



GEOARCHAEOLOGICAL XRF LAB

GEOARCHAEOLOGICAL X-RAY FLUORESCENCE SPECTROMETRY LABORATORY

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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM THE CALDWELL CREEK SITE (48FR7091), FREMONT COUNTY, WYOMING

21 October 2014

Dr. Laura Scheiber
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Dear Laura,

Not unexpectedly, all the artifacts were produced from Obsidian Cliff obsidian Wyoming. Specific instrumental methods can be found at <http://www.swxrflab.net/analysis.htm>, and Shackley (2005). Source assignment was made by comparison to source standard data in the laboratory and Skinner (2007). Analysis of the USGS RGM-1 standard indicates high machine precision for the elements of interest (Table 1 here).

Sincerely,

M. Steven Shackley, Ph.D.
Director

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REFERENCES CITED

Shackley, M.S.

2005 *Obsidian: Geology and Archaeology in the North American Southwest*. University of Arizona Press, Tucson.

Skinner, C.

2007 Yellowstone National Park Obsidian Project, Wyoming. Online report: http://www.obsidianlab.com/research/research_yellowstone.html

Table 1. Elemental concentrations for the archaeological samples, and USGS RGM-1 rhyolite standard. All measurements in parts per million (ppm).

Sample	Ti	Mn	Fe	Rb	Sr	Y	Zr	Nb	Ba	Pb	Th	Source
25	1004	268	12636	265	11	82	184	48	42	36	24	Obsidian Cliff, WY
42	967	230	11202	251	8	78	165	43	35	35	33	Obsidian Cliff, WY
75	911	236	11176	253	10	77	173	39	7	34	28	Obsidian Cliff, WY
175	972	263	11808	258	12	81	181	45	16	38	30	Obsidian Cliff, WY
186	951	239	11619	255	11	80	180	44	6	39	37	Obsidian Cliff, WY
621	917	242	10823	243	12	77	165	47	98	30	28	Obsidian Cliff, WY
1872	914	235	11062	249	10	72	164	42	<1	30	35	Obsidian Cliff, WY
RGM1-S4	1593	285	13279	147	109	25	216	10	818	23	19	standard