Table DR1. Whole Rock Major Element, Trace Element and Isotopic Analyses

	Benton Range			Gaspipe Spring		Wheeler Crest			
Sample	08-696	08-697	08-698	10-785	10-786	08-700	08-701	08-725	08-728
SiO2	67.26	70.13	69.38	62.92	65.11	68.72	70.95	72.14	72.38
Al2O3	15.59	14.5	14.96	17	16.91	15.24	14.86	14.37	14.39
TiO2	0.33	0.32	0.31	0.37	0.32	0.34	0.28	0.23	0.23
FeO*	3.29	3.03	3.01	3.65	2.77	3.28	2.51	1.93	2.19
MnO	0.1	0.1	0.09	0.13	0.1	0.1	0.09	0.06	0.08
MgO	1.13	1.03	1.04	0.97	0.67	1.19	0.92	0.65	0.72
CaO	3.52	3.07	3.17	3.11	3.25	3.81	2.71	2.1	2.52
Na2O	2.87	2.56	2.84	4.19	4	3.16	3.19	3.22	2.95
K2O	4.36	4.46	4.3	4.69	4.74	3.25	4.1	4.24	4.18
P2O5	0.16	0.14	0.14	0.14	0.12	0.14	0.1	0.07	0.08
SUM	98.61	99.34	99.24	97.17	97.99	99.23	99.71	99.01	99.72
Rb	208	219	215	119	168	135	214	199	181
Sr	483	414	414	560	547	490	383	347	381
Zr	106	100	99	233	190	112	103	104	109
V	39	33	32	41	37	43	25	15	15
Ba	1128	922	696	2269	2117	1278	1296	1169	1467
Y	12	14	12	22	17	13	12	12	12
Nb	20	23	20	15	19	17	20	19	14
Zn	42	41	40	41	29	36	31	22	26
Pb	25	26	22	33	25	16	19	17	20
Th	20	15	18	18	28	21	27	33	20
Hf	2	2	2	6	5	2	2	2	2
Ta	1.52	2.16	1.71	2.75	3.01	1.18	1.86	1.94	1.49
U	5.35	3.81	7.00	5.83	9.03	5.16	6.40	6.62	4.48
La	24.05	25.81	18.08	46.57	49.06	35.29	28.00	39.29	31.19
Ce	51.00	52.92	38.90	99.53	102.64	66.16	52.11	70.56	56.40
Pr	5.27	5.51	4.22	10.79	10.11	6.43	5.16	6.41	5.55
Nd	18.07	18.62	14.76	37.92	33.01	20.78	16.70	19.43	17.74
Sm	3.18	3.27	2.71	6.64	5.20	3.42	2.98	3.62	3.12
Eu	0.94	0.88	0.80	1.48	1.42	0.95	0.81	0.78	0.89
Gd	3.08	3.13	2.69	5.94	4.90	3.33	2.93	3.21	3.06
Tb	0.46	0.48	0.43	0.83	0.66	0.48	0.44	0.47	0.46
Dy	1.95	2.17	1.88	4.69	3.40	2.05	1.89	1.93	1.98
Ho	0.38	0.42	0.37	0.98	0.70	0.41	0.38	0.37	0.39
Er	1.07	1.16	1.03	2.82	2.14	1.13	1.10	1.12	1.11
Yb	1.32	1.44	1.29	3.22	2.70	1.39	1.40	1.40	1.34
Lu	0.21	0.23	0.21	0.47	0.41	0.22	0.24	0.24	0.23
87Rb/86Sr	1.245		1.502			0.797	1.616	1.659	
87Sr/86Sr	0.71015		0.71092			0.70859	0.71089	0.71131	
Sr(initial)	0.70625		0.70622			0.70609	0.70583	0.70612	
Nd(ppm)	14.44		15.15			21.02	16.51	14.66	
Sm(ppm)	2.83		2.81			3.19	2.63	2.40	
End (220)	-4.43		-4.58			-4.58	-4.18	-4.09	
T(DM)	1189		1140			910	992	1004	

