

# Whole-Rock Geochemical Data for the Skinner Peaks Quadrangle, Utah

by

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Bibliographic citation for this data report:

Clark, D.L., 2007, Whole-rock geochemical data for the Skinner Peaks quadrangle, Utah: Utah Geological Survey Open-File Report 494, variously paginated, also available online, <<http://geology.utah.gov/online/ofr/ofr-494.pdf>>.



**OPEN-FILE REPORT 494**  
**UTAH GEOLOGICAL SURVEY**  
*a division of*  
Utah Department of Natural Resources  
**2007**

## **Introduction**

This Open-File Report makes available raw analytical data from laboratory procedures completed to determine the geochemistry of rock samples collected during geologic mapping partially supported by the Utah Geological Survey (UGS). Additional information about these samples is available in Felger and others (in preparation). These data were prepared by ALS Chemex Labs, Inc., Sparks, Nevada, under contract to the UGS. These data are highly technical in nature and proper interpretation requires considerable training in applicable geochemical techniques.

## **Disclaimer**

This Open-File release is intended as a data repository for technical analytical information gathered in support of geologic mapping of the Skinner Peaks quadrangle. These data may not conform to UGS technical or editorial standards. Therefore, it may be premature for an individual or group to take actions based on the contents of this report.

Geologic mapping of the Skinner Peaks quadrangle was partially funded by the Utah Geological Survey and the U.S. Geological Survey. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

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**Reference to geologic report that cites or explains samples analyzed in the report**

Felger, T.J., Clark, D.L., and Hylland, M.D., 2007, Geologic map of the Skinner Peaks quadrangle, Juab and Sanpete Counties, Utah: Utah Geological Survey Map 223, scale 1:24,000.

**Other references in data table**

Clark, D.L., 2003, Geologic map of the Sage Valley quadrangle, Juab County, Utah: Utah Geological Survey Miscellaneous Publication 03-2, 57 p., 2 plates, scale 1:24,000.

de Vries, R.D., 1990, Tales of Tertiary tuffs in central Utah: DeKalb, Northern Illinois University, M.S. thesis, 160 p.

LeBas, M.J., Le Maitre, R.W., Steckeisen, A.L., and Zanettin, B., 1986, A chemical classification of volcanic rocks based on the total alkali-silica diagram: *Journal of Petrology*, v. 27, part 3, p. 745-750.

Table 1. Major and trace element whole-rock analyses.

