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An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from LA 43257, Southern New Mexico

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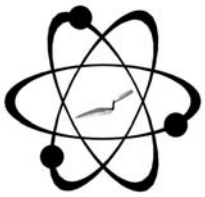
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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM LA 43257, SOUTHERN NEW MEXICO

5 January 2015

Dr. William Whitehouse
SWCA Environmental Consultants
5647 Jefferson Street, NE
Albuquerque, NM 87109

Dear Bill:

The two artifacts were produced from the Valles Rhyolite (Cerro del Medio) source in the Jemez Mountains, northern New Mexico (Table 1). The Valles Rhyolite event did not produce a large ash fall, and thus did not enter the Rio Grande in any quantity (Shackley 2005). Results of the Church (2000) study in southern Rio Grande Quaternary alluvium and my study from Española to San Antonio in Rio Grande alluvium did not recover Valles Rhyolite south or Albuquerque and only in very small quantities and nodule sizes (Shackley 2012). The raw material for these artifacts was likely procured from Valles Caldera proper rather than from Rio Grande alluvium. Specific instrumental methods can be found at http://www.swxrflab.net/anlysis.htm, and Shackley (2005). Source assignment was made by comparison to source standard data in the laboratory. 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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Shackley, M.S.
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2012 The Secondary Distribution of Archaeological Obsidian in Rio Grande Quaternary Sediments, Jemez Mountains to San Antonito, New Mexico: Inferences for Prehistoric Procurement and the Age of Sediments. Poster presentation at the Society for American Archaeology, Annual Meeting, Memphis, Tennessee.

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

SAMPLE	Mn	Fe	Zn	Rb	Sr	Y	Zr	Nb	Pb	Th	Source
FS-JAR-11	446	12246	99	182	15	45	181	54	29	29	Valles Rhy (Cerro del Medio)
CN-115A	391	11914	104	163	11	45	154	51	26	18	Valles Rhy (Cerro del Medio)
RGM1-S4	284	13720	37	150	108	24	219	9	21	15	standard