Normative Mineralogy

an	16.42	14.31	14.81	13.73	14.19	17.80	12.79	9.96	11.98
ab	24.28	21.66	24.03	35.45	33.85	26.74	26.99	27.25	24.96
or	25.76	26.35	25.41	27.71	28.01	19.20	24.23	25.05	24.70
qz	23.55	29.03	27.04	11.32	15.04	26.86	28.63	31.03	31.94
ol	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ne	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
di	0.00	0.00	0.00	0.66	0.97	0.15	0.00	0.00	0.00
hy	6.23	5.70	5.70	5.90	4.02	6.27	4.88	3.57	4.07
ap	0.38	0.33	0.33	0.33	0.28	0.33	0.24	0.17	0.19
ilm	0.63	0.61	0.59	0.70	0.61	0.65	0.53	0.44	0.44
mt	1.33	1.22	1.22	1.47	1.12	1.32	1.01	0.78	0.88
co	0.13	0.21	0.21	0.00	0.00	0.00	0.49	0.83	0.62
sum	98.72	99.44	99.34	97.28	98.08	99.33	99.79	99.07	99.78

Pine Creek				Lee Vining Canyon					
08-703	08-705	08-706	08-707	08-729	08-731	08-732	08-753	08-754	08-755
74.93	74.51	76.23	74.03	74.95	74.66	76.77	73.37	72.76	72.55
13.47	13.65	12.86	14.07	13.45	13.4	12.88	14.31	14.21	14.17
0.18	0.19	0.13	0.22	0.13	0.13	0.08	0.17	0.18	0.17
1.50	1.44	1.22	1.55	1.46	1.52	0.97	1.67	1.76	2.31
0.06	0.04	0.04	0.04	0.06	0.04	0.03	0.03	0.08	0.1
0.42	0.36	0.22	0.43	0.41	0.38	0.26	0.49	0.57	0.45
1.44	1.1	1.02	1.57	1.31	1.2	0.81	1.84	1.96	1.6
3.32	3.18	3.38	3.4	3.26	2.88	3.14	3.62	3.49	3.49
4.19	4.84	4.70	4.33	4.51	5.16	5.11	3.97	3.75	4.35
0.06	0.04	0.03	0.05	0.04	0.04	0.02	0.05	0.06	0.06
99.57	99.35	99.83	99.69	99.58	99.41	100.07	99.52	98.82	99.25
155	135	192	135	160	133	135	138	111	156
263	276	139	356	154	169	113	238	290	248
133	135	104	164	98	95	79	97	88	171
6	4	3	6	5	4	2	7	9	7
1392	2115	527	2009	964	1148	909	1554	1735	1591
15	11	24	12	19	12	10	15	11	24
24	22	36	21	12	11	11	12	10	17
26	21	20	17	21	17	13	10	31	28
30	31	24	26	24	23	22	21	20	19
19	24	22	16	18	16	19	16	16	22
2	3	3	3	2	2	2	2	2	6
2.46	2.61	4.09	2.42	1.89	1.61	1.69	1.79	1.64	1.94
6.99	2.70	11.68	4.10	8.85	5.93	8.28	7.00	4.27	6.72
37.71	55.44	21.78	49.20	22.58	17.21	20.07	23.78	20.72	41.40
72.03	103.82	43.29	88.26	42.96	38.98	38.07	42.61	36.42	69.10
6.87	9.55	4.47	7.90	4.30	3.31	3.71	4.34	3.64	7.40
21.64	28.83	15.04	23.53	13.96	10.62	12.12	14.01	11.69	25.80
3.53	4.33	3.10	3.58	2.73	2.07	2.25	2.66	2.20	4.33
0.73	1.04	0.44	0.97	0.42	0.47	0.38	0.58	0.66	0.92
3.56	4.12	3.40	3.62	2.90	2.40	2.45	2.75	2.38	4.25
0.53	0.53	0.57	0.50	0.49	0.40	0.40	0.45	0.38	0.61
2.37	1.85	3.03	1.93	2.63	1.81	1.68	2.26	1.66	3.56
0.47	0.35	0.67	0.37	0.58	0.36	0.32	0.45	0.33	0.77
1.30	0.90	2.19	1.07	1.79	1.06	0.89	1.34	1.00	2.35
1.45	1.08	2.42	1.26	2.12	1.33	1.12	1.66	1.24	2.84
0.25	0.19	0.40	0.22	0.38	0.23	0.20	0.28	0.22	0.50
1.704	1.415		1.097	3.005	2.276		1.677	1.107	1.877
0.71114	0.71020		0.70971	0.71478	0.71243		0.71051	0.70896	0.71131
0.70581	0.70577		0.70628	0.70537	0.70531		0.70526	0.70550	0.70543
19.79	28.32		22.01	12.16	9.91		11.76	7.66	18.48
3.02	3.57		2.96	2.34	1.91		2.16	1.42	3.33
-4.32	-2.78		-4.54	-2.38	-2.83		-2.07	-2.28	-3.27
977	805		927	1007	1042		943	969	1018

