

G-probe 13 Summary Report
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A total of fourteen labs submitted final results during this stage of the G-probe 13 study. Technique breakdown was, eight labs used LA-ICP-MS, and four used SEM and three utilized EPMA and one lab used Micro-XRF. The material (GP-DB) used in this study was actually the glass version of USGS reference material DNC-1G (Dolerite). Conversion of DNC-1 to a glass (DNC-1G) was accomplished by melting 200 g of DNC-1G in a one liter platinum bowl at 1325° C over a period of six hours. The melting period also included two mixing intervals where the platinum bowl was removed from the oven and the molten mixture rapidly stirred for thirty seconds using a platinum rod. At the end of the melting period the molten material was poured into a platinum boat and rapidly lowered into a water bath for quenching. Twenty grams of random fragments were selected, ground and then split into representative aliquots. Samples were analyzed for their total element content using techniques at the USGS and SGS minerals, Canada. If you have any questions or comments about this study please forward them to me at your earliest convenience.

Below you will find summary results for each element studied in this test. In the element diagrams you will find information for each technique providing a value. Also included is the target value (◆) and calculated precision ($X \pm Ha$) (♦) based on the Horowitz equation. A figure is also presented representing the data compilation for the entire study when more than one technique reported values. The study average is represented by ■, the standard deviation of the average by ■ and the maximum and minimum values by □. This study average is calculated primarily for the analysis of the major elements where multiple techniques provided data. For each technique an average value is presented (ex LA-ICP-MS, ▲) as well as \pm one standard deviation (ex LA-ICP-MS, ▲), and the maximum and minimum values reported (ex LA-ICP-MS, Δ).

Table 1. Symbols used on figures 1 through 52

<u>Symbol type</u>		<u>Represents</u>
Large solid symbol,	●	Study or method average
Small solid symbol,	•	Study or method one standard deviation
Large open symbol,	○	Study or method Maximum or Minimum

Table 2. Summary results for GP-13, DNC-1G

Oxide	Xa % m/m	Ha % m/m	s.d.m. % m/m	GP-13 AVG. % m/m	Max % m/m	Min % m/m
SiO2	47.82	1.069	1.344	47.35	50.10	44.01
TiO2	0.48	0.021	0.019	0.49	0.55	0.47
Al2O3	18.77	0.483	0.503	18.54	19.33	17.60
Fe2O3T	9.85	0.279	0.489	9.67	10.33	8.84
Fe(D)OT	8.87	0.255	0.404	8.77	9.08	8.20
MnO	0.14	0.008	0.012	0.15	0.18	0.13
MgO	10.05	0.284	0.232	10.15	10.50	9.55
CaO	11.15	0.310	0.300	11.35	12.19	10.70
Na2O	1.96	0.071	0.136	1.95	2.30	1.75
K2O	0.23	0.011	0.058	0.23	0.46	0.17
P2O5	0.07	0.004	0.022	0.08	0.14	0.06

Element	Xa mg/kg	Ha mg/kg	s.d.m. mg/kg	GP-13 AVG. mg/kg	Max mg/kg	Min mg/kg
Ag	-	-	2.14	1.89	7.64	0.77
As	-	-	8.36	4.51	25.88	0.40
Au	-	-	0.04	0.19	0.24	0.11
B	-	-	2.01	4.07	5.84	2.13
Ba	101	8.07	7.76	102.3	124.7	88.7
Be	0.18	0.04	0.02	0.20	0.24	0.16
Bi	0.04	0.01	0.05	0.06	0.16	0.02
Cd	0.092	0.02	0.05	0.10	0.17	0.06
Ce	8.13	0.95	0.53	8.12	8.91	7.10
Co	61.5	5.29	2.08	60.0	63.4	56.4
Cr	290.2	19.77	21.11	287	312	240
Cs	0.28	0.05	0.08	0.22	0.33	0.02
Cu	92.8	7.51	13.15	94.6	117.0	65.6
Dy	2.77	0.38	0.33	2.53	2.95	1.76
Er	1.89	0.27	0.24	1.77	2.23	1.25
Eu	0.61	0.11	0.10	0.56	0.75	0.30
Ga	14.4	1.54	2.69	17.2	21.3	13.5
Gd	2.099	0.30	0.31	1.85	2.19	0.97
Ge	1.57	0.23	0.39	1.62	2.40	1.27

