

UC Berkeley

Archaeological X-ray Fluorescence Reports

Title

An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from Eddy County, Southeastern New Mexico

Permalink

<https://escholarship.org/uc/item/87x7t8gs>

Author

Shackley, M. Steven

Publication Date

2010-11-01

Supplemental Material

<https://escholarship.org/uc/item/87x7t8gs#supplemental>

License

[CC BY-NC 4.0](#)



Department of Anthropology
232 Kroeber Hall
University of California
Berkeley, CA 94720-3710

LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM EDDY COUNTY, SOUTHEASTERN NEW MEXICO

1 November 2010

Adriana Romero
TRC
5400 Suncrest Drive, Suite D-1
El Paso, TX 79912

Dear Adrianna,

The artifacts were all produced from one of the three main sources in the Jemez Mountains, Cerro Toledo Rhyolite, and Valles Rhyolite, the former two readily available in the Rio Grande Quaternary alluvium (Shackley 2005; Table 1). Valles Rhyolite has been found as far south as Albuquerque, but in very small nodule sizes (< 16 mm), and in proportions well below 1% (LeTourneau and Shackley 2009; Shackley 2010).

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/analysis.htm>, and Shackley (2005). Samples assigned to source by comparison to source standards at Berkeley (Shackley 2005). 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

VOICE: (510) 642-2533
INTERNET: shackley@berkeley.edu
<http://www.swxrflab.net/>

REFERENCES CITED

Letourneau, P. D., and M.S. Shackley

2009 Geochemistry of Paleoindian and Early-Archaic Obsidian Artifacts from New Mexico and Colorado. *Current Research in the Pleistocene* 26:81-84.

Shackley, M.S.

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

2010 The Secondary Distribution of Archaeological Obsidian in the Rio Grande Quaternary Sediments, Jemez Mountains to San Antonito, New Mexico: Inferences for Prehistoric Procurement and the Age of Sediments. Poster presentation, 38th International Symposium on Archaeometry, Tampa, Florida..

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

Sample	Mn	Fe	Rb	Sr	Y	Zr	Nb	Source
1	501	11568	204	9	48	173	57	Valles Rhyolite
2	425	9459	181	5	45	165	54	Valles Rhyolite
3	614	10697	239	6	69	184	104	Cerro Toledo Rhy
PNUM 160	529	9744	222	4	64	184	101	Cerro Toledo Rhy
PNUM 158	495	8540	195	4	59	168	93	Cerro Toledo Rhy
RGM1-S4	300	12602	155	107	25	216	8	standard