6.75	5.20	4.86	7.46	6.24	5.69	3.89	8.80	9.33	7.55
28.09	26.91	28.60	28.77	27.58	24.37	26.57	30.63	29.53	29.53
24.76	28.60	27.77	25.59	26.65	30.49	30.20	23.46	22.16	25.70
35.34	34.07	35.58	33.14	34.71	34.41	36.41	31.82	32.38	30.51
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.58	2.31	1.81	2.56	2.59	2.55	1.69	2.92	3.29	3.68
0.14	0.09	0.07	0.12	0.09	0.09	0.05	0.12	0.14	0.14
0.34	0.36	0.25	0.42	0.25	0.25	0.15	0.32	0.34	0.32
0.61	0.58	0.49	0.62	0.59	0.61	0.39	0.67	0.71	0.93
1.00	1.28	0.43	1.06	0.92	0.99	0.76	0.83	0.99	0.96
99.62	99.39	99.87	99.73	99.62	99.46	100.10	99.57	98.88	99.32

Mount Olsen			Odell	Saddlebag Lake pendant					
08-742	10-802	10-803	08-736	08-739	08-740	08-741	08-743	08-744	08-746
73.78	71.87	71.57	63.97	70.67	74.59	72.33	71.49	73.71	72.48
13.98	14.14	14.08	16.37	14.87	14.33	14.74	14.26	13.61	14.40
0.17	0.18	0.18	0.54	0.26	0.2	0.27	0.25	0.20	0.19
1.73	1.67	1.83	4.75	2.56	1.99	2.35	3.25	2.06	2.01
0.04	0.06	0.06	0.11	0.1	0.08	0.11	0.12	0.10	0.08
0.49	0.41	0.42	1.5	1.39	0.78	1.08	1.12	0.65	0.67
1.64	1.88	1.76	2.61	2.18	2.37	2.24	5.28	3.50	4.26
3.37	3.56	3.6	3.14	3.06	0.08	0.33	0.51	0.06	0.19
4.39	4.17	4.27	5.21	3.34	3.94	3.41	2.22	4.51	4.40
0.05	0.06	0.05	0.18	0.09	0.06	0.08	0.07	0.05	0.06
99.64	98.00	97.82	98.38	98.52	98.42	96.94	98.57	98.45	98.74
148	187	208	207	97	169	127	107	200	199
281	278	257	360	301	129	86	171	83	118
122	137	141	256	111	103	108	102	106	99
8	16	27	75	24	12	60	60	51	51
1319	1253	994	2227	1891	1022	693	1183	733	704
14	13	23	33	11	10	14	11	11	12
12	11	19	20	10	10	10	10	11	10
16	15	18	61	41	20	23	72	25	24
18	42	28	33	8	19	17	19	20	23
23	37	31	29	12	21	17	14	19	19
2	5	4	5	2	2	4	2	3	3
1.57	3.33	3.16	1.70	1.37	1.24	2.13	1.46	1.29	1.20
6.90	14.28	9.41	6.00	6.13	7.34	12.91	5.84	6.11	6.03
40.56	45.78	41.27	40.68	25.35	30.54	24.66	27.37	31.63	29.46
72.48	95.08	74.37	97.45	45.66	53.61	52.60	50.59	52.72	49.79
6.99	9.14	7.51	11.05	4.61	5.04	5.33	4.67	4.97	4.74
21.66	28.46	23.79	41.60	15.41	15.66	17.68	14.49	15.58	14.87
3.57	4.27	4.20	8.66	2.86	2.46	3.09	2.48	2.50	2.45
0.68	0.75	0.58	1.54	0.83	0.63	0.87	0.77	0.57	0.60
3.46	4.00	3.84	7.04	2.81	2.68	3.17	2.96	3.02	2.91
0.50	0.52	0.56	0.99	0.44	0.41	0.48	0.44	0.44	0.43
2.21	2.64	3.14	5.83	1.90	1.66	2.75	1.67	1.62	1.64
0.43	0.55	0.71	1.19	0.38	0.32	0.60	0.34	0.33	0.34
1.24	1.75	2.27	3.31	1.12	0.93	1.83	1.01	1.02	1.08
1.46	2.33	2.78	3.09	1.35	1.20	2.16	1.19	1.24	1.30
0.26	0.37	0.46	0.47	0.23	0.21	0.35	0.19	0.21	0.22
1.523			1.663	0.932	3.789		1.81	6.969	4.877
0.71021			0.70978	0.70836	0.71576		0.71182	0.72536	0.72084
0.70544			0.70458	0.70544	0.70391		0.70616	0.70355	0.70558
19.34			34.30	11.49	13.25		11.99	12.30	12.99
3.47			7.26	1.96	2.10		2.02	1.87	2.01
-3.73			-2.65	-1.94	-2.06		-1.29	-2.06	-1.78
1048			1134	886	852		832	833	824

7.81	8.93
28.51	30.12
25.94	24.64
32.47	29.95
0.00	0.00
0.00	0.00
0.00	0.00
3.00	2.75
0.12	0.14
0.32	0.34
0.70	0.67
0.82	0.50
99.69	98.05