Sample #	Unit	Rock Name	7.5'		SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	Na <sub>2</sub> O	K <sub>2</sub> O	Cr <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	MnO	P <sub>2</sub> O <sub>5</sub>	SrO	BaO	LOI	Total	
			Quadrangle	Latitude (N)																Longitude (W)
PR-15	Thmp	monzonite	Chriss Canyon	39°29'05"	111°52'04"	48.03	14.78	12.01	8.13	5.48	3.32	3.31	<0.01	1.39	0.14	1.07	0.06	0.11	2.03	99.86
PR-18	Tp5w	rhyolite	Skinner Peaks	39°25'05"	111°55'04"	69.29	11.7	3.66	4.13	0.55	1.8	3.61	<0.01	0.42	0.14	0.1	0.04	0.06	3.11	98.61
PR-28	Tp5w	rhyolite	Skinner Peaks	39°23'10"	111°54'00"	69.27	12.72	3.7	2.97	1.15	2.29	3.97	0.01	0.46	0.07	0.11	0.05	0.14	1.61	98.52
PR-8	Tp5w	rhyolite	HKCSW	39°21'14"	111°56'54"	72.69	10.59	3.46	2.71	1.14	2.18	3.03	<0.01	0.36	0.05	0.09	0.04	0.07	3.21	99.62
PR-27	Tp5a	dacite	HKCSW	39°21'37"	111°54'55"	62.49	14.61	5.59	4.97	1.8	2.08	3.93	<0.01	0.64	0.1	0.12	0.04	0.07	3.52	99.96
SPQ-04-9	Tp5a	dacite	Skinner Peaks	39°23'23.9"	111°58'20.7"	63.42	14.69	3.70	3.75	2.01	2.43	3.83	0.01	0.44	0.07	0.13	0.05	0.08	5.01	99.62
SPQ-04-1	Tp4	rhyolite	Skinner Peaks	39°24'13.5"	111°55'26.5"	66.25	11.58	1.63	4.26	0.44	1.88	5.33	0.01	0.25	0.07	0.04	0.02	0.10	7.21	99.05
SPQ-04-2	Tp4	rhyolite	Skinner Peaks	39°22'31.6"	111°55'26.3"	65.36	12.38	1.57	4.13	0.70	1.79	5.59	0.01	0.25	0.08	0.08	0.02	0.13	6.40	98.50
SPQ-04-3	Tp4	rhyolite	HKCSW	39°21'43.5"	111°56'18.7"	68.74	12.62	1.49	1.92	0.70	1.68	5.74	0.01	0.24	0.07	0.04	0.02	0.13	5.15	98.54
SPQ-04-4	Tp4	rhyolite	HKCSW	39°21'26.5"	111°55'35.9"	66.98	12.37	1.54	3.73	0.64	1.88	5.61	0.01	0.28	0.07	0.05	0.02	0.12	5.87	99.17
PR-9	Tp4	rhyolite	HKCSW	39°21'27"	111°56'57"	68.10	12.15	1.45	2.94	0.82	2.09	5.81	<0.01	0.28	0.06	0.05	0.05	0.11	5.41	99.32
PR-17	Tp4	rhyolite	Skinner Peaks	39°25'21"	111°54'47"	67.28	12.42	1.45	2.72	0.54	1.24	5.49	0.01	0.23	0.08	0.04	0.03	0.12	7.59	99.23
PR-25	Tp4	rhyolite	HKCSW	39°21'51"	111°57'11"	69.59	13.16	1.55	1.29	0.78	1.73	5.33	0.01	0.24	0.06	0.06	0.02	0.08	5.17	99.07
PR-24	Tp3 (volcanic clast)	rhyolite	HKCSW	39°21'43"	111°57'05"	77	11.08	1.6	1.32	0.34	2.19	3.89	0.01	0.25	0.04	0.05	0.03	0.05	1.73	99.59
PR-13	Tp2	rhyolite	Skinner Peaks	39°22'43"	111°54'00"	64.84	11.92	1.57	6.01	0.43	2.74	4.26	<0.01	0.26	0.06	0.06	0.05	0.07	6.92	99.19
PR-16	Tp2	rhyolite	Skinner Peaks	39°24'33"	111°53'57"	70.95	13.43	1.79	1.84	0.55	2.1	4.83	0.01	0.24	0.04	0.07	0.02	0.06	4.07	100
PR-20	Tp2	rhyolite	Skinner Peaks	39°24'40"	111°54'59"	70.85	12.73	1.79	2.11	0.46	2.36	3.8	0.01	0.26	0.03	0.07	0.03	0.06	4.29	98.86
PR-21	Tp2	rhyolite	Skinner Peaks	39°23'13"	111°54'50"	73.15	12.15	1.67	1.89	0.73	1.71	4.69	<0.01	0.23	0.04	0.06	0.03	0.07	3.41	99.84
PR-23	Tp2	rhyolite	HKCSW	39°21'32"	111°56'55"	70.26	14.48	2	1.68	0.78	2.63	4.63	0.01	0.27	0.06	0.07	0.03	0.07	2.68	99.66
PR-26	Tgc	dacite	Skinner Peaks	39°23'39"	111°54'08"	67.14	14.66	3.18	2.39	0.9	1.19	6.07	0.01	0.48	0.01	0.12	0.04	0.04	2.79	99.02
PR-11	Tgc	dacite	Skinner Peaks	39°22'38"	111°55'44"	64.70	14.45	3.09	3.26	0.89	1.52	5.52	<0.01	0.54	0.03	0.12	0.06	0.10	5.32	99.60
S-3	Tgc	dacite	Skinner Peaks	39°29'12"	111°58'11"	62.58	15.35	4.02	3.37	1.41	1.92	3.27	<0.01	0.55	0.04	0.14	--	--	6.39	99.04

