

Table 2a
Major element composition of Lost City carbonates

Sample ID	Type ^c	%Ca	%Mg	%Na	%K
3651-1022	A	20.34	13.37	0.64	0.05
3651-1149	A	21.56	12.20	0.94	0.04
3862-1219	A	21.03	13.82	0.50	0.03
3862-1325	A	25.23	8.91	0.88	0.04
3864-1524	A	27.98	4.12	1.49	0.07
3864-1537	A	14.24	18.40	1.16	0.07
3869-1443	A	15.85	18.38	0.45	0.05
3869-1446	A	10.60	25.60	0.86	0.07
3876-1436	A	28.11	3.50	0.74	0.00
3877-1606	A	12.71	21.27	1.84	0.07
3880-1532	A	12.00	20.53	1.85	0.11
3651-0908	I	31.36	2.43	0.38	0.07
3651-0938	I	33.39	0.25	0.45	0.01
3651-0938 0–1 ^a	I	36.28	0.06	0.20	0.05
3651-0938 5–6 ^a	I	36.03	0.00	0.12	0.02
3651-0938 9–10 ^a	I	33.93	0.31	0.16	0.00
3651-0938 11–12 ^a	I	33.42	0.45	0.17	0.02
3651-0938 12–13 ^a	I	34.60	0.17	0.12	0.03
3651-1123	I	32.82	0.03	0.61	0.06
3651-1231	I	31.70	0.82	0.93	0.09
3862-1517bs	I	33.17	0.31	0.46	0.05
3862-1517tp	I	11.75	0.86	0.29	0.06
3863-1811	I	31.67	1.68	0.36	0.06
3864-1647	I	33.01	0.26	0.96	0.09
3867-1308	I	33.06	0.24	0.77	0.08
3871-1512	I	31.31	1.34	0.49	0.00
3872-1530	I	11.16	15.04	0.50	0.05
3873-1233	I	32.89	1.08	0.26	0.12
3876-1113	I	29.02	3.78	0.50	0.09
3881-1338/1 ^b	I	23.88	11.52	0.83	0.05
3881-1338/2 ^b	I	27.65	8.43	0.47	0.05
3881-1338/3 ^b	I	26.92	8.73	0.38	0.03
3881-1338/4 ^b	I	26.44	9.26	0.57	0.02
3881-1338/5 ^b	I	22.74	12.46	0.70	0.06
3881-1338/6 ^b	I	23.93	10.67	0.61	0.13
3881-1338/7 ^b	I	25.43	9.05	0.55	0.04
3651-0944	F	5.27	27.70	0.75	0.08
3862-1659	F	24.07	10.85	0.65	0.08
3863-1551	F	20.90	14.27	0.43	0.04
3865-1322	F	22.36	10.54	0.64	0.02
3876-1219	F	28.86	3.21	0.67	0.04
3879-1258	F	31.27	2.02	0.82	0.05
3880-1353	F	32.52	0.72	0.50	0.00
3881-1132b	F	28.11	6.15	0.51	0.05

^a Subsamples from basal transect of intact chimney 3651-0938 (see Section 2 for details).

^b Subsamples from basal transect of intact chimney 3881-1338 (see Section 2 for details).

^c Corresponds to carbonate type described in Table 1.

