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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
10/23/2002	BCS00040996	240.00	242.50	
10/23/2002	BCS00040997	242.50	245.00	
10/23/2002	BCS00040998	245.00	247.50	
10/23/2002	BCS00040999	247.50	250.00	
10/23/2002	BCS00041000	250.00	252.50	
10/23/2002	BCS00041001	252.50	255.00	
10/23/2002	BCS00041002	255.00	257.50	
10/23/2002	BCS00041003	257.50	260.00	
10/23/2002	BCS00041004	260.00	262.50	
10/23/2002	BCS00041005	262.50	265.00	
10/23/2002	BCS00041006	265.00	267.50	
10/23/2002	BCS00041007	267.50	270.00	
10/23/2002	BCS00041008	270.00	272.50	
10/23/2002	BCS00041009	272.50	275.00	
10/23/2002	BCS00041010	275.00	277.50	
10/23/2002	BCS00041011	277.50	280.00	
10/23/2002	BCS00041012	280.00	282.50	
10/23/2002	BCS00041013	282.50	285.00	
10/23/2002	BCS00041014	285.00	290.00	5 ft sample intervals begin at 285 -290 ft (BCS00041014).
10/23/2002	BCS00041015	290.00	295.00	
10/23/2002	BCS00041016	295.00	300.00	
10/23/2002	BCS00041017	300.00	305.00	
10/23/2002	BCS00041018	305.00	310.00	
10/23/2002	BCS00041019	310.00	315.00	
10/23/2002	BCS00041020	315.00	320.00	320 ft - presence of chatoyant (irridescent) sanidine indicative of Ammonia Tanks Tuff. Begin using Anaconda Type wet splitter at 321 ft. Splitter is set with a 10/16 split to sample side 321 - 820 ft.
10/23/2002	BCS00041021	320.00	325.00	Begin injecting water. Samples from 320 - 380 ft were weighed with undecanted water - should have decanted. WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041022	325.00	330.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041023	330.00	335.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041024	335.00	340.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041025	340.00	345.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041026	345.00	350.00	WET SAMPLE - 320 - 380 ft due to injection water.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
10/23/2002	BCS00041027	350.00	355.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041028	355.00	360.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041029	360.00	365.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041030	365.00	370.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041031	370.00	375.00	WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041032	375.00	380.00	Possible perched water at 380 ft; maybe injection water. WET SAMPLE - 320 - 380 ft due to injection water.
10/23/2002	BCS00041033	380.00	385.00	Samples 380 - 415 ft are moist and sent to lab.
10/23/2002	BCS00041034	385.00	390.00	
10/23/2002	BCS00041035	390.00	395.00	
10/23/2002	BCS00041036	395.00	400.00	Contains bronze biotite, altered.
10/23/2002	BCS00041037	400.00	405.00	Contains bronze biotite, altered.
10/23/2002	BCS00041038	405.00	410.00	Matrix (ash component) for the most part was lost during drilling of loose unconsolidated tuff; matrix porosity is assumed to be open/porous for unit 405 - 660 ft. Orange sandy paleosol, oxidized, poorly graded fine sand. Beer bottle brown glass.
10/23/2002	BCS00041039	410.00	415.00	Clayey, deeply weathered ash, paleosol.
10/23/2002	BCS00041040	415.00	420.00	Clayey, deeply weathered ash, paleosol. Sample 415 - 420 ft wet and gooey.
10/23/2002	BCS00041041	420.00	425.00	Sample recovery data not recorded for internal 420 - 695 ft due to field error. Water production was not measured until 700 ft. Measurements should have begun at 420 ft. Pumice rich, quartz rich, feldspar rich - no matrix. Still contains irridescent sanidine - since 320 ft (indicative of Ammonia Tanks). Possibly bedded between Ammonia Tanks and Rainier Mesa. Injection rate of 2.5 gpm and water production values are estimated from 420 - 720 ft.
10/23/2002	BCS00041042	425.00	430.00	Matrix (ash component) not well represented in sample -- lost in return water [420 - 625 ft]
10/23/2002	BCS00041043	430.00	435.00	
10/23/2002	BCS00041044	435.00	440.00	
10/23/2002	BCS00041045	440.00	445.00	
10/23/2002	BCS00041046	445.00	450.00	
10/23/2002	BCS00041047	450.00	455.00	
10/23/2002	BCS00041048	455.00	460.00	
10/23/2002	BCS00041049	460.00	465.00	
10/23/2002	BCS00041050	465.00	470.00	
10/23/2002	BCS00041051	470.00	475.00	Trace black (N1) lithic.
10/23/2002	BCS00041052	475.00	480.00	
10/23/2002	BCS00041053	480.00	485.00	Other lithic colors = grayish red (10R 4/2). Disappearance of irridescent sanidine (chatoyant sanidine) of Ammonia Tanks. At least 3 generations of pumice.
10/23/2002	BCS00041054	485.00	490.00	
10/23/2002	BCS00041055	490.00	495.00	
10/23/2002	BCS00041056	495.00	500.00	
10/23/2002	BCS00041057	500.00	505.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
10/23/2002	BCS00041058	505.00	510.00	
10/23/2002	BCS00041059	510.00	515.00	Water production estimated.
10/23/2002	BCS00041060	515.00	520.00	Multicolored lithics.
