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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
Department of Anthropology
Indiana University
Bloomington, IN 47405

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