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An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from AZ AA:12:226 (ASM), Central Arizona

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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM AZ AA:12:226 (ASM), CENTRAL ARIZONA

15 January 2015

Teresa Ingalls
PaleoWest
319 East Palm Lane
Phoenix, AZ 85004

Dear Teresa and Todd:

Most of the artifacts were produced from obsidian from sources in eastern Arizona and western New Mexico (Table 1). One artifact was produced from the Horace/La Jara Mesa source in the Mount Taylor Volcanic Field in northwestern New Mexico, and one from the Sand Tanks source in western Maricopa County, Arizona. The procurement of New Mexico sources is unusual in central Arizona sites, especially the Mount Taylor source. The one sample that was not obsidian appears to be crystalline quartz. All the sources are discussed in Shackley (2005) and <http://swxrflab.net/swobsrscs.htm>. Specific instrumental methods can be found at <http://www.swxrflab.net/analysis.htm>, and Shackley (2005). Source assignment was made by comparison to source standards in the laboratory database. 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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REFERENCE CITED

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 sample. All measurements in parts per million (ppm).

Sample (FS#)	Mn	Fe	Rb	Sr	Y	Zr	Nb	Pb	Th	Source
582	453	1110	131	108	26	123	19	21	17	Cow Canyon, AZ
1587	382	1175	245	23	44	109	25	31	44	Antelope Cr (Mule Cr), NM
1717	424	1218	256	21	39	113	29	32	44	Antelope Cr (Mule Cr), NM
4187	586	1167	525	15	91	132	222	61	29	Horace/La Jara Mesa (Mt. Taylor), NM
4308	181	8353	<1	12	1	9	0	<1	3	not obsidian
4322	532	1255	175	14	38	250	33	25	21	Sand Tanks, AZ
RGM1-S4	275	1373	149	108	25	219	6	18	13	standard