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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF ADDITIONAL OBSIDIAN ARTIFACTS FROM LA 26788, DONA ANA COUNTY, NEW MEXICO

19 March 2010

David Kirkpatrick, Ph.D.
Humans Systems Research, Inc.
PO Box 728
Las Cruces, NM 88004

Dear David,

As in the previous study, all but one of the artifacts were produced from Cerro Toledo Rhyolite, of the Tewa Formation of the Jemez Mountains, northern New Mexico. One artifact was produced from one of the two chemical groups at Mount Taylor (Shackley 2005; Table 1 here). Both Cerro Toledo Rhyolite and Mount Taylor obsidian can be found in secondary contexts in the Rio Grande River Quaternary alluvium as far south as the international border (Church 2000, Shackley 2005, 2010). The samples were analyzed with a ThermoScientific *Quant'X* EDXRF spectrometer in the Geoarchaeological XRF Laboratory, University of California, Berkeley. Specific instrumental methods can be found at <http://www.swxrflab.net/anlysis.htm>, and Shackley (2005). Analysis of the USGS RGM-1 standard indicates high machine precision for the elements of interest (Table 1 here).

Sincerely,

M. Steven Shackley, Ph.D.
Director

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REFERENCE CITED

Church, T.
 2000 Distribution and Sources of Obsidian in the Rio Grande Gravels of New Mexico.
Geoarchaeology 15:649-678.

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 Rio Grande Quaternary Sediments, Jemez Mountains to San Antonito, New Mexico (in preparation).

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
1	596	835	7781	563	9	70	114	188	Mount Taylor
2	1394	499	9894	198	4	56	159	93	Cerro Toledo Rhy
3	601	475	9460	212	4	65	174	95	Cerro Toledo Rhy
4	809	526	10674	213	4	64	174	99	Cerro Toledo Rhy
5	803	587	11036	225	3	64	168	92	Cerro Toledo Rhy
6	604	473	9107	200	5	63	167	95	Cerro Toledo Rhy
7	693	457	9085	188	4	58	167	96	Cerro Toledo Rhy
RGM1-S5	1629	291	13015	150	107	27	214	4	standard