BOREHOLE LOG

Field Support Facility

SWMU 16-004(c)
Stake ID: PS38

Borehole ID: 16-608885 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 1 of 2

Driller: Dave Stamos - Precision (Print Name) Box: NA Start Date/Time: 2/5/10 @ 1020 End Date/Time: 2/5/10, 1200

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
					Snow cover ~ 6"			
0' - 5'	36/36 24/24	NA	0.0 0.0	NA	0-3.0 ft Fill material consisting of coarse-grained sand, some silt, gravel, brown, moist. 3-4 ft SAA, rootlets present. 4.5 ft Qbt 4 tuff, light pinkish gray, few qtz phenocrysts, mod welding, <1" dia. devitrified pumice frags in fine ash matrix.		Fill	Pothole to 3 ft bgs @ 0945
5' - 10'	48/60	NA	0.0 0.0	NA	5-10 ft SAA, color change at 8 ft to light gray, increase in qtz phenocrysts ~5%, lithic fragments, minor Fe staining.		Qbt 4	
10' - 15'	56/60	NA	0.0 0.0	NA	10-15 ft SAA, Fracture zone @ 12.5-12.8 ft. 2" clay-filled pumice 14-15 ft.			
15' - 20'	40/60	NA	0.0 0.0	NA	15-20 ft, rare sanidine crystals observed (2 total)			

Prepared By: Amy Howard, Amy K Howard — Print Name/Signature — 2/5/10 — Date

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

SOP-12.01

Los Alamos Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004 (c)
Stake ID: 38

Borehole ID: 16-608885 TA/FU: 16 / Drill Depth From: 0ft To 30ft Page 2 of 2

Driller: Dave Staines - Jackson Box: NA Start Date/Time: 2/5/10, @ 1020 End Date/Time 2/5/10, 1200

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'	60 / 60	RE16-10-1248 & FD & RE16-10-1260	0.0 0.0	NA	20-25ft Qbt 4 tuff, med pinkish gray, moderate to strong welding, lg clay-filled elongated pumice to 3" dia, abundant quartz phenocrysts and lithic fragments (black), hard, dry.	Qbt 4		~~Topft~~ Top Depth + FD sample 20ft-23.5ft
25' - 30'	60 / 60	RE16-12-1249	0.0 0.0	NA	25-30ft SAA, medium gray, no samadine observed			Bottom Depth 28.0-30.0ft
					TD @ 30ft			

Prepared By: Amy Howard / Amy L Howard 2/5/10
Print Name/Signature Date

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

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Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(c)
Stalk ID: P539

Borehole ID: 16-608886 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 1 of 2

Driller: Dave Stevens - Precision Box: NA Start Date/Time: 2/5/10, 1020 End Date/Time 2/6/10, 1030

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
					~6" snow cover			
0' - 5'	36/36/24	NA	0.0 / 0.0	NA	0-2.5 ft backfill consisting of coarse-grained sand and gravel, brown, dry, loose. 3-5 ft Qbt 4 tuff, light pinkish gray few lg. qtz phenocrysts <3mm, few pumice, dry, hard.		Fill / Qbt 4	Pothole to 3 ft @ 1415
5' - 10'	30/60	NA	0.0 / 0.0	NA	5-10 ft SAA, increase in qtz phenocrysts, lithics present <1" dia., hard dry			
10' - 15'	60/60	NA	0.0 / 0.0	NA	10-15 SAA. increase in clay-filled pumice up to 2" dia.			15:10 stop drilling (finish on 2/6/10)
15' - 20'	60/60	NA	0.0 / 0.0	NA	15-20 ft Qbt 4, light/mod pinkish gray horizontal clay-filled fracture @ 15.5' mod welding, fine ash matrix <5% Quartz phenocrysts abundant small lithic fragments.			Start drilling on 2/6/10 @ 0940

AHH 2/6/10

Prepared By: Amy K Howard / Amy K Howard 2/6/10
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

SWMU 16-004(c)
Stake ID: P539

BOREHOLE LOG

Field Support Facility

Borehole ID: 16-608886 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 2 of 2

Driller: Dave Stamos - Precision Box: NA Start Date/Time: 2/5/10, 1020 End Date/Time 2/6/10, 1030

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	RE16-15-1250	0.0 0.0	NA	20-25 ft Qbt 4 tuff, med pinkish gray, fine ash matrix, < 2% qtz phenocrysts abundant black lithics < 1/4" to 2 cm dia., hard, dry, mod. welding, clay-filled pumice petrified wood 21-21.5 ft		Qbt 4	Sample top depth (20-22.5 ft) @ 1010
25' - 30'	60/60	RE16-15-1251	0.0 0.0	NA	25-30 ft SAA with clay filled fractures throughout, mod. welded. Fe staining ~5%, hard, dry.			Sample bottom depth (28-30 ft) @ 1020
					TD @ 30 ft			

