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An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from LA 2949 and 3099, West-Central New Mexico

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Publication Date

2010-03-10

Supplemental Material

<https://escholarship.org/uc/item/7s42d6vb#supplemental>

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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM LA 2949 AND 3099, WEST-CENTRAL NEW MEXICO

30 March 2010

Dr. Darrell Creel
TARL
University of Texas
Austin, TX 78758

Dear Darrell,

As we discussed the artifacts were produced from obsidian procured from the Gwynn/Ewe Canyon and Mule Creek sources of the Mogollon-Datil Volcanic Province, the nearest sources to these sites (Shackley 2005; Table 1 here).

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). Samples assigned to source by comparison to source standards at Berkeley (Shackley 2005; see Figure 1 here). 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 samples. All measurements in parts per million (ppm).

SAMPLE	Ti	Mn	Fe	Rb	Sr	Y	Zr	Nb	Source
LA 2949									
1164-7	1287	481	9393	241	20	31	147	28	Gwynn/Ewe Canyon
1196-13	1159	486	12015	284	21	45	118	30	Mule Cr/AC-MM
1207-5	1399	505	10184	239	22	34	144	23	Gwynn/Ewe Canyon
1230-5	1238	447	8879	232	19	33	143	21	Gwynn/Ewe Canyon
LA 3099									
93001-22	827	421	9944	266	16	45	115	22	Mule Cr/AC-MM
93027-13	765	430	9686	262	20	43	114	25	Mule Cr/AC-MM
NO	626	390	8759	245	15	40	114	24	Mule Cr/AC-MM
NUMBER									
RGM1-S5	1629	291	13015	150	107	27	214	4	standard