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
6/29/2003	29P-320-325	320.00	325.00	Colorless = CL
6/29/2003	29P-325-330	325.00	330.00	
6/29/2003	29P-330-335	330.00	335.00	
6/29/2003	29P-335-340	335.00	340.00	
6/29/2003	29P-340-345	340.00	345.00	Colorless = CL. Sample moisture impacted by hole conditioning efforts at 340 ft. Trace, oxybio ("golden mica").
6/29/2003	29P-345-350	345.00	350.00	
6/29/2003	29P-350-355	350.00	355.00	
6/29/2003	29P-355-360	355.00	360.00	Water at the cyclone at 360 ft (1348 hrs) sound borehole and rig to drill wet [H20].
6/29/2003	29P-360-365	360.00	365.00	Water production estimated at 2 gpm for interval 360 to 435 ft. Sample weights (and Tare weights) are not taken for saturated samples 360 to 790.7 ft T.D. Splitter set to 8/16 split [360 to 400 ft].
6/29/2003	29P-365-370	365.00	370.00	Chalcedonic quartz along fractures.
6/29/2003	29P-370-375	370.00	375.00	
6/29/2003	29P-375-380	375.00	380.00	378 ft - contact with nonwelded tuff, disaggregated, vuggy, w/biotite. Note milky chalcedonic quartz.
6/29/2003	29P-380-385	380.00	385.00	Sanidine: chatoyant/irridescent. Nonwelded disaggregated tuff--a few pieces show plucking of clasts, so "open" texture.
6/29/2003	29P-385-390	385.00	390.00	
6/29/2003	29P-390-395	390.00	395.00	Note clasts of grey (N5) tuff (and esite?)
6/29/2003	29P-395-400	395.00	400.00	Sanidine: Chatoyant/irridescent. Chalcedonic quartz along fractures.

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
6/30/2003	29P-400-405	400.00	405.00	CL = Colorless. Splitter set to 6/16 split [400 to 600 ft]
6/30/2003	29P-405-410	405.00	410.00	406 ft - contact, barely welded red (10R 4/6) tuff. Unit above appears to be bedded. Some chips are "glittery" - glassy-looking vitrophyre.
6/30/2003	29P-410-415	410.00	415.00	Clayey - reddish brown clay (10R 4/6) - fault gouge (?).
6/30/2003	29P-415-420	415.00	420.00	
6/30/2003	29P-420-425	420.00	425.00	Black perlitic vitrophyre 425 to 500 ft.
6/30/2003	29P-425-430	425.00	430.00	
6/30/2003	29P-430-435	430.00	435.00	
6/30/2003	29P-435-440	435.00	440.00	Opalescent sanidine.
6/30/2003	29P-440-445	440.00	445.00	
6/30/2003	29P-445-450	445.00	450.00	Opalescent sanidine.
6/30/2003	29P-450-455	450.00	455.00	
6/30/2003	29P-455-460	455.00	460.00	
6/30/2003	29P-460-465	460.00	465.00	Biotite. Black vitrophyre (interlayered) with thin zones of (5YR 4/4) brown soft. (Zeolitized?) material (460 to 495 ft).
6/30/2003	29P-465-470	465.00	470.00	
6/30/2003	29P-470-475	470.00	475.00	Opalescent sanidine.
6/30/2003	29P-475-480	475.00	480.00	

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
6/30/2003	29P-480-485	480.00	485.00	
6/30/2003	29P-485-490	485.00	490.00	Opalescent sanidine.
6/30/2003	29P-490-495	490.00	495.00	Opalescent sanidine.
6/30/2003	29P-495-500	495.00	500.00	Opalescent sanidine.
6/30/2003	29P-500-505	500.00	505.00	Contact (501 ft) with brown moderately-welded crystal tuff. Note greyish white chalcedonic quartz on fractures and in open spaces.
6/30/2003	29P-505-510	505.00	510.00	Oxybio.
6/30/2003	29P-510-515	510.00	515.00	Note limonite stain (yellowish-orange) along fractures. Oxybio.
6/30/2003	29P-515-520	515.00	520.00	Sanidine: Opalescent. Note weakly-developed layering, almost incipient in nature… Oxybio.
6/30/2003	29P-520-525	520.00	525.00	Trace, vapor phase alteration. Oxybio.
6/30/2003	29P-525-530	525.00	530.00	Note limonite stain (yellowish-orange) along fractures. Note weakly-developed layering, almost incipient in nature… Sanidine: Opalescent.
6/30/2003	29P-530-535	530.00	535.00	Note water-clear secondary quartz as open space filling. Sanidine: Opalescent.
6/30/2003	29P-535-540	535.00	540.00	
6/30/2003	29P-540-545	540.00	545.00	
6/30/2003	29P-545-550	545.00	550.00	Note weakly-developed layering, almost incipient in nature… Note water-clear secondary quartz as open space filling.
6/30/2003	29P-550-555	550.00	555.00	Note weakly-developed layering, almost incipient in nature… Trace, vapor phase alteration. Note water-clear secondary quartz as open space filling.
6/30/2003	29P-555-560	555.00	560.00	Note weakly-developed layering, almost incipient in nature…

