BOREHOLE LOG

Field Support Facility

SWMU 16-004(b)
Stake ID: PS33

Borehole ID: 16-608684 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 1 of 2
Driller: Dave Stamps - Precision Box: NA Start Date/Time: 2/8/10, 1140 End Date/Time 2/8/10, 1500
Print Name
Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5 ft long; 3 3/4" ID continuous sample core barrels.

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/%)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0' – 5'	48/60	NA	0.0 0.0	NA	Snow cover ~ 1 ft, 0-3 ft bgs Qbt 4 tuff, light pinkish gray, fine ash matrix, moderate welding, friable, dry, abundant pine roots 3-5 ft, hand drilling.		Qbt 4	Pothole to 3 ft @ 1100-1135
5' – 10'	56/60	NA	0.0 0.0	NA	5-10 ft SAA. Organic material and calcium carbonate observed at 7 ft, abundant qtz phenocrysts ≤ 3 mm, few lithics 9-10 ft.			
10' – 15'	60/60	NA	0.0 0.0	NA	10-15 ft Qbt 4 tuff, fine ash matrix, pinkish gray with Fe staining throughout, very friable + soft, abundant lithic fragments + dacite, few qtz phenocrysts.			
15' – 20'	58/60	NA	0.0 0.0	NA	15-20 ft SAA with large clay-filled pumice frags up to 2" dia.			

Prepared By: Amy K Howard / Amy K Howard 2/8/10
Print Name/Signature Date

Checked By: Elizabeth Birkas / Elizabeth Birkas 7/6/10
Print Name/Signature Date

SOP-12.01

Los Alamos Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(b)
Stake ID: PS33

Borehole ID: 16-608684 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 2 of 2

Driller: Dave Staines - Precision Box: NA Start Date/Time: ~~AKA~~ 2/8/10, ~~1500~~ 1140 End Date/Time 2/8/10, 1500

Print Name

Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5 ft long; 3 3/4" ID continuous sample core barrels

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/%)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
20' - 25'	60 / 60	RE16-10-1214 + FD	0.0 / 0.0	NA	20-25ft Qbt 4 tuff, pinkish gray w/ red Fe staining, fine ash matrix, large 2" dia clay-filled pumice, abundant qtz + lithics, friable.		Qbt 4	
25' - 30'	60 / 60	RE16-10-1215	0.0 / 0.0	NA	25-30ft SAA			
					TD @ 30 ft bgs			

Prepared By: Amy K Howard / Amy K Howard 2/8/10
Print Name/Signature Date

Checked By: Elizabeth Birkos / Elizabeth Birkos 7/6/10
Print Name/Signature Date

SOP-12.01

Los Alamos
Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(b)
Stake ID: PS34

Borehole ID: 16-608685 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 1 of 2

Driller: Dave Stamos - Parkson Box: NA Start Date/Time: 2/9/10, 1005 End Date/Time: 2/9/10, 1145

Print Name

Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5 ft long; 3 3/4" ID Continuous sampled core barrels

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/%)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
					Snow cover ~ 6"			
0' ~ 5'	50/60	NA	0.0 / 0.0	NA	0-5 ft. Qbt 4 tuff, pinkish gray, fine ash matrix, mod. welded 1/2-1" dia clay filled pumice, ~3% qtz phenocrysts, hard, dry, rootlets		Qbt 4	
5' ~ 10'	50/60	NA	0.0 / 0.0	NA	5-10 ft SAA Dacite @ 7-10 ft, abundant lithic fragments throughout, Fe staining and increase in qtz phenocrysts		Qbt 4	
10' ~ 15'	60/60	NA	0.0 / 0.0	NA	10-15 ft Qbt 4 tuff, pinkish gray w/ ~ 10% Fe staining throughout. fine ash matrix, abundant lithic frags & dacite, abundant qtz phenocrysts and clay-filled pumice 1/2" to 2" dia. mod. welded, K feldspar from 14-15 ft.		Qbt 4	
15' ~ 20'	60/60	NA	0.0 / 0.0	NA	15-20 ft SAA, K feldspar frags through out.			

Prepared By: Amy Howard / Amy K Howard 2/9/10
Print Name/Signature Date

Checked By: Elizabeth Bickos / Elizabeth Bickos 7/6/10
Print Name/Signature Date

SOP-12.01

Los Alamos
Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(b)
Stake ID: PS34

Borehole ID: 16-1008685 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 2 of 2

Driller: Dave Stamos - Jacksin Box: NA Start Date/Time: 2/9/10, 1005 End Date/Time ~~1130~~ 2/9/10, 1145

Print Name

Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5 ft long; 3 3/4" ID continuous sample core barrels

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/%)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
20' - 25'	60/60	RE16-10-1216 + FD RE16-10-1237	0.0 0.0	NA	Qbt 4 tuff, light pinkish gray, ~5% quartz phenocrysts + clay filled pumice, ~10% black lithic fragments, mod. welding, soft, dry. Clay filled horizontal fracture at 20.5 ft.		Qbt 4	1110 collected RE16-10-1216 + FD RE16-10-1237
25' - 30'	60/60	RE16-10-1217	0.0 0.0	NA	25-30 ft SAA			1130 collected RE16-10-1217
					TD @ 30 ft			

Prepared By: Amy K Howard / Amy K Howard 2/9/10
Print Name/Signature Date

Checked By: Elizabeth Birkas / Elizabeth Birkas 7/6/10
Print Name/Signature Date

SOP-12.01

Los Alamos
Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(b)
Stake ID: PS36

Borehole ID: 16-608687 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 1 of 2

