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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM PS-51, CHASE CANYON, NORTHERN NEW MEXICO

2 April 2007

Nicholas Beale
Sam Noble Oklahoma Museum of Natural History
2401 Chautauqua Avenue
Norman, OK 73072

Dear Nicholas,

The artifacts analyzed were produced from obsidian from one of the three major sources from the Jemez Mountains in northern New Mexico (Table 1). While El Rechuelos and Cerro Toledo Rhyolite obsidian are available as secondary deposits through the Rio Grande River system, Valles Rhyolite (Cerro del Medio) obsidian is not; it's only available at the primary source (Shackley 2005; Figure 1 here). Source determination was made using source standards at Berkeley (http://www.swxrflab.net/; Shackley 2005).

The samples were analyzed with a Spectrace (ThermoFisher) *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, 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.
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
198-147	1250	464	5855	147	13	21	65	38	El Rechuelos
198-176	963	434	9031	152	10	48	162	52	Valles Rhy
198-522	961	517	6207	162	13	23	66	42	El Rechuelos
198-554-1.1	1151	436	8880	158	13	47	163	52	Valles Rhy
198-554-1.2	1042	563	8900	192	7	66	173	101	Cerro Toledo Rhy
RGM1-S3	1598	337	13262	153	109	22	216	11	standard

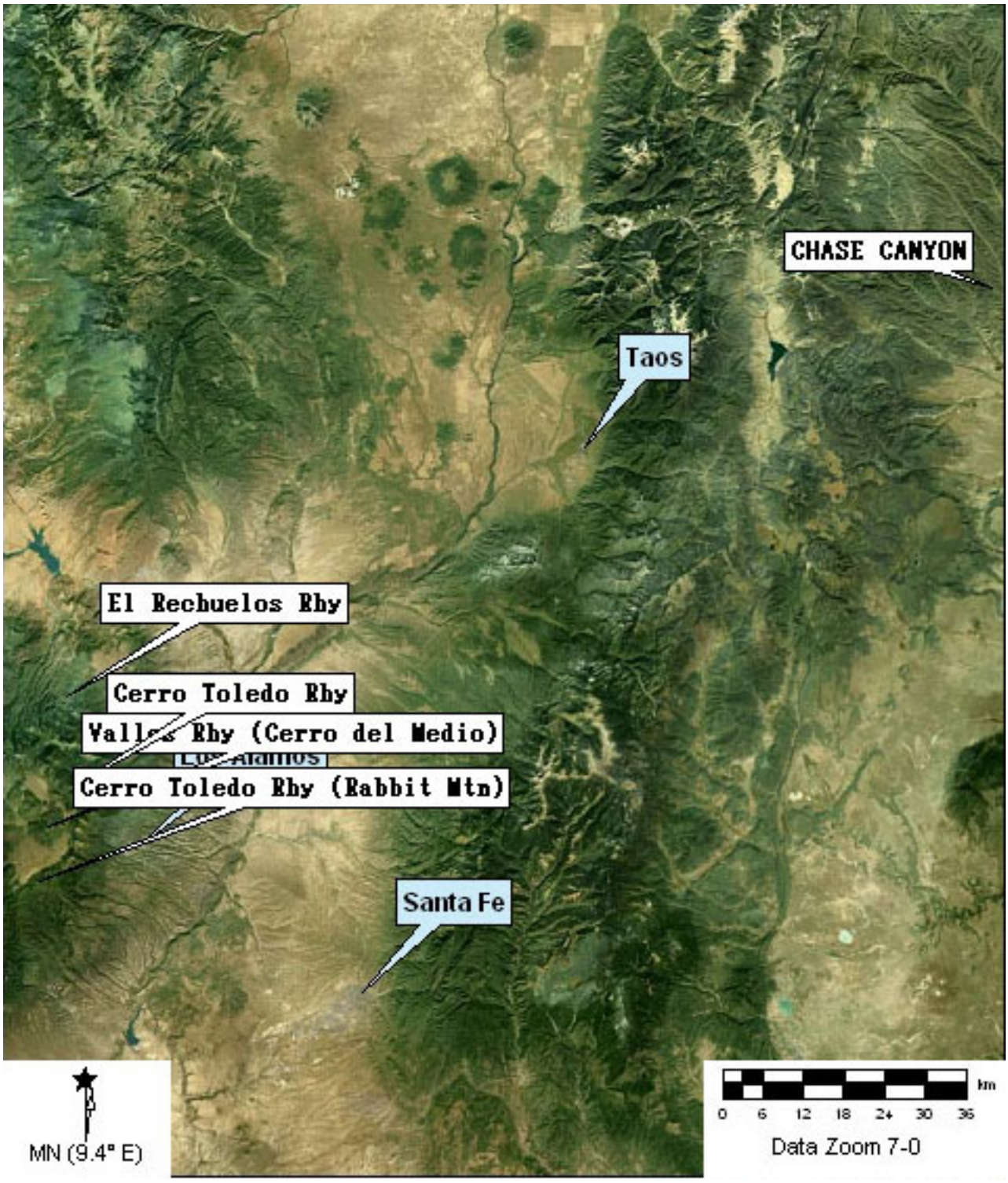


Figure 1. Digital elevation model for the source and site locations.