09-767	09-768	08-749	08-750	08-751	08-752	09-762	09-763	09-764	09-766
70.97	73.11	73.96	71.66	70.71	72.16	70.65	72.03	72.75	72.50
14.50	13.39	13.65	14.42	14.03	13.90	14.70	14.28	13.66	13.77
0.30	0.18	0.18	0.23	0.25	0.24	0.23	0.22	0.19	0.17
2.84	2.16	1.73	2.52	2.55	2.47	2.47	2.26	1.80	1.75
0.09	0.08	0.09	0.09	0.11	0.09	0.10	0.09	0.06	0.08
1.22	0.60	0.61	0.89	1.12	1.01	1.01	0.92	0.60	0.52
4.33	3.80	3.11	2.43	3.83	2.35	3.47	3.09	1.83	1.85
1.59	0.54	1.01	2.22	0.95	1.46	1.51	1.18	2.19	2.55
2.12	4.26	4.21	3.55	3.32	3.44	3.60	3.85	3.73	3.81
0.09	0.05	0.06	0.07	0.06	0.08	0.07	0.07	0.06	0.06
98.05	98.17	98.61	98.08	96.93	97.20	97.81	97.99	96.87	97.06
90	188	171	150	140	149	171	171	148	186
183	141	292	288	292	184	265	217	410	381
101	91	89	100	90	96	97	104	91	95
44	14	50	55	56	56	23	20	14	13
858	681	1944	1584	1417	1213	1602	1727	1986	2031
16	12	12	13	13	13	14	13	15	13
9	11	11	11	10	11	11	11	12	12
35	25	22	33	38	39	45	41	31	39
20	16	19	24	24	20	22	23	28	39
17	22	21	19	17	17	22	22	25	27
3	3	3	3	3	3	3	4	4	4
1.42	1.64	2.23	2.04	1.41	1.70	2.49	2.83	4.52	4.54
4.14	6.33	8.84	7.41	7.35	6.23	8.55	9.05	9.44	9.22
32.74	31.01	30.81	32.26	28.01	27.00	34.45	32.11	34.66	36.91
53.44	48.00	51.33	55.25	47.02	46.15	55.35	50.96	54.30	57.14
5.35	4.76	4.93	5.47	4.66	4.57	5.53	5.11	5.34	5.59
18.13	15.38	15.39	17.62	15.13	14.89	18.14	17.04	17.88	18.07
3.13	2.53	2.54	3.03	2.70	2.60	3.01	2.96	2.97	2.83
0.75	0.66	0.71	0.88	0.70	0.70	0.74	0.73	0.72	0.71
3.06	2.40	3.04	3.35	3.03	2.97	2.86	2.71	2.97	2.74
0.44	0.34	0.44	0.50	0.45	0.44	0.39	0.37	0.39	0.36