Element	Xa mg/kg	Ha mg/kg	s.d.m. mg/kg	GP-13 AVG. mg/kg	Max mg/kg	Min mg/kg
Hf	1.02	0.16	0.16	0.16	1.12	0.48
Ho	0.61	0.11	0.19	0.19	0.72	0.06
In	0.04	0.01	0.02	0.02	0.10	0.03
La	3.74	0.49	0.31	0.31	4.15	2.90
Li	4.9	0.62	0.56	0.56	6.23	4.31
Lu	0.32	0.06	0.06	0.06	0.41	0.15
Mn	1111	61.9	41.2	41.2	1251	1173
Mo	0.47	0.08	0.06	0.06	0.38	0.20
Nb	1.6	0.24	0.27	0.27	2.31	1.04
Nd	4.87	0.61	0.58	0.58	5.54	3.33
Ni	270.2	18.61	13.79	13.79	296.3	245.8
Pb	6.3	0.76	0.46	0.46	7.14	5.50
Pr	1.088	0.17	0.09	0.09	1.14	0.80
Pt	-	-	0.36	0.36	1.23	0.35
Rb	3.93	0.51	0.32	0.32	4.21	3.12
Sb	0.99	0.16	0.12	0.12	0.94	0.52
Sc	30.78	2.94	4.32	4.32	42.00	24.71
Se	<1	-	0.08	0.08	0.19	0.01
Sm	1.39	0.21	0.30	0.30	1.79	0.60
Sn	1.81	0.26	0.50	0.50	2.56	1.12
Sr	147.5	11.1	14.2	14.2	167.3	102.9
Ta	0.18	0.04	0.02	0.02	0.14	0.07
Tb	0.415	0.08	0.06	0.06	0.48	0.20
Th	0.23	0.05	0.05	0.05	0.34	0.13
Tl	-	-	0.02	0.02	0.08	0.04
Tm	0.304	0.06	0.05	0.05	0.31	0.15
U	0.071	0.02	0.03	0.03	0.11	0.03
V	153.3	11.5	6.2	6.2	164.9	145.8
W	0.107	0.02	0.10	0.10	0.30	0.03
Y	17.5	1.82	2.01	2.01	19.52	11.78
Yb	1.92	0.28	0.27	0.27	2.25	1.12
Zn	64.2	5.49	6.72	6.72	75.97	50.38
Zr	36.05	3.36	12.19	12.19	73.00	26.68

Xa = Target value - USGS bulk analysis of glass fragments and W-2 certificate values

Ha = Target precision calculated using modified version of Horowitz equation
for data quality 2 (Ha = 0.01Xa^{0.8495})

s.d.m. = Standard deviation of population mean

mean = Mean element concentration for all techniques reporting

Max. = Maximum element/oxide concentration reported

Min. = Minimum element/oxide concentration reported

Table 3 G-probe 13 contributed data for GP-DB (DNC-1G)

