlets, no odor or staining	SM		5504
3.0			90					5306
			60					5232
4.0			84					5398
			84					5249
5.0			78					5363
6.0					TD = 5.1' bgs, refusal on sandstone no BW encountered no anomalies			

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 271
Drilling Company: HGL	Driller: M. B. King / J. LeVine	Ground Elevation:	Total Depth Drilled: 2.5 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 5/24/12 11:07	Date/Time Total Depth Reached: 5/24/12 11:48	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70416(1150)	
Geologist: L. Robbins	Checked By / Date: [Signature] 5/25/12			

Radiological Background: 3611 / 74	Radiological Equipment Used: Mini R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.0			73		Silt sand w/ silt: 90% sand (fine to coarse grain), 10% silt, brown (10YR 5/3), dry, loose, trace rootlets, trace mica flakes, small wire, non plastic, trace subrounded sand stone gravel, trace root, bark + leaf litter	SP LA	3744 3560 3560 4250 3744
0.5			60			AP	
1.0			96				4832 4250
7.1			60		root ~ thick (5mm)		5172 4832
2.0			72		gradational contact. Silty sand: light olive brown (2.5Y 5/4), 75% fine to med sand, 25% silt, trace subrounded sand stone + siltstone gravel, dry, loose, trace rootlets, no odor or staining	SM SP (bedrock)	5107 5172
5.9			60				5172
3.0					bedrock: sandstone light yellowish brown (2.5Y 6/3), fine to coarse grained, dense, dry, no odor or staining, mechanically weathered to SP.		
4.0					TD = 2.5' bgs, refusal on sand stone no GW encountered no anomalies		
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 272	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel		Borehole Diameter: NA		Date/Time Drilling Started: 5/30/12 0853		Date/Time Total Depth Reached: 5/30/12 0900	
Type of Sampling Device: Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70382 (900)			
Geologist: LRobbins				Checked By / Date: MAMM Rin 5-31-12			
Radiological Background: 3361/70		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	60	pancake Sand w/ silt: brown (10 YR 5/3), 90% fine - coarse sand, 10% silt, nonplastic, no odor, or staining, dry, loose mica flakes, trace rootlets + twigs	SP ① SP	
1.0					TD=0.5' no GW encountered		
2.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 272	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.65 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 5/30/12 06:00	Date/Time Total Depth Reached: 5/31/12 0909		
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70383 (NO SAMPLE)			
Geologist: L Robbins				Checked By / Date: M. Birney 5-31-12			
Radiological Background: 3361 / 70		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			60		<p>pancake</p> <p>Sand w/ silt: brown (10YR5/3), 90% fine-grained sand, 10% silt, nonplastic, no odor or staining, dry, loose, mica flakes, trace rootlets + twigs</p> <p>TD = 9", no sample collected due to shallow refusal</p> <p>no GW encountered</p>	SP	
0.5			90				
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 273	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel		Borehole Diameter: NA		Date/Time Drilling Started: 5/30/12 0930		Date/Time Total Depth Reached: 5/30/12 0930	
Type of Sampling Device: Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70384 (0930)			
Geologist: L Robbins				Checked By/Date: M. Birney 5-31-12			
Radiological Background: 3211/60		Radiological Equipment Used: Micro R ₁ Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			00	60	Sand w/ silt: brown (10YR 5/3), 90% fine to coarse sand, 10% silt, non plastic, no odor or staining, dry, loose, mica flakes, trace rootlets + twigs, trace subrounded sandstone gravel, trace concrete	SP AF	
1.0			00	102			
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs
no GW encountered

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 273	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 1.75 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 5/30/12 0926		Date/Time Total Depth Reached: 5/30/12 0930 0956	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 7 0385 (0957)			
Geologist: L Robbins				Checked By / Date: M. Birney 5-31-12			
Radiological Background: 3211/60		Radiological Equipment Used: Micro / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			60		<p>← pancake</p> <p>Sand w/ silt: brown (10YR 5/3), 90% fine-coarse sand, 10% silt, non plastic, no odor or staining, dry, loose, mica flakes, trace rootlets + twigs, trace subrounded sandstone gravel, trace concrete</p> <p>AF = artificial fill</p>	AF	3407
0.5			102	4315			
1.0			5.3 112	5159			
1.5			5.8 102	5633			
2.0					<p>TD = 21"</p> <p>no GW encountered</p> <p>no anomalies</p>		
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 274
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel	Borehole Diameter: NA	Date/Time Drilling Started: 5/30/12 1030	Date/Time Total Depth Reached: 5/30/12 1035	
Type of Sampling Device: Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70417 (1035)	
Geologist: LRobbins	Checked By / Date: M/M/Robbins Bmi 5-31-12			

