Open-file report
75-410

TABLE 1 -- LOG OF DRILL HOLE U8e12

Location: Nevada State coordinates: N. 880,036; E. 665,289

Surface elevation: 4,539 feet

Date drilled: 7/4/65-7/18/65

Date compiled: 4/21/66

Logged by: W. J. Carr, J. R. Ege, and C. H. Miller

EXPLANATION

Ash-flow tuff
Spacing of lines indicates degree of welding. Solid lines indicate vitric (glassy) zones, dashed lines devitrified zones. Solid black indicates vitrophyra (densely welded glass)

Bedded tuff, vitric

Bedded tuff or tuffaceous sedimentary rocks

Volcanic breccia or lithic-rich tuff

Silicic lava

Colluvium-alluvium

Limestone

Dolomite

Shale

Quartzite

Highly fractured rock

	Relative[1] strength of rock	Field estimate of unconfined compressive strength (psi)	Examples of rock types
1	Very weak	<5,000	Friable to very friable bedded tuff and alluvium
2	Weak	5,000-10,000	Altered bedded tuff, compacted non-welded tuff, indurated alluvium
3	Intermediate	10,000-15,000	Moderately to slightly welded tuff, indurated bedded tuff
4	Strong	15,000-25,000	Densely welded tuff, vitrophyre
5	Very strong	>25,000+	Dense basalt, fresh granite, Paleozoic carbonate rocks, quartzite

CORES

Conventional core taken from depth of to feet; -foot recovery.

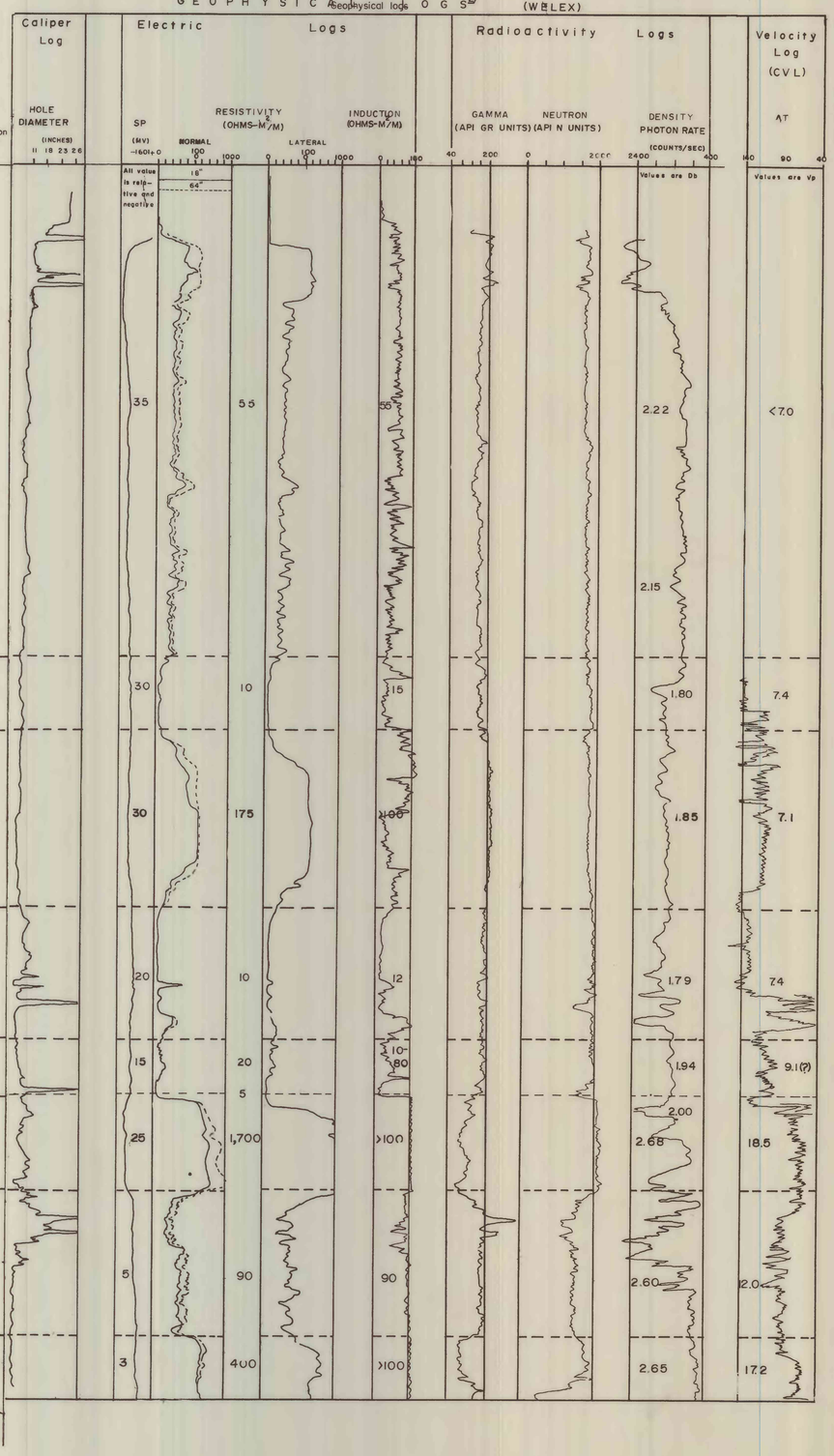
Sidewall core taken at depth of feet.