Lab identifier Data Quality			CO6A 2	CO6B 2		CO7A 2	CO7B 2		CO8A 2	CO8B 2		CO9A 2		CO10A 2	CO10B 2	
Elem/Compound	units	Method Code	LAICPMS	LAICPMS	Method Code	LAICPMS	LAICPMS	Method Code	LAICPMS	LAICPMS	Method Code	LAICPMS	Method Code	LAICPMS	LAICPMS	
SiO2	% m/m							2	48.32	48.18	2	46.87	2	47.18	47.09	
TiO2	% m/m							2	0.47	0.48	2	0.55	2	0.49	0.48	
Al2O3	% m/m							2	18.24	18.09	2	18.15	2	18.87	19.06	
Fe2O3T	% m/m							2	9.84	9.81	2	9.5	2	8.84	8.96	
Fe(II)O	% m/m															
MnO	% m/m							2	0.15	0.15	2	0.13	2	0.15	0.15	
MgO	% m/m							2	10.15	10.14	2	9.55	2	10.27	10.26	
CaO	% m/m							2	11.27	11.27	2	12.19	2	11.55	11.47	
Na2O	% m/m							2	2.02	2.01	2	2.30	2	2.15	2.03	
K2O	% m/m							2	0.23	0.23	2	0.46	2	0.23	0.24	
P2O5	% m/m							2	0.07	0.07	2	0.14	2	0.08	0.08	
Ag	mg/kg	2	1.06	0.77	2	1.14	1.22					2	25.88	2	3.18	7.64
As	mg/kg	2	0.50	0.40											0.59	0.51
Au	mg/kg	2	0.20	0.11												
B	mg/kg													2	5.76	5.84
Ba	mg/kg	2	92.38	96.10	2	99.06	99.39	2	100.32	102.37	2	88.66	2	104.16	103.18	
Be	mg/kg				2	0.22	0.21	2	0.19	0.19			2	0.20	0.24	
Bi	mg/kg	2	0.06	0.16										2	0.09	0.07
Br	mg/kg															
Cd	mg/kg													2	0.17	0.16
Ce	mg/kg	2	7.11	7.10	2	7.93	7.90	2	7.86	8.06	2	8.53	2	8.21	8.30	
Cl	mg/kg															
Co	mg/kg	2	57.93	58.73	2	62.66	63.38	2	60.87	61.26	2	59.34	2	57.81	56.42	
Cr	mg/kg	2	259.43	272.33	2	311.15	311.60	2	282.96	282.72	2	240.26	2	306.89	302.46	
Cs	mg/kg	2	0.33	0.24	2	0.25	0.26	2	0.22	0.23	2	0.02	2	0.24	0.21	
Cu	mg/kg	2	105.46	103.35	2	93.67	93.49	2	98.94	102.70	2	73.36	2	116.96	65.62	
Dy	mg/kg	2	1.78	1.76	2	2.58	2.60	2	2.59	2.64	2	2.95	2	2.79	2.78	
Er	mg/kg	2	1.25	1.37	2	1.75	1.73	2	1.84	1.87	2	2.23	2	1.96	2.01	
Eu	mg/kg	2	0.30	0.45	2	0.55	0.55	2	0.57	0.58	2	0.75	2	0.61	0.64	
F	mg/kg															
Ga	mg/kg	2	15.98	15.43	2	21.30	20.96	2	14.44	14.41	2	17.11	2	13.57	13.55	
Gd	mg/kg	2	0.97	1.25	2	1.88	1.88	2	1.94	1.97	2	2.19	2	1.96	2.05	
Ge	mg/kg	2	1.63	1.37	2	2.40	2.37						2	1.33	1.27	
Hf	mg/kg	2	0.48	0.55	2	0.89	0.90	2	0.91	0.94	2	1.12	2	0.97	0.98	
Hg	mg/kg															