Radiological Background: 3213/77	Radiological Equipment Used: Mini R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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		<p>pancake</p> <p>silty sand: pale brown (10YR 6/3), 80% fine to coarse grained sand, 20% silt, dry, loose, trace subrounded sand stone gravel, trace rootlets + twigs, no odor or staining</p> <p>TD = 0.5' bgs no bgs encountered</p>	SM		
0.5		70						
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 274
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 3.8 ft bgs. or 46"	
Drilling Equipment: Hand Auger	Borehole Diameter: 3.0 inches	Date/Time Drilling Started: 5/30/12 10:00	Date/Time Total Depth Reached: 5/30/12 11:18	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70418 (1120)	
Geologist: L. Robbins	Checked By / Date: M. Birney 5-31-12			

Radiological Background: 3213 / 77	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			72		<p>pancake silty sand: pale brown (10YR 6/3), 80% fine to coarse grained sand, 20% silt, dry, loose, trace subrounded sandstone gravel, trace rootlets + twigs, no odor or staining</p>	SM	3780
0.5			70			4855	
1.0			50	128		5237	
1.5			4.5	102		5454	
2.0			0.8	108		5420	
2.5			3.3	96		5575	
3.0			1.2	96		5800	
3.5			7.0	90	5726		
4.0					<p>sandstone (mechanically weathered to SP) light gray (2.5Y 7/2), moist, med. dense, no odor or staining</p>	SP	NM
4.5					<p>TD = 46" or 3.8'</p> <p>no GW encountered</p> <p>no anomalies</p>		
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 275	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Shovel		Borehole Diameter: NA		Date/Time Drilling Started: 5/30/12 1420		Date/Time Total Depth Reached: 5/30/12 1427	
Type of Sampling Device: Shovel				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70419 (1430)			
Geologist: L Robbins				Checked By / Date: MTH/Birney 5-31-12			
Radiological Background: 3447/47		Radiological Equipment Used: Micro R+ Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			108		<p>Silty sand: light yellowish brown (2.5Y 6/3) 65% fine to coarse grained sand, 25% silt, 10% subrounded sandstone gravel dry, loose, nonplastic, no odor or staining, small charcoal bits</p> <p>TD=0.5' no GW encountered</p> <p>Ⓟ</p>	SM	
0.5		0.0	78				
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 275
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 1.55 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/30/12 1420	Date/Time Total Depth Reached: 1449	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70420 (1450)	
Geologist: Robbins	Checked By / Date: M. Birney 5-31-12			

Radiological Background: 3447/47	Radiological Equipment Used: Micro R7 Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 145 = 3385 (CPM)
0.0			108		Silty sand: light yellowish brown (2.5Y 6/3), 65% fine to coarse grained sand, 35% silt, 10% subrounded sandstone gravel, dry, loose, nonplastic, no odor or staining, small charcoal bits <hr/> TD = 19" no GW encountered no anomalies refusal on sandstone	SM	3624
0.5			78			4447	
1.0			54			5324	
1.2			96			5654	
2.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 276	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 4.0 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3.0 inches		Date/Time Drilling Started: 5/30/12 10:15		Date/Time Total Depth Reached: 5/30/12 1224	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70422 (1225)			
Geologist: L Robbins				Checked By / Date: MMAA Bin 5-31-12			
Radiological Background: 3666/54		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background: 0.0 ppm			

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable) AF=artificial fill	USCS Symbol	Borehole Gamma Readings 10.5=3356 (CPM)
0.0			72	pancake			
0.5			00	34	Silty sand: yellowish brown (10YR 5/4), 75% fine to coarse grained sand, 25% silt, dry, loose, trace subrounded sandstone gravel, trace rootlets + wooden twigs, concrete piece	SM AF	3104 4611
1.0			29	54	--- gradational contact --- Sand w/ silt: light olive brown (2.5Y 5/4), 90% fine - coarse sand, 10% silt, moist, loose	SP	5107
			4.2	72	mica flakes, trace rootlets, mouse poop, no odor, no staining		5350
2.0			16	60	--- trace subrounded + subangular sandstone gravel		5620
			5.7	90	--- tree roots present		5500
3.0			1.3	90			5578
			6.0	72			5606
4.0			2.0	72	TD=4:0' bgs, refusal on sandstone no GW encountered no anomalies	Bedrock	5605
5.0							
6.0							

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 277
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: 5/14/12 114	Date/Time Total Depth Reached: 5/14/12 1124	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.)		70389 - 1200	
Geologist: Ian Stone	Checked By / Date: J. Robbins 5/15/12			