10/23/2002	BCS00041061	520.00	525.00	
10/23/2002	BCS00041062	525.00	530.00	
10/23/2002	BCS00041063	530.00	535.00	
10/23/2002	BCS00041064	535.00	540.00	
10/23/2002	BCS00041065	540.00	545.00	
10/23/2002	BCS00041066	545.00	550.00	
10/23/2002	BCS00041067	550.00	555.00	
10/23/2002	BCS00041068	555.00	560.00	
10/23/2002	BCS00041069	560.00	565.00	
10/23/2002	BCS00041070	565.00	570.00	
10/23/2002	BCS00041071	570.00	575.00	Appearance of red clay, possible fault gouge (or just argillic).
10/23/2002	BCS00041072	575.00	580.00	Appearance of red clay, possible fault gouge (or just argillic).
10/23/2002	BCS00041073	580.00	585.00	Matrix color = moderate orange pink (10R 7/4).
10/23/2002	BCS00041074	585.00	590.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/23/2002	BCS00041075	590.00	595.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/23/2002	BCS00041076	595.00	600.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/23/2002	BCS00041077	600.00	605.00	Large dark brown lithic present (1.5 cm). Drilling induced angular. Large (2 cm) grayish black lithics with curved fracture surfaces and devitrified pumice. Sample volume approximately 2 gals, 585 - 655 ft.
10/23/2002	BCS00041078	605.00	610.00	Large dark brown lithic present (1.5 cm). Drilling induced angular. Large (2 cm) grayish black lithics with curved fracture surfaces and devitrified pumice. Sample volume approximately 2 gals, 585 - 655 ft.
10/23/2002	BCS00041079	610.00	615.00	Large dark brown lithic present (1.5 cm). Drilling induced angular. Large (2 cm) grayish black lithics with curved fracture surfaces and devitrified pumice. Sample volume approximately 2 gals, 585 - 655 ft.
10/23/2002	BCS00041080	615.00	620.00	Large dark brown lithic present (1.5 cm). Drilling induced angular. Large (2 cm) grayish black lithics with curved fracture surfaces and devitrified pumice. Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041081	620.00	625.00	Fragments of matrix appear. Large dark brown lithic present (1.5 cm). Drilling induced angular. Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041082	625.00	630.00	Matrix present in abundance. Large dark brown lithic present (1.5 cm). Drilling induced angular. Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041083	630.00	635.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041084	635.00	640.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041085	640.00	645.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041086	645.00	650.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041087	650.00	655.00	Sample volume approximately 2 gals, 585 - 655 ft.
10/24/2002	BCS00041088	655.00	660.00	Unit is darker, no quartz, few pumice, more welding. Sample volume increasing to approximately 3 gals, 660 - 695 ft.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
10/24/2002	BCS00041089	660.00	665.00	Irridescent sanidine. Sample volume increasing to approximately 3 gals, 660 - 695 ft.
10/24/2002	BCS00041090	665.00	670.00	Irridescent sanidine. Sample volume increasing to approximately 3 gals, 660 - 695 ft.
10/24/2002	BCS00041091	670.00	675.00	Welded. Sample volume increasing to approximately 3 gals, 660 - 695 ft.
10/24/2002	BCS00041092	675.00	680.00	Changed: lighter color, non-welded, more quartz. Bronze biotite. Sample volume increasing to approximately 3 gals, 660 - 695 ft.
10/24/2002	BCS00041093	680.00	685.00	Less competent matrix. Very crystalline matrix - lots of sanidine in matrix. Sample volume increasing to approximately 3 gals, 660 - 695 ft.
10/24/2002	BCS00041094	685.00	690.00	Dipyramidal quartz present. Sample volume increasing to approximately 3 gals, 660 - 695 ft.
10/24/2002	BCS00041095	690.00	695.00	Mafics = biotite - no pyroxene, no amphibole. A possible pumice fallout. Well sorted pumice. Pumice = 50-60% of rock. Sample volume increasing to approximately 3 gals, 660 - 695 ft.
10/24/2002	BCS00041096	695.00	700.00	A possible pumice fallout. Well sorted pumice. Pumice = 50-60% of rock.
10/24/2002	BCS00041097	700.00	705.00	
10/24/2002	BCS00041098	705.00	710.00	
10/24/2002	BCS00041099	710.00	715.00	
10/24/2002	BCS00041100	715.00	720.00	Crystal poor.
10/24/2002	BCS00041101	720.00	725.00	Less crystalline. Sanidine reduces by half. Crystal poor.
10/24/2002	BCS00041102	725.00	730.00	Crystal poor.
10/24/2002	BCS00041103	730.00	735.00	Small glass shards in matrix - grayish orange 10YR 7/4. Crystal poor.
10/24/2002	BCS00041104	735.00	740.00	Crystal poor.
10/24/2002	BCS00041105	740.00	745.00	Crystal poor.
10/24/2002	BCS00041106	745.00	750.00	Crystal poor.
10/24/2002	BCS00041107	750.00	755.00	
10/24/2002	BCS00041108	755.00	760.00	Bronze biotite. Some pumice flattening.
10/24/2002	BCS00041109	760.00	765.00	Unit becomes clayey, purplish (fault gouge or weathering horizon?). Dipyramidal quartz present.
10/24/2002	BCS00041110	765.00	770.00	Flattened glassy shards in matrix - Bronze biotite. Oxidized orange pumice.
10/24/2002	BCS00041111	770.00	775.00	Total purplish clay - pale reddish purple 5RP 6/2. Primary texture obliterated.
10/24/2002	BCS00041112	775.00	780.00	Reduction in quartz, more glass, darker color, nonwelded.
10/24/2002	BCS00041113	780.00	785.00	Getting harder. ROP drops. Welding increasing. Pumice is destroyed - devitrified. Orange oxidation staining on cavities = moderate weathering.
