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An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from Unprovenienced Localities in Southern Arizona

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Publication Date

2011-12-08

Supplemental Material

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GEOARCHAEOLOGICAL XRF LAB

ARCHAEOLOGICAL X-RAY FLUORESCENCE SPECTROMETRY LABORATORY
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AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM UNPROVENIENCED LOCALITIES IN SOUTHERN ARIZONA

8 December 2011

Rich Davis
1040 N Rosedale
Ajo, AZ 85321

Dear Rich,

This obsidian artifact assemblage was produced from obsidian from the Coconino Plateau (RS Hill/Sitgreaves, and Partridge Creek), as well as the Sonoran Desert sources (Los Vidrios and Saucedo Mountains; Table 1 here). This is not inconsistent with an obsidian source provenance from this region (Shackley 2005).

The samples were analyzed with a Thermo Scientific *Quant'X* EDXRF spectrometer in the Archaeological XRF Laboratory, Albuquerque, New Mexico. Specific instrumental methods can be found at <http://www.swxrflab.net/analysis.htm>, and Shackley (2005). Source assignments made by reference to Shackley (1995, 2005 and others) and source data at this laboratory. 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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<http://www.swxrflab.net/>

REFERENCES CITED

Shackley, M.S.

1995 Sources of Archaeological Obsidian in the Greater American Southwest: An Update and Quantitative Analysis. *American Antiquity* 60(3):531-551.

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

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

Sample	Ti	Mn	Fe	Zn	Rb	Sr	Y	Zr	Nb	Source
1	947	234	12729	103	255	17	73	230	35	Los Vidrios
2	980	232	12054	124	242	13	64	217	31	Los Vidrios
3	1562	370	10502	90	160	71	31	191	25	Sauceda Mtns
4	771	404	10345	168	395	11	94	165	261	RS Hill/Sitgreaves Pk
5	1176	247	12999	114	238	15	69	221	29	Los Vidrios
6	777	454	9347	52	243	10	43	86	56	Partridge Creek
7	1609	359	10697	102	160	78	30	192	19	Sauceda Mtns
8	1556	361	10961	56	162	79	35	201	28	Sauceda Mtns
9	1776	404	11700	58	169	81	33	203	26	Sauceda Mtns
10	1543	299	10897	76	161	105	28	181	17	Sauceda Mtns
RGM1-S4	1586	281	13302	41	151	108	24	218	9	standard