Radiological Background: 3242 / 40	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5' = 3436 (CPM) 3369
0.0			0.0	54	Silty Sand, Yellowish brown (5/6 10YR) 70% fine sand, 10% medium sand, 20% silt, trace gravel (sandstone, max size = 0.75"), moist, med dense, no odor or staining	SM	5206
0.5			0.0	66			3974
1.0			0.0	54			5115
			0.0	60			5223
			0.0	60			5440
2.0			0.0	66			5492
			0.0	72	(6-2.5) Sandstone cobble; light yellowish brown (6/4 10YR) very dense, moist, no odor or staining, fine-medium grained sand, mechanically weathered Li SP	SP	5737
3.0			0.0	54	(2.5-3.0) Silty Sand, Dark yellowish brown (4/6 10YR) 60% fine sand, 10% medium sand, 30% silt, trace gravel (sandstone, max size = 1"), moist, med dense, no odor or staining	SM	5807
			0.0	60	5693		
			0.0	60	5755		
			0.0	66	5748		
5.0			0.0	60	5705		
			0.0	66	5613		
6.0			0.0	54			5803

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 278
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: 5/14/12 1426	Date/Time Total Depth Reached: 5/14/12 1435	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 5 lbs.) 70407-1520		Checked By / Date: Robbins 5/14/12	
Geologist: Ian Stone				

Radiological Background: 2869 / 29	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5' = 2938 (CPM)
0.0			0.0	72	Silly Sand, Yellowish Brown (5/6 10YR)	AF/Sm		4318
0.5			0.0	78	60% fine sand, 10% medium sand, 30% silt, trace gravel, trace debris (duct tape, ties, asphalt, concrete), dry, and dense, no odor or staining (artificial fill)			5267
1.0			0.0	60	Sand, Yellowish brown (5/8 10YR), 5% fine sand, 60% medium sand, 30% coarse sand, 5% silt, moist, loose, no odor or staining (artificial fill)	AF/Sp	1	5661
2.0			0.0	78	Silly Sand, Yellowish Brown (5/4 10YR)	AF/Sm		5477
2.0			0.0	60	60% fine sand, 5% medium sand, 35% silt, trace gravel (sandstone, max size = 1.5"), moist, dense, no odor or staining		2	5543
3.0			0.0	54				5446
3.0			0.0	54			3	5594
4.0			0.0	60				5359
4.0			0.0	78			4	5519
5.0			0.0	66				5791
5.0			0.0	72			5	5705
6.0			0.0	66				5824
6.0			0.0	54			6	5683



7_279



SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 279
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Hand Auger Shovel	Borehole Diameter: 8 inches	Date/Time Drilling Started: 5/23/12 1400	Date/Time Total Depth Reached: 5/23/12 1407	
Type of Sampling Device: Hand Auger Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70390 (1419)	
Geologist: L Robbins	Checked By / Date: M. Birney 5-29-12			

Radiological Background: 3205/49	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)	
							Feet bgs.	
0.0			60		Sand w/ silt: brown (10YR 5/3), 85% fine to coarse sand, 15% silt, dry, loose, nonplastic, no odor, no staining, trace rootlets, leaf litter/twigs, concrete debris, trace charcoal + mica flakes, trace sandstone + siltstone gravel (subangular) gr.	SM AF		
0.5			96					
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD=0.5'
no refusal
no GW encountered



Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 280	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 2.25 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3 inches		Date/Time Drilling Started: 5/23/12 1054		Date/Time Total Depth Reached: 5/23/12 1148	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) DUP: 70501 (NT) 70403 (1150)			
Geologist: L Robbins				Checked By / Date: MMA Rm 5-29-12			
Radiological Background: 3363/51		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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			48		Silty sand: brown (10YR 5/3), 75% fine to med. sand, 25% silt, trace subangular siltstone gravel, trace subrounded sandstone gravel, dry, loose, nonplastic, trace rootlets, opagues + mica flakes, asphalt piece (~30mm), no odor or staining	SM	3415
0.5			108			AF	4109
1.0			72				4926
2.0			84				5187
2.0			94	2.0'	Silty sand; light olive brown (2.5Y 5/4), 80% fine to coarse sand, 20% silt, trace sub ⁽¹²⁾ rootlets moist, low dense, nonplastic, mica flakes	SM	5338
3.0					TD=2.25' bgs no GW encountered refusal on sandstone		
4.0							
5.0							
6.0							



7_281



SSFL BORING LOG

Sheet 1 of 1

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 281
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.	
Drilling Equipment: Hand Auger Shovel	Borehole Diameter: 3 inches n/a	Date/Time Drilling Started: 5/23/12 0948	Date/Time Total Depth Reached: 5/23/12 0955	
Type of Sampling Device: Hand Auger Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70404 (0955)	
Geologist: L. Robbins	Checked By / Date: MMA Prin 5-29-12			

