Non-Alluvium Logging Form Comments - Nye County Nuclear Waste Repository Project Office

Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/14/2002	BCS00042567	165.00	170.00	CONTACT: 166 ft -- Top, pink tuff. 165 to 170 ft is 1st "bedrock / non-alluvial / 5 foot" sample. 165 to 500 ft - Rock is very ashy, (an airfall tuff possibly) > 50% of the sample (i.e., the ash component) washes away on a 10-12 screen. Chip trays were made with double samples A) Dry / B) Wet to show this.
12/14/2002	BCS00042568	170.00	175.00	
12/14/2002	BCS00042569	175.00	180.00	
12/14/2002	BCS00042570	180.00	185.00	Chatoyant sanidine.
12/14/2002	BCS00042571	185.00	190.00	Chatoyant sanidine.
12/14/2002	BCS00042572	190.00	195.00	
12/14/2002	BCS00042573	195.00	200.00	Chatoyant sanidine.
12/13/2002	BCS00042574	200.00	205.00	This 20 ft joint was drilled in less than 4 minutes.
12/13/2002	BCS00042575	205.00	210.00	
12/13/2002	BCS00042576	210.00	215.00	Chatoyant sanidine.
12/13/2002	BCS00042577	215.00	220.00	
12/13/2002	BCS00042578	220.00	225.00	
12/13/2002	BCS00042579	225.00	230.00	Chatoyant sanidine.
12/13/2002	BCS00042580	230.00	235.00	Chatoyant sanidine.
12/13/2002	BCS00042581	235.00	240.00	Chatoyant sanidine.
12/14/2002	BCS00042582	240.00	245.00	07:23, 12/14/02
12/14/2002	BCS00042583	245.00	250.00	Ash - white/beige ash floats - pulverized ashy matrix.
12/14/2002	BCS00042584	250.00	255.00	Oxybio.
12/14/2002	BCS00042585	255.00	260.00	
12/14/2002	BCS00042586	260.00	265.00	
12/14/2002	BCS00042587	265.00	270.00	10% of sample floats - pumiceous. Chatoyant sanidine.
12/14/2002	BCS00042588	270.00	275.00	
12/14/2002	BCS00042589	275.00	280.00	Chatoyant sanidine. Oxybio.
12/14/2002	BCS00042590	280.00	285.00	
12/14/2002	BCS00042591	285.00	290.00	Chatoyant sanidine. Oxybio.
12/14/2002	BCS00042592	290.00	295.00	Oxybio.
12/14/2002	BCS00042593	295.00	300.00	
12/14/2002	BCS00042594	300.00	305.00	Variably colored lithic clasts are mostly dusky red (10YR 2/2).
12/14/2002	BCS00042595	305.00	310.00	
12/14/2002	BCS00042596	310.00	315.00	
12/14/2002	BCS00042597	315.00	320.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/14/2002	BCS00042598	320.00	325.00	
12/14/2002	BCS00042599	325.00	330.00	
12/14/2002	BCS00042600	330.00	335.00	
12/14/2002	BCS00042601	335.00	340.00	
12/14/2002	BCS00042602	340.00	345.00	
12/14/2002	BCS00042603	345.00	350.00	305 to 360 ft. Ashy sucrosic pumiceous/lithic tuff w/pebble/clasts of brown (welded?) volcanic material, possibly devitrification/welding phenomena, coated with sugary lithic ash. ("Trains?") this interval is very ashy, returns are pulverulent (powdery, wash away when cleaning).
12/14/2002	BCS00042604	350.00	355.00	
12/14/2002	BCS00042605	355.00	360.00	360 ft color change to 5YR 8/4, slight moisture CONTACT.
12/14/2002	BCS00042606	360.00	365.00	CONTACT 360 ft (to 405 ft - may be gradational) light orange (10R 5/4 is closest) lithic locally pumiceous.
12/14/2002	BCS00042607	365.00	370.00	
12/14/2002	BCS00042608	370.00	375.00	
12/14/2002	BCS00042609	375.00	380.00	
12/14/2002	BCS00042610	380.00	385.00	Sanidine.
12/14/2002	BCS00042611	385.00	390.00	390 ft - moisture in the hole… Clay (altered matrix?) fight it for awhile. Sanidine.
12/14/2002	BCS00042612	390.00	395.00	Tuff - weathered (?) with strong argillization at 390 to 400 ft. This could be fault gouge… Strong clay hampers determination of many logging parameters…
12/14/2002	BCS00042613	395.00	400.00	Rate of penetration has slowed due to clayey formation.
12/14/2002	BCS00042614	400.00	405.00	Note color change (paleosol?). Chatoyant sanidine. Clear to grey (N7), locally black (N3-smoky) euhedral quartz crystals to 5mm [400-500 ft].
12/14/2002	BCS00042615	405.00	410.00	410 ft - a little bit of moisture.
12/14/2002	BCS00042616	410.00	415.00	Oxybio.
12/14/2002	BCS00042617	415.00	420.00	
12/14/2002	BCS00042618	420.00	425.00	
12/14/2002	BCS00042619	425.00	430.00	
12/14/2002	BCS00042620	430.00	435.00	
12/14/2002	BCS00042621	435.00	440.00	
12/14/2002	BCS00042622	440.00	445.00	
12/14/2002	BCS00042623	445.00	450.00	
12/14/2002	BCS00042624	450.00	455.00	Trace, vapor phase crystallization.
12/14/2002	BCS00042625	455.00	460.00	
12/14/2002	BCS00042626	460.00	465.00	
12/14/2002	BCS00042627	465.00	470.00	Oxybio.
12/14/2002	BCS00042628	470.00	475.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/14/2002	BCS00042629	475.00	480.00	
12/14/2002	BCS00042630	480.00	485.00	
12/14/2002	BCS00042631	485.00	490.00	490 ft - DAMP - Moisture since about 480 ft...
12/14/2002	BCS00042632	490.00	495.00	Oxybio.
12/14/2002	BCS00042633	495.00	500.00	
12/14/2002	BCS00042634	500.00	505.00	
12/14/2002	BCS00042635	505.00	510.00	
12/14/2002	BCS00042636	510.00	515.00	
12/14/2002	BCS00042637	515.00	520.00	520 ft - small sample - cleanout problems with borehole.
12/14/2002	BCS00042638	520.00	525.00	
12/14/2002	BCS00042639	525.00	530.00	
12/14/2002	BCS00042640	530.00	535.00	1011 hrs 12/14/02: Bit &/or pipe plugged. Trip to bit.
12/14/2002	BCS00042641	535.00	540.00	Airlift to sample H2O at 535 ft.
12/14/2002	BCS00042642	540.00	545.00	540 ft - small sample - due probably to airlift attempt.
12/14/2002	BCS00042643	545.00	550.00	
12/14/2002	BCS00042644	550.00	555.00	
12/14/2002	BCS00042645	555.00	560.00	
12/14/2002	BCS00042646	560.00	565.00	
12/14/2002	BCS00042647	565.00	570.00	
12/14/2002	BCS00042648	570.00	575.00	
12/14/2002	BCS00042649	575.00	580.00	
12/14/2002	BCS00042650	580.00	585.00	
12/14/2002	BCS00042651	585.00	590.00	
12/14/2002	BCS00042652	590.00	595.00	
12/14/2002	BCS00042653	595.00	600.00	
12/14/2002	BCS00042654	600.00	605.00	
12/14/2002	BCS00042655	605.00	610.00	
12/14/2002	BCS00042656	610.00	615.00	
12/14/2002	BCS00042657	615.00	620.00	
12/14/2002	BCS00042658	620.00	625.00	Note 5mm 10YR 6/2 (brown) clast with 0.5mm white reaction rim.
