



SUPPLEMENTARY MATERIAL TO
Discovery of uranium mineralizations in the rhyolite–granite complex in the Jabal Eghei area of southern Libya

JOVAN KOVAČEVIĆ¹, MEHDI BASHIR TEREESH², MIRJANA B. RADENKOVIĆ³
and ŠĆEPAN S. MILJANIĆ^{4*}

¹Geological Institute of Serbia, P. O. Box 42, 11000 Belgrade, Serbia, ²Tajoura Nuclear Research Centre, P. O. Box 30878, Tajoura, Libya, ³University of Belgrade, Vinča Institute of Nuclear Sciences, P. O. Box 522, 11001 Belgrade, Serbia and ⁴University of Belgrade, Faculty of Physical Chemistry, P. O. Box 47, 11158 Belgrade 118, Serbia

J. Serb. Chem. Soc. 78 (5) (2013) 743–760

TABLE I-S. Results of geochemical (ICP-MS) analysis of rhyolites exhibiting increased uranium values – anomaly I. The concentrations are given in mg kg⁻¹. The values in bold show anomalous concentrations of the corresponding elements with regard to the Clark values⁹

Sample code	244	245	246	620	621	622	3177 ¹
Element	Clarke	Rhyolite-silification		Rhyolite			
Au	0.0043	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005
Ag	0.07	0.09	0.03	0.11	0.08	0.09	0.12
As	1.7	16.8	12.2	21.9	19.1	20.7	21.4
Ba	650	340	320	330	260	410	300
Be	38	0.39	0.7	0.44	0.42	0.32	0.52
Bi	0.009	0.06	0.06	0.09	0.15	0.27	0.24
Cd	0.13	0.15	0.21	0.16	0.16	0.07	0.21
Ce	70	71.8	59.8	56	64.2	80.3	67.9
Co	18	29.2	18	30.9	15.2	15.7	15.7
Cr	83	18	10	15	31	30	18
Cs	3.7	6.57	1.55	3.33	5.02	7.32	3.24
Cu	47	36.9	4.5	12.3	18.2	10	14.8
Ga	19	10.45	5.25	8.1	9.63	10.7	7.51
Ge	1.4	0.18	0.14	0.16	0.12	0.12	0.1
Hf	1	1.32	0.82	1.43	1.04	1.08	0.75
Hg	0.083	0.07	0.08	0.07	0.02	0.02	0.01
In	0.25	0.045	0.018	0.022	0.031	0.035	0.024
La	29	35.6	28.7	27.3	29.5	38.7	33
Li	32	52.3	17.6	34.4	36.6	44.2	31.7
Mn	1000	548	501	477	684	535	463
Mo	1.1	1.15	1.44	2.64	2.49	3.55	3.75
							20

*Corresponding author. E-mail: epan@ffh.bg.ac.rs

TABLE I-S. Continued

Sample code		244	245	246	620	621	622	3177 ^a
Element	Clarke	Rhyolite-silification		Rhyolite				
Nb	20	0.68	1.58	1.22	0.66	0.56	1.43	0.86
Ni	58	9.9	5.6	9.2	13	11.5	8.6	18.9
P	930	1090	1280	1060	1120	1170	1180	1060
Pb	16	11	26.6	29.7	16.6	28.3	32.7	27.3
Rb	150	100.5	23.3	71	79.4	100.5	61.2	72.2
Re	0.001	0.001	<0.001	0.001	<0.001	0.001	0.001	0.001
Sb	0.5	0.81	0.94	0.95	1.11	1.14	1.19	1.03
Sc	10	9.4	2.5	4.1	6.2	8.1	4	4.3
Se	0.05	0.4	0.5	0.6	0.4	0.5	0.5	0.4
Sn	2.5	2.2	2.7	2.5	2.9	2.9	3.7	1.8
Sr	340	42	53.3	46.8	49.4	35.4	68.6	51.3
Ta	2.5	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Te	0.002	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
Th	13	10.7	11.6	11	10.4	11.6	12.1	8.8
Tl	1	0.81	0.25	0.82	0.65	0.97	0.68	0.86
U	2.5	50.1	214	204	74.2	149	232	152.5
V	90	55	17	35	41	51	27	34
W	1.3	84	64.9	69.1	2.16	1.63	1.08	0.6
Y	29	12.45	13.05	14.7	11.55	14.45	14.15	10.15
Zn	83	61	33	57	52	75	48	67
Zr	170	42.8	33.6	49.5	39.7	44.5	34.9	28.2

^aThe radioactivity of this sample was not measured. The concentrations of uranium and all other elements here were obtained by ICP-MS analyses

TABLE II-S. Results of geochemical (ICP-MS) analysis of rhyolites exhibiting increased uranium values – anomaly II. The concentrations are given in mg kg⁻¹. The values in bold show anomalous concentrations of the corresponding elements with regard to the Clark values⁹

Sample code		230	231	624
Rock type		Rhyolite-breccia		
Element	Clarke			
Au	0.0043	<0.2	<0.2	<0.2
Ag	0.07	1.2	0.62	1.18
As	1.7	13.1	9.5	14.5
Ba	650	2800	2270	2420
Be	38	1.56	1.44	1.16
Bi	0.009	0.43	0.17	2.63
Cd	0.13	0.61	0.42	0.64
Ce	70	31.7	17.45	19.4
Co	18	4.3	23.6	2
Cr	83	18	12	20
Cs	3.7	0.7	0.43	0.55
Cu	47	22	20.1	18.1
Ga	19	3.14	1.78	1.92
Ge	1.4	0.09	0.05	<0.05



TABLE II-S. Continued

Sample code		230	231	624
Rock type		Rhyolite-breccia		
Element	Clarke			
Hf	1	0.44	0.21	0.34
Hg	0.083	0.18	0.22	0.72
In	0.25	0.067	0.044	0.153
La	29	14.1	4.1	5.7
Li	32	1.8	1	1
Mn	1000	774	493	267
Mo	1.1	32.4	52.6	44.7
Nb	20	0.23	0.12	0.23
Ni	58	5.4	5.6	6.8
P	930	200	250	282
Pb	16	77.9	88.4	231
Rb	150	4.6	2.5	3.3
Re	0.001	<0.001	0.003	0.001
Sb	0.5	4.44	4.05	6.78
Sc	10	4.2	3.6	2.2
Se	0.05	0.8	0.3	1
Sn	2.5	1.9	1.8	1.7
Sr	340	78.9	57.3	69.6
Ta	2.5	<0.01	0.01	0.01
Te	0.002	<0.01	0.01	0.06
Th	13	3.9	1.6	2.9
Tl	1	1.43	0.23	0.1
U	2.5	175.5	40.9	356
V	90	14	10	6
W	1.3	3.15	183	5.54
Y	29	25.3	9.63	28
Zn	83	93	91	109
Zr	170	19.6	9.3	18.4