Radiological Background: 3415/53	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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	Borehole Gamma Readings (CPM)
0.0			66		AF-artificial fill		
0.5			00	20	Silty sand: light olive brown (2.5Y 5/4), 65% fine to med. sand, 25% silt, 10% subangular siltstone + subrounded sandstone gravel, dry, loose, no color or staining, trace rootlets, trace mica flakes, trace asphalt + granitic gravel. small opaques	SM AF	
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs
no GW encountered

SSFL BORING LOG

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Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 281	
Drilling Company: HGL		Driller: M. Birney		Ground Elevation: NA		Total Depth Drilled: 3.25' ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3 inches		Date/Time Drilling Started: 5/23/12 0948		Date/Time Total Depth Reached: 5/23/12 (1033)	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70405(1035)	
Geologist: L Robbins				Checked By / Date: Matthew Bin 5-24-12			
Radiological Background: 3415/53		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. Gamma Readings (CPM)
			0.0	66	(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) AF = artificial fill Silty sand: light olive brown (2.5Y 5/4), 65% fine to med sand, 25% silt, 10% subangular siltstone + subrounded sandstone gravel. dry, loose, no odor or staining, trace rootlets, trace mica flakes, trace asphalt + granitic gravel, small opagues, small glass debris (~1/2 x 1/2")	SM AF	10.5 = 3152 Borehole Gamma Readings (CPM)
0.5			0.0	720		3397	
1.0			0.0	60		4772 (B) 4026	
			0.0	66		5098 (B) 4772	
2.0			0.0	72		5169 (B) 5098	
			0.0	78		5450 (B) 5169 3450	
3.0			0.0	72	5569		
4.0					bedrock		
5.0							
6.0							

TD = 3'3"
 refusal on sandstone (none in bucket)
 no GW encountered

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 282
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: 5/15/12 1358	Date/Time Total Depth Reached: 5/15/12 1410	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.)		70479 - 1445	
Geologist: Ian Stone	Checked By / Date: J. Robbins 5/16/12			

Radiological Background: 3215 / 37	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings +0.5' = 3274 (CPM)	
0.0			0.0	60	Silty Sand, Dark yellowish brown (4/6 10 _{ye}) 70% fine sand, 5% medium sand, 25% silt, trace gravel, trace rootlets, moist, med dense, no odor or staining	AF /Sm		3770	
0.5			0.0	78					4969
1.0			0.0	60					5471
			0.0	72					5547
2.0			0.0	66	(0-2.1') (artificial fill)			5554	
			0.0	60	Silty Sand, Dark yellowish brown (4/4 10 _{ye}) 60% fine sand, 10% medium sand, 30% silt, trace gravel, moist, dense, no odor or staining	AF /Sm		5551	
3.0			0.0	48					5356
			0.0	60					5367
4.0			0.0	66				5616	
			0.0	66				5816	
5.0			0.0	48				5707	
			0.0	72				5674	
6.0			0.0	54				5714	

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 283
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: 5/15/12 1513	Date/Time Total Depth Reached: 5/15/12 1522	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 1 lb.)		70480-1555	
Geologist: Ian Stone	Checked By / Date: J Robbins 5/16/12			

Radiological Background: 3071 / 36	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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' = 3172 (CPM)	
0.0			0.0	72	Silty Sand, Dark Yellowish brown (4/6 10YR) 70% fine sand, 5% medium sand, 25% silt, trace gravel, trace rootlets, moist, med. dense, no odor or staining	AF/ Sm		4299	
0.5			0.0	78					5246
1.0			0.0	60				1	5288
			0.0	72					5397
2.0			0.0	54	(0-2.0') Artificial fill		2	5244	
			0.0	60	Silty Sand, Dark yellowish Brown (4/4 10YR) 60% fine sand, 10% medium sand, 30% silt, trace gravel, moist, dense, no odor or staining	AF/ Sm		5415	
3.0			0.0	66				3	5574
			0.0	66					5784
4.0			0.0	84	(2.0-5.0') Artificial fill	AF/ Sm	4	6019	
			0.0	78					5868
5.0			0.0	72				5	5989
			0.0	66	Silty Sand, Yellowish brown (5/6 10YR) 75% fine sand, 5% medium sand, 20% silt, trace gravel, trace tree bark, med dense, no odor or staining	AF/ Sm		5976	
6.0			0.0	60			(Artificial fill)	6	6030

