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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM ARCHAEOLOGICAL SITES IN LARIMER AND JEFFERSON COUNTIES, COLORADO

3 March 2012

Dr. Jason LaBelle
Department of Anthropology
Colorado State University
Fort Collins, CO 80523

Dear Jason,

Your assumption was correct, and the two artifacts were produced from one of the three major sources in the Jemez Mountains, Cerro Toledo Rhyolite, and Valles Rhyolite (Cerro del Medio; see Shackley 2005; Table 1 here). Cerro Toledo Rhyolite is available as secondary deposits as far north as Española, New Mexico, but Cerro del Medio is only available in the Valles Caldera proper (Shackley 2005, 2010).

The samples were analyzed with the Thermo Scientific *Quant'X* EDXRF spectrometer in the Archaeological XRF Laboratory, Albuquerque, New Mexico. Specific instrumental methods can be found at http://www.swxrflab.net/anlysis.htm, and Shackley (2005). Samples assigned to source by comparison to source standards at Berkeley (Shackley 2005). Analysis of the USGS RGM-1 standard indicates high machine precision for the elements of interest (Table 1).

Sincerely,

M. Steven Shackley, Ph.D.
Director

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www.escholarship.org/uc/item/4f90k97n

REFERENCES CITED

Shackley, M.S.

2005 *Obsidian: Geology and Archaeology in the North American Southwest*. University of Arizona Press, Tucson.

2010 The Secondary Distribution of Archaeological Obsidian in the Rio Grande Quaternary Sediments, Jemez Mountains to San Antonito, New Mexico: Inferences for Prehistoric Procurement and the Age of Sediments. Poster presentation, 38th International Symposium on Archaeometry, Tampa, Florida.

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

Sample	Ti	Mn	Fe	Rb	Sr	Y	Zr	Nb	Pb	Th	Source
2012-1	858	505	10356	207	8	67	179	96	35	23	Cerro Toledo Rhy.
2012-2	1117	449	12052	174	11	46	168	53	29	18	Valles Rhy.
RGM1-S4	1606	293	13269	150	110	24	218	11	20	14	standard