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LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM THE WATER CANYON SITE (LA 134764), SOUTH-CENTRAL NEW MEXICO

26 March 2013

James Moore
Office of Archaeological Studies
Museum of New Mexico

Dear Jim,

I have taken the liberty of submitting a letter report, given the short time frame. This assemblage exhibits a diverse set of obsidian source provenances and increases the sample size for this site substantially (Table 1). Cerro Toledo Rhyolite and the Mount Taylor sources are available in the Rio Grande Quaternary alluvium, but the rest of the sources do not erode into Rio Grande alluvial contexts or erode into stream basins a great distance from these sites (Shackley 2005, 2012). 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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www.escholarship.org/uc/item/2qj2x72p

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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	Ti	Mn	Fe	Rb	Sr	Y	Zr	Nb	Source
1006	500	596	12259	502	12	79	127	208	Grants Ridge (Mt Taylor)
1017	893	561	11621	427	13	68	103	164	Mt Taylor[1]
1020	661	670	12452	489	9	74	115	180	Mt Taylor
1026-3	878	847	13744	496	13	73	104	164	Mt Taylor
1026-5	1066	528	13668	168	11	41	133	41	Valles Rhy (Cerro del Medio)
1041	896	433	12851	159	11	36	136	40	Valles Rhy (Cerro del Medio)
1044	452	564	11680	499	13	89	123	221	Horace Mesa (Mt Taylor)
1030	364	681	12635	592	14	94	142	237	Horace Mesa (Mt Taylor)
1057-6	515	780	11222	556	10	83	107	184	Horace Mesa (Mt Taylor)
1057-7	561	450	11774	203	8	59	171	99	Cerro Toledo Rhy
1075	899	665	13756	239	10	59	169	86	Cerro Toledo Rhy
1078	489	626	11887	530	11	89	135	236	Horace Mesa (Mt Taylor)
1088A	716	546	12788	229	9	65	181	97	Cerro Toledo Rhy
1088F	741	639	12009	479	15	74	112	184	Grants Ridge (Mt Taylor)
1126	459	717	12513	580	15	97	138	222	Horace Mesa (Mt Taylor)
1159	844	583	12877	220	9	65	169	89	Cerro Toledo Rhy
1228	686	836	13281	548	14	78	117	188	Grants Ridge (Mt Taylor)
RGM1-S4	1585	289	13750	151	108	23	215	7	standard

[1] Mainly due to sample size, some of the artifacts produced from Mount Taylor obsidian could not be parsed into one of the two localities (Davis et al. 2011).