10/24/2002	BCS00041114	785.00	790.00	Lack of pumice but lots of cavities where pumice has eroded out (or crystals). Orange pumice eroded out.
10/24/2002	BCS00041115	790.00	795.00	Lack of pumice but lots of cavities where pumice has eroded out (or crystals). Orange pumice eroded out.
10/24/2002	BCS00041116	795.00	800.00	Lack of pumice but lots of cavities where pumice has eroded out (or crystals). Orange pumice eroded out.
10/24/2002	BCS00041117	800.00	805.00	Lack of pumice but lots of cavities where pumice has eroded out (or crystals). Orange pumice eroded out.
10/24/2002	BCS00041118	805.00	810.00	Very crystal poor. ROP slowing down.
10/24/2002	BCS00041119	810.00	815.00	Very crystal poor. ROP slowing down.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
10/24/2002	BCS00041120	815.00	820.00	Very crystal poor. ROP slowing down.
10/29/2002	BCS00041121	820.00	825.00	Water level measured after break = 373.86 ft bgs (~STATIC). Wet splitter set at 5/16 split to sample side from 820 to 970 ft. ROP slowing down.
10/29/2002	BCS00041122	825.00	830.00	Water level measured after break = 373.86 ft bgs (~STATIC). ROP slowing down.
10/29/2002	BCS00041123	830.00	835.00	Water level measured after break = 373.86 ft bgs (~STATIC).
10/29/2002	BCS00041124	835.00	840.00	Lithics look like Tiva or Topopah (dark, reddish brown, densely welded). Increasing lithic content and size.
10/29/2002	BCS00041125	840.00	845.00	Lithics look like Tiva or Topopah (dark, reddish brown, densely welded). Increasing lithic content and size.
10/29/2002	BCS00041126	845.00	850.00	Lithics look like Tiva or Topopah (dark, reddish brown, densely welded). Increasing lithic content and size.
10/29/2002	BCS00041127	850.00	855.00	
10/29/2002	BCS00041128	855.00	860.00	
10/29/2002	BCS00041129	860.00	865.00	First appearance of pale red lithic (10R 6/2) equal in amount to 10R 3/4.
10/29/2002	BCS00041130	865.00	870.00	
10/29/2002	BCS00041131	870.00	875.00	
10/29/2002	BCS00041132	875.00	880.00	
10/29/2002	BCS00041133	880.00	885.00	Still contains quartz, also non-welded. Sanidine content increases, pumice increases.
10/29/2002	BCS00041134	885.00	890.00	Lithic reduction: size and content. Pale red lithics disappear.
10/29/2002	BCS00041135	890.00	895.00	Presence of dipyramidal quartz.
10/29/2002	BCS00041136	895.00	900.00	Square cavities - looks like sanidine crystals have been plucked out. Altered biotite, bronze and irridescent. Mafics have dropped out a little.
10/29/2002	BCS00041137	900.00	905.00	
10/29/2002	BCS00041138	905.00	910.00	
10/29/2002	BCS00041139	910.00	915.00	Lithic swarm ~ 911 ft. Bimodal: 10R 3/4 and 5YR.
10/29/2002	BCS00041140	915.00	920.00	
10/29/2002	BCS00041141	920.00	925.00	Looks like crystal Transition Zone (TpcrN1) except for matrix color. Pumice: very light gray (N8) to white (N9). Devitrified, altered, cavities. Unit becomes crystal rich, densely welded (10:1 flattening) at 921 ft. Bronze biotite.
10/29/2002	BCS00041142	925.00	930.00	Water is getting warmer. Trace irridescent sanidine. No lithophysae present.
10/29/2002	BCS00041143	930.00	935.00	Good, competent, hard rock.
10/29/2002	BCS00041144	935.00	940.00	Dendritic MnOx.
10/29/2002	BCS00041145	940.00	945.00	
10/29/2002	BCS00041146	945.00	950.00	
10/29/2002	BCS00041147	950.00	955.00	Crystal poor. Matrix = 75-90% of rock.
10/29/2002	BCS00041148	955.00	960.00	Mottling is present 5YR 5/2 with 5YR 5/6.
10/29/2002	BCS00041149	960.00	965.00	
10/29/2002	BCS00041150	965.00	970.00	

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10/29/2002	BCS00041151	970.00	975.00	Wet splitter set to 4/16 split to sample side from 970 to 1060 ft.
10/29/2002	BCS00041152	975.00	980.00	
10/29/2002	BCS00041153	980.00	985.00	Still no lithophysae yet - at least no vapor phase mineralization. Mafics have been finely disseminated. Discharge water at splitter is running fresh and clear. Mottled 5YR 4/4 and medium light gray (N6). 90% matrix, 1-2% phenos, no quartz, rare pumice, no lithics.
10/29/2002	BCS00041154	985.00	990.00	Clasts show silica fracture fill. Microcrystalline.
10/29/2002	BCS00041155	990.00	995.00	
10/29/2002	BCS00041156	995.00	1000.00	
10/29/2002	BCS00041157	1000.00	1005.00	Increased water production.
10/29/2002	BCS00041158	1005.00	1010.00	
10/29/2002	BCS00041159	1010.00	1015.00	
10/29/2002	BCS00041160	1015.00	1020.00	
10/29/2002	BCS00041161	1020.00	1025.00	
10/29/2002	BCS00041162	1025.00	1030.00	
10/29/2002	BCS00041163	1030.00	1035.00	Appearance of light brown lithics (5YR 5/6).
10/29/2002	BCS00041164	1035.00	1040.00	Orange oxidized, clayey, altered, weathered, matrix 10R 6/6.
