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AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM PINTOCANYON RANCH, AND SAN ESTEBAN ROCKSHELTER, SOUTHWESTERN TEXAS

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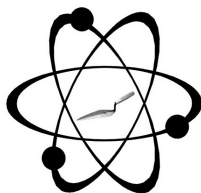
Shackley, M. Steven

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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM PINTO CANYON RANCH, AND SAN ESTEBAN ROCKSHELTER, SOUTHWESTERN TEXAS

27 February 2020

Bryon Schroeder
Sul Ross University/CBBS
Box C-71
Alpine, TX 79832

Dear Bryon:

The mix of sources is similar to the previous study (Shackley 2019a) with none of the sources to the west of the Sierra Madre ridgeline in Sonora (see Table 1 and Figure 1; Kibler et al. 2014; Shackley 2005). The TX Unknown A type is also present as well as Mount Taylor obsidian (Grants Ridge) the latter most likely procured from Rio Grande Quaternary alluvium, and two Chihuahuan sources (Lago Fredrico and Lago Barreal) the latter present in the previous study (Church 2000; Shackley 2012). See previous study for a more extensive discussion of sources and regional geology (Shackley 2019b).

Specific instrumental methods can be found at <http://www.swxrflab.net/anlysis.htm>, and Shackley et al. (2016). Source assignment was made by comparison to Shackley (2005). Analysis of the USGS RGM-1 standard indicates high instrument precision for the elements of interest (Table 1 here).

Sincerely,

M. Steven Shackley, Ph.D.
Director

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<http://www.swxrflab.net/>

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2019a An Energy-Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from Pinto Canyon Ranch, Southwestern Texas. Report prepared for CBBS, Sul Ross University, Alpine, Texas.

2019b Source Provenance of Obsidian Artifacts from a Number of Sites in the Big Bend Region of Southwest Texas. Report prepared for CBBS, Sul Ross University, Alpine, Texas.

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2016 Geologic Origin of the Source of Bearhead Rhyolite (Paliza Canyon) Obsidian, Jemez Mountains, Northern New Mexico. *New Mexico Geology* 38:52-62.

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

CBBS#	SITE	Ti	Mn	Fe	Zn	Rb	Sr	Y	Zr	Nb	Ba	Ce	Pb	Th	Source
83	41PS20	1794	1175	35452	365	378	10	219	2174	174	0	298	60	34	Lago(Ojo) Fredrico
84	41PD20	1127	767	18059	182	306	9	99	825	116	19	117	41	34	TX Unknown A
85	PINTO CANYON RANCH	1558	756	19304	189	259	10	75	661	40	0	100	33	34	Lago Barreal
86	PINTO CANYON RANCH	633	746	9018	174	565	9	74	121	199	21	15	61	27	Grants Ridge-Mt Taylor
RGM1-S4		1605	298	13269	45	151	106	22	218	14	817	31	20	16	standard

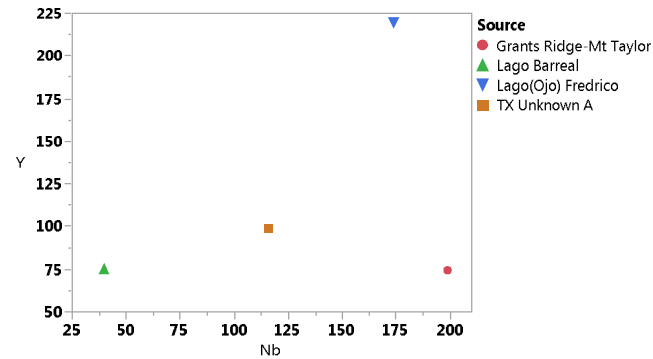


Figure 1. Nb/Y bivariate plot of the archaeological samples.