BERKELEY ARCHAEOLOGICAL XRF LAB

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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF ONE ARTIFACT FROM CA-SBR-2295, EASTERN CALIFORNIA

7 April 2011

Evelyn Chandler
Ecorp Consulting, Inc.
215 North 5th Street
Redlands, CA 92374

Dear Evelyn,

The sample sent for EDXRF analysis appears to be a secondary siliceous sediment according to the major oxide and trace element analysis, probably a chalcedony or chert (Table 1). Note that the silica (SiO_2) is over 96%, typical for this kind of rock. The high manganese (MnO) is probably responsible for the dark color. There is a dark "chert" in the Cady Mountains formation to the east, but it is impossible with this analysis to determine the provenance with any confidence.

The samples were analyzed with a Thermo Scientific *Quant'X* EDXRF spectrometer in the Archaeological XRF Laboratory, El Cerrito, California. Specific instrumental methods can be found at http://www.swxrflab.net/anlysis.htm, and Shackley (2005). Analysis of the USGS RGM-1 standard indicates high machine precision for the elements of interest (Govindaraju 1994; Table 1 here).

Sincerely,

M. Steven Shackley, Ph.D.
Director

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REFERENCES CITED

Govindaraju, K.
1994 1994 Compilation of Working Values and Sample Description for 383 Geostandards. *Geostandards Newsletter* 18 (special issue).

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

Table 1. Elemental concentrations for the archaeological samples. All measurements in parts per million (ppm).

Sample	Na2O	MgO	Al2O3	SiO2	Cr2O3	MnO	Fe2O3	Ti	Mn	Fe	Rb	Sr	Y	Zr	Nb	Ba
	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
120	0.727	0.284	0.683	96.589	0	8183.138	0.143	438	4310	3435	0	139	6	0	0	3660
RGM-1	3.154	0	12.732	75.377	3.301	497.638	2.023	1436	240	12585	145	104	24	208	9	806