10/29/2002	BCS00041165	1040.00	1045.00	
10/29/2002	BCS00041166	1045.00	1050.00	Moderate yellowish brown matrix. Sugary texture. Glass shards.
10/29/2002	BCS00041167	1050.00	1055.00	Bright orange pumice - rare; light greenish gray 5GY 8/1 rare.
10/29/2002	BCS00041168	1055.00	1060.00	
10/29/2002	BCS00041169	1060.00	1065.00	Lots of light greenish gray pumice. Possible zeolitized pumice. Possible bedded unit - non to weakly welded, glassy. Lots of cavities - probably pumice has been plucked out.
10/29/2002	BCS00041170	1065.00	1070.00	Spherulitic texture - possibly - locally? Wet splitter set to 6/16 to sample side from 1060 to 1322 ft.
10/29/2002	BCS00041171	1070.00	1075.00	Altered brownish purple (grayish red 5R 4/2). Almost all matrix.
10/29/2002	BCS00041172	1075.00	1080.00	
10/29/2002	BCS00041173	1080.00	1085.00	90% matrix, crystal poor, no quartz. No lithophysae present. Jerky motion on drill string = hard rock. Matrix is predominantly 5YR 5/6 mixed with lesser 5R 4/2. Water level 10/30/02, 0630 = 372.8 ft below ground level (bgl). Water temp = 90 degrees Fahrenheit steamy.
10/29/2002	BCS00041174	1085.00	1090.00	Matrix is predominantly 5YR 5/6 mixed with lesser 5R 4/2.
10/29/2002	BCS00041175	1090.00	1095.00	Matrix is predominantly 5YR 5/6 mixed with lesser 5R 4/2.
10/29/2002	BCS00041176	1095.00	1100.00	Matrix is predominantly 5YR 5/6 mixed with lesser 5R 4/2.
10/29/2002	BCS00041177	1100.00	1105.00	Matrix is predominantly 5YR 5/6 mixed with lesser 5R 4/2.
10/29/2002	BCS00041178	1105.00	1110.00	
10/29/2002	BCS00041179	1110.00	1115.00	
10/29/2002	BCS00041180	1115.00	1120.00	Clayey alteration. Light brown 5YR 5/6 greatly predominant over 5R 4/2. Actually more orange than light brown - but there are no orange hues on chart.
10/30/2002	BCS00041181	1120.00	1125.00	Very orange. Less altered, no clay. 95% matrix. Tiny dark gray lithics; glassy.

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10/30/2002	BCS00041182	1125.00	1130.00	Finely disseminated mafics. Black glass shards, elongated, foliation, densely welded.
10/30/2002	BCS00041183	1130.00	1135.00	White pumice appears, rare medium light gray pumice (1mm).
10/30/2002	BCS00041184	1135.00	1140.00	Foliated, shardy.
10/30/2002	BCS00041185	1140.00	1145.00	Foliated, shardy.
10/30/2002	BCS00041186	1145.00	1150.00	Lost circulation. Clayey at 1146 ft. Matrix porosity of unit 1145 - 1340 ft logged as dense/non-porous due to matrix alteration.
10/30/2002	BCS00041187	1150.00	1155.00	Pumiceous, well sorted, reworked, lithic-rich. Probably deeply weathered.
10/30/2002	BCS00041188	1155.00	1160.00	High water production.
10/30/2002	BCS00041189	1160.00	1165.00	
10/30/2002	BCS00041190	1165.00	1170.00	Clayey alteration, large "clayballs" in sample.
10/30/2002	BCS00041191	1170.00	1175.00	No clay.
10/30/2002	BCS00041192	1175.00	1180.00	Clayey again.
10/30/2002	BCS00041193	1180.00	1185.00	Possibly bedded tuff, clayey, altered or weathered. Small sample.
10/30/2002	BCS00041194	1185.00	1190.00	
10/30/2002	BCS00041195	1190.00	1195.00	Water temp @ 1195' = 94 degrees Fahrenheit.
10/30/2002	BCS00041196	1195.00	1200.00	Bit plugging w/clay, pressure up, must lift string repeatedly. Highly altered, clay.
10/30/2002	BCS00041197	1200.00	1205.00	Highly altered, maybe zeolitized. Thin bed (0.5') of red lithics, then back into white matrix. Or - the red is not lithics but different colored matrix zones - layer cake.
10/30/2002	BCS00041198	1205.00	1210.00	
10/30/2002	BCS00041199	1210.00	1215.00	
10/30/2002	BCS00041200	1215.00	1220.00	
10/30/2002	BCS00041201	1220.00	1225.00	
10/30/2002	BCS00041202	1225.00	1230.00	Very clayey, distinct color change to moderate orange pink 10R 7/4. Possible aquitard interval. Zone above is dry (see geophysical logging from 11-2-02).
10/30/2002	BCS00041203	1230.00	1235.00	Another distinct color change to pale red purple 5RP 6/2. Possible aquitard interval. Zone above is dry (see geophysical logging from 11-2-02).
10/30/2002	BCS00041204	1235.00	1240.00	Large pumice (1cm). Possible aquitard interval. Zone above is dry (see geophysical logging from 11-2-02).
10/30/2002	BCS00041205	1240.00	1245.00	Highly altered, soft, clayey, orange pink. Possible aquitard interval. Zone above is dry (see geophysical logging from 11-2-02).
10/30/2002	BCS00041206	1245.00	1250.00	Color change. Possible aquitard interval. Zone above is dry (see geophysical logging from 11-2-02).