Prepared By: Amy Howard / Amy K Howard 2/6/2010
Print Name/Signature Date

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

SOP-12.01

Los Alamos Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(c)
Stable ID PS41
1245 Pothole to 3ft

Borehole ID: 16-608884 TA/FU: 16 / Drill Depth From: 0ft To 30ft Page 1 of 2
Driller: Dave Stamos - Parkson Box: NA Start Date/Time: 2/4/10, 1310 End Date/Time 2/4/10, 1550
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
					Snow cover ~6"			
0' - 5'	30/36 20/24	NA	0.0 0.0	NA	0-3ft Sandy backfill, coarse-grained, dense, very moist, few gravel frags. 3-5ft Qbt4 tuff, med. pinkish gray, mod. welding, < 3/4" pumice sugary and some clay-filled, hard, friable.		Fill	
5' - 10'	56/60	NA	0.0 0.0	NA	5-10ft SAA, fractured rock from 6-8ft.		Qbt4	
10' - 15'	60/60	NA	0.0 0.0	NA	10-15ft Qbt 4, mod welded med. pinkish gray, fine ash matrix, < 2mm qtz phenocrysts abund. few lithics.		Qbt4	
15' - 20'	60/60	NA	0.0 0.0	NA	Qbt 4 tuff, medium gray less quartz / lithic frags with depth, pumice frags increase from 1/4" to 2" d.a. with depth		Qbt4	

Prepared By: Amy Howard, Amy K Howard 2/4/10
Print Name/Signature Date

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

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Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(c)
Stake ID: PS41

Borehole ID: 16-608884 TA/FU: 16 / Drill Depth From: 0ft To 30ft Page 2 of 2

Driller: Dave Stamps - Jackson Box: NA Start Date/Time: 2/4/10, 1310 End Date/Time 2/4/10, 1550

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'	58 / 60	RE16-10-1246 + FD RE16-10-1268	0.0 0.0	NA	20-23ft Qbt 4 tuff, med. gray lightens to pinkish gray @ 20.5ft, <5% Qtz phenocrysts up to 2mm. Lithic frags @ 23-25ft, black ~ 1/2-1" dia, moderately welding, dry, hard		Qbt 4	Top Sample Depth 20.0 ft - 24.0 ft 1530
25' - 30	60 / 60	RE16-10-1247	0.0 0.0	NA	25-30ft SAA		Qbt 4	Bottom Depth 28.5-30ft 1545
					TD @ 30ft			

Prepared By: Amy K Howard / Amy K Howard 2/4/10
Print Name/Signature Date

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

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Los Alamos
Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(c)

Stake ID: P542

Borehole ID: 16-608887 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 1 of 2

Driller: Dave Stamos - Parkson Print Name Box: NA Start Date/Time: 2/6/10, 1215 End Date/Time 2/6/10, 1345

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'	60/60	NA	0.0 0.0	NA	0-3 ft Qbt 4 tuff, light pinkish gray, fine ash matrix, mod. welded, few qtz phenocrysts, few rootlets to 4 ft. 4-5 ft SAA		Qbt4	Pothole to 3 ft @ 1100, 2/6/10
5' - 10'	54/60	NA	0.0 0.0	NA	5-10 ft SAA with qtz phenocrysts increasing with depth, black lithic fragments ~10%, <1/4"-1" dia, hard, dry.			
10' - 15'	60/60	NA	0.0 0.0	NA	10-15 ft Qbt4 tuff, med. pinkish gray, fine ash matrix, ~10% qtz phenocrysts, abundant clay-filled pumice fragments, ~10% black lithic fragments.			
15' - 20'	60/60	NA	0.0 0.0	NA	15-20 ft SAA with few K-Feldspar fragments and pebbles, minor or trace sanidine			

Prepared By: Amy K Howard / Amy K Howard 2/6/10
Print Name/Signature Date

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

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Los Alamos Environmental Restoration Project

BOREHOLE LOG

Field Support Facility

SWMU 16-004(c)
Stake ID: PS42

Borehole ID: 16-608887 TA/FU: 16 / Drill Depth From: 0 ft To 30 ft Page 2 of 2

Driller: Dave Stamos - Precision Box: NA Start Date/Time: 2/6/10 @ 1215 End Date/Time: 2/6/10 @ 1345

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'	58/60	RE16-10-1252 + FD RE16-10-1270	0.0 0.0	NA	20-25 ft Qbt 4 tuff, light-med gray, hard, fine ash matrix, ~5% quartz phenocrysts + black lithics. 21.5-23.0 ft 45° clay-filled fracture (17" long)		Qbt 4	Top Depth + FD @ 20 ft – 24 ft 1300
25' – 30'	58/60	RE16-10-1253	0.0 0.0	NA	25-30 ft SAA, few-trace sanidine crystals, microfractures clay-filled from top to bottom of core.			Bottom Depth @ 28-30 ft @ 1330
					TD @ 30 ft			

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

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

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