12/14/2002	BCS00042659	625.00	630.00	625 to 690 ft - Lots of cavities - lithophysae and exsolved pumice fragments.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/14/2002	BCS00042660	630.00	635.00	
12/14/2002	BCS00042661	635.00	640.00	
12/14/2002	BCS00042662	640.00	645.00	
12/14/2002	BCS00042663	645.00	650.00	Oxybio.
12/14/2002	BCS00042664	650.00	655.00	
12/14/2002	BCS00042665	655.00	660.00	
12/14/2002	BCS00042666	660.00	665.00	
12/14/2002	BCS00042667	665.00	670.00	
12/14/2002	BCS00042668	670.00	675.00	Oxybio.
12/14/2002	BCS00042669	675.00	680.00	
12/14/2002	BCS00042670	680.00	685.00	Oxybio.
12/14/2002	BCS00042671	685.00	690.00	
12/14/2002	BCS00042672	690.00	695.00	
12/14/2002	BCS00042673	695.00	700.00	
12/14/2002	BCS00042674	700.00	705.00	
12/14/2002	BCS00042675	705.00	710.00	Note pink (rose quartz) sceptered crystal 3mm x 5mm, length is indeterminate.
12/14/2002	BCS00042676	710.00	715.00	Color change to darker grey - (710 to 720 ft).
12/14/2002	BCS00042677	715.00	720.00	720 to 778 ft: Matrix is ash to 762 ft and clay to 778 ft, so it all passes the screen; what is retained are the 10YR 2/2 silicic "cores" (to 2cm) rimmed with silicified (pumice-looking) porous material with crystals and/or lithics exsolved out, yielding a pseudopumiceous texture.
12/14/2002	BCS00042678	720.00	725.00	CONTACT. 720 ft dark brown ashy (?) tuff with 10YR 2/2 silicic "cores" in silicified pumice matrix.
12/14/2002	BCS00042679	725.00	730.00	
12/14/2002	BCS00042680	730.00	735.00	
12/14/2002	BCS00042681	735.00	740.00	
12/15/2002	BCS00042682	740.00	745.00	
12/15/2002	BCS00042683	745.00	750.00	Sample "goopy" - ashy. >50% is fine pink ("like thick paint") material.
12/15/2002	BCS00042684	750.00	755.00	
12/15/2002	BCS00042685	755.00	760.00	
12/15/2002	BCS00042686	760.00	765.00	762 ft - Intense clay (argillization). The ash matrix is completely argillized. Collecting multiple buckets to ensure sample integrity.
12/15/2002	BCS00042687	765.00	770.00	760 to 785 ft intense argillization (clay alteration).
12/15/2002	BCS00042688	770.00	775.00	
12/15/2002	BCS00042689	775.00	780.00	780 ft - "crystal mush".
12/15/2002	BCS00042690	780.00	785.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/15/2002	BCS00042691	785.00	790.00	
12/15/2002	BCS00042692	790.00	795.00	
12/15/2002	BCS00042693	795.00	800.00	Opalescent sanidine. Note reddish (10R 4/6) clast with 0.5mm black (Fe/Mn Ox) oxidation rim.
12/15/2002	BCS00042694	800.00	805.00	790 to 876 ft (86 ft) - nonwelded creamy (10YR 6/2) lithic tuff w/few phenocrysts. Rock has an open/porous aspect due to exsolution of pumice and lithic fragments, and possibly plucking or dissolution of crystals.
12/15/2002	BCS00042695	805.00	810.00	
12/15/2002	BCS00042696	810.00	815.00	810 to 876 ft: There were scarce pumice clasts which have been altered/destroyed - casts are left.
12/15/2002	BCS00042697	815.00	820.00	
12/15/2002	BCS00042698	820.00	825.00	
12/15/2002	BCS00042699	825.00	830.00	
12/15/2002	BCS00042700	830.00	835.00	
12/15/2002	BCS00042701	835.00	840.00	
12/15/2002	BCS00042702	840.00	845.00	
12/15/2002	BCS00042703	845.00	850.00	
12/15/2002	BCS00042704	850.00	855.00	
12/15/2002	BCS00042705	855.00	860.00	
12/15/2002	BCS00042706	860.00	865.00	
12/15/2002	BCS00042707	865.00	870.00	
12/15/2002	BCS00042708	870.00	875.00	
12/15/2002	BCS00042709	875.00	880.00	876 ft - CONTACT chocolate brown (5YR 3/2) relatively fissile tuff 1-2% feldspars, no quartz, with evidence of open-space filling by euhedral quartz crystals to 5mm. Oxybio is ubiquitous (or uniformly present). The rock is welded, chips have high angularity. Unit is from 876 to 1065 ft. There were scarce pumice clasts (810 to 876 ft) which have been altered/destroyed - casts are left.
12/15/2002	BCS00042710	880.00	885.00	
12/15/2002	BCS00042711	885.00	890.00	
12/15/2002	BCS00042712	890.00	895.00	
12/15/2002	BCS00042713	895.00	900.00	
12/15/2002	BCS00042714	900.00	905.00	Unit is from 876 to 1065 ft. Oxybio.
12/15/2002	BCS00042715	905.00	910.00	
12/15/2002	BCS00042716	910.00	915.00	Note 2mm x 4mm clast of grainy olivine…
12/15/2002	BCS00042717	915.00	920.00	
12/15/2002	BCS00042718	920.00	925.00	
12/15/2002	BCS00042719	925.00	930.00	
12/15/2002	BCS00042720	930.00	935.00	
12/15/2002	BCS00042721	935.00	940.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/15/2002	BCS00042722	940.00	945.00	
12/15/2002	BCS00042723	945.00	950.00	
12/15/2002	BCS00042724	950.00	955.00	
12/15/2002	BCS00042725	955.00	960.00	
12/15/2002	BCS00042726	960.00	965.00	
12/15/2002	BCS00042727	965.00	970.00	
12/15/2002	BCS00042728	970.00	975.00	
12/15/2002	BCS00042729	975.00	980.00	
12/15/2002	BCS00042730	980.00	985.00	
12/15/2002	BCS00042731	985.00	990.00	
12/15/2002	BCS00042732	990.00	995.00	
12/15/2002	BCS00042733	995.00	1000.00	
12/15/2002	BCS00042734	1000.00	1005.00	
12/15/2002	BCS00042735	1005.00	1010.00	Note 2cm x 2cm pumiceous clast.
12/15/2002	BCS00042736	1010.00	1015.00	
12/15/2002	BCS00042737	1015.00	1020.00	
12/15/2002	BCS00042738	1020.00	1025.00	
12/15/2002	BCS00042739	1025.00	1030.00	
12/15/2002	BCS00042740	1030.00	1035.00	
12/15/2002	BCS00042741	1035.00	1040.00	
12/15/2002	BCS00042742	1040.00	1045.00	1045 ft - note spherulite.
12/15/2002	BCS00042743	1045.00	1050.00	
12/15/2002	BCS00042744	1050.00	1055.00	
12/15/2002	BCS00042745	1055.00	1060.00	Production water is clear. 1055 to 1065 ft Fine grained crystal-poor tuff (resembles siltstone).
12/15/2002	BCS00042746	1060.00	1065.00	1070 ft - Sample is the consistency of sand. 1065 ft - Top (reworked?) tuff which goes from 1065 to 1080 ft. (Bedded tuff unit?)