10/30/2002	BCS00041207	1250.00	1255.00	Possible aquitard interval. Zone above is dry (see geophysical logging from 11-2-02).
10/30/2002	BCS00041208	1255.00	1260.00	Possible aquitard interval. Zone above is dry (see geophysical logging from 11-2-02).
10/30/2002	BCS00041209	1260.00	1265.00	Lots of drill string lifting - bit is plugging and losing circulation. Still appears to be a bedded unit.
10/30/2002	BCS00041210	1265.00	1270.00	Stop drilling at 1268 ft, lay down rod, fix top head swivel; attempt to drill - trip out. Measure W.L. (10-31-02/0630) = 375.40' bgl. Open hole, depth = 1270'.
10/31/2002	BCS00041211	1270.00	1275.00	Trip 6 1/2" bit at 1270.1 ft. Run in with 6 1/8" bit (longer tooth for clay). Contamination with new tripped bit. Coming down from 1200' to 1220' formation. Also picking up reddish clasts from 1235' to 1240' (10R 4/6).
10/31/2002	BCS00041212	1275.00	1280.00	3 bags Maxgel (400 gals) pumped down backside without NWRPO approval. Highly deformed pumice.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
11/3/2002	BCS00041213	1280.00	1285.00	Drilling with new bit - 5 5/8 inch mill tooth. Start drilling from 1270 ft with bentonite and liquid polymer flooded down annulus. Slightly contaminated from above (1200 - 1220 ft), but mostly new rock. Non-welded. 5:1 flattening of a few pumice = weakly welded; some vitric pumice preserved. Oxidation staining = moderate weathering.
11/3/2002	BCS00041214	1285.00	1290.00	
11/3/2002	BCS00041215	1290.00	1295.00	
11/3/2002	BCS00041216	1295.00	1300.00	
11/3/2002	BCS00041217	1300.00	1305.00	Clay balls = higher weathering. Water production could be less than actual due to bentonite wall cake.
11/3/2002	BCS00041218	1305.00	1310.00	
11/3/2002	BCS00041219	1310.00	1315.00	Very clayey. Welding increasing (flattening), faceted faces - smooth, planar to curved fracture faces = cooling joints.
11/3/2002	BCS00041220	1315.00	1320.00	
11/3/2002	BCS00041221	1320.00	1325.00	Wet splitter set to 7/16 split to sample side from 1322 to 1342 ft.
11/3/2002	BCS00041222	1325.00	1330.00	Distinct color change. Small chips of finely laminated siltstone - cherty. Grades downward into sandstone at 1335 to 1342 ft.
11/3/2002	BCS00041223	1330.00	1335.00	
11/3/2002	BCS00041224	1335.00	1340.00	Red finely bedded (0.5 - 2.0 mm) sandstone.
11/3/2002	BCS00041225	1340.00	1345.00	Mudstone with fissile partings. Contact is 1342 ft. Color = olive grey to olive black. Calcareous mudstone: reacts to HCL. Soft: hardness of 2 on Mohs hardness scale. Well sorted, well rounded grains. Laminations <1mm. Wet splitter set to 6/16 split to sample side from 1342 to 1570 ft. Minor contamination from volcanics above.
11/3/2002	BCS00041226	1345.00	1350.00	Trace pyrite.
11/3/2002	BCS00041227	1350.00	1355.00	Laminations < 1mm.
11/3/2002	BCS00041228	1355.00	1360.00	
11/3/2002	BCS00041229	1360.00	1365.00	
11/3/2002	BCS00041230	1365.00	1370.00	
11/3/2002	BCS00041231	1370.00	1375.00	
11/3/2002	BCS00041232	1375.00	1380.00	
11/3/2002	BCS00041233	1380.00	1385.00	
11/3/2002	BCS00041234	1385.00	1390.00	
11/3/2002	BCS00041235	1390.00	1395.00	
11/3/2002	BCS00041236	1395.00	1400.00	Contamination very minor and decreases with depth.
11/3/2002	BCS00041237	1400.00	1405.00	Top of tuffaceous sandstone marked by ~ 1 ft thick dark olive gray cherty ash.
11/3/2002	BCS00041238	1405.00	1410.00	
11/3/2002	BCS00041239	1410.00	1415.00	
11/3/2002	BCS00041240	1415.00	1420.00	
11/3/2002	BCS00041241	1420.00	1425.00	
11/3/2002	BCS00041242	1425.00	1430.00	
11/3/2002	BCS00041243	1430.00	1435.00	Clay rich - thin clay layers.

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11/3/2002	BCS00041244	1435.00	1440.00	
11/3/2002	BCS00041245	1440.00	1445.00	
11/3/2002	BCS00041246	1445.00	1450.00	Nonwelded bedded unit, altered Rhyolite. Clayey - reworked ashfall, devitrified, altered to clay. Reaction to HCL is very weak.
11/3/2002	BCS00041247	1450.00	1455.00	No reaction to HCL.
11/3/2002	BCS00041248	1455.00	1460.00	Water temp = 93 degrees Fahrenheit at sampler.
11/4/2002	BCS00041249	1460.00	1465.00	Contains light brown lithic clasts with devitrified white pumice.
11/4/2002	BCS00041250	1465.00	1470.00	
11/4/2002	BCS00041251	1470.00	1475.00	Volcaniclastic siltstone.
11/4/2002	BCS00041252	1475.00	1480.00	Back into bluish gray altered tuff. Clayey, altered, tuff.
11/4/2002	BCS00041253	1480.00	1485.00	Weathered, altered ash. Possible water-lain deposition.
