

Chemical Analyses and Norms of  
Mt. Shasta Strat Test 52-4 Volcanic Rocks

	<u>52-4-1</u>	<u>52-4-1A</u>	<u>52-4-2</u>	<u>52-4-3</u>	<u>52-4-4</u>	<u>52-4-5</u>	<u>52-4-5A</u>	<u>52-4-6</u>	<u>52-4-8</u>
Depth	406'	406'	524'	690'	811'	918'	918'	1,005'	1,370'
Elevation	5,214'	5,214'	5,096'	4,930'	4,809'	4,702'	4,702'	4,615'	4,250'
SiO <sub>2</sub>	74.39	75.05	75.42	58.68	60.91	56.23	56.06	64.47	52.45
TiO <sub>2</sub>	0.21	0.22	0.22	0.61	0.61	0.61	0.61	0.88	1.49
Al <sub>2</sub> O <sub>3</sub>	12.93	12.97	13.13	18.15	18.19	18.81	18.73	16.01	17.50
Fe <sub>2</sub> O <sub>3</sub>	1.48	1.32	1.68	4.76	5.66	5.73	6.56	5.28	8.81
FeO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MnO	0.03	0.03	0.02	0.09	0.09	0.10	0.10	0.08	0.14
MgO	0.17	0.18	0.07	2.94	2.93	4.50	4.43	1.53	5.65
CaO	0.86	0.87	0.84	6.21	6.19	7.59	7.56	4.37	8.41
Na <sub>2</sub> O	3.55	3.54	3.54	3.64	4.04	3.23	3.29	3.70	3.52
K <sub>2</sub> O	4.53	4.55	4.59	1.58	1.42	0.86	0.85	2.61	1.12
P <sub>2</sub> O <sub>5</sub>	0.02	0.02	0.02	0.14	0.14	0.13	-0.13	0.22	0.41
H <sub>2</sub> O+	0.24	0.24	0.24	0.63	-0.09	0.06	0.06	0.08	-0.23
H <sub>2</sub> O-	<u>0.03</u>	<u>0.03</u>	<u>0.09</u>	<u>0.19</u>	<u>0.06</u>	<u>0.17</u>	<u>0.17</u>	<u>0.30</u>	<u>0.04</u>
Total	98.44	99.02	99.86	97.62	100.15	98.02	98.55	99.53	99.31
q	34.36	34.97	35.41	14.46	15.27	12.09	11.84	22.12	4.65
c	0.67	0.69	0.86	0.0	0.0	0.0	0.0	0.0	0.0
or	26.77	26.89	27.12	9.34	8.39	5.08	5.02	15.42	6.62
ab	30.04	29.95	29.95	30.80	34.19	27.33	27.84	31.31	29.79
an	4.14	4.19	4.04	28.52	27.31	34.29	33.83	19.37	28.64
di-wo	0.0	0.0	0.0	0.0	0.30	0.33	0.46	0.0	2.41
di-en	0.0	0.0	0.0	0.0	0.26	0.28	0.39	0.0	2.08
di-fs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hy-en	0.42	0.45	0.17	7.32	7.04	10.92	10.64	3.81	11.99
hy-fs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
mt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
il	0.06	0.06	0.04	0.19	0.19	0.21	0.21	0.17	0.30
hm	1.48	1.32	1.68	4.76	5.66	5.73	6.56	5.28	8.81
tn	0.0	0.0	0.0	0.97	1.25	1.22	1.22	0.62	3.27
ru	0.18	0.19	0.20	0.11	0.0	0.0	0.0	0.54	0.0
ap	<u>0.05</u>	<u>0.05</u>	<u>0.05</u>	<u>0.33</u>	<u>0.33</u>	<u>0.31</u>	<u>0.31</u>	<u>0.52</u>	<u>0.97</u>
Total	98.17	98.75	99.53	96.80	100.18	97.79	98.32	99.16	99.52
Femic	2.19	2.07	2.14	13.69	15.03	19.01	19.79	10.94	29.83
Salic	95.98	96.68	97.38	83.12	85.16	78.79	78.53	88.22	69.69

