

From Wollenburg, H, H.
Bowman, + F. Asaro, 1977
-17- Geochemical studies at four
Northern Nevada Hot
Spring Areas, LBL-6808

Table 3. KYLE AREA ROCK SAMPLES

Sample	Unaltered					Altered			
	40	46	45	41	45B	43	6H	42	38
SiO ₂	57.4	56.4	52.2	50.8	49.3	43.1	20.2	1.6	90.6
Al ₂ O ₃	16.6	17.0	17.4	11.1	16.6	16.4	0.7	0.2	0.5
[FeO]	6.1	7.7	9.2	9.1	10.0	11.3	0.1	--	0.5
MgO	3.4	3.7	5.5	12.3	6.7	4.8	0.0	0.3	0.3
CaO	6.1	7.0	8.2	10.0	9.5	5.9	41.5	43.9	0.2
Na ₂ O	3.7	3.3	3.5	2.4	2.9	1.0	0.1	--	0.2
K ₂ O	2.8	2.3	1.4	0.2	1.0	2.7	0.1	.1	0.2
TiO ₂	0.8	1.3	1.4	0.9	1.5	3.9	0.0	--	--
MnO	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	--
Total %	97.0	98.9	99.0	97.0	97.7	89.2	62.8	46.2	92.5

Samples:

- 40 Basalt (greenstone) of Leach Fm., mouth of French Boy Canyon, NE1/4, NW1/4, Sec. 4, T28N, R37E.
- 46 Basalt, East Range, SW1/4, NW1/4, SE1/4, Sec. 12, T30N, R37E.
- 45 Basalt, capping East Range, almost entirely crystalline, NE1/4, SW1/4, NE1/4, Sec. 23, T30N, R37E.
- 41 Basalt (greenstone) of Leach Fm., mouth of unnamed canyon, NE1/4, SE1/4, Sec. 7, R37E, T29N (unsurveyed).
- 45B Basalt, glassy from margin of feeder dike, East Range NE1/4, SW1/4, NE1/4, Sec. 23, T30N, R37E.
- 43 Green, calcareous semischist of Leach Fm., NW1/4, SW1/4, SW1/4, Sec. 8, R37E, T30N.
- 6H Travertine, Kyle Hot Spring area, T29N, R36E.
- 42 Limestone, white, coarsely crystalline Jurassic or Triassic stream bed, NW1/4, SE1/4, Sec. 7, R37E, T29N.
- 38 Glassy opaline sinter, black, contains organic material, extinct spring SW of Kyle Hot Spring, T29N, R36E.

Table 5. LEACH AREA ROCK SAMPLES

Sample	Unaltered							Altered							
	37	25	24	47	36	19	17	32	21	22	23	20	33	31	29
SiO ₂	72.8	71.2	56.3	52.9	52.5	52.5	52.2	99.0	90.9	86.5	63.0	52.0	49.8	44.9	3.8
Al ₂ O ₃	12.2	12.4	17.1	17.7	17.3	15.5	15.5	0.7	4.2	2.2	12.2	11.1	17.2	15.2	3.4
ΣFeO	0.9	1.4	6.4	9.4	10.1	10.2	9.8	0.1	0.7	0.4	0.7	4.6	11.0	10.6	0.3
MgO	0.2	0.3	3.2	5.4	5.6	5.2	5.1	0.2	0.3	0.2	1.1	2.1	5.7	7.1	0.6
CaO	1.2	3.5	6.2	8.1	8.4	8.3	8.0	0.1	0.1	0.6	0.6	9.3	8.6	8.5	28.4
Na ₂ O	3.2	1.0	2.8	3.3	3.6	3.0	3.3	--	--	0.8	4.4	1.2	3.5	1.0	--
K ₂ O	5.2	6.6	2.6	1.8	1.3	1.3	1.3	0.2	1.9	0.4	3.0	2.9	1.0	1.0	1.0
TiO ₂	--	0.2	1.1	1.5	1.4	1.7	1.7	--	0.3	0.1	0.1	0.6	1.7	1.4	--
MnO	--	--	0.1	0.2	0.2	0.2	0.2	--	--	--	--	0.1	0.2	0.2	0.2
Total	95.7	96.6	95.8	100.3	100.4	97.9	97.1	100.3	98.4	91.2	85.1	83.9	98.7	89.9	37.7

Samples:

37 Rhyolite vitriphyre, dense with some vesiculation, east margin of dome, SW1/4, NW1/4, NE1/4, Sec. 26, R38E, T30N.

25 Welded rhyolitic tuff, few sanidine and quartz phenocryst, east of Leach Hot Spring, NW1/4, NE1/4, SW1/4, Sec. 29, R39E, T32N.