11/4/2002	BCS00041254	1485.00	1490.00	
11/4/2002	BCS00041255	1490.00	1495.00	Yellowish gray (5Y 8/1) appears zeolite. Lithics = well sorted, very dark red.
11/4/2002	BCS00041256	1495.00	1500.00	
11/4/2002	BCS00041257	1500.00	1505.00	
11/4/2002	BCS00041258	1505.00	1510.00	
11/4/2002	BCS00041259	1510.00	1515.00	Increased lithics @ 1511 to 1511.5 ft: 30-35% lithics. Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/4/2002	BCS00041260	1515.00	1520.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/4/2002	BCS00041261	1520.00	1525.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/4/2002	BCS00041262	1525.00	1530.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/4/2002	BCS00041263	1530.00	1535.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/4/2002	BCS00041264	1535.00	1540.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041265	1540.00	1545.00	Water temp = 91 degrees Fahrenheit (11-5-02/0700). Waterlevel = 393' bgs. Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041266	1545.00	1550.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041267	1550.00	1555.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041268	1555.00	1560.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041269	1560.00	1565.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041270	1565.00	1570.00	Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041271	1570.00	1575.00	Wet splitter set to 9/16 split to sample side from 1570 to 1702 ft. Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041272	1575.00	1580.00	Very little return, even with no pies in sampler to maximize volume. Becoming harder. Red lithics are possibly oxidation products - they look the same as groundmass except red color. Lithic consistency (size & sorting) argue for actual lithics.
11/5/2002	BCS00041273	1580.00	1585.00	Poor sample recovery.
11/5/2002	BCS00041274	1585.00	1590.00	

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11/5/2002	BCS00041275	1590.00	1595.00	
11/5/2002	BCS00041276	1595.00	1600.00	Poor sample recovery. Slight hardening (induration) of rock, slightly less clay. Hardening due to increase in phenocryst content - particulary quartz.
11/5/2002	BCS00041277	1600.00	1605.00	Picking up rare grayish yellow (5Y 8/4) and grayish black (N2) lithics. Altered mafic component.
11/5/2002	BCS00041278	1605.00	1610.00	
11/5/2002	BCS00041279	1610.00	1615.00	
11/5/2002	BCS00041280	1615.00	1620.00	
11/5/2002	BCS00041281	1620.00	1625.00	Logged as ashfall: no crystals, light color. Unit is ashfall between eruptive ashflow pulses.
11/5/2002	BCS00041282	1625.00	1630.00	95% matrix: ash, no crystals. Logged as ashfall: no crystals, light color. Unit is ashfall between eruptive ashflow pulses.
11/5/2002	BCS00041283	1630.00	1635.00	Logged as ashfall: no crystals, light color. Unit is ashfall between eruptive ashflow pulses.
11/5/2002	BCS00041284	1635.00	1640.00	Logged as ashfall: no crystals, light color. Unit is ashfall between eruptive ashflow pulses.
11/5/2002	BCS00041285	1640.00	1645.00	
11/5/2002	BCS00041286	1645.00	1650.00	
11/5/2002	BCS00041287	1650.00	1655.00	
11/5/2002	BCS00041288	1655.00	1660.00	Highly variable lithic colors: moderate red (5R 5/6), grayish black (N2), moderate pink (5R 7/4), moderate red (5R 4/6), dark reddish brown (10R 3/4).
11/5/2002	BCS00041289	1660.00	1665.00	Track black (N1) chert with concave fracture.
11/5/2002	BCS00041290	1665.00	1670.00	
11/5/2002	BCS00041291	1670.00	1675.00	
11/5/2002	BCS00041292	1675.00	1680.00	
11/5/2002	BCS00041293	1680.00	1685.00	Lithic colors: moderate, reddish brown (10R 4/6), pale greenish gray (10Y 8/2), pale greenish yellow (10Y 8/2), bright greenish alteration (light blue green (5BG 6/6)).
11/5/2002	BCS00041294	1685.00	1690.00	Dark reddish brown lithic appears (10R 3/4).
11/5/2002	BCS00041295	1690.00	1695.00	
11/5/2002	BCS00041296	1695.00	1700.00	Wet splitter set to 4/16 split to sample side from 1702 to 2080 ft (T.D.).
11/5/2002	BCS00041297	1700.00	1705.00	Lithics = very dusky red, very hard, conchoidal fracture, microcrystaline. Lithics are very finely laminated - looking like chert.
11/5/2002	BCS00041298	1705.00	1710.00	
11/5/2002	BCS00041299	1710.00	1715.00	Chert is no longer present.
11/5/2002	BCS00041300	1715.00	1720.00	
11/6/2002	BCS00041301	1720.00	1725.00	1620 ft on: units may have intercalated water lain ash - so, from 1620 to 1712 ft is subaqueous. 1725 ft: note weak lamellae - (incipient flow-banding?) in altered pumice clasts.
11/6/2002	BCS00041302	1725.00	1730.00	Sucrosic texture, note 1-5% green alteration "blebs" (altered glass?) and <1% chert w/chalcedonic quartz.
11/6/2002	BCS00041303	1730.00	1735.00	
11/6/2002	BCS00041304	1735.00	1740.00	Devitrification balls to 2mm - perfect white spherulites. Trace, chert (contamination?) and orange (intercalation(s)).
11/6/2002	BCS00041305	1740.00	1745.00	Same: homogeneous sucrosic ash tuff with green (clayey?) alteration "blebs" and red "sandstone-looking" liths which may be thin intercalations in wih the ash, or contamination from up-hole.

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11/6/2002	BCS00041306	1745.00	1750.00	
11/6/2002	BCS00041307	1750.00	1755.00	Matrix is denser, less sucrosic.