Table 2b
Trace metal and Sr isotope composition of Lost City carbonates

Sample ID	Type	Ti	V	Cr	Mn	Ni	Co	Cu	Sr	Mo	Ba	U	⁸⁷ Sr/ ⁸⁶ Sr ^a
% Accuracy		4.25	2.58	9.95	10.11	4.74	11.13	0.92	1.42	0.05	1.95	2.73	
% Precision		47.97	14.57	21.46	22.38	26.94	14.30	11.85	6.12	13.59	21.37	12.15	
Det. Limit (ppm rock)		73.32	3.37	23.27	24.92	16.11	0.82	1.98	4.20	5.69	19.86	23.97	
3651-1022	A	0.08	0.15	BDL	4.20	BDL	BDL	BDL	4788.67	0.11	15.73	2.30	0.70760
3651-1149	A	8.64	0.83	BDL	1.08	BDL	BDL	BDL	7255.62	0.33	25.40	3.73	0.70793
3862-1219	A	BDL	0.94	BDL	5.45	BDL	BDL	BDL	6615.44	0.60	22.67	3.42	
3862-1325	A	BDL	0.14	BDL	5.20	BDL	BDL	BDL	5698.39	0.09	21.77	2.36	
3864-1524	A	BDL	0.29	BDL	BDL	BDL	BDL	BDL	13601.48	0.10	23.91	5.06	
3864-1537	A	BDL	0.76	BDL	BDL	BDL	BDL	BDL	4977.53	0.38	19.61	2.96	
3869-1443	A	BDL	2.43	BDL	5.58	BDL	BDL	BDL	8200.50	1.68	22.52	5.80	
3869-1446	A	BDL	1.46	BDL	13.82	BDL	BDL	BDL	3481.44	1.53	10.55	3.49	
3876-1436	A	BDL	0.20	BDL	5.98	BDL	1.08	1.18	7364.21	BDL	23.17	2.94	
3877-1606	A	BDL	0.84	BDL	BDL	BDL	BDL	BDL	4151.23	0.32	17.03	2.32	
3880-1532	A	BDL	0.35	BDL	4.37	BDL	BDL	BDL	3478.82	0.12	17.89	2.63	
3651-0908	I	61.07	5.38	2.80	215.46	6.67	17.96	1.24	4215.61	0.03	13.09	0.73	0.70913
3651-0938	I	5.99	2.02	0.27	15.42	0.21	0.28	0.02	11487.34	0.02	28.07	9.90	0.70866
3651-0938 0-1 ^b	I	9.22	1.37	2.49	16.36	0.71	0.47	BDL	14678.72	BDL	53.97	9.65	
3651-0938 5-6 ^b	I	0.78	0.32	BDL	7.38	BDL	0.39	BDL	17126.79	BDL	24.36	8.65	
3651-0938 9-10 ^b	I	2.43	0.39	0.21	17.32	0.41	0.62	BDL	16502.33	BDL	28.60	9.52	
3651-0938 11-12 ^b	I	3.71	0.56	0.77	31.29	0.58	1.34	BDL	14724.62	BDL	23.03	9.16	
3651-0938 12-13 ^b	I	9.41	2.26	0.94	73.38	2.07	2.02	BDL	16136.37	BDL	32.32	10.85	
3651-1123	I	BDL	0.42	BDL	6.04	0.19	0.09	BDL	18931.53	0.02	20.10	5.68	0.70908
3651-1231	I	1.98	0.90	0.04	4.83	0.13	BDL	BDL	15090.06	0.08	33.73	4.78	0.70896
3862-1517bs	I	3.47	0.25	BDL	15.89	BDL	BDL	BDL	12469.69	BDL	21.35	4.39	
3862-1517tp	I	0.16	0.25	BDL	9.57	BDL	BDL	BDL	4971.04	0.02	7.73	2.18	
3863-1811	I	60.81	2.92	BDL	135.43	4.33	6.86	0.13	4523.37	0.06	6.12	0.96	
3864-1647	I	12.29	1.44	1.27	47.27	0.87	2.31	0.07	18952.13	0.16	14.80	5.74	
3867-1308	I	40.73	2.44	8.05	97.38	4.50	4.19	0.07	17594.51	0.09	15.50	4.82	
3871-1512	I	15.98	6.21	0.63	55.49	4.99	2.97	0.22	15487.12	0.15	10.38	3.74	
3872-1530	I	2.26	16.89	0.65	145.19	4.84	BDL	0.38	5784.97	0.11	7.65	4.84	
3873-1233	I	57.25	2.81	2.64	139.70	11.31	7.72	0.24	1918.35	0.06	1.86	0.30	
3876-1113	I	BDL	1.24	BDL	5.84	BDL	BDL	BDL	4364.06	0.05	30.37	1.88	
3881-1338/1 ^c	I	1.24	0.24	BDL	2.87	BDL	BDL	BDL	2221.89	0.05	16.70	2.13	
3881-1338/2 ^c	I	BDL	0.01	BDL	4.25	BDL	BDL	BDL	326.10	BDL	0.14	0.97	
3881-1338/3 ^c	I	0.29	BDL	BDL	3.31	BDL	BDL	BDL	345.86	BDL	0.70	0.99	
3881-1338/4 ^c	I	BDL	0.02	BDL	1.35	BDL	BDL	BDL	931.32	BDL	6.50	1.49	
3881-1338/5 ^c	I	BDL	0.25	BDL	1.26	BDL	BDL	BDL	1265.95	BDL	14.00	2.21	
3881-1338/6 ^c	I	BDL	0.36	BDL	BDL	BDL	BDL	BDL	2545.88	0.04	26.74	2.00	
3881-1338/7 ^c	I	BDL	0.28	BDL	BDL	0.02	BDL	BDL	2800.35	0.02	28.73	2.23	
3651-0944	F	5.29	1.31	BDL	3.68	BDL	BDL	0.72	2184.15	0.38	33.18	2.94	0.70799
3862-1659	F	0.01	0.91	BDL	1.62	BDL	BDL	BDL	8526.46	0.42	19.56	2.61	
3863-1551	F	BDL	1.53	BDL	0.88	BDL	BDL	BDL	7383.28	3.26	8.85	2.04	
3865-1322	F	0.24	1.76	BDL	3.33	BDL	BDL	BDL	6595.41	0.58	9.64	2.05	
3876-1219	F	0.12	1.70	2.68	227.33	BDL	BDL	BDL	4653.18	0.42	15.52	2.14	
3879-1258	F	9.85	4.93	19.31	21.23	31.95	1.02	BDL	5722.88	0.22	33.16	3.34	
3880-1353	F	5.48	1.23	1.56	28.42	1.29	0.65	BDL	12539.55	0.06	29.21	5.72	
3881-1132b	F	BDL	0.64	1.38	14.51	4.32	BDL	BDL	2481.98	0.28	11.92	2.00	

All concentrations are given in ppm. BDL signifies below detection limit.

^a Sr isotope ratios normalized to ⁸⁶Sr/⁸⁸Sr = 0.1194. All carbonate Sr isotope analyses completed at the UW and normalized to NBS 987 ⁸⁷Sr/⁸⁶Sr = 0.71024.

^b Subsamples from basal transect of intact chimney 3651-0938 (see Section 2 for details).

^c Subsamples from basal transect of intact chimney 3881-1338 (see Section 2 for details).