

# BERKELEY ARCHAEOLOGICAL



## XRF LAB

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### **LETTER REPORT**

## **AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF LATE PALEOINDIAN AND EARLY ARCHAIC OBSIDIAN ARTIFACTS FROM CENTRAL NEW MEXICO**

6 April 2007

Dr. Philippe LeTourneau  
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Dear Phil,

As we discussed the artifact source provenance was expectable, but interesting. Source determination was by reference to source standards at Berkeley (<http://www.swxrflab.net/>) as reported in Shackley (1988, 1995, 2005; Table 1 and Figure 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/analysis.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

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## 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.

- 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
NP-28-1	1138	495	6891	149	9	20	67	48	El Rechuelos
OC-1-16	834	665	9945	214	8	64	175	111	Cerro Toldeo Rhy
Arroya la Jara	964	444	9224	162	8	41	169	59	Valles Rhy
TC-1	957	567	9758	210	8	65	171	101	Cerro Toldeo Rhy
OC-10-2	852	854	7520	490	9	75	106	187	Mt Taylor
GR-1-1	888	595	9103	191	10	64	176	102	Cerro Toldeo Rhy
SY-4-1	974	530	9575	172	9	42	166	59	Valles Rhy
MTC-1-2	804	922	7713	523	11	70	110	196	Mt Taylor
OC-9-7	995	472	6035	146	9	20	61	43	El Rechuelos
SY-C-1	940	420	8740	147	10	42	168	56	Valles Rhy
MTC-D-1	763	939	7320	516	13	74	112	197	Mt Taylor
RP-A (proj. dunes area)	1179	486	1015	159	13	47	160	56	Valles Rhy
SY-3-2	1235	1159	1041	195	8	66	177	96	Cerro Toldeo Rhy
Arroyo Solado #2	957	646	1019	219	6	69	190	112	Cerro Toldeo Rhy
SY-3-3	1040	500	9425	158	13	50	174	54	Valles Rhy
SY-3-1	1034	1039	6473	150	9	22	67	47	El Rechuelos
Arroyo Solado #1	1010	1345	1010	475	12	91	137	229	Mt Taylor
RGM-1 S-3	1686	279	1330	146	112	19	222	14	standard