4

Notes:

Major oxides reported in weight percent by x-ray fluorescence (XRF); minor and trace elements report in ppm by inductively coupled plasma-mass spectrometry (ICP-MS).

All analyses performed by ALS Chemex Labs, Inc., Sparks, NV.

Rock name using TAS diagram of LeBas and others (1986), excluding PR-15.

HKCSW is Hells Kitchen Canyon Southwest.

Location data based on NAD27.

LOI is loss on ignition.

Also refer to geochemical data from deVries (1990), and also reported in Clark (2003).

Ag	Ba	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sm
<1	984	125.5	32.0	90	0.4	40	7.9	3.9	3.7	23	12.8	8	1.4	51.5	0.4	6.0	19	70.5	35	5	17.7	74.4	15.5
<1	701	66.5	8.4	50	3.8	19	2.4	1.5	0.9	14	3.6	4	0.5	34.3	0.2	<2	9	23.7	11	19	7	114.5	3.8
<1	1535	75.1	9.1	160	1.7	11	2.2	1.3	0.8	16	3.9	5	0.4	43.3	0.3	2	12	24	10	24	7.7	125	4
<1	735	70.5	10.0	70	3.4	30	2.2	1.3	0.8	13	3.6	4	0.4	40.0	0.1	8.0	43	22.0	15	20	7.3	120.5	3.7
<1	627	84.4	12.8	20	25.6	12	3.9	2.2	1.2	18	5.3	5	0.7	45.1	0.4	4	15	30.4	11	23	8.9	188.5	5
<1	650	77.5	9.0	30.0	5.1	13	2.5	1.6	0.8	18	3.5	5	0.4	46.0	0.2	3.0	13	26.0	9	55	8.2	119.0	4.4
3	774	85.0	2.0	20.0	7.4	<5	2.7	1.8	1.0	16	3.1	5	0.4	49.9	0.2	2.0	14	24.4	<5	479	8.0	143.0	4.7
1	1140	94.1	3.0	50.0	6.2	7	3.1	1.9	1.0	17	4.1	5	0.5	53.6	0.3	3.0	15	29.2	6	129	9.1	171.5	5.2
<1	939.00	81.3	1.9	20.0	6.6	<5	2.5	1.7	0.6	16	3.2	6	0.4	52.6	0.2	2.0	15	27.6	<5	61	8.8	145.0	4.4
<1	998.00	90.0	2.2	40.0	7.1	6	2.9	1.8	0.7	15	3.6	5	0.5	59.6	0.3	2.0	15	29.3	5	73	9.7	179.0	4.8
<1	1200	110.5	2.5	60	8.3	5	2.8	1.7	0.9	15	4.8	5	0.6	63.0	0.3	8.0	102	31.5	5	30	10.5	216.0	4.9
<1	1175	101	1.6	10	9.7	41	2.3	1.6	1	13	4.2	4	0.5	57.7	0.3	<2	14	32	<5	52	10.2	227	4.9
<1	790	92.8	1.8	30	21.3	13	2.2	1.5	0.8	16	3.6	5	0.4	52.9	0.3	3	14	29.2	5	32	9.2	201	4.2
<1	582	54.1	2.5	60	6.1	5	2.1	1.3	0.7	12	3.1	3	0.4	35.3	0.2	<2	14	22.5	6	29	6.8	128	3.5
<1	693	66.0	3.0	60	8.0	5	2.8	1.9	0.8	15	4.0	5	0.6	37.0	0.3	6.0	21	24.5	<5	25	7.8	206.0	4.5
<1	604	67.3	2.2	70	8.3	19	2.6	1.7	0.7	14	3.7	4	0.5	35.7	0.3	<2	18	24.2	<5	24	7.2	193	3.9
<1	611	63.2	2.3	80	3.2	9	2.4	1.7	0.8	14	3.4	4	0.5	30.5	0.3	<2	16	21.5	<5	24	6.3	123	3.7
<1	706	56.9	2.3	50	3.1	16	2.3	1.5	0.7	15	3.3	4	0.5	29.8	0.2	<2	16	22.1	5	27	6.2	162	3.5
<1	752	73.2	2.5	80	8.6	8	2.7	1.8	0.8	17	3.9	4	0.5	39.2	0.3	<2	18	27.6	5	34	8	211	4.5
<1	427	131	5.2	30	2	8	3.8	2.3	1.4	18	6.3	7	0.7	70.7	0.3	<2	19	47.4	9	23	13.7	157.5	7.4
<1	1045	134.5	7.0	40	3.3	5	4.2	2.5	1.3	19	6.5	7	0.8	73.5	0.4	8.0	56	45.0	15	15	14.3	177.5	7.2
<1	732	124.5	8.0	--	3.1	5	4.4	2.3	1.6	22	6.4	8	0.8	66.5	0.3	--	18	47.0	5	20	13.4	104.5	7.5

Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
114	578	7.0	1.6	7	<0.5	0.5	1.5	260	8	37.5	3.0	85	291.0
1	368	0.8	0.5	19	<1	<0.5	2.3	54	2	1.4	14.4	51	118.5
1	371	1.1	0.5	23	<0.5	0.2	2.8	88	1	12.5	1.2	53	138.5
32	325	49.5	0.4	19	<0.5	0.2	3.5	80	10	11.5	1.2	35	185.0
1	352	1.2	0.7	25	<0.5	0.3	5.4	106	2	20.9	2	69	155
<1	466	1.2	0.5	31	<0.5	0.2	6.7	56	2	12.2	1.7	56	147.5
<1	200	1.1	0.4	20	<0.5	0.2	6.9	16	2	10.8	1.9	131	143
1	240	1.2	0.5	24	<0.5	0.2	8.2	25	2	14.6	1.9	73	160
<1	234	1.2	0.4	24	<0.5	0.2	5.9	11	3	11.2	1.7	46	138
1	221	1.2	0.5	24	<0.5	0.2	7.6	16	3	14.4	1.9	56	141
25	232	113.0	0.5	23	<0.5	0.3	6.0	20	27	16.5	1.8	30	149.0
2	304	1.2	0.5	22	1	<0.5	5.8	12	2	1.7	14.3	35	139
2	196.5	1.3	0.4	25	1	<0.5	5.7	16	3	1.7	15	41	123
2	186.5	1.3	0.4	22	<1	<0.5	1.8	14	1	1.2	12.7	26	89.1
193	243	10.0	0.5	20	<0.5	0.3	6.5	20	17	18.0	2.2	40	138.5
2	266	1.6	0.5	25	1	<0.5	7.1	16	1	1.8	16.6	37	109
2	245	1.4	0.5	23	<1	<0.5	9.5	18	3	1.9	16.2	34	96.8
2	300	1.5	0.4	24	<1	<0.5	5.2	16	1	1.6	15.4	34	97.5
3	265	1.7	0.5	25	1	<0.5	6.2	25	3	1.9	17.8	42	106
2	394	1.2	0.8	25	1	<0.5	4.4	42	5	2.1	22	56	237
95	383	58.5	0.8	24	<0.5	0.3	3.0	65	15	22.5	2.2	45	246.0
<1	570	0.5	0.9	23	<0.5	0.3	3.5	70	1	21.0	2.3	50	271