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## Archaeological X-ray Fluorescence Reports

### Title

An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from Two Sites Near Payson, Central Arizona

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# BERKELEY ARCHAEOLOGICAL



## XRF LAB

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### LETTER REPORT

## AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM TWO SITES NEAR PAYSON, CENTRAL ARIZONA

14 October 2004

Michael R. Robbins  
Navajo Nation Archaeological Department  
Box 6013  
Northern Arizona University  
Flagstaff, AZ 86011

Dear Michael,

One of the artifacts was produced from obsidian procured from Superior (Picketpost Mountain), and the other from obsidian procured from Government Mountain, both sources in opposite directions from Payson. The one artifact produced from Superior obsidian (1449.88) appears similar to rejuvenated Late Archaic San Pedro or Elko Corner-notched dart points. The other highly patinated artifact produced from Government Mountain obsidian is similar to the level of patination found in Archaic contexts rather than Hohokam contexts, although a number of variables can produce patination at a variety of rates.

The samples were analyzed with a Spectrace (ThermoNoran) *QuanX* EDXRF spectrometer in the Archaeological XRF Laboratory, University of California, Berkeley. Instrumental methods can be found at <http://www.swxrflab.net/analysis.htm>. Analysis of the USGS RGM-1 standard indicates high machine precision for the elements of interest (Govnidaraju 1994; Table 1 here). Source determination was made using source standards at Berkeley, and reference to Shackley (1995, 2004).

Sincerely,

M. Steven Shackley, Ph.D.  
Director

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<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.S.

1995 Sources of Archaeological Obsidian in the Greater American Southwest: An Update and Quantitative Analysis. *American Antiquity* 60:531-551.

2004 *Obsidian in the North American Southwest: Geology, Archaeology, and History*. University of Arizona Press, in press.

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

Sample	Ti	Mn	Fe	Rb	Sr	Y	Zr	N	Source
1549-88.1	977	57 2	6177	11 4	21	20	98	36	Superior (Picketpost Mtn)
1550.38.1	743	56 2	8341	10 3	73	20	77	53	Government Mtn
RGM1-H1	161 9	32 1	1324 3	15 0	11 3	20	21 5	9	standard