CHART SYMBOLS

Density (gm/cc)
Db--Bulk
Dg--Grain
Dn--Natural State
Velocity (KFPS)
Vp--P-wave
Vs--Shearwave
ΔT--Travel time (10^{-6} sec/ft)
CVL--Continuous velocity log
3-DVL--Three-dimensional velocity log
Db x V--Acoustic impedence (gm/cc x K-feet/sec)

ϕ--Porosity (%)
SW--Saturation water (%)
K--Magnetic susceptibility ($\times 10^{6}$ cgs units)
Elastic constants ($\times 10^{6}$ psi)
E--Young's modulus
B--Bulk modulus
G--Shear modulus
σ--Poisson's ratio

GEOPHYSICAL LOGS[2] (WELEX)



PHYSICAL PROPERTIES

Stratigraphy and lithology	Unit thickness (feet)	Depth (feet)	Core c sw	Strength	Elevation (feet)	DbxVp (CVL)	Derived from Geophysical Logs[2,4] Vs	E	ϕ	Laboratory Analysis of Core[4] Vp	Vs	E	B	G	σ	Dn	Db DRY	Dg	Db (Sw 100%)	ϕ TOTAL	Sw (BY WT)	k	Intervals (feet) and Number of Data Points	Elastic Constants[3] Calculation (WELEX) Vp	Vs	E	B	G	σ	Db
Alluvium, sand and gravel, generally finer grained in lower part of section	660	100, 200, 300, 400, 500, 600, 660		1	3,879	<14.8	4.7	1.05	54																						
Tuff Tuff, probably ash-flow, light colored, calcareous, clayey(?).	100	700, 760		2	3,779	13.3	5.0	1.20	50																						
Indian Trail Formation Fraction tuff Tuff, ash-flow, light gray, nonwelded, mostly devitrified; contains pale pink pumice, mafic-rich clots, 20 percent phenocrysts of feldspar, quartz, hornblende, and biotite; about 5 percent lithic fragments. Slightly welded and partly vitric in the interval 760 to 965 feet. C 774-782; C 900-908.	240	800, 900, 1,000		3	3539	13.1	4.8	1.10	53	—	—	—	—	—	—	1.64	—	2.54	1.90	38.6	13.4	12250	862 944,16	8.8	4.8	1.47	1.17	0.57	0.29	1.65
Tuff Tuff, bedded and ash-flow, tan in upper part, light gray in lower part, upper 90 feet zeolitized; lower 35 feet nonwelded; 1/4- to 1-inch white pumice; some pumice and shards are vitric; common small angular lithics of volcanic and Paleozoic rocks; 5-10 percent crystals of quartz and feldspar and a little biotite. C 1148-1154.	175	1100, 1,175		3	3,364	13.2	5.0	1.20	50	6.3	—	—	—	—	—	1.76	1.67	2.48	1.94	36.7	11.9	1374.0								
Tuff and Claystone Tuff, probably bedded, zeolitized opalized; claystone, very light tan with a few thin layers of tuffaceous sandstone. C 1245-1253.	80	1200, 1,255		4	3,284	17.6(?)	5.8(?)	1.87(?)	34	5.4	3.6	1.46	0.61	0.66	0.102	1.89	1.47	2.31	1.83	36.3	18.5	0.0	1100 1255,15	9.7	4.9	1.76	1.89	0.67	0.30	1.98
Dolomite (Middle(?) Paleozoic) Dolomite, gray to light gray with brown cast, fine to medium grained, finely laminated; brecciated, fractured and seamed with dolomite; several slickensided clayey surfaces, some iron staining. C 1274-1282.	125	1300, 1,380		4	3,159	49.6	10.8	10.25	1	9.5 9.1	5.9 5.2	6.26 2.35	2.51 1.23	2.63 0.93	0.188 0.262	2.21 2.53	— 2.68	2.41 2.80	2.05 2.72	19.5 4.2	20.7 2.4	15.0 3.4	1255 1380,31	15.3	7.1	3.88	4.68	1.43	0.36	2.07
Eleana Formation Argillite and siltstone with siltstone predominant in the upper 45 feet, dark gray to olive green, pinkish and purplish gray in the upper 45 feet; some siltstone calcareous, some siltstone laminations in lower 150 feet. C 1460-1468.	195	1400, 1500, 1,576		4	2,964	31.2	7.2	3.72	18	76	—	—	—	—	—	2.65	2.64	2.74	2.68	3.8	3.0	32.0	1380 1575,35	11.5	5.0	2.66	2.60	1.01	0.32	2.20
Limestone and siltstone (Lower? Paleozoic) Siltstone, limy, and limestone, gray, oolitic; siltstone predominant in lower 35 feet. Sample shown as core is limestone boulder from junk basket.	90	1600, 1700		5	2,874	45.6	10.0	8.53	3	18.4	11.9	11.56	4.06	5.05	0.144	2.65	2.69	2.74	2.71	1.9	1.7	19.0	1575 1656,21	15.0	6.8	0.36	4.26	1.56	0.36	2.47

2/ Numerical values are averaged through the indicated interval.

3/ From empirical graphs by R. D. Carroll, U.S. Geological Survey, Denver, Colo.

4/ E. D. Seals and W. R. Eberle, U.S. Geological Survey, Denver, Colo.

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This illustration is preliminary and has not been edited or reviewed for conformity with Geological Survey standards.