Ho	mg/kg	2	0.44	0.41	2	0.58	0.58	2	0.58	0.59	2	0.72	2	0.63	0.64	
I	mg/kg															
In	mg/kg	2	0.06	0.03	2	0.08	0.10									
Ir	mg/kg															
La	mg/kg	2	2.90	2.97	2	3.54	3.54	2	3.47	3.54	2	4.15	2	3.73	3.71	
Li	mg/kg	2	4.93	4.46	2	5.35	5.39	2	4.71	4.72			2	6.23	4.31	
Lu	mg/kg	2	0.21	0.15	2	0.29	0.29	2	0.28	0.29	2	0.41	2	0.31	0.32	
Mn	mg/kg	2	1172.83	1174.17												
Mo	mg/kg				2	0.23	0.27						2	0.20	0.24	
Nb	mg/kg	2	1.04	1.21	2	1.39	1.40	2	1.47	1.47	2	2.31	2	1.47	1.53	
Nd	mg/kg	2	3.36	3.33	2	4.68	4.79	2	4.74	4.84	2	5.54	2	4.97	4.99	
Ni	mg/kg	2	269.25	272.50	2	296.31	294.94	2	282.03	285.90			2	264.45	245.82	
Os	mg/kg															
Pb	mg/kg	2	5.91	5.98	2	6.58	6.67	2	6.06	6.17	2	5.5	2	6.69	7.14	
Pd	mg/kg															
Pr	mg/kg	2	0.83	0.80	2	1.02	1.03	2	1.03	1.05	2	1.14	2	1.03	1.06	
Pt	mg/kg	2	0.38	0.35												
Rb	mg/kg	2	3.75	3.69	2	4.17	4.21	2	3.68	3.70			2	3.57	3.62	
Re	mg/kg															
Rh	mg/kg	2	0.03	0.02												
Ru	mg/kg															
S	mg/kg															
Sb	mg/kg	2	0.67	0.52	2	0.94	0.93	2	0.88	0.90			2	0.81	0.81	
Sc	mg/kg	2	24.71	25.18	2	31.69	31.64	2	31.48	31.24	2	42	2	32.32	32.17	
Se	mg/kg												2	0.01	0.02	
Sm	mg/kg	2	0.61	0.60	2	1.29	1.33	2	1.34	1.39	2	1.79	2	1.36	1.38	
Sn	mg/kg	2	1.53	1.43	2	2.25	2.56	2	1.18	1.36			2	2.40	2.07	
Sr	mg/kg	2	124.08	127.58	2	137.17	136.37	2	142.99	144.49	2	167.31	2	146.93	145.39	
Ta	mg/kg												2	0.09	0.08	
Tb	mg/kg	2	0.24	0.20	2	0.34	0.35	2	0.35	0.36	2	0.5	2	0.38	0.38	
Te	mg/kg															
Th	mg/kg	2	0.15	0.13	2	0.23	0.23	2	0.22	0.23	2	0.34	2	0.25	0.24	
Tl	mg/kg				2	0.08	0.08									
Tm	mg/kg	2	0.15	0.16	2	0.27	0.26	2	0.26	0.27	2	0.31	2	0.28	0.29	
U	mg/kg	2	0.03	0.03	2	0.08	0.10	2	0.05	0.06	2	0.11	2	0.07	0.11	
V	mg/kg	2	145.83	146.96	2	157.95	156.04	2	149.32	149.88	2	156.54	2	150.90	151.46	
W	mg/kg												2	0.06	0.08	
Y	mg/kg	2	11.78	11.97	2	15.49	15.36	2	16.52	16.61	2	19.52	2	17.19	17.42	
Yb	mg/kg	2	1.12	1.36	2	1.89	1.92	2	1.87	1.93	2	2.25	2	1.99	2.06	
Zn	mg/kg	2	72.02	72.81	2	69.24	74.44	2	65.33	64.38	2	50.38	2	70.78	71.49	
Zr	mg/kg	2	26.70	26.68	2	32.69	32.52	2	33.64	33.81	2	39.55	2	35.45	36.00	

