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## Archaeological X-ray Fluorescence Reports

### Title

An Energy-dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from AZ N:7:308 and 311 (ASM), Northern 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 AZ N:7:308 AND 311 (ASM), NORTHERN ARIZONA

28 July 2004

John N. Rapp  
Logan Simpson Design, Inc.  
51 West Third Street, Suite 450  
Tempe, AZ 85281

Dear John,

For a small sample, the obsidian source provenance was relatively diverse (Table 1). If indeed these sites are preclassic Hohokam, the presence of Saucedo Mountains and Vulture obsidian from the Sonoran Desert makes sense. The remaining sources were from northern Arizona, including a newly identified source, Bull Creek, from near Bagdad, Arizona. Source determination was made using source standards at Berkeley (<http://www.swxrflab.net/>) as reported in Shackley (1998, 1995).

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 (Govindaraju 1994; Table 1 here).

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. Steven

1988 Sources of Archaeological Obsidian in the Southwest: An Archaeological, Petrological, and Geochemical Study. *American Antiquity* 53(4):752-772.

1995 Sources of Archaeological Obsidian in the Greater American Southwest: An Update and Quantitative Analysis. *American Antiquity* 60(3):531-551.

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

| Site/Sample | Ti   | Mn | Fe    | Rb | Sr | Y  | Zr | Nb | Source             |
|-------------|------|----|-------|----|----|----|----|----|--------------------|
| 308-1091    | 1252 | 37 | 8702  | 14 | 69 | 30 | 18 | 16 | Sauceda Mts        |
|             |      | 7  |       | 7  |    |    | 5  |    |                    |
| 308-1139    | 849  | 50 | 7641  | 23 | 10 | 33 | 86 | 46 | Partridge Cr       |
|             |      | 0  |       | 3  |    |    |    |    |                    |
| 308-1162    | 770  | 54 | 9407  | 38 | 11 | 84 | 16 | 26 | RS Hill/Sitgreaves |
|             |      | 6  |       | 3  |    |    | 3  | 5  |                    |
| 308-1179    | 706  | 52 | 7125  | 22 | 8  | 35 | 86 | 57 | Partridge Cr       |
|             |      | 0  |       | 8  |    |    |    |    |                    |
| 308-1254    | 847  | 43 | 7073  | 19 | 24 | 31 | 68 | 31 | Bull Creek         |
|             |      | 9  |       | 6  |    |    |    |    |                    |
| 308-284     | 888  | 60 | 8148  | 10 | 82 | 11 | 71 | 58 | Government Mtn     |
|             |      | 6  |       | 7  |    |    |    |    |                    |
| 308-596     | 709  | 51 | 7462  | 10 | 78 | 14 | 73 | 50 | Government Mtn     |
|             |      | 3  |       | 0  |    |    |    |    |                    |
| 308-703     | 782  | 48 | 7510  | 24 | 10 | 37 | 84 | 53 | Partridge Cr       |
|             |      | 5  |       | 3  |    |    |    |    |                    |
| 311-47      | 1087 | 38 | 7115  | 13 | 45 | 10 | 12 | 24 | Vulture            |
|             |      | 2  |       | 8  |    |    | 5  |    |                    |
| 311-57      | 766  | 46 | 9116  | 38 | 8  | 76 | 15 | 24 | RS Hill/Sitgreaves |
|             |      | 2  |       | 6  |    |    | 2  | 3  |                    |
| RGM1-S1     | 1620 | 31 | 13015 | 14 | 11 | 24 | 21 | 10 | standard           |
|             |      | 8  |       | 5  | 2  |    | 8  |    |                    |