Project Name:		Project Number:	Subarea:	Group:	Location ID:			
SSFL Area IV Radiological Study		EP038.01.22.04.03	7	1	283			
Radiological Background:		Radiological Equipment Used:		PID Used:				
3071 / 36		Micro-R / Downhole / Pancake Meters		Mini Rae 3000 - Background: 0.0 ppm				
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			0.0	60	Silty Sand, same as above	AF/Sm	6	6030
			0.0	78			5974	
7.0			0.0	84			7	5959
			0.0	72			5970	
8.0			0.0	84			8	5846
			0.0	72			5757	
9.0			0.0	66			9	5598
			0.0	60			5922	
10.0			0.0	66			10	5787
11.0					11			
12.0					12			
13.0					13			

TD = 10.0 ft bgs
 no gw encountered
 no refusal
 no anomalies detected

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 284
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: 5/15/12 0907	Date/Time Total Depth Reached: 5/15/12 0919	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 3 lbs.)		70482-0955	
Geologist: Ian Stone	Checked By / Date: J Robbins 5/16/12			

Radiological Background: 381 / 32	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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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' = 3304 (CPM)	
0.0			60		Silty Sand, light yellowish brown (6/4 10YR) 80% fine sand, 20% silt, trace gravel (granitic, max size = 0.75"), med dense, moist, no odor or staining, trace rootlets	AF/SM		4021	
0.5			66						4772
1.0			72						5291
			66						5354
					(0-1.75') - - - - - (artificial fill)				
2.0			54		Silty Sand, Brown (4/3 10YR) 70% fine sand, 30% silt, trace gravel, moist, med dense, no odor or staining	AF/SM		5334	
			78						5574
3.0			54						5751
			48						5672
4.0			42		(4.75'-4.6') - - - - - (artificial fill)	AF/SM		5819	
			42						5822
5.0			66				Silty Sand, Yellowish Brown (5/6 10YR) 60% fine sand, 20% medium sand, 20% silt, moist, med dense, no odor or staining, trace gravel		5875
			66						
6.0			60		Artificial fill (S)			6023	

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 285
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 2.5 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/15/12 1035	Date/Time Total Depth Reached: 5/15/12 1043	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx. 6 lbs.) 10 70483 - 1100		Checked By / Date: J Robbins 5/16/12	
Geologist: Ian Stone				

Radiological Background: 2862 / 33	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings 10.5" = 2676 (CPM)
0.0			0.0	54	Asphalt (0-0.25')		3931
0.5			0.0	60	Silty Sand, Yellowish Brown (5/6 1042) 80% fine sand, 20% silt, moist, med dense, trace gravel, trace concrete, no odor or staining	AF / SM	5303
1.0			0.0	96			5523
			0.0	84			5445
2.0			0.0	78	(0.25-2.2') (artificial fill) Sand (weathered sandstone), Brownish Yellow (6/8 1042)		5344
			0.0	78	(2.2-2.5') 70% fine sand, 25% medium sand, 5% silt, very dense, moist, no odor or staining	SP	5204
3.0					TD = 2.5 ft bgs no gw encountered refusal on sandstone no anomalies detected		
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 286
Drilling Company: HGL	Driller: T. Morse	Ground Elevation: NA	Total Depth Drilled: 0.8 ft bgs.	
Drilling Equipment: Shovel/Trowel	Borehole Diameter: NA	Date/Time Drilling Started: 5/15/12 1123	Date/Time Total Depth Reached: 5/15/12 1134	
Type of Sampling Device: Shovel/Trowel	Samples Collected: 1 @ 70484 - 1135 (1) 1/2 Gallon Bag (Approx 2 lbs.)			
Geologist: Ian Stone	Checked By / Date: J. Redding 5/16/12			

Radiological Background: 2700 / 39	Radiological Equipment Used: Micro-R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0 - 0.3			90		Asphalt (0-0.3')		
0.3 - 0.8			66		Silty Sand, Yellowish Brown (5/6 1042). 80% fine sand, 20% silt, trace gravel, moist, med dense, no odor or staining (artificial fill)	AF/ SM	
0.8 - 6.0					TD = 0.8 ft bgs no gw encountered		

SSFL BORING LOG



Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 287
Drilling Company: Boart Longyear	Driller: D. Hansen	Ground Elevation: NA	Total Depth Drilled: 1.5 ft bgs.	
Drilling Equipment: Geoprobe 6600	Borehole Diameter: 1.75"	Date/Time Drilling Started: 5/14/12 0957	Date/Time Total Depth Reached: 5/14/12 1001	
Type of Sampling Device: 1.75" macrocore with acetate liner	Samples Collected: (1) 1/2 Gallon Bag (Approx 7 lbs.)		70486-1020	
Geologist: Ian Stone	Checked By / Date: Robbins 5/15/12			