All values are in weight percent

	<u>52-4-9</u>	<u>52-4-10</u>	<u>52-4-11</u>	<u>52-4-11A</u>	<u>52-4-12</u>	<u>52-4-13</u>	<u>52-4-14</u>	<u>52-4-15</u>
Depth	1,924'	2,267'	2,270'	2,270'	2,580'	2,884'	3,320'	3,499'
Elevation	3,696'	3,353'	3,350'	3,350'	3,040'	2,736'	2,300'	2,121'
SiO <sub>2</sub>	56.44	51.36	52.82	53.00	50.15	49.35	55.29	53.99
TiO <sub>2</sub>	1.20	1.09	1.03	1.03	1.75	1.76	0.93	0.91
Al <sub>2</sub> O <sub>3</sub>	17.43	20.69	19.56	19.60	16.58	17.44	17.33	17.16
Fe <sub>2</sub> O <sub>3</sub>	8.65	6.99	8.09	8.61	11.52	12.92	7.13	7.62
FeO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MnO	0.13	0.11	0.14	0.14	0.18	0.18	0.11	0.13
MgO	3.53	1.91	3.11	3.12	5.16	4.02	5.27	5.20
CaO	6.98	9.44	6.13	6.14	8.33	7.70	6.77	7.46
Na <sub>2</sub> O	3.68	3.07	2.29	2.33	3.47	3.76	3.35	3.18
K <sub>2</sub> O	1.24	0.58	0.61	0.62	0.83	0.78	1.17	0.60
P <sub>2</sub> O <sub>5</sub>	0.37	0.22	0.11	0.11	0.45	0.34	0.22	0.22
H <sub>2</sub> O+	0.14	1.17	4.03	4.03	0.48	0.83	1.12	1.58
H <sub>2</sub> O-	<u>0.14</u>	<u>2.44</u>	<u>8.72</u>	<u>8.72</u>	<u>1.23</u>	<u>0.90</u>	<u>2.41</u>	<u>2.83</u>
Total	99.93	99.07	106.64	107.45	100.13	99.98	101.10	100.88
q	12.15	9.78	19.70	19.57	4.93	4.59	10.31	11.11
c	0.0	0.0	4.25	4.20	0.0	0.0	0.0	0.0
or	7.33	3.43	3.60	3.66	4.90	4.61	6.91	3.55
ab	31.14	25.98	19.38	19.72	29.36	31.82	28.35	26.91
an	27.38	40.96	29.69	29.74	27.21	28.41	28.80	30.78
di-wo	0.49	0.45	0.0	0.0	2.41	0.90	0.23	0.89
di-en	0.42	0.39	0.0	0.0	2.09	0.78	0.20	0.77
di-fs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hy-en	8.37	4.37	7.75	7.77	10.76	9.24	12.93	12.18
hy-fs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
wt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
il	0.28	0.24	0.30	0.30	0.39	0.39	0.24	0.28
hm	8.65	6.99	8.09	8.61	11.52	12.92	7.13	7.62
tn	2.59	2.37	0.0	0.0	3.80	3.82	1.98	1.87
ru	0.0	0.0	0.87	0.87	0.0	0.0	0.0	0.0
ap	<u>0.88</u>	<u>0.52</u>	<u>0.26</u>	<u>0.26</u>	<u>1.07</u>	<u>0.81</u>	<u>0.52</u>	<u>0.52</u>
Total	99.67	95.47	93.89	94.70	98.44	98.27	97.58	96.48
Femic	21.67	15.32	17.27	17.81	32.03	28.84	23.22	24.13
Salic	78.00	80.15	76.63	76.89	66.41	69.43	74.36	72.34

All values are in weight percent

Trace Element Analyses  
Medicine Lake Strat Test 52-4

Sample	<u>52-4-1</u>	<u>52-4-2</u>	<u>52-4-3</u>	<u>52-4-4</u>	<u>52-4-5</u>	<u>52-4-6</u>	<u>52-4-8</u>
Depth	406'	524'	690'	811'	918'	1,005'	1,370'
Elevation	5,214'	5,096'	4,930'	4,809'	4,702'	4,615'	4,250'
S*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cl	66.04	<50.0	89.38	<50.0	<50.0	<50.0	<50.0
V	<20.0	<20.0	105.28	104.56	117.76	137.25	148.54
Ni	<20.0	<20.0	22.96	<20.0	58.63	<20.0	50.53
Cu	<20.0	<20.0	60.54	36.57	71.83	<20.0	52.82
Zn	23.33	31.96	62.58	48.46	69.57	61.99	57.89
Rb	137.69	141.86	32.14	26.54	<20.0	76.24	<20.0
Sr	73.20	83.81	587.08	575.52	663.75	375.94	480.06
Zr	169.11	145.99	141.62	137.62	125.81	151.36	149.68
Ba	871.11	925.90	348.77	383.23	256.24	673.75	299.34
Pb	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0

All trace elements except S are in ppm

\*Weight percent

Sample	<u>52-4-9</u>	<u>52-4-10</u>	<u>52-4-11</u>	<u>52-4-12</u>	<u>52-4-13</u>	<u>52-4-14</u>	<u>52-4-15</u>
Depth	1,924'	2,267'	2,270'	2,580'	2,884'	3,320'	3,499'
Elevation	3,696'	3,553'	3,350'	3,040'	2,736'	2,300'	2,121'
S*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cl	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
V	171.39	179.28	133.87	223.05	200.96	125.08	118.53
Ni	<20.0	<20.0	59.13	<20.0	<20.0	72.71	75.15
Cu	52.97	41.69	70.56	61.9	44.14	59.67	58.77
Zn	75.58	83.99	90.84	81.41	99.04	59.76	57.27
Rb	<20.0	<20.0	33.30	<20.0	<20.0	26.37	30.83
Sr	509.40	573.70	585.30	422.52	418.45	419.86	450.98
Zr	158.73	171.89	192.42	151.23	146.57	130.85	130.38
Ba	405.19	219.90	283.26	294.97	270.85	269.69	364.47
Pb	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0

All trace elements except S are in ppm

\*Weight percent