11/6/2002	BCS00041308	1755.00	1760.00	Altered hexagonal mineral - gone to granular clayey material. (Glauconite? Chlorite?). Pinpoint black specks (quartz?).
11/6/2002	BCS00041309	1760.00	1765.00	
11/6/2002	BCS00041310	1765.00	1770.00	
11/6/2002	BCS00041311	1770.00	1775.00	White devitrification balls to 2mm: slight increase in quartz - note pinpoint to .5mm quartz reflections from dry chips. Increase in number of devitrification balls. Note selective (chloritization?) green alteration of clasts and devitrification balls.
11/6/2002	BCS00041312	1775.00	1780.00	Selective green alteration of devitrified spherulites. Note: dark grey "chert" may be a devitrification phenomenon.
11/6/2002	BCS00041313	1780.00	1785.00	Possible contact; color change is quite noticeable. Note 2% "chert", 30% FeOx-stained tuff, 20% white (oxidized?) tuff, and 8-10% red clay. Return to lacustrine envrionment? Finely-disseminated FeS2.
11/6/2002	BCS00041314	1785.00	1790.00	
11/6/2002	BCS00041315	1790.00	1795.00	Well-bedded (varves?) of fine sandstone or siltstone-pyritic, dark, unscratchable (chert?). CONTACT. This (comment 3) unit is 60% of sample. The rest is sucrosic ash flow. The chert may represent a reducing (anaerobic) environment in a smothered lakebed. Note: moderate to abundant FeS2 (Pyrite).
11/6/2002	BCS00041316	1795.00	1800.00	Predominantly chert, variably pyritic, with 1-5% light grey clay, and 10-15% punky "sandstone dike". We have been catching 2 buckets/sample, have now gone back to 1 bucket/sample.
11/6/2002	BCS00041317	1800.00	1805.00	60% white and grey sucrosic tuff, 40% greenish lamellar chert with 1-3mm vugs lined with chalcedonic and cryptocrystalline quartz.
11/6/2002	BCS00041318	1805.00	1810.00	
11/6/2002	BCS00041319	1810.00	1815.00	
11/6/2002	BCS00041320	1815.00	1820.00	Alteration (?) phenomenon: pinpoints of bright green disseminae.
11/6/2002	BCS00041321	1820.00	1825.00	The green disseminated overprint persists.
11/6/2002	BCS00041322	1825.00	1830.00	75% green / 25% creamy beige components. Both are tuff, creamy one is multi-lithic, and the green mystery component looks like glass. In the grey, it's altered to clay.
11/6/2002	BCS00041323	1830.00	1835.00	Grey sucrosic ("sugary-textured") tuff dominates. 10% brownish red clay (may be more, but washing out.)
11/6/2002	BCS00041324	1835.00	1840.00	Grey sucrosic ("sugary-textured") tuff dominates. 10% brownish red clay (may be more, but washing out.)
11/6/2002	BCS00041325	1840.00	1845.00	
11/6/2002	BCS00041326	1845.00	1850.00	Increase in amount and variety of lithic clasts.
11/6/2002	BCS00041327	1850.00	1855.00	
11/6/2002	BCS00041328	1855.00	1860.00	Grey sucrosic ashy tuff with pinpoint green (alteration?) overprint. Possible contact.
11/6/2002	BCS00041329	1860.00	1865.00	Different unit-talc-like, probably zeolitization. Homogeneous beige sucrosic tuff.
11/6/2002	BCS00041330	1865.00	1870.00	Different unit-talc-like, probably zeolitization. Homogeneous beige sucrosic tuff.
11/7/2002	BCS00041331	1870.00	1875.00	
11/7/2002	BCS00041332	1875.00	1880.00	
11/7/2002	BCS00041333	1880.00	1885.00	Green sucrosic tuff with variable amount of lithic clasts. Trace pyrite. 10% uphole contamination.
11/7/2002	BCS00041334	1885.00	1890.00	Moderate FeOx, localized, probably along fractures here - check OTV log?
11/7/2002	BCS00041335	1890.00	1895.00	Pyrite as <1mm specks in some of the dark clats, and even rarer in the matrix.
11/7/2002	BCS00041336	1895.00	1900.00	Oxidized horizon or fault. Pinpoints of pyrite on a few chips. Slightly oxidized/bleached, with FeOx overprint. Steve Hopkins (SMF) says that these are euhedral pyritohedrons under the microscope.

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11/7/2002	BCS00041337	1900.00	1905.00	10-15% contamination from uphole at the connection.
11/7/2002	BCS00041338	1905.00	1910.00	Grey sucrosic tuff - fewer clasts, less of the green mineral component.
11/7/2002	BCS00041339	1910.00	1915.00	Green alteration (?) mineral has returned - emerald green pinpoints, evenly distributed.
11/7/2002	BCS00041340	1915.00	1920.00	
11/7/2002	BCS00041341	1920.00	1925.00	About 10% uphole contamination at each connection…
11/7/2002	BCS00041342	1925.00	1930.00	The green is gone - grey sugary tuff, with a fair amount of pyrite.
11/7/2002	BCS00041343	1930.00	1935.00	This rock is a very light grey to white sugary tuff with FeS2 as bands and disseminations.
11/7/2002	BCS00041344	1935.00	1940.00	This rock is a very light grey to white sugary tuff with FeS2 as bands and disseminations. Rock exhibits what appears to be selective silicification.
11/7/2002	BCS00041345	1940.00	1945.00	1943 ft. CONTACT: grey sucrosic tuff over brown chert with crystalline calcite on fractures. Trace of pyrite associated with dark brown material ("chert"?)