Radiological Background: 3394 / 49	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.3 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings ±0.5' = 3436 (CPM)
0.0			0.0	60	S. lty Sand, yellowish brown (5/6 10YR)	SM	5206
0.5			0.0	72	(0.0-0.5) trace rustlets, dry, loose, no odor or staining	-	6252
1.0			0.0	96	Sand (weathered sandstone), Brownish yellow (6/6 10YR)	SP	6607
2.0			0.0	90	(0.5-1.5)		6616
3.0					TD = 1.5 ft bgs		
4.0					no gw encountered		
5.0					refused on sandstone		
6.0					No anomalies		

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.03		Subarea: 7	Group: 1	Location ID: 289	
Drilling Company: HGL		Driller: M. Barney		Ground Elevation: NA		Total Depth Drilled: 2.0 ft bgs.	
Drilling Equipment: Hand Auger		Borehole Diameter: 3 inches		Date/Time Drilling Started: 5/24/12 1501		Date/Time Total Depth Reached: 5/24/12 1527	
Type of Sampling Device: Hand Auger				Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.)		70488(1530)	
Geologist: L Robbins				Checked By / Date: M. Barney 5-23-12			
Radiological Background: 297/65		Radiological Equipment Used: Minn P Downhole / Pancake Meters		PID Used: Mini Rae 3000 - Background:		0.0 ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 10.5 = 3017 (CPM)	
			0.0	48	Surface: twigs, weed litter, soil			
0.5			0.0	78	Silty sand: 80% fine to coarse grained sand, 20% silt, trace sandstone gravel (subrounded), dry, loose, no odor or staining, rootlets, trace charcoal pieces (5mm), mica flakes (brown 10YR 4/3)	SM	3092	
1.0			0.0	102			3816	
1.5			0.0	60			4566	
2.0			0.0	48			Sand weathered bedrock (mechanically weathered) pale brown (2.5Y 7/3), dense, dry, no odor or staining	5059
2.0							refusal @ 2.0' on sandstone no GW encountered no anomalies	SP (bedrock) 5181
3.0								
4.0								
5.0								
6.0								

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 290
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 4.5 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/22/12 0940	Date/Time Total Depth Reached: 5/22/12 1058	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 1 lbs.) 70489(1100)			
Geologist: L Robbins	Checked By / Date: M. Birney			

Radiological Background: 3069/54	Radiological Equipment Used: MSR / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs.
0.0			78	pancake			10.5-3303 (CPM)
0.5			128		silty sand: brown (10YR 4/3), 65% fine to med sand, 35% silt, trace subrounded gravel (sand-stone), non plastic, med dense, no odor or staining	SM	3203
1.0			60		trace rootlets, mica flakes, trace clay pockets, trace granitic gravel, dry	AF	4246
2.0			60				4621
2.0			60				5151
2.0			72		clay pocket size increase to 30mm max, remain in trace amounts		5197
3.0			96				5340
3.0			102		silty sand: yellowish brown (10YR 5/4), 75% fine to medium grained sand, 25% silt, decrease in subrounded sandstone gravel, no clay pockets, low plasticity, low dense, dry, trace mica flakes	SM	5356
4.0			90				5327
4.0			96				5326
4.0			96				5445
5.0			72		sand weathered bedrock: light yellowish brown (2.5Y 6/4), coarse grained bedrock, dense, mica flakes, dry, mechanically weathered to SP	SP (Bedrock)	5445
6.0					refusal @ 4.5' in sandstone no GW encountered no anomalies		

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 291
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 40 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/22/21 1350	Date/Time Total Depth Reached: 5/22/21 1438	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 1 lbs.)		70490 (1440)	
Geologist: L Robbins	Checked By / Date: M. Birney 5-23-12			

Radiological Background: 3203 / 49	Radiological Equipment Used: Mudrot / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 40.5 = 2928 (CPM)
0.0			0.0	84	Silty sand: dark yellowish brown (10YR 4/4), 60% fine to med sand, 40% silt, trace clay nodules, trace sandstone subrounded gravel, dry, loose, no odor or staining, trace concrete + granitic gravel, rootlets, leaves + wooden twigs in trace amounts	SM	3214
0.5			0.0	60		AF	4036
1.0			0.0	96		1	4819
			0.1	72			5064
2.0			0.0	102		2	5134
			0.0	72			5179
3.0			0.0	108	gradational contact Silty sand: olive brown (2.5Y 4/4), 75% fine to coarse grained sand, 25% silt, trace subangular siltstone + subrounded sandstone gravel, trace concrete + rootlets, dry, no odor or staining loose	SM	5161
4.0			0.0	66		AF	5228
						SP	
5.0					sand: (mechanically weathered bedrock): pale brown (2.5Y 7/3), dense, dry, no odor or staining refusal @ 4.0' on sandstone no GW encountered no anomalies		
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 292
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 3.0 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/22/12 1155	Date/Time Total Depth Reached: 5/22/12 1150	
Type of Sampling Device: Hand Auger		Samples Collected: One 1/2 Gallon Bag (Approx 1/2 lbs.)	70491 (1152)	
Geologist: L Robbins		Checked By / Date:	M. Birney 5/23/12	

