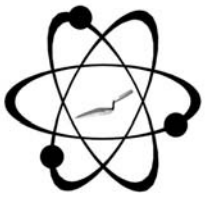

GEOARCHAEOLOGICAL XRF LAB

GEOARCHAEOLOGICAL X-RAY FLUORESCENCE SPECTROMETRY LABORATORY
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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM SC-S-01/H, CHINA LAKE, INYO COUNTY, CALIFORNIA

26 June 2014

Simone M. Schinsing
Epsilon Systems Solutions, Inc.
901 North Heritage Dr., Ste 204
Ridgecrest, CA 93555-5114

Dear Simone:

The artifacts were produced from either the Sugarloaf or West Sugarloaf domes in the Coso Volcanic Field (Table 1 and Figure 1). Specific instrumental methods can be found at http://www.swxrflab.net/anlysis.htm, and Shackley (2005). Source assignment was made by comparison to Ericson and Glascock (2004) and Hughes (1988). While there is some disagreement over the distinction between these sources, I have chosen to model my analysis after Hughes (1988), since my instrumentation and software are very similar and collaboration between our labs has always been compatible (see Figure 1). 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

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2004 Subsource Characterization: Obsidian Utilization of Subsources of the Coso Volcanic Field, Coso Junction, California, USA. *Geoarchaeology* 19:779-805.

Hughes, R.E.
1988 The Coso Volcanic Field Reexamined: Implications for Obsidian Sourcing and Hydration Dating Research. *Geoarchaeology* 3:253-265.

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

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

Sample	Ti	Mn	Fe	Zn	Rb	Sr	Y	Zr	Nb	Pb	Th	Source
1	516	302	10246	78	273	6	53	161	43	32	41	West Sugarloaf
2	268	281	8279	92	236	4	47	108	39	29	29	Sugarloaf
12	420	251	8590	62	252	8	47	149	42	30	34	West Sugarloaf
3a	362	271	8228	58	240	2	50	114	37	32	31	Sugarloaf
3b	567	303	10186	138	243	13	43	146	39	31	34	West Sugarloaf
3c	545	284	9718	124	230	10	43	152	36	31	29	West Sugarloaf
3d	334	277	8442	80	249	4	51	109	37	29	33	Sugarloaf
3e	446	304	9142	98	255	6	46	109	40	32	35	Sugarloaf
7a	420	309	10373	98	270	10	53	150	45	30	38	West Sugarloaf
7b	346	288	8426	87	238	5	48	111	40	32	36	Sugarloaf
7c	470	251	9187	132	267	6	50	138	42	31	35	West Sugarloaf
7d	534	293	10434	173	280	8	55	142	42	33	37	West Sugarloaf
7e	546	330	11809	179	300	8	53	149	38	37	44	West Sugarloaf
9a	478	313	9760	124	261	7	51	108	38	33	28	Sugarloaf
9b	577	299	10100	179	284	6	51	139	41	34	37	West Sugarloaf
9c	676	317	11474	150	285	10	54	152	42	37	32	West Sugarloaf
9d	541	342	10724	191	268	4	47	118	39	35	29	Sugarloaf
9e	546	343	9879	153	257	4	46	106	39	34	37	Sugarloaf
RGM1-S5	1423	289	12997	40	145	103	23	218	14	25	19	standard

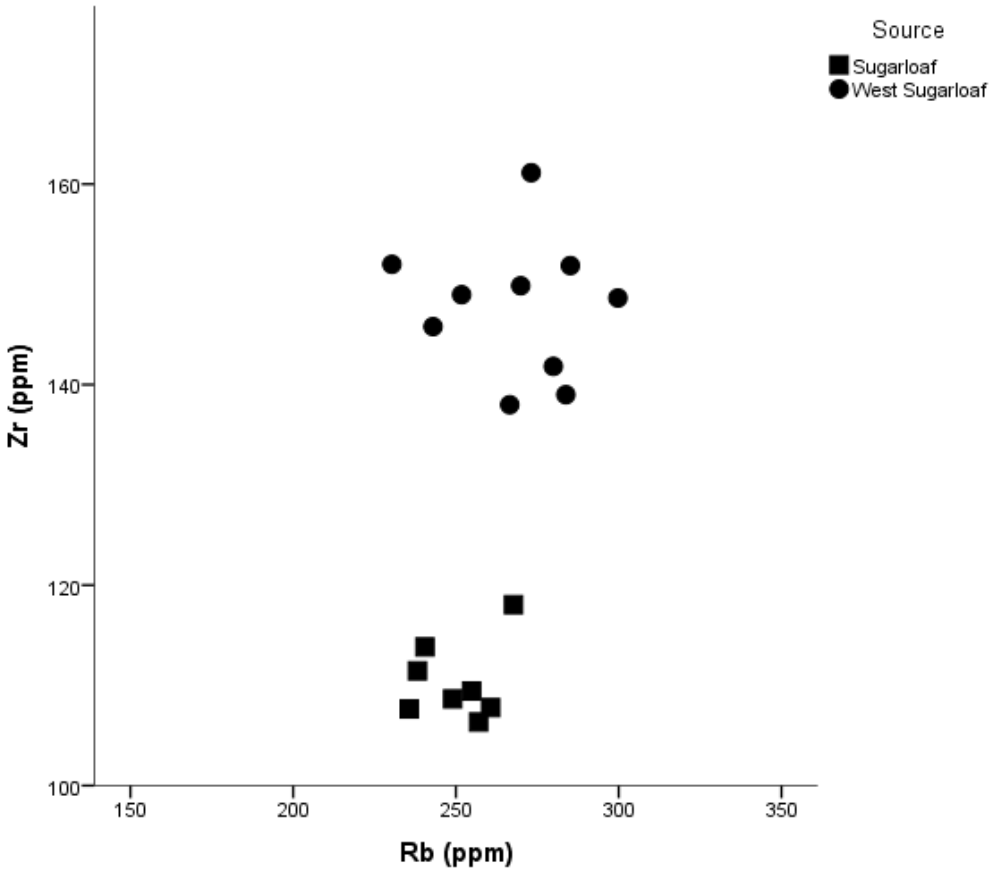

Figure 1. Rb versus Zr bivariate plot of the archaeological samples (after Hughes 1988).