11/7/2002	BCS00041346	1945.00	1950.00	Intense argillization: MALT number would be 9-10. Sample is 90%+ clay, can be rolled into a Tootsie Roll. 1943 to 1960 ft (17ft so far) and 1960 to 1974 ft (CONTACT).
11/7/2002	BCS00041347	1950.00	1955.00	Intense argillization: MALT number would be 9-10. Sample is 90%+ clay, can be rolled into a Tootsie Roll. 1943 to 1960 ft (17ft so far) and 1960 to 1974 ft (CONTACT).
11/7/2002	BCS00041348	1955.00	1960.00	Intense argillization: MALT number would be 9-10. Sample is 90%+ clay, can be rolled into a Tootsie Roll. 1943 to 1960 ft (17ft so far) and 1960 to 1974 ft (CONTACT).
11/12/2002	BCS00041349	1960.00	1965.00	(11/12/02), after 4-day break) < 2 ft of fill in the hole, mostly clay fragments ~= 5mm, from 10 ft above.
11/12/2002	BCS00042000	1965.00	1970.00	Clayey "goop" - airfall (?) tuff, intensely argillized, with trace Calcite associated with chert/siltstone.
11/12/2002	BCS00042001	1970.00	1975.00	CONTACT - probably at 1974 ft. Beige homogeneous silt/claystone, oxidized unit, maybe 3 ft thick, silicified, probably Liesegang banded. (1974 to 1977 ft).
11/12/2002	BCS00042002	1975.00	1980.00	1977 ft - grey brown cherty-looking unit, with conchoidal fracture, tiny indeterminate angular clasts. Some chips display bedding (varves?), and about 2% have FeS2 along fractures.
11/12/2002	BCS00042003	1980.00	1985.00	From 1960 to 1965 ft (BCS#00041349) onward, as of 11/12/02, there are no BCS numbers for the samples. Numbers applied later. 1977 to 1980 ft sediment? Finely-banded brown cherty-looking material. Trace pyrite (along fractures) Claystone?
11/12/2002	BCS00042004	1985.00	1990.00	Sample is 50% intraformational clay - looks like altered tuff. Rest is fine sandy/siltstone.
11/12/2002	BCS00042005	1990.00	1995.00	Sample is 50% intraformational clay - looks like altered tuff. Rest is fine sandy/siltstone. Same, no laminations (varves? Bedding?) noted. Trace, FeS2 (pyrite).
11/12/2002	BCS00042006	1995.00	2000.00	Same, except the clay fraction is 25% or less. The rest is mudstone and silt or sandy siltstone.
11/12/2002	BCS00042007	2000.00	2005.00	65% grey clay. The rock is a claystone, with a slight grittiness against one's teeth.
11/12/2002	BCS00042008	2005.00	2010.00	20% grey clay. Brown mudstone, with soft sediment deformation. You can tell "up" on one chip…
11/12/2002	BCS00042009	2010.00	2015.00	<10% clay. Rock is a monochromatic chocolate brown fissile mudstone.
11/12/2002	BCS00042010	2015.00	2020.00	<10% clay. Rock is a monochromatic chocolate brown fissile mudstone. Same. Rare calcite veinlets to 1mm thick.
11/12/2002	BCS00042011	2020.00	2025.00	Brown reactive fetid (under acid) shale (?). Trace, calcite (as stringers along/across bedding).
11/12/2002	BCS00042012	2025.00	2030.00	Brown reactive fetid (under acid) shale (?). Trace, calcite (as stringers along/across bedding).
11/12/2002	BCS00042013	2030.00	2035.00	Brown reactive fetid (under acid) shale (?). Trace, calcite (as stringers along/across bedding). Same, a little greener. Fetid (almost petroliferous) odor under acid.
11/12/2002	BCS00042014	2035.00	2040.00	Same, a little greener. Fetid (almost petroliferous) odor under acid.
11/13/2002	BCS00042015	2040.00	2045.00	Same: thinly laminated (1cm down to 2mm thick) reactive fetid shale, olive-green/brown, with thin zones of grey clay (which balls up) of indeterminate thickness.
11/13/2002	BCS00042016	2045.00	2050.00	Same: thinly laminated (1cm down to 2mm thick) reactive fetid shale, olive-green/brown, with thin zones of grey clay (which balls up) of indeterminate thickness.
11/13/2002	BCS00042017	2050.00	2055.00	More clay (approaching 50%), and the clay (which balls up) is multi-lithic, like a highly altered airfall (?) tuff. The mudstone (shale) characteristics are unchanged.

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11/13/2002	BCS00042018	2055.00	2060.00	More clay (approaching 50%), and the clay (which balls up) is multi-lithic, like a highly altered airfall (?) tuff. The mudstone (shale) characteristics are unchanged.
11/13/2002	BCS00042019	2060.00	2065.00	30/65 gray clay/brown mudstone. 5% variegated clasts (probably uphole contamination).
11/13/2002	BCS00042020	2065.00	2070.00	Same, less clay, 50% of sample is finely ground, passes through a 150 mesh screen.
11/13/2002	BCS00042021	2070.00	2075.00	75/25 clay/mudstone. Small sample, finely ground. Clay balls are multilithic, the mudstone is almost a siltstone. Note fresh pyrite and thin seams of clear gypsum (CaSO4).
11/13/2002	BCS00042022	2075.00	2080.00	2080 ft T.D. 0910, 11/13/02 in intercalated mudstone/clay with thin (2mm) partings of gypsum, trace pyrite.