Radiological Background: 2948/52	Radiological Equipment Used: Micro R+ Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs.)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			60		<p><i>pancake</i></p> <p>Silty sand: brown (10YR 4/3), 65% fine to med. sand, 35% silt, trace subrounded sandstone gravel, trace asphalt, trace opaques + mica flakes, dry loose, no odor or staining, low plasticity</p>	SM	3117
0.5			60			AF	3626
1.0			84				4481
			84				4814
2.0			78				5156
			90				5024
3.0			84		<p>Sandstone bedrock: pale brown (2.5Y 7/3), dry, dense, no odor or staining, mechanically weathered to SP</p> <p>Refusal @ 4.5' on sandstone 3.0' no GW encountered</p>	SP	5297
4.0						Bedrock	
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: AP240	Group: 1	Location ID: 293
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 4.0 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/22/12 0855	Date/Time Total Depth Reached: 5/22/12 0930	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx. 1 lbs.)		70429 70492 (0935)	
Geologist: LR Robbins	Checked By / Date: M. Birney 5-23-12			
Radiological Background: 3304 / 48	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.3 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	Borehole Gamma Readings (CPM)
0.4			66	pancake	Silty sand: yellowish brown (10 YR 5/4), 70% fine sand, 30% silt, dry, loose, trace sandstone	SM	3467
0.5			00	78	Subrounded gravel, non plastic, med. dense, no odor or staining, trace rootlets, mica flakes, trace bark + wood chips, trace granitic gravel (<10mm) + trace clay pockets	AF	4085
1.0			00	60			4707
0.0			54				5052
2.0			00	72			4915
0.1			66		gradational contact		5235
3.0			00	84	Silty sand: Same as above except 70% fine to coarse grained sand, 30% silt.	SM	5156
			00	60	large tree root ~5mm dia diameter		5173
4.0			00	72	sandstone bedrock: olive yellow (2.5 Y 7/4), dry mechanically weathered to SP, no odor or staining	SP (bedrock)	5251
TD: 4.0' bgs, refusal on sandstone NO GW encountered							
5.0							
6.0							

SSFL BORING LOG

7_294

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: ①2 NBZ 7	Group: 1	Location ID: 294
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 10 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 2.75 inches	Date/Time Drilling Started: 5/21/12 0920	Date/Time Total Depth Reached: 5/21/12 1055	
Type of Sampling Device: Handauger	Geologist: L Robbins	Samples Collected: One 1/2 Gallon Bag (Approx 1/2 lbs.)	70493(1055)	
Radiological Background: 2898/55		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	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
					Surface: twigs, leaves, soil			10.5-2996
0.5			0.7	72	Silty sand w/ gravel: brown (10YR 4/3), 65% fine to med grained sand, 20% silt, 15% subangular granitic gravel, dry, loose, no odor or staining, low plasticity, mica flakes, trace opaques, trace rootlets + twigs	AF/SM		3268
			1.2	66				4245
1.0			0.4	96				4821
			0.1	78				5102
2.0			0.2	66	18' subrounded granitic gravel			5023
			0.1	78	2' 4"			5059
3.0			0.1	88	Silty sand w/ clay: dark yellowish brown (10YR 3/3), 60% fine to coarse grained sand, 15% clay, 20% silt, 5% subrounded granitic gravel, moist, low dense, no odor or staining, low plasticity, quartz grains, trace mica flakes, rootlets, trace iron-oxide mottling	AF/SM		5012
			0.7	120				5019
4.0			1.1	84				5096
			0.7	84	4' 6" slight increase in sand content 70% sand, 10% silt, 15% clay, 5% gravel, same color as above			5075
5.0			0.3	60				5023
			1.8	72	5' 5" clayey silt w/ sand: dark yellowish brown (10YR 3/4) 30% clay, 60% silt, 10% fine to med. sand, low plasticity, no odor or staining, mica flakes, trace opaques, hardened clay pockets (trace)	AF/ML		5195
6.0			1.4	72				5259

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 296
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 10.0 ft bgs.	
Drilling Equipment: Hand Auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/21/12 1402	Date/Time Total Depth Reached: 5/21/12 1525	
Type of Sampling Device: Hand Auger	Samples Collected: One 1/2 Gallon Bag (Approx 1/2 lbs.)		70495 (1525)	
Geologist: L Robbins	Checked By/Date: P... 5-22-12			