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
6/30/2003	29P-560-565	560.00	565.00	Sanidine: Opalescent.
6/30/2003	29P-565-570	565.00	570.00	Trace, vapor phase alteration. Sanidine: Opalescent.
6/30/2003	29P-570-575	570.00	575.00	Sanidine: Opalescent.
6/30/2003	29P-575-580	575.00	580.00	Sanidine: Opalescent.
6/30/2003	29P-580-585	580.00	585.00	Oxybio.
6/30/2003	29P-585-590	585.00	590.00	Oxybio.
6/30/2003	29P-590-595	590.00	595.00	Oxybio. Sanidine: Opalescent.
6/30/2003	29P-595-600	595.00	600.00	Vitrophyre? Glassy, high angularity, brown, mixed with soft, extremely friable material which passes the sampling sieve - 80% does, at least.
6/30/2003	29P-600-605	600.00	605.00	Vitrophyre, black, but atypical, with a granular texture such that it breaks down under the bit, to very fine material which passes the sieve. Sample splitter set to 3/16 split [600 to 660 ft].
6/30/2003	29P-605-610	605.00	610.00	
6/30/2003	29P-610-615	610.00	615.00	612 ft - top, "shardy base": Yellow brown vitrophyre with "root beer bottle"-colored shards.
6/30/2003	29P-615-620	615.00	620.00	Note long glassy inclusions of stretched pumice fragments to 1 cm.
6/30/2003	29P-620-625	620.00	625.00	Note long glassy inclusions of stretched pumice fragments to 1 cm.
6/30/2003	29P-625-630	625.00	630.00	Note long glassy inclusions of stretched pumice fragments to 1 cm.
6/30/2003	29P-630-635	630.00	635.00	Note long glassy inclusions of stretched pumice fragments to 1 cm.
6/30/2003	29P-635-640	635.00	640.00	Note long glassy inclusions of stretched pumice fragments to 1 cm.

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
6/30/2003	29P-640-645	640.00	645.00	640 ft - contact, bedded unit, but vitrophyre carries to 655 ft. Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft]. From 640 to 700 ft, the rock is disaggregated friable airfall tuff, yet the samples contain 5%+ of the overlying vitrophyre.
6/30/2003	29P-645-650	645.00	650.00	645 to 700 ft: mixture of rock types from up hole - lithic % age is indeterminate. Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-650-655	650.00	655.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-655-660	655.00	660.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-660-665	660.00	665.00	Sample splitter set to 5/16 split [660 to 750 ft]. Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-665-670	665.00	670.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-670-675	670.00	675.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-675-680	675.00	680.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-680-685	680.00	685.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-685-690	685.00	690.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-690-695	690.00	695.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-695-700	695.00	700.00	Euhedral hexagonal biotite crystals to 3mm [645 to 790 ft].
6/30/2003	29P-700-705	700.00	705.00	700 to 790.7 ft Calcite (oriented) - cemented volcaniclastic sandstone. Friable, 80%+ of sample washes away, passes the sample sieve. Well-rounded and sorted quartz and feldspar grains, oxybio and biotite. Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit 700 to 790.7 ft is a well sorted volcaniclastic sandstone derived from non-welded tuff (probably pre-Topopah). Unit has grains of rounded volcanic glass and is therefore an immature volcaniclastic epiclastic rock. Quartz content not determined but probably <50%. Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-705-710	705.00	710.00	Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-710-715	710.00	715.00	Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Chatoyant sanidine. Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-715-720	715.00	720.00	Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Chatoyant sanidine. Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.

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
6/30/2003	29P-720-725	720.00	725.00	Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-725-730	725.00	730.00	Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-730-735	730.00	735.00	Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-735-740	735.00	740.00	Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-740-745	740.00	745.00	Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Chatoyant sanidine. Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-745-750	745.00	750.00	Note - in this sandstone unit, there is little "gain" on the water, so the unit appears to have no water, and there is only up hole water to contend with. Chatoyant sanidine. Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-750-755	750.00	755.00	748 to 760 ft - HCl reaction drops off slightly - note fewer biotite crystals as well. Sample splitter set to 3/16 split [750 to 790.7 ft] Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-755-760	755.00	760.00	748 to 760 ft - HCl reaction drops off slightly - note fewer biotite crystals as well. Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-760-765	760.00	765.00	Biotite (black, generally euhedral, averages 2-3mm in diameter). Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-765-770	765.00	770.00	Biotite (black, generally euhedral, averages 2-3mm in diameter). Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-770-775	770.00	775.00	Biotite (black, generally euhedral, averages 2-3mm in diameter). Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-775-780	775.00	780.00	Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Chatoyant sanidine. Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-780-785	780.00	785.00	Rock emits a fetid odor under HCl (faint odor). Biotite (black, generally euhedral, averages 2-3mm in diameter). Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character.
6/30/2003	29P-785-790	785.00	790.00	Rock emits a fetid odor under HCL (faint odor). Fine sand, poorly graded and well-sorted is coming in on top of the bit. Biotite (black, generally euhedral, averages 2-3mm in diameter). Oxybio (golden bronze color, averages 1mm, occasionally to 2mm across). Chatoyant sanidine. On 7/1/03 cement back the poorly graded well sorted fine sand which has been encountered since 720 ft, let it set up over days off. On 7/8/03 top of fill after 6 days off is 703 to 720 ft was mostly sand, some volcanics, little grout. 720 ft - cement, admixed with 10-15% sand, still drilling grout at 735 ft, so the string has not kicked off. On 7/10 - 7/11/03: cemented the borehole back to 580 ft or so. On 7/12/03 - drill out plug and resume after drilling out 2 plugs, kicking off, and re-encountering the running sand, the borehole was abandoned at 710.31 ft (clean out depth) on 7/12/03. T.D. of borehole = 790.65 ft drilled on 6/30/03. Sandstone unit (700 - 790ft) originally logged as reworked indicating volcaniclastic character..