12/15/2002	BCS00042747	1065.00	1070.00	
12/15/2002	BCS00042748	1070.00	1075.00	
12/15/2002	BCS00042749	1075.00	1080.00	1080 to 1085 ft - Bright red, may be oxidized.
12/15/2002	BCS00042750	1080.00	1085.00	
12/15/2002	BCS00042751	1085.00	1090.00	
12/15/2002	BCS00042752	1090.00	1095.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/15/2002	BCS00042753	1095.00	1100.00	1544 hrs / 12/15/02. Stop for day.
12/16/2002	BCS00042754	1100.00	1105.00	Densely - to moderately welded, crystal poor, no lithics. Ash flow…
12/16/2002	BCS00042755	1105.00	1110.00	
12/16/2002	BCS00042756	1110.00	1115.00	Crystal content appears to lessen, and welding drops to moderate.
12/16/2002	BCS00042757	1115.00	1120.00	
12/16/2002	BCS00042758	1120.00	1125.00	
12/16/2002	BCS00042759	1125.00	1130.00	
12/16/2002	BCS00042760	1130.00	1135.00	
12/16/2002	BCS00042761	1135.00	1140.00	
12/16/2002	BCS00042762	1140.00	1145.00	
12/16/2002	BCS00042763	1145.00	1150.00	
12/16/2002	BCS00042764	1150.00	1155.00	Color becomes bimodal: 10R 6/3 / 5YR 5/2 (60/40). Rock is more welded too.
12/16/2002	BCS00042765	1155.00	1160.00	
12/16/2002	BCS00042766	1160.00	1165.00	
12/16/2002	BCS00042767	1165.00	1170.00	
12/16/2002	BCS00042768	1170.00	1175.00	
12/16/2002	BCS00042769	1175.00	1180.00	Start, vapor-phase alteration - 5-10% of samples. So 1175 to 1360 ft has vapor-phase alteration.
12/16/2002	BCS00042770	1180.00	1185.00	
12/16/2002	BCS00042771	1185.00	1190.00	
12/16/2002	BCS00042772	1190.00	1195.00	
12/16/2002	BCS00042773	1195.00	1200.00	
12/16/2002	BCS00042774	1200.00	1205.00	5YR 5/6 is the overall color of the rock - it is mottled with grey (N5) in varying percentages. Some of the mottling is caused by through-going vapor phase alteration.
12/16/2002	BCS00042775	1205.00	1210.00	
12/16/2002	BCS00042776	1210.00	1215.00	
12/16/2002	BCS00042777	1215.00	1220.00	
12/16/2002	BCS00042778	1220.00	1225.00	
12/16/2002	BCS00042779	1225.00	1230.00	
12/16/2002	BCS00042780	1230.00	1235.00	
12/16/2002	BCS00042781	1235.00	1240.00	
12/16/2002	BCS00042782	1240.00	1245.00	
12/16/2002	BCS00042783	1245.00	1250.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/16/2002	BCS00042784	1250.00	1255.00	
12/16/2002	BCS00042785	1255.00	1260.00	1260 ft - Note clear calcite, 5mm thick, as fracture fill - also at 1290 ft (5mm rhomb) to 1300 ft.
12/16/2002	BCS00042786	1260.00	1265.00	Lithophysae? Vapor phase crystallization (filling voids) from 1260 to 1300 ft.
12/16/2002	BCS00042787	1265.00	1270.00	
12/16/2002	BCS00042788	1270.00	1275.00	
12/16/2002	BCS00042789	1275.00	1280.00	
12/16/2002	BCS00042790	1280.00	1285.00	
12/16/2002	BCS00042791	1285.00	1290.00	
12/16/2002	BCS00042792	1290.00	1295.00	
12/16/2002	BCS00042793	1295.00	1300.00	Looks a little porous at 1295 ft. Welded, lithics and crystals act as foci for vapor phase alteration.
12/16/2002	BCS00042794	1300.00	1305.00	Welded tuff, crystal-poor, few lithics, mottled by vapor phase alteration.
12/16/2002	BCS00042795	1305.00	1310.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/16/2002	BCS00042796	1310.00	1315.00	
12/16/2002	BCS00042797	1315.00	1320.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/16/2002	BCS00042798	1320.00	1325.00	
12/16/2002	BCS00042799	1325.00	1330.00	
12/16/2002	BCS00042800	1330.00	1335.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/16/2002	BCS00042801	1335.00	1340.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures. 1609 hrs stop at end of day.
12/17/2002	BCS00042802	1340.00	1345.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures. 12/17/02, 0735 hrs 1340' to 1345' sample received.
12/17/2002	BCS00042803	1345.00	1350.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/17/2002	BCS00042804	1350.00	1355.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures. Sparkly drusy quartz crystals (water-clear, 1-2mm) lining open space.
12/17/2002	BCS00042805	1355.00	1360.00	
12/17/2002	BCS00042806	1360.00	1365.00	
12/17/2002	BCS00042807	1365.00	1370.00	
12/17/2002	BCS00042808	1370.00	1375.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/17/2002	BCS00042809	1375.00	1380.00	
12/17/2002	BCS00042810	1380.00	1385.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/17/2002	BCS00042811	1385.00	1390.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/17/2002	BCS00042812	1390.00	1395.00	Weak effervescence due to clear to white crystals of calcite filling voids and/or fractures.
12/17/2002	BCS00042813	1395.00	1400.00	
12/17/2002	BCS00042814	1400.00	1405.00	Weak to moderate vapor phase alteration, giving the chips a mottled (or bimodal) color. 5YR 4/4 / N5, with 5YR 4/4 dominant. Few phenocrysts, no lithics; this persists from 1400 to 1500 ft.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/17/2002	BCS00042815	1405.00	1410.00	
12/17/2002	BCS00042816	1410.00	1415.00	
12/17/2002	BCS00042817	1415.00	1420.00	
12/17/2002	BCS00042818	1420.00	1425.00	
12/17/2002	BCS00042819	1425.00	1430.00	
12/17/2002	BCS00042820	1430.00	1435.00	
12/17/2002	BCS00042821	1435.00	1440.00	
12/17/2002	BCS00042822	1440.00	1445.00	
12/17/2002	BCS00042823	1445.00	1450.00	
12/17/2002	BCS00042824	1450.00	1455.00	
12/17/2002	BCS00042825	1455.00	1460.00	
12/17/2002	BCS00042826	1460.00	1465.00	
12/17/2002	BCS00042827	1465.00	1470.00	
12/17/2002	BCS00042828	1470.00	1475.00	Few 1mm thick quartz veinlets…
12/17/2002	BCS00042829	1475.00	1480.00	
12/17/2002	BCS00042830	1480.00	1485.00	
12/17/2002	BCS00042831	1485.00	1490.00	
12/17/2002	BCS00042832	1490.00	1495.00	
12/17/2002	BCS00042833	1495.00	1500.00	
12/17/2002	BCS00042834	1500.00	1505.00	Lithophysal unit. Few phenocrysts, essentially no lithics. Effervescence due to calcite filling fractures/voids. 1500 to 160 ft: color is mottled, 5YR 4/4 / N5, but 5YR 4/4 predominates.
12/17/2002	BCS00042835	1505.00	1510.00	
12/17/2002	BCS00042836	1510.00	1515.00	
12/17/2002	BCS00042837	1515.00	1520.00	
12/17/2002	BCS00042838	1520.00	1525.00	
12/17/2002	BCS00042839	1525.00	1530.00	
12/17/2002	BCS00042840	1530.00	1535.00	
12/17/2002	BCS00042841	1535.00	1540.00	2mm thick grey (N5) quartz vein.