Driller: Dave Staines - Precision Box: NA Start Date/Time: 2/11/10, 1010 End Date/Time 2/11/10, 1180

Print Name

Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5 ft long; 3 3/4" ID continuous sample core barrels

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/ %)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0' - 5'	24/60	NA	0.0 NA	NA	0-1.5 ft Asphalt pavement. 1.5-2 ft Qbt 4 tuff, reddish brown abundant qtz phenocrysts, fine ash matrix, moderately welded, hard 2-5 ft No Recovery.		Asphalt Qbt 4 NR	Pothole with hand auger from 0-2.0 ft @ +0945
5' - 10'	60/60	NA	0.0 0.0	NA	5-10 ft, reddish brown Qbt 4, mod. welded, fine ash matrix, ~ ~~15-20%~~ 10% quartz phenocrysts, few 1/2" pumice fragments, hard		Qbt 4	
10' - 15'	60/60	NA	0.0 0.0	NA	10-15 ft SAA Horizontal fracture zone at 13-13.5 ft.			
15' - 20'	60/60	NA	0.0 0.0	NA	15-20 ft Qbt 4 tuff, fine ash matrix, SAA with 1/2" to 1" dia. dacite fragments and < 1/4" lithic fragments.			

Prepared By: Amy Howard / Amy K Howard 2/11/10
Print Name/Signature Date

Checked By: Elizabeth Birkos / Elizabeth Birkos 7/6/10
Print Name/Signature Date

SOP-12.01

Los Alamos
Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(6)
Stake ID: PS36

Borehole ID: 16-608687 TA/FU: 16 / Drill Depth From: 0ft To 30ft Page 2 of 2

Driller: Dave Staines - Precision Box: NA Start Date/Time: 2/11/10, 1010 End Date/Time 2/11/10, 1130

Print Name

Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5ft long; 3 3/4" ID continuous sample core barrels

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/ %)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
20' - 25'	58 / 60	RE16-10-1220 + FD RE16-10-1317	0.0 0.0	NA	20-25ft Qbt 4 tuff, light pinkish gray, mod. welding, fine ash matrix, abundant large 1"-2.5" dia clay filled pumice, approx. 5% large qtz phenocrysts.			
25' - 30'	58 / 60	RE16-10-1224	0.0 0.0	NA	25-30ft SAA clay-filled fractures at 28.5-29.0 ft.			
					TD @ 30ft			

Prepared By: Amy Howard / Amy K Howard 2/11/10
Print Name/Signature Date

Checked By: Elizabeth Birkos / Elizabeth Birkos 7/6/10
Print Name/Signature Date

SOP-12.01

Los Alamos
Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(b)

Stake ID: PS37

Borehole ID: 16-608686 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 1 of 2

Driller: Dave Stamos - Jacksin Box: NA Start Date/Time: 2/9/10, 1400 End Date/Time 2/9/10, 1545

Print Name

Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5 ft long; 3 3/4" ID Continuous sampler core barrels.

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/%)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0' – 5'	24/60	NA	0.0 0.0	NA	0-3 ft Qbt 4 tuff intermixed with large cobbles, dry, loose. 3-5 ft Qbt 4 tuff, light pinkish gray, fine ash matrix, moderate welding, hard, dry.		Qbt 4	Pothole to 3 ft
5' – 10'	36/60	NA	0.0 0.0	NA	5-10 ft SAA with abundant black lithic fragments and ~5% qtz phenocrysts, dry, friable.			
10' – 15'	48/60	NA	0.0 0.0	NA	10-15 ft Qbt 4 tuff, pinkish gray with Fe staining, lg pumice > 2" dia., clay-filled, abundant qtz phenocrysts < 3mm, abundant lithic fragments & dacite chunks up to 3" dia, mod. welded, dry, friable.			
15' – 20'	60/60	NA	0.0 0.0	NA	15-20 ft SAA			

Prepared By: Amy Howard / Amy K Howard 2/9/10
Print Name/Signature Date

Checked By: Elizabeth Birkos / Elizabeth Birkos 7/6/10
Print Name/Signature Date

SOP-12.01

Los Alamos Environmental Restoration Project

BOREHOLE LOG SWMU 16-004(b)

Field Support Facility Stelle ID: P537

Borehole ID: 16-60086 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 2 of 2

Driller: Dave Stanes - Jacksin Box: NA Start Date/Time: 2/9/10, 1400 End Date/Time 2/9/10, 1545

Print Name

Drilling Equipment/Method: Delta Base Hollowstem Auger Drill Rig with 7 1/4" OD augers and 5 ft long; 3 3/4" ID continuous sample core barrels

Sampling Equipment/Method: Core barrel samplers

Depth (Feet)	Recovery (feet per feet/%)	Field Borehole Analytical Sample #	Field Screening Results	Top/Bottom of Core in Box	Lithology – Petrology - Soil	Graphic Log	Lithologic Unit	Notes
20' - 25'	60/60	RE16-10-1218	0.0 0.0	NA	Qbt 4 tuff, light gray grading to pinkish gray, fine ash matrix moderately welded, large clay-filled pumice, abundant lithic frags and qtz. phenocrysts 25-30 ft SAA		Qbt 4	1520 Sample collected
25' - 30'	60/60	RE16-10-1219	0.0 0.0	NA				1535 Sample collected
					TD @ 30.0 ft			

Prepared By: Amy Howard / Amy K Howard 2/9/10

Print Name/Signature Date

Checked By: Elizabeth Barkos / Elizabeth Barkos 7/6/10

Print Name/Signature Date

SOP-12.01

Los Alamos Environmental Restoration Project