

UC Berkeley

Archaeological X-ray Fluorescence Reports

Title

An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from a Number of Sites on White Sands Missile Range (WSMR), Southern New Mexico

Permalink

<https://escholarship.org/uc/item/2jc7t9x9>

Author

Shackley, M. Steven

Publication Date

2014-04-08

Supplemental Material

<https://escholarship.org/uc/item/2jc7t9x9#supplemental>

Copyright Information

This work is made available under the terms of a Creative Commons Attribution-NonCommercial License, available at <https://creativecommons.org/licenses/by-nc/4.0/>



GEOARCHAEOLOGICAL XRF LAB

GEOARCHAEOLOGICAL X-RAY FLUORESCENCE SPECTROMETRY LABORATORY

8100 Wyoming Blvd., Ste M4-158
USA

Albuquerque, NM 87113

LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM A NUMBER OF SITES ON WHITE SANDS MISSILE RANGE (WSMR), SOUTHERN NEW MEXICO

8 April 2014

Office of Contract Archaeology
University of New Mexico
Albuquerque, New Mexico

As in the earlier study at WSMR, most of the obsidian artifacts were produced from Cerro Toledo Rhyolite obsidian probably obtained from the Rio Grande Quaternary alluvium. The one sample from LA 101225 (ID 1241) was produced from Gwynn/Ewe Canyon obsidian found in the Mogollon Mountains (Shackley 2005; Table 1 here). This obsidian is not available in secondary deposits any real distance from the primary source (see also <http://swxrflab.net/gwyncyn.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 standard data in the 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

VOICE: 510-393-3931
INTERNET: shackley@berkeley.edu
<http://www.swxrflab.net/>

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).

Site/Sample	Ti	Mn	Fe	Rb	Sr	Y	Zr	Nb	Ba	Pb	Th	Source
LA 101216												
1168	390	482	8469	191	1	56	164	81		34	27	Cerro Toledo Rhy
1207	420	99	1680	0	12	2	3	7		10	5	not obsidian
LA 89554												
800	442	103	1941	0	15	3	4	6		10	8	not obsidian
LA 101229												
1241	952	480	8224	238	16	33	146	24	59 ¹	32	36	Gwynn/Ewe Cnyns
LA 89561												
156	539	520	9197	208	0	62	180	88		32	27	Cerro Toledo Rhy
LA 101231												
377	229	122	1787	1	18	3	4	6		10	3	not obsidian
RGM1-S4	1423	302	12959	145	104	22	225	12	761	24	15	standard

¹ Ba was acquired to discriminate from the Nut Mountain source in Sierra County, New Mexico. The value was normalized to the USGS expected value for Ba in RGM-1.