2.52	1.83	1.70	2.00	1.82	1.85	2.18	2.07	2.19	2.02
0.53	0.38	0.34	0.40	0.38	0.38	0.45	0.44	0.48	0.43
1.60	1.14	1.10	1.26	1.17	1.21	1.36	1.34	1.43	1.29
1.80	1.30	1.29	1.47	1.38	1.35	1.65	1.56	1.59	1.59
0.31	0.23	0.22	0.25	0.23	0.23	0.29	0.28	0.31	0.29
		1.694	1.506	1.387	2.342				
		0.71131	0.70987	0.70958	0.71111				
		0.70601	0.70515	0.70524	0.70378				
		13.59	14.74	12.42	13.11				
		2.10	2.40	2.12	2.20				
		-2.31	-1.90	-2.01	-2.06				
		855	856	891	884				

10-791	10-792	10-794	10-793	10-800	10-801
69.68	70.14	72.1	72.48	70.84	70.23
13.57	13.95	13.21	14.47	15.01	13.35
0.21	0.25	0.18	0.21	0.21	0.22
2.08	3.14	1.72	1.89	2.11	2.18
0.11	0.1	0.08	0.06	0.06	0.1
0.72	2.01	0.5	0.81	0.68	0.8
3.13	2.31	2.04	1.17	1.6	3.08
1.95	1.72	2.86	1.74	4.15	1.85
3.58	2.62	3.57	3.45	3.29	3.43
0.07	0.06	0.06	0.07	0.07	0.07
95.10	96.30	96.32	96.35	98.02	95.31
160	109	138	142	117	150
292	281	389	162	282	228
99	101	89	101	109	98
26	35	17	26	23	29
2540	1867	2527	1444	2594	1980
11	11	11	11	11	10
8	8	8	9	9	7
29	53	22	18	25	24
28	21	59	27	36	17
23	22	28	27	28	24
3	3	4	4	4	3
2.59	2.80	4.03	4.82	5.73	2.43
7.76	11.06	13.47	9.72	12.82	8.59
28.21	26.59	30.84	29.63	37.68	30.05
55.76	56.74	60.73	60.36	73.08	59.37
5.51	5.27	5.97	5.80	7.04	5.86
17.92	16.77	18.84	18.24	22.29	18.75
2.94	2.89	3.01	3.00	3.46	3.07
0.83	0.89	0.86	0.83	1.10	0.82
2.74	2.82	2.93	3.08	3.38	2.85
0.39	0.41	0.41	0.42	0.45	0.40
2.15	2.24	2.20	2.19	2.39	2.13
0.45	0.47	0.46	0.47	0.50	0.44
1.42	1.47	1.41	1.48	1.55	1.40
1.79	1.77	1.81	1.75	1.96	1.63
0.28	0.29	0.29	0.31	0.33	0.27