Title
An Energy-Dispersive X-Ray Fluorescence Analysis of Possible Early Period Obsidian Artifacts from Roosevelt County, New Mexico

Author
Shackley, M. Steven

Publication Date
2005-07-13

BERKELEY ARCHAEOLOGICAL XRF LAB

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

LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF POSSIBLE EARLY PERIOD OBSIDIAN ARTIFACTS FROM ROOSEVELT COUNTY, NEW MEXICO

13 July 2005

Dr. Philippe LeTourneau
6227 24th Avenue NE
Seattle, WA 98115

Dear Phil,

As expected all of the artifacts were produced from obsidian procured from northern New Mexico; one from Valle Grande Rhyolite and the other from Cerro Toledo Rhyolite glass. As you know, the Valle Grande obsidian had to have been originally procured from the caldera proper. Source determination was by reference to source standards at Berkeley (http://www.swxrflab.net/) as reported in Shackley (2005, and http://www.swxrflab.net/swobsrcs.htm; Table 1 here).

The samples were analyzed with a Spectrace (Thermo) *QuanX* EDXRF spectrometer in the Archaeological XRF Laboratory, University of California, Berkeley. Instrumental methods can be found at http://www.swxrflab.net /anlysis.htm. Analysis of the USGS RGM-1 standard indicates high machine precision for the elements of interest (Govnidaraju 1994; Table 1 here).

Sincerely,

M. Steven Shackley
Professor and Director

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

REFERENCES CITED

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

Shackley, M. Steven
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
C-29-1	1,272	452	11,085	147	16	43	157	54	Valle Grande Rhy
P-1	1,030	574	9,752	196	5	61	177	102	Cerro Toldedo Rhy
RGM1-S1	1,512	329	13,325	148	113	22	218	10	standard