12/18/2002	BCS00042842	1540.00	1545.00	12/18/02; 1001 hrs; H2O level is 491.8 ft bgs. Note little black spots - either magnetite or MnOx. Opalescent sanidine.
12/18/2002	BCS00042843	1545.00	1550.00	Effervescence due to calcite filling fractures/voids.
12/18/2002	BCS00042844	1550.00	1555.00	2mm thick grey (N5) quartz vein.
12/18/2002	BCS00042845	1555.00	1560.00	1555 ft - Lithophysal… vapor phase crystallization - Euhedral quartz crystals fill open spaces.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/18/2002	BCS00042846	1560.00	1565.00	Opalescent sanidine. Color change to greyish brown.
12/18/2002	BCS00042847	1565.00	1570.00	Opalescent sanidine.
12/18/2002	BCS00042848	1570.00	1575.00	Trace, oxybio (1mm).
12/18/2002	BCS00042849	1575.00	1580.00	Opalescent sanidine.
12/18/2002	BCS00042850	1580.00	1585.00	Effervescence due to calcite filling fractures/voids. 2mm thick grey (N5) quartz vein. Vapor phase alteration but not crystallization.
12/18/2002	BCS00042851	1585.00	1590.00	Effervescence due to calcite filling fractures/voids.
12/18/2002	BCS00042852	1590.00	1595.00	Effervescence due to calcite filling fractures/voids.
12/18/2002	BCS00042853	1595.00	1600.00	
12/18/2002	BCS00042854	1600.00	1605.00	Mottled brown/grey - grey by vapor phase alteration. Looks non-lithophysal.
12/18/2002	BCS00042855	1605.00	1610.00	Effervescence in HCl due to clear to milky calcite filling fractures and/or voids.
12/18/2002	BCS00042856	1610.00	1615.00	Effervescence in HCl due to clear to milky calcite filling fractures and/or voids.
12/18/2002	BCS00042857	1615.00	1620.00	
12/18/2002	BCS00042858	1620.00	1625.00	Moderate vapor phase alteration (grey mottling), no evidence of lithophysae. Effervescence in HCl due to clear to milky calcite filling fractures and/or voids.
12/18/2002	BCS00042859	1625.00	1630.00	Opalescent sanidine.
12/18/2002	BCS00042860	1630.00	1635.00	Increase in vapor phase alteration, still no evidence of lithophysae, crystal-poor.
12/18/2002	BCS00042861	1635.00	1640.00	Effervescence in HCl due to clear to milky calcite filling fractures and/or voids.
12/18/2002	BCS00042862	1640.00	1645.00	
12/18/2002	BCS00042863	1645.00	1650.00	
12/18/2002	BCS00042864	1650.00	1655.00	
12/18/2002	BCS00042865	1655.00	1660.00	
12/18/2002	BCS00042866	1660.00	1665.00	1600 hrs / 12/18/02 Stop for day at 1665 ft.
12/19/2002	BCS00042867	1665.00	1670.00	Moderate/dense welding 50/50, from 1665 to 1700 ft.
12/19/2002	BCS00042868	1670.00	1675.00	
12/19/2002	BCS00042869	1675.00	1680.00	
12/19/2002	BCS00042870	1680.00	1685.00	
12/19/2002	BCS00042871	1685.00	1690.00	
12/19/2002	BCS00042872	1690.00	1695.00	
12/19/2002	BCS00042873	1695.00	1700.00	1-2mm quartz veinlets.
12/19/2002	BCS00042874	1700.00	1705.00	Through-going 1mm wide veinlets of quartz - almost looks hydrothermal. H2O temperature: 90 degrees F. Note: (clasts? Thin zones?) of dark (10YR 2/2), densely-welded, highly angular cyrstal-bearing chips.
12/19/2002	BCS00042875	1705.00	1710.00	Through-going 1mm wide veinlets of quartz - almost looks hydrothermal. Note "cracuelure texture" - microstockwork of 1mm quartz veins - looks hydrothermal…
12/19/2002	BCS00042876	1710.00	1715.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
12/19/2002	BCS00042877	1715.00	1720.00	Through-going 1mm wide veinlets of quartz - almost looks hydrothermal. Note: (clasts? thin zones?) of dark (10YR 2/2), densely-welded, highly angular crystal-bearing chips. 12/19/02; 1030 hrs 1720 ft: stop for Christmas break. Notice hole reduction at 1720 ft.
1/8/2003	BCS00042878	1720.00	1725.00	1/8/03; resume-trip in, rig up to sample, etc.; Larry Reynolds takes over as driller. 1038 hrs. Approximately 3 ft of fill in hole - lower Topopah mostly, <5% dark orange (5YR 5/6) welded tuff. 1725 to 1750 ft: bi-colored (orange/black) vitrophyre / clay (and/or zeolite).
1/8/2003	BCS00042879	1725.00	1730.00	1721 to 1724 ft (+/- 1 ft): Densely welded fine-grained (transition?) unit-orange, high angularity. 1724 ft - CONTACT, lower vitrophyre, which is 1724 to 1775 ft.
1/8/2003	BCS00042880	1730.00	1735.00	Trace, clay-alteration (?), orange - could be zeolitization: looks like a vitrophyre with (thin?) through-going zones of zeolite (or clay?). Material is dense, talc-like, can be scratched with fingernail. 1730 to 1740 ft - very clayey, most washes away.
1/8/2003	BCS00042881	1735.00	1740.00	Trace, clay-alteration (?), orange - could be zeolitization: looks like a vitrophyre with (thin?) through-going zones of zeolite (or clay?). Material is dense, talc-like, can be scratched with fingernail. 1730 to 1740 ft - very clayey, most washes away.
1/8/2003	BCS00042882	1740.00	1745.00	1725 to 175 ft': bi-colored (orange/black) vitrophyre / clay (and/or zeolite).
1/8/2003	BCS00042883	1745.00	1750.00	1725 to 1755 ft: bi-colored (orange/black) vitrophyre / clay (and/or zeolite).
1/8/2003	BCS00042884	1750.00	1755.00	1725 to 1755 ft: bi-colored (orange/black) vitrophyre / clay (and/or zeolite).
1/8/2003	BCS00042885	1755.00	1760.00	1755 ft - black to greenish black (5GY 2/1) vitrophyre, trace "zeolite". (1735 to 1763 ft is pure vit.).
1/8/2003	BCS00042886	1760.00	1765.00	1763 to 1775 ft: bi-colored (black/orange) vitrophyre / zeolite, locally fractured (slicks)
1/8/2003	BCS00042887	1765.00	1770.00	
1/8/2003	BCS00042888	1770.00	1775.00	
1/8/2003	BCS00042889	1775.00	1780.00	Note: faintly concave slickensided surface (2 chips).
1/8/2003	BCS00042890	1780.00	1785.00	1775 ft (CONTACT) Bright orange (no Munsell equivalent - closest is 5YR 5/6) lithic tuff, few crystals, mod. to non-welded tuff, shardy (?) with few pumice clasts with relic glassiness. 1775 to 1795 ft shardy (?) base? - sucrosic texture, pumiceous.
1/8/2003	BCS00042891	1785.00	1790.00	
1/8/2003	BCS00042892	1790.00	1795.00	
1/8/2003	BCS00042893	1795.00	1800.00	1795 ft - CONTACT - Lithic tuff - resembles volcaniclastic tuff (reworked?). Color of lithics from 1795 to 1810 ft is moderate brown (5YR 3/4) to grayish black (N2).
