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An Energy-Dispersive X-Ray Fluorescence Analysis of Choctaw Ceramic Sherds from Southeastern Oklahoma

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<https://escholarship.org/uc/item/799781zf>

Author

Shackley, M. Steven

Publication Date

2015-02-21

Supplemental Material

<https://escholarship.org/uc/item/799781zf#supplemental>

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GEOARCHAEOLOGICAL XRF LAB

GEOARCHAEOLOGICAL X-RAY FLUORESCENCE SPECTROMETRY LABORATORY

8100 Wyoming Blvd., Ste M4-158

USA

Albuquerque, NM 87113

LETTER REPORT

AN ENERGY-DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF CHOCTAW CERAMIC SHERDS FROM SOUTHEASTERN OKLAHOMA

21 February 2015

Shawn Lambert
Oklahoma Archaeological Survey
University of Oklahoma
111 E Chesapeake, Rm 102
Norman, OK 73019-5111

Dear Shawn:

I have taken the liberty of sending a letter report given the recent larger analysis and thorough report (Shackley 2015). Refer to the methods in that report. Specific instrumental methods can be found at <http://www.swxrflab.net/anlysis.htm>, and Shackley (2005). Source assignment was made by comparison to the same SARM-69 ceramic standard (Table 1). Sample numbers are the site number suffix (i.e. 366 for 34MC8/366).

Sincerely,

M. Steven Shackley, Ph.D.
Director

VOICE: 510-393-3931
INTERNET: shackley@berkeley.edu
<http://www.swxrflab.net/>

REFERENCES CITED

Shackley, M.S.

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

2015 Energy Dispersive X-Ray Fluorescence (EDXRF) Analysis of Major and Minor Oxide and Trace Element Concentrations for Historic Choctaw Ceramics from Mississippi and Oklahoma. Report prepared for Shawn Lambert, Oklahoma Archaeological Survey, University of Oklahoma, Norman.

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

SAMPLE	Na ₂ O %	MgO %	Al ₂ O ₃ %	SiO ₂ %	P ₂ O ₅ %	Cl %	K ₂ O %	CaO %	TiO ₂ %	V ₂ O ₅ %	Cr ₂ O ₃ %	MnO %	Fe ₂ O ₃ %	As ₂ O ₅ %
310	0.96	17.094	10.776	61.719	0.301	0	0.81	0.36	0.446	0.027	0.016	0.308	7.06	0.002
313	1.045	14.61	10.651	61.768	0.125	0	0.925	0.375	0.364	0.03	0.014	0.117	9.864	0.002
320	1.217	0.693	14.84	70.791	0.383	0	1.518	0.592	0.975	0.069	0.022	0.29	8.352	0.002
323	1.26	1.977	18.859	59.647	0.711	0	2.071	0.91	0.885	0.055	0.02	0.202	13.072	0.003
327	2.974	0.262	10.399	60.785	1.099	0.038	2.216	1.438	2.45	0.1	0.037	0.689	16.314	0.002
333	1.084	0.831	16.545	66.937	0.548	0	2.386	0.608	1.234	0.066	0.025	0.235	9.11	0.002
339	1.158	1.373	16.56	71.075	0.138	0	1.681	0.563	0.958	0.047	0.008	0.053	6.173	0
348	1.023	1.405	17.225	67.535	0.215	0	2.249	0.899	1.2	0.071	0.021	0.103	7.78	0.001
351	1.089	0.51	16.71	68.677	0.161	0.011	1.286	0.52	0.903	0.07	0.013	0.249	9.454	0.001
352	1.018	0.987	16.978	66.224	0.199	0	2.258	0.708	1.144	0.071	0.018	0.106	10.008	0.002
355	2.895	0.331	11.002	57.179	0.648	0	1.342	2.009	2.302	0.119	0.039	0.155	21.372	0.006
366	2.495	3.712	7.644	55.506	0.5	0.018	1.793	1.309	0.836	0.121	0.026	1.555	23.998	0.009
SARM-69	1.295	2.145	16.9	66.088	0	0	2.25	2.562	0.73	0.065	0.037	0.14	7.656	0.001
	Cu ppm	Zn ppm	Ga ppm	Rb ppm	Sr ppm	Y ppm	Zr ppm	Nb ppm	Ba ppm	Pb ppm	Th ppm			
310	39	118	18	23	51	11	76	2	887	27	5			
313	53	195	15	34	35	13	91	8	688	31	17			
320	31	128	18	63	83	30	279	19	1207	33	15			
323	51	229	21	92	87	34	208	15	1794	48	11			
327	27	144	19	42	85	36	342	22	1946	28	12			
333	28	138	18	98	99	38	235	21	1928	38	20			
339	69	138	20	52	69	29	271	18	1013	22	18			
348	37	163	22	111	97	34	228	22	1576	21	12			
351	19	139	16	63	60	32	277	20	1540	32	20			
352	63	162	20	107	81	44	238	22	1441	42	13			
355	40	127	20	42	67	41	264	24	1218	30	18			
366	36	179	17	36	37	13	89	11	817	38	9			
SARM-69	39	61	19	67	114	31	260	9	490	16	4			