Radiological Background: 2821 / GA	Radiological Equipment Used: Mini R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5 = 2823 (CPM)
					pancake surface = leaf litter + wooden twigs		
0.0			72		sandy silt (10YR 4/4) dark yellowish brown, 75% silt, 25% fine to med sand, trace granitic gravel + asphalt (25mm), loose, dry, low plasticity, soft, rootlets, no odor or staining, plastic debris	ML / AF	3007
0.5			54				3992
1.0			90				4901
			72				5087
2.0			72				5004
			48		silty sand: dark yellowish brown (4/4 10YR), 75% fine to medium sand, 25% silt, moist, loose, low plasticity, rootlets, trace iron oxide mottling, no odor or staining, trace subangular	SM / AF	5106
3.0			54		siltstone gravel	CL / AF	4976
			78		silty clay w/sand: 60% clay, 25% silt, 15% fine to med. sand, (10YR 3/4) dark yellowish brown, soft, no odor or staining, root @ 4.0, moist		5027
4.0			78		- granitic gravel ~ 2mm		5027
			72		- root		5100
5.0			60		clayey silt w/ sand: dark yellowish brown (10YR 3/4), 30% clay, 60% silt, 10% fine to med. sand, low plasticity, no odor or staining, mica flakes, trace opalines, hardened clay pockets (trace), trace granitic gravel, small roots present, soft, moist	ML / AF	5187
6.0			78				5144
			66				5202

Project Name:		Project Number:	Subarea:	Group:	Location ID:			
SSFL Area IV Radiological Study		EP038.01.22.04.03	7	1	296			
Radiological Background:		Radiological Equipment Used:		PID Used:				
2821/64		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, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
6.0			00	66	<p><i>pancake</i></p> <p>silty clay: dark yellowish brown (10YR 3/4), 65% clay, 25% silt, 10% fine sand, very stiff, dry. no odor or staining. med. plasticity, trace mica flakes, iron oxide nodules, silica grains, trace CaCO₃ nodules, rootlets/roots present</p> <p>asphalt piece ~ 10mm</p>	<p>CL</p> <p>AF</p>	6	5202
			1.5	48			7	5104
7.0			1.6	47				5109
			0.2	54				5119
8.0			0.0	60				4979
			0.9	60				4897
9.0			0.2	78				5083
			00	54				5019
10.0			00	90				
							TD=10.0' bgs, no refusal no GW encountered no anomalies	
11.0								
12.0								
13.0								



Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 297
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.8 ft bgs.	
Drilling Equipment: Trowel/Shovel	Borehole Diameter: N/A	Date/Time Drilling Started: 6/7/12 1336	Date/Time Total Depth Reached: 6/7/12 1343	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 5 lbs.) 70496 (1345)			
Geologist: L Robbins	Checked By / Date: MM/AA Birney 6-11-12			

Radiological Background: 316/61	Radiological Equipment Used: Micro R+ Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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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)
0.4			72	LP	2" asphalt AF = Artificial Fill			
0.5			0.0	72	Silty sand: yellowish brown (10YR 5/4), 75% fine to medium sand, 15% silt, trace subrounded gravel (sandstone) + granitic gravel (subangular), trace rootlets + mica flakes, abundant asphalt	SM / AF		
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD 0.8' bgs
no GW encountered

Project Name: SSFL Area IV Radiological Study	Project Number: EP038.01.22.04.03	Subarea: 7	Group: 1	Location ID: 297
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 2.0 ft bgs.	
Drilling Equipment: Trowel/Shovel - hand auger	Borehole Diameter: 3.0' dia.	Date/Time Drilling Started: 6/7/12 1336	Date/Time Total Depth Reached: 6/7/12 1419	
Type of Sampling Device: Trowel/Shovel	Samples Collected: One 1/2 Gallon Bag (Approx 1 lbs.)		Field Dup: 70497 (1420) / 70506 (NT)	
Geologist: L Robbins	Checked By / Date: M. Birney 6-11-12			

Radiological Background: 3116/61	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background:	0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. ±0.5 = 3341 (CPM)
0.4			72	(LP)	211 asphalt		3430
0.5			0.0	72	silty sand: yellowish brown (MCR 5/4), 75% fine to medium sand, 15% silt, trace subrounded gravel (sandstone) + granitic gravel (sub-angular), trace asphalt, rootlets, mica flakes, abundant asphalt	SM / AF	4077
1.0			1.8	84			5066
			1.9	66			5173 5269 (LP)
2.0			1.5	72	refusal on a dense material, possibly concrete / bedrock		5269
3.0							
4.0							
5.0							
6.0							

TD = 2.0'
no bot encountered