1/8/2003	BCS00042894	1800.00	1805.00	1795 to 1820 ft Lithic tuff, non-welded, biotite-rich, pumiceous, w/trace magnetite. This could be the bedded tuff below the transitional member below the vitrophyre. White clayey specks and blebs must be altered pumice clasts.
1/8/2003	BCS00042895	1805.00	1810.00	
1/8/2003	BCS00042896	1810.00	1815.00	Clayey…
1/8/2003	BCS00042897	1815.00	1820.00	Clayey… Very clayey, probably 50%, perhaps more; rest is the sucrosic lithic tuff (airfall?).
1/8/2003	BCS00042898	1820.00	1825.00	Almost looks granitic - lots of biotite - has to be an ash flow tuff.
1/8/2003	BCS00042899	1825.00	1830.00	Note soft pale - green (5GY 7/4 is closest) material (nontronite? celadonite?), may be altered pumice. White clayey specks and blebs must be altered pumice clasts.
1/8/2003	BCS00042900	1830.00	1835.00	
1/8/2003	BCS00042901	1835.00	1840.00	
1/9/2003	BCS00042902	1840.00	1845.00	1840 to 1845 ft: Small sample, finely-ground, most passes the #12 screen. H2O temp is 92 degrees F.
1/9/2003	BCS00042903	1845.00	1850.00	
1/9/2003	BCS00042904	1850.00	1855.00	
1/9/2003	BCS00042905	1855.00	1860.00	
1/9/2003	BCS00042906	1860.00	1865.00	
1/9/2003	BCS00042907	1865.00	1870.00	Very clayey, most of sample washes out (1870 to 1900 ft). Weathering logged as High because of the preponderance of fines/clay…

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
1/9/2003	BCS00042908	1870.00	1875.00	Clayey… Euhedral biotite: hexagonal "books" to 5mm x 2mm thick.
1/9/2003	BCS00042909	1875.00	1880.00	
1/9/2003	BCS00042910	1880.00	1885.00	Note white clay-altered clasts / (pumice?) to 5mm from 1880 to 1900 ft. White clayey specks and blebs must be altered pumice clasts.
1/9/2003	BCS00042911	1885.00	1890.00	White clayey specks and blebs must be altered pumice clasts.
1/9/2003	BCS00042912	1890.00	1895.00	White clayey specks and blebs must be altered pumice clasts.
1/9/2003	BCS00042913	1895.00	1900.00	White clayey specks and blebs must be altered pumice clasts.
1/9/2003	BCS00042914	1900.00	1905.00	Large chips back, up to two inches across… Mafics may be MnOx or tiny pyroxenes or both.
1/9/2003	BCS00042915	1905.00	1910.00	CONTACT - 1905 ft. Orange sucrosic sandstone - looking. Relic mafics, etc - 1905 to 1910 ft. White clay-altered blebs (pumice?) to 1cm.
1/9/2003	BCS00042916	1910.00	1915.00	Ash flow tuff, with less mafics and noticeable increase in quartz/feldspar. Ash flow tuff, few mafics, abundant playioclase and quartz phenocrysts, fissile. The matrix is aphanitic, and there are scarce clasts of altered pumice to 4mm and rare siltstones.
1/9/2003	BCS00042917	1915.00	1920.00	
1/9/2003	BCS00042918	1920.00	1925.00	1920 to 1925 ft - Sample contaminated with uphole material from circulation break at the add.
1/9/2003	BCS00042919	1925.00	1930.00	Siltstone clast.
1/9/2003	BCS00042920	1930.00	1935.00	
1/9/2003	BCS00042921	1935.00	1940.00	Siltstone clast.
1/9/2003	BCS00042922	1940.00	1945.00	Return water 92 degrees F, the samples are warm to the touch.
1/9/2003	BCS00042923	1945.00	1950.00	Oxybio.
1/9/2003	BCS00042924	1950.00	1955.00	
1/9/2003	BCS00042925	1955.00	1960.00	Sanidine. Oxybio. Pyroxene - few small elongate laths to 2mm.
1/9/2003	BCS00042926	1960.00	1965.00	Siltstone clast.
1/9/2003	BCS00042927	1965.00	1970.00	Clayey (fault?) CONTACT (1965ft) with clay-altered lithic (much siltstone) tuff-clay balls > 3" - there is no matrix left to log, and 1970 to 1975 ft.
1/9/2003	BCS00042928	1970.00	1975.00	Grey tuff, matrix is altered, sample is mostly clasts and quartz/feldspar crystals in grey ashy tuff… Siltstone clast.
1/9/2003	BCS00042929	1975.00	1980.00	Grey tuff, with euhedral quartz and feldspar crystals and abundant clasts (many are reddish siltstone). Siltstone clast.
1/9/2003	BCS00042930	1980.00	1985.00	Oxybio. Mafics may be MnOx or tiny pyroxenes or both.
1/9/2003	BCS00042931	1985.00	1990.00	Slight vapor phase alteration starting at 1980 ft.
1/9/2003	BCS00042932	1990.00	1995.00	Siltstone clast. Oxybio. Slight vapor phase alteration starting at 1980 ft.
1/9/2003	BCS00042933	1995.00	2000.00	Sanidine. Grey sucrosic ash flow tuff, little mafics.
1/9/2003	BCS00042934	2000.00	2005.00	Sucrosic ash flow tuff. Oxybio.
1/9/2003	BCS00042935	2005.00	2010.00	
1/9/2003	BCS00042936	2010.00	2015.00	Grey sucrosic tuff with oxybio, quartz, plagioclase and dark lithics with 1mm reaction rim.
1/9/2003	BCS00042937	2015.00	2020.00	Oxybio. Sanidine. Siltstone clast(s).
1/10/2003	BCS00042938	2020.00	2025.00	0712 hrs - 92 degrees F H2O return - we have 3 "pies" in, so 5/16 split. Small sample, finely ground. Sample is finely ground to <10 mesh, passes wash sieve - matrix must be altered (pr. argillized). Oxybio.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
1/10/2003	BCS00042939	2025.00	2030.00	Sample is finely ground to <10 mesh, passes wash sieve - matrix must be altered (pr. argillized). Oxybio.
1/10/2003	BCS00042940	2030.00	2035.00	Sample is finely ground to <10 mesh, passes wash sieve - matrix must be altered (pr. argillized).
1/10/2003	BCS00042941	2035.00	2040.00	Oxybio. Sanidine. Sample is finely ground to <10 mesh, passes wash sieve - matrix must be altered (pr. argillized). Irid = Iridescent or chatoyant, the color of sanidine (bluish opalescence).
1/10/2003	BCS00042942	2040.00	2045.00	Oxybio. Siltstone clast(s). Driller changes out some joints (101,102) as one is leaky and circulation is reduced.
1/10/2003	BCS00042943	2045.00	2050.00	
1/10/2003	BCS00042944	2050.00	2055.00	Oxybio. Siltstone clast(s). Much (60-70%) of sample still passes #10 seive, but this is probably due to fine grinding at this depth, not necessarily matrix alteration…
1/10/2003	BCS00042945	2055.00	2060.00	Oxybio. Siltstone clast(s).
1/10/2003	BCS00042946	2060.00	2065.00	Oxybio. Siltstone clast(s).
1/10/2003	BCS00042947	2065.00	2070.00	Oxybio. Siltstone clast(s). Sample size back to normal, >50% retained in seive. Note oxybiotite controlled by fracture…
1/10/2003	BCS00042948	2070.00	2075.00	Oxybio. Siltstone clast(s).
1/10/2003	BCS00042949	2075.00	2080.00	Oxybio. Siltstone clast(s).