24 Basalt, north trending dike, west side of Grass Valley SE 1/4, SW1/4, SE1/4, Sec. 10, T32N, R37E.

47 Basalt, young, black, glassy, SW1/4, SW1/4, Sec. 8, T30N, R38E.

36 Basalt, dike cutting devitrified rhyolite, west side of dome, Goldbanks Hills Center, NE1/4, Sec. 26, R38E, T30N.

19 Basalt, dike SE of Leach Hot Spring, NW1/4, NE1/4, SW1/4, Sec. 31, T32N, R39E.

Table 5. Continued.

Leach Area Rock Samples - Locations

- 17 Basalt, southern end of dike, SE of Leach Hot Spring, SE1/4, NW1/4, NW1/4, Sec. 6, T31N, R39E.
- 32 Quartzite, Halvallah Fm., NE1/4, NE1/4, Sec. 4, T31N, R39E (unsurveyed).
- 21 Massive microcrystalline sinter, from stream cut exposure of sinter ledge, NE of Leach Hot Spring.
- 22 Layered opal sinter, east side of road cut SW of Leach Hot Spring.
- 23 Zeolitized airfall tuff, silicic; from road cut ~200' east of SW corner of Sec. 17, T32N, R39E.
- 20 Brick-red altered rock just SE of sinter ledge, NE of Leach Hot Spring.
- 33 Basalt remnant, lower more crystalline part of unit, Goldbanks hills, SW1/4, NW1/4, SW1/4, Sec. 14, T30N, R38E.
- 31 Greenstone (Pumpnickel Fm.) NW1/4, Sec. 4, T31N, R39E (unsurveyed).
- 29 White friable spring deposit, east side of Spaulding Canyon, NE1/4, NW1/4, NE1/4, Sec. 13, T31N, R37E.

Table 13. BEOVAWE ROCK SAMPLES

Sample	10B	4B	3B	7B	5B
SiO ₂	67.9	60.3	56.0	51.3	49.1
Al ₂ O ₃	13.8	14.3	13.5	11.4	16.2
ΣFeO*	5.8	6.9	3.8	3.0	11.1
MgO	0.3	0.8	3.1	1.3	7.5
CaO	2.2	4.1	6.7	12.1	9.5
Na ₂ O*	3.21	3.24	2.02	1.90	2.67
K ₂ O	4.8	4.1	2.4	3.1	0.9
TiO ₂ *	0.8	0.9	0.7	0.5	1.5
MnO*	<u>0.052</u>	<u>0.135</u>	<u>0.081</u>	<u>0.068</u>	<u>0.191</u>
Total %	98.9	94.8	88.3	84.7	98.7
	(ppm)				
U	3.34	4.25	1.75	2.03	0.57
Th	17.6	12.7	8.6	2.3	2.6
Ta	1.34	1.78	0.71	0.65	1.3
Hf	10.6	11.7	5.6	4.7	4.3
La	63	67	295	28	30
Ce	124	140	618	52	64
Nd	55	66	245	22	33
Sm	10.7	12.4	5.3	4.80	7.1
Eu	1.9	2.8	1.2	1.2	2.0
Tb	1.30	1.7	0.75	0.64	1.0
Dy	7.9	10.6	4.5	3.6	6.3
Yb	4.8	6.6	2.75	1.9	3.6
Lu	0.66	0.90	0.38	0.27	0.53
Rb	165	130	105	100	< 15
Cs	3.2	5.8	7.7	7.5	< 0.3
W	1	1.6	< 1	1.9	1
Ba	1700	1900	2100	1530	1340
Sb	< 0.1	0.2	0.2	0.8	< 0.2
As	25	5	5	45	< 10
Mo	4.3	5.5	1.6	13	< 1
Sc	10.0	1.65	1.20	6.02	3.04

Table 13. Continued.

Co	5.8	6.8	7.0	5.0	41
Zn	130	170	85	73	160
Cr	< 3	< 3	15	< 15	175
Ni	< 20	< 20	< 20	< 20	115
Cl	< 500	700	3200	< 500	1100
V	< 25	50	60	< 25	280

Samples:

- 10B Andesite.
- 4B Scoriaceous andesite.
- 3B Mudflow breccia.
- 7B Buff tuff.
- 5B Massive basalt.