1/10/2003	BCS00042950	2080.00	2085.00	
1/10/2003	BCS00042951	2085.00	2090.00	
1/10/2003	BCS00042952	2090.00	2095.00	
1/10/2003	BCS00042953	2095.00	2100.00	
1/10/2003	BCS00042954	2100.00	2105.00	Grey sucrosic ash-flow tuff with oxybio, variable quartz, feldspar and siltstone lithics. Oxybio.
1/10/2003	BCS00042955	2105.00	2110.00	Oxybio.
1/10/2003	BCS00042956	2110.00	2115.00	Oxybio.
1/10/2003	BCS00042957	2115.00	2120.00	Oxybio. 2116 ft - lithic-rich layer, brown (5YR 3/4) chunks to 3cm, many with slickensided surfaces.
1/11/2003	BCS00042958	2120.00	2125.30	1400 hrs, 1/10/03. Stop at 2121.5 ft, circulate to clean borehole, rig up for geophysical logging. 1/11/03: Hole bridged at 780 ft, release logger and trip in to continue: reduce borehole diameter to 5 3/4". Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm. Siltstone clasts(s).
1/11/2003	BCS00042959	2125.30	2130.30	Siltstone clast(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042960	2130.30	2135.30	Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042961	2135.30	2140.30	Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042962	2140.30	2145.30	Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042963	2145.30	2150.30	Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042964	2150.30	2155.30	Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042965	2155.30	2160.30	Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042966	2160.30	2165.30	Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042967	2165.30	2170.30	Oxybio. Siltstone clasts(s). Grey sucrosic ash flow tuff, with light pinkish pumice clasts to 10mm and red siltstones to 6mm.
1/11/2003	BCS00042968	2170.30	2175.30	Oxybio. Note thin (1-3cm) zones of volcanic breccia (autobreccia?). Breccia matrix is light brown (5YR 3/4). Siltstone clasts(s).
1/11/2003	BCS00042969	2175.30	2180.30	Oxybio. 2179.5 ft 1630 hrs 1/11/03 stop for day. Siltstone clasts(s).

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
1/12/2003	BCS00042970	2180.30	2185.30	Oxybio. Note thin (1-3cm) zones of volcanic breccia (autobreccia?). Breccia matrix is light brown (5YR 3/4). Siltstone clasts(s).
1/12/2003	BCS00042971	2185.30	2190.30	Oxybio. Note: 1cm x 1cm clast of Bullfrog at 2190 ft (100 ft above the contact). Siltstone clasts(s).
1/12/2003	BCS00042972	2190.30	2195.30	Note thick (1-3cm) zones of volcanic breccia (autobreccia?). Breccia matrix is light brown (5YR 3/4). Siltstone clasts(s).
1/12/2003	BCS00042973	2195.30	2200.30	Clasts of dark green (5GY 3/2) vitrophyre to 1cm. Siltstone clasts(s).
1/12/2003	BCS00042974	2200.30	2205.30	2015 to 2276 ft. Ash flow tuff - lithics are more diverse, and the chips are flattened in aspect. Ash flow tuff, sucrosic.
1/12/2003	BCS00042975	2205.30	2210.30	Very fissile - flattened aspect ratio (for structure, "other") (2205 to 2260 ft).
1/12/2003	BCS00042976	2210.30	2215.30	Unit appears to have thin (2-3cm) zones of silicification.
1/12/2003	BCS00042977	2215.30	2220.30	Color change - sort of reddish brown - diverse lithics, no mafics, moderately welded (?). Reddish overprint may be caused by oxidation of Fe-rich lithics or evenly-scattered mafics.
1/12/2003	BCS00042978	2220.30	2225.30	Very fissile - flattened aspect ratio (for Structure, "other") (2205 to 2260 ft).
1/12/2003	BCS00042979	2225.30	2230.30	Some of the reddish-brown siltstone clasts have 0.5mm reaction rims.
1/12/2003	BCS00042980	2230.30	2235.30	
1/12/2003	BCS00042981	2235.30	2240.30	
1/12/2003	BCS00042982	2240.30	2245.30	
1/12/2003	BCS00042983	2245.30	2250.30	
1/12/2003	BCS00042984	2250.30	2255.30	
1/12/2003	BCS00042985	2255.30	2260.30	
1/12/2003	BCS00042986	2260.30	2265.30	Red - very noticeable color change. Fewer lithics, less fissile, altered pumice clasts to 7mm.
1/12/2003	BCS00042987	2265.30	2270.30	
1/12/2003	BCS00042988	2270.30	2275.30	
1/12/2003	BCS00042989	2275.30	2280.30	2270 to 2276 ft - Orange/grey tuff; 2276 to 2278 ft - same, but bright red (basal phenomenon), slickensided; 2278 ft Grey (5YR 4/1) sucrosic ash flow tuff with oxybio, sanidine and quartz.
1/12/2003	BCS00042990	2280.30	2285.30	Oxybio (1mm or <) controlled by microfractures.
1/12/2003	BCS00042991	2285.30	2290.30	
1/12/2003	BCS00042992	2290.30	2295.30	
1/12/2003	BCS00042993	2295.30	2300.30	
1/12/2003	BCS00042994	2300.30	2305.30	
1/12/2003	BCS00042995	2305.30	2310.30	Sanidine.
1/12/2003	BCS00042996	2310.30	2315.30	Siltstone clasts (often with thin {0.5mm} reaction rims).
1/12/2003	BCS00042997	2315.30	2320.30	Siltstone clasts (often with thin {0.5mm} reaction rims).
1/12/2003	BCS00042998	2320.30	2325.30	Note 2mm specks - white areas which resemble tiny lithophysae filled w/vapor phase crystals. Siltstone clasts (often with thin {0.5mm} reaction rims).
1/12/2003	BCS00042999	2325.30	2330.30	Note 2mm specks - white areas which resemble tiny lithophysae filled w/vapor phase crystals. Siltstone clasts (often with thin {0.5mm} reaction rims).
1/12/2003	BCS00043000	2330.30	2335.30	Siltstone clasts (often with thin {0.5mm} reaction rims).

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
1/12/2003	BCS00043001	2335.30	2340.30	Note 2mm specks - white areas which resemble tiny lithophysae filled w/vapor phase crystals. 1638 ft 1/12/03 stop for day. Siltstone clasts (often with thin {0.5mm} reaction rims).
1/13/2003	BCS00043002	2340.30	2345.30	Sanidine. Note 2mm specks - white areas which resemble tiny lithophysae filled w/vapor phase crystals. Siltstone clasts (often with thin {0.5mm} reaction rims).
1/13/2003	BCS00043003	2345.30	2350.30	Siltstone clasts (often with thin {0.5mm} reaction rims).
1/13/2003	BCS00043004	2350.30	2355.30	
1/13/2003	BCS00043005	2355.30	2360.30	
1/13/2003	BCS00043006	2360.30	2365.30	Sanidine. Calcite as fracture fill.
1/13/2003	BCS00043007	2365.30	2370.30	MnOx as fracture fill. Calcite as fracture fill. Rock chips are fissile - flattened like dimes from 2370 to 2405 ft, slow rop, etc.
1/13/2003	BCS00043008	2370.30	2375.30	MnOx as fracture fill.
1/13/2003	BCS00043009	2375.30	2380.30	
1/13/2003	BCS00043010	2380.30	2385.30	
1/13/2003	BCS00043011	2385.30	2390.30	Calcite as fracture fill. Quartz veinlets (1 to 3mm thick).
1/13/2003	BCS00043012	2390.30	2395.30	MnOx as fracture fill. Calcite as fracture fill.
1/13/2003	BCS00043013	2395.30	2400.30	Calcite as fracture fill.
1/13/2003	BCS00043014	2400.30	2405.30	Bullfrog: 2278 to 2815 ft Brown, locally shattered/fractured with MnOx and/or vapor phase quartz on fractures. Vapor phase mineralization? Drusy chalcedonic-looking grey quartz along fractures and open zones.
1/13/2003	BCS00043015	2405.30	2410.30	
1/14/2003	BCS00043016	2410.30	2415.30	Shattered/fractured: 2410 to 2438 ft: Note slickensides/fractures, often with MnOx and calcite. H2O temperature - 112 degrees F.
1/14/2003	BCS00043017	2415.30	2420.30	Note thin (1mm) through-going quartz microveinlet(s). Note slickensided surfaces with a soapy talc-like feel. Note blebs of quartz with thin reaction (resorbtion?) rims.
1/14/2003	BCS00043018	2420.30	2425.30	Note slickensided surfaces with a soapy talc-like feel.
1/14/2003	BCS00043019	2425.30	2430.30	
1/14/2003	BCS00043020	2430.30	2435.30	Fractures appear to be coated/filled with MnOx-stained (late stage?) quartz (vapor phase?). Vapor phase mineralization? Drusy chalcedonic-looking grey quartz along fractures and open zones.
1/14/2003	BCS00043021	2435.30	2440.30	Sanidine. Oxybio. 2438 to 2448 ft: ROP slow, chips smaller, with flattened aspect because rock is unfractured.
1/14/2003	BCS00043022	2440.30	2445.00	Sanidine. Oxybio.
1/14/2003	BCS00043023	2445.00	2450.00	Sanidine. Oxybio. Note slickensided surfaces with a soapy talc-like feel.
1/14/2003	BCS00043024	2450.00	2455.00	Oxybio. Welding appears to be waning: i.e. there are thin zones of moderate welding.
1/14/2003	BCS00043025	2455.00	2460.00	Sanidine. Vapor phase mineralization? Drusy chalcedonic-looking grey quartz along fractures and open zones.
1/14/2003	BCS00043026	2460.00	2465.00	Sanidine. Vapor phase mineralization? Drusy chalcedonic-looking grey quartz along fractures and open zones.
1/14/2003	BCS00043027	2465.00	2470.00	Note slickensided surfaces with a soapy talc-like feel.
1/14/2003	BCS00043028	2470.00	2475.00	Sanidine. Oxybio. Vapor phase mineralization? Drusy chalcedonic - looking grey quartz along fractures and open zones. Note clast with spherulites.
1/14/2003	BCS00043029	2475.00	2480.00	Sanidine.
1/14/2003	BCS00043030	2480.00	2485.00	Oxybio. Note blebs of quartz with thin reaction (resorbtion?) rims. Through-going (?) grey quartz veinlet(s).
1/14/2003	BCS00043031	2485.00	2490.00	Oxybio. Vapor phase mineralizations? Drusy chalcedonic-looking grey quartz along fractures and open zones.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
1/14/2003	BCS00043032	2490.00	2495.00	
1/15/2003	BCS00043033	2495.00	2500.00	Note blebs of quartz with thin reaction (resorbtion?) rims. Pumice clast may be vapor phase alteration. 1/15/03 0805 hrs Log sample 2495 to 2500 ft - first sample of day.
1/15/2003	BCS00043034	2500.00	2505.00	2278 to 2815 ft Bullfrog Tuff. Brown ashflow, crystal-rich, variable lithics and welding.
1/15/2003	BCS00043035	2505.00	2510.00	
1/15/2003	BCS00043036	2510.00	2515.00	
1/15/2003	BCS00043037	2515.00	2520.00	
1/15/2003	BCS00043038	2520.00	2525.00	Note 1mm reaction rim around light grey lithoclast. The 2525 ft interval drilled like it was fractured (w/MnOx along fracture planes) to 2524 ft and dense and nonfractured below.
1/15/2003	BCS00043039	2525.00	2530.00	Non-welded ash flow, w/moderate vapor phase alteration. Sanidine.
1/15/2003	BCS00043040	2530.00	2535.00	Slight increase in welding. Also, a few clasts have slickensided fracture surfaces.
1/15/2003	BCS00043041	2535.00	2540.00	This "pumice" may actually be vapor phase alteration/mineralization.
1/15/2003	BCS00043042	2540.00	2545.00	
1/15/2003	BCS00043043	2545.00	2550.00	
1/15/2003	BCS00043044	2550.00	2555.00	Slickensides. Rock almost has a crowded texture.
1/15/2003	BCS00043045	2555.00	2560.00	Slickensides. Rock almost has a crowded texture.
1/15/2003	BCS00043046	2560.00	2565.00	Slickensides. Rock almost has a crowded texture.
1/15/2003	BCS00043047	2565.00	2570.00	Sanidine. 1650 hrs - 2570 ft - stop for day. Rock almost has a crowded texture.
1/16/2003	BCS00043048	2570.00	2575.00	Sanidine. 2570 ft - 1/16/03 - Resume drilling in Bullfrog. Discharge water temperature = 116 degrees F.
1/16/2003	BCS00043049	2575.00	2580.00	Sanidine. Quartz microveinlets, zoned quartz and feld crystals, local replacement of matrix by cryptocrystalline quartz. Fracture zone - large chunks returned to surface, ROP jumps, and dark chalcedonic quartz in filling seen.
1/16/2003	BCS00043050	2580.00	2585.00	Light beige (5YR 6/1) chalcedonic quartz (to 10mm thick) fills open spaces/fractures. Breccia-looks hydrothermal - possibly a localized auto-breccia/shatter breccia.
1/16/2003	BCS00043051	2585.00	2590.00	Breccia - looks hydrothermal - possibly a localized auto-breccia/shatter breccia. Reddish-orange (10R 4/6 is closest) clasts (siltstone, possibly fine ash) w/1mm Fe/MnOx reaction rims.
1/16/2003	BCS00043052	2590.00	2595.00	Quartz microveinlets, zoned quartz and feld crystals, local replacement of matrix by cryptocrystalline quartz.
1/16/2003	BCS00043053	2595.00	2600.00	Reddish-orange (10R 4/6 is closest) clasts (siltstone, possibly fine ash) w/1mm Fe/MnOx reaction rims.
1/16/2003	BCS00043054	2600.00	2605.00	2278 to 2815 ft: Bullfrog: variably welded ashflow tuff, locally very lithic, with sparse sanidine, consistent 1-2% plagioclase and quartz.
1/16/2003	BCS00043055	2605.00	2610.00	Grey microveinlets of quartz, average 0.5 to 1.0mm thick, occasionally up to 2mm thick.
1/16/2003	BCS00043056	2610.00	2615.00	
1/16/2003	BCS00043057	2615.00	2620.00	Grey microveinlets of quartz, average 0.5 to 1.0mm thick, occasionally up to 2mm thick. Slickensides.
1/16/2003	BCS00043058	2620.00	2625.00	
1/16/2003	BCS00043059	2625.00	2630.00	
1/16/2003	BCS00043060	2630.00	2635.00	
1/16/2003	BCS00043061	2635.00	2640.00	2640 ft - 1/2 mile deep. 1458 hrs 1/16/03.
1/16/2003	BCS00043062	2640.00	2645.00	

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
1/16/2003	BCS00043063	2645.00	2650.00	
1/16/2003	BCS00043064	2650.00	2655.00	2655 ft 1640 hrs 1/16/03: stop for day.
1/17/2003	BCS00043065	2655.00	2660.00	2660 ft - 0715 hrs - 1/17/03: with 50-60 hours on the bit, they trip to replace it with 5 5/8"; 2660 ft - 1230 hrs - 1/17/03 - on bottom with 5 5/8" bit, circulation established, drilling ahead.
1/17/2003	BCS00043066	2660.00	2665.00	Grey microveinlets of quartz, average 0.5 to 1.0mm thick, occasionally up to 2mm thick. 2665 ft: silicification of 10% of sample. Control indeterminate. Note microveinlets/breccias. 1-1.5mm thick pure white calcite vein(s), yields weak effervescence, 2670 to 2690 ft.
1/17/2003	BCS00043067	2665.00	2670.00	
1/17/2003	BCS00043068	2670.00	2675.00	1-1.5mm thick pure white calcite vein(s), yields weak effervescent, 2670 to 2690 ft.
1/17/2003	BCS00043069	2675.00	2680.00	Microbreccia - may be autobreccia/shatterbreccia (brittle deformation?)
1/17/2003	BCS00043070	2680.00	2685.00	Microbreccia - may be autobreccia/shatterbreccia (brittle deformation?) 1-1.5mm thick pure white calcite vein(s), yields weak effervescent, 2670 to 2690 ft.
1/17/2003	BCS00043071	2685.00	2690.00	1-1.5mm thick pure white calcite vein(s), yields weak effervescent, 2670 to 2690 ft.
1/17/2003	BCS00043072	2690.00	2695.00	Microbreccia - may be autobreccia/shatterbreccia (brittle deformation?) 1/17/03 - 1643 hrs - 2695 ft - stop for night.
1/18/2003	BCS00043073	2695.00	2700.00	1/18/03 - 0640 hrs - 2695 ft - resume drilling. Discharge water temperature 113 degrees F.
1/18/2003	BCS00043074	2700.00	2705.00	Bullfrog: crystal-rich, variably welded…
1/18/2003	BCS00043075	2705.00	2710.00	
1/18/2003	BCS00043076	2710.00	2715.00	
1/18/2003	BCS00043077	2715.00	2720.00	
1/18/2003	BCS00043078	2720.00	2725.00	
1/18/2003	BCS00043079	2725.00	2730.00	
1/18/2003	BCS00043080	2730.00	2735.00	
1/18/2003	BCS00043081	2735.00	2740.00	Microbreccia.
1/18/2003	BCS00043082	2740.00	2745.00	Microbreccia. Microbreccia w/black (MnOx?) glassy cement.
1/18/2003	BCS00043083	2745.00	2750.00	
1/18/2003	BCS00043084	2750.00	2755.00	
1/18/2003	BCS00043085	2755.00	2760.00	Microbreccia. Microbreccia with black (MnOx?) glassy cement.
1/18/2003	BCS00043086	2760.00	2765.00	
1/18/2003	BCS00043087	2765.00	2770.00	Many of the lithoclasts and patches of the rock itself, are oxidized, FeOx-stained, reddish.
1/18/2003	BCS00043088	2770.00	2775.00	Many of the lithoclasts and patches of the rock itself, are oxidized, FeOx-stained, reddish.
1/18/2003	BCS00043089	2775.00	2780.00	Microbreccia with black (MnOx?) glassy cement. Many of the lithoclasts and patches of the rock itself, are oxidized, FeOx-stained, reddish. Rock almost has a crowded texture.
1/18/2003	BCS00043090	2780.00	2785.00	Biotite.
1/18/2003	BCS00043091	2785.00	2790.00	
1/18/2003	BCS00043092	2790.00	2795.00	
1/18/2003	BCS00043093	2795.00	2800.00	Microbreccia.

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Date Logged	Sample Number	Depth Interval (feet bgs) From	Depth Interval (feet bgs) To	Comments
1/19/2003	BCS00043094	2800.00	2805.00	Bullfrog: ash flow tuff, densely-to moderately-welded, but bleached and reddened (oxidized).
1/19/2003	BCS00043095	2805.00	2810.00	CONTACT: 2805 ft - epiclastic/volcaniclastic sandstone. Well rounded and sorted grains, average 1-2mm. Clay - minor amounts present as 10-15mm irregularly-shaped balls and wads.
1/19/2003	BCS00043096	2810.00	2815.00	2813 ft - As above, a bit "clayier": Matrix - "other" - matrix gone, non-existent or washes away. We appear to be drilling a sequence of thinly-bedded sandstones and clays.
1/19/2003	BCS00043097	2815.00	2820.00	2805 to 2815 ft - smaller samples. Remove 1 "pie", now taking 6/16 (3/8) split.
1/19/2003	BCS00043098	2820.00	2825.00	Light orange nonwelded lithic-rich tuff - lots of volcanic clasts (a few siltstones), and rounded to subrounded "nodules" to 5mm with siliceous cores. Looks like Tram, with upper contact at 2815 ft, so 2815 ft to 2900 ft TD = TRAM.
1/19/2003	BCS00043099	2825.00	2830.00	Lithic-rich tuff: clasts include rimmed greenish glass (olivine?), lava, rhyolite and some red siltstones, but mostly volcanic rocks.
1/19/2003	BCS00043100	2830.00	2835.00	
1/19/2003	BCS00043101	2835.00	2840.00	Lots of pumice clasts which are highly-altered (clay) and generally pale-green (10Y 8/2). Note discontinuous quartz microveinlets. 2835 to 2900 ft TD: These 13 samples went to SMF without BCS numbers. We ran out at sample number BCS00043100. BCS numbers added to samples at SMF on 2/6/03.
1/19/2003	BCS00043102	2840.00	2845.00	
1/19/2003	BCS00043103	2845.00	2850.00	Clasts include fresh glassy black vitrophyre and dull green vitrophyre, rare siltstone (2800 to 2900 ft).
1/19/2003	BCS00043104	2850.00	2855.00	Note 1cm x 1cm clast of olivine basalt…
1/19/2003	BCS00043105	2855.00	2860.00	Note 1cm x 1cm clast of olivine basalt… Discontinuous 1mm x 25mm green microveinlets, chromophore derived from green volcaniclasts; and the distinctive pistachio green color of epidote comes closest in color (10GY 4/4).
1/19/2003	BCS00043106	2860.00	2865.00	Discontinuous 1mm x 25mm green microveinlets, chromophore derived from green volcaniclasts; and the distinctive pistachio green color of epidote comes closest in color (10GY 4/4).
1/19/2003	BCS00043107	2865.00	2870.00	Discontinuous 1mm x 25mm green microveinlets, chromophore derived from green volcaniclasts; and the distinctive pistachio green color of epidote comes closest in color (10GY 4/4).
1/19/2003	BCS00043108	2870.00	2875.00	Discontinuous 1mm x 25mm green microveinlets, chromophore derived from green volcaniclasts; and the distinctive pistachio green color of epidote comes closest in color (10GY 4/4).
1/19/2003	BCS00043109	2875.00	2880.00	Clasts include fresh glassy black vitrophyre and dull green vitrophyre, rare siltstone (2800 to 2900 ft).
1/19/2003	BCS00043110	2880.00	2885.00	Note discontinuous quartz microveinlets.
1/19/2003	BCS00043111	2885.00	2890.00	2885 to 2900 ft TD: Non- to weakly welded sucrosic ash flow tuff (Tram), micaceous (biotite) and multilithic.
1/19/2003	BCS00043112	2890.00	2895.00	
1/19/2003	BCS00043113	2895.00	2900.00	Note discontinuous quartz microveinlets. 1/19/03 1552 hrs - 2900 ft TD.