Code	1	2	3	4
Method	EPMA	LA-ICP-MS	SEM	Micro-XRF

Table 3 G-probe 13 contributed data for GP-DB (DNC-1G)

Lab Identifier			CO6A	CO6B		CO7A	CO7B		CO8A	CO8B		CO9A		CO10A	CO10B	
Data Quality		Method	2	2	Method	2	2	Method	2	2	Method	2	Method	2	2	
Elem/Compound	units	Code	LAICPMS	LAICPMS	Code	LAICPMS	LAICPMS	Code	LAICPMS	LAICPMS	Code	LAICPMS	Code	LAICPMS	LAICPMS	
SiO2	% m/m							2	48.32	48.18	2	46.87	2	47.18	47.09	
TiO2	% m/m							2	0.47	0.48	2	0.55	2	0.49	0.48	
Al2O3	% m/m							2	18.24	18.09	2	18.15	2	18.87	19.06	
Fe2O3T	% m/m							2	9.84	9.81	2	9.5	2	8.84	8.96	
Fe(II)O	% m/m															
MnO	% m/m							2	0.15	0.15	2	0.13	2	0.15	0.15	
MgO	% m/m							2	10.15	10.14	2	9.55	2	10.27	10.26	
CaO	% m/m							2	11.27	11.27	2	12.19	2	11.55	11.47	
Na2O	% m/m							2	2.02	2.01	2	2.30	2	2.15	2.03	
K2O	% m/m							2	0.23	0.23	2	0.46	2	0.23	0.24	
P2O5	% m/m							2	0.07	0.07	2	0.14	2	0.08	0.08	
Ag	mg/kg	2	1.06	0.77	2	1.14	1.22						2	3.18	7.64	
As	mg/kg	2	0.50	0.40								2	25.88	2	0.59	0.51
Au	mg/kg	2	0.20	0.11												
B	mg/kg												2	5.76	5.84	
Ba	mg/kg	2	92.38	96.10	2	99.06	99.39	2	100.32	102.37	2	88.66	2	104.16	103.18	
Be	mg/kg				2	0.22	0.21	2	0.19	0.19			2	0.20	0.24	
Bi	mg/kg	2	0.06	0.16									2	0.09	0.07	
Br	mg/kg															
Cd	mg/kg												2	0.17	0.16	
Ce	mg/kg	2	7.11	7.10	2	7.93	7.90	2	7.86	8.06	2	8.53	2	8.21	8.30	
Cl	mg/kg															
Co	mg/kg	2	57.93	58.73	2	62.66	63.38	2	60.87	61.26	2	59.34	2	57.81	56.42	
Cr	mg/kg	2	259.43	272.33	2	311.15	311.60	2	282.96	282.72	2	240.26	2	306.89	302.46	
Cs	mg/kg	2	0.33	0.24	2	0.25	0.26	2	0.22	0.23	2	0.02	2	0.24	0.21	
Cu	mg/kg	2	105.46	103.35	2	93.67	93.49	2	98.94	102.70	2	73.36	2	116.96	65.62	
Dy	mg/kg	2	1.78	1.76	2	2.58	2.60	2	2.59	2.64	2	2.95	2	2.79	2.78	
Er	mg/kg	2	1.25	1.37	2	1.75	1.73	2	1.84	1.87	2	2.23	2	1.96	2.01	
Eu	mg/kg	2	0.30	0.45	2	0.55	0.55	2	0.57	0.58	2	0.75	2	0.61	0.64	
F	mg/kg															
Ga	mg/kg	2	15.98	15.43	2	21.30	20.96	2	14.44	14.41	2	17.11	2	13.57	13.55	
Gd	mg/kg	2	0.97	1.25	2	1.88	1.88	2	1.94	1.97	2	2.19	2	1.96	2.05	
Ge	mg/kg	2	1.63	1.37	2	2.40	2.37						2	1.33	1.27	
Hf	mg/kg	2	0.48	0.55	2	0.89	0.90	2	0.91	0.94	2	1.12	2	0.97	0.98	
Hg	mg/kg															
Ho	mg/kg	2	0.44	0.41	2	0.58	0.58	2	0.58	0.59	2	0.72	2	0.63	0.64	
I	mg/kg															
In	mg/kg	2	0.06	0.03	2	0.08	0.10									
Ir	mg/kg															
La	mg/kg	2	2.90	2.97	2	3.54	3.54	2	3.47	3.54	2	4.15	2	3.73	3.71	
Li	mg/kg	2	4.93	4.46	2	5.35	5.39	2	4.71	4.72	2		2	6.23	4.31	
Lu	mg/kg	2	0.21	0.15	2	0.29	0.29	2	0.28	0.29	2	0.41	2	0.31	0.32	
Mn	mg/kg	2	1172.83	1174.17												
Mo	mg/kg				2	0.23	0.27						2	0.20	0.24	
Nb	mg/kg	2	1.04	1.21	2	1.39	1.40	2	1.47	1.47	2	2.31	2	1.47	1.53	
Nd	mg/kg	2	3.36	3.33	2	4.68	4.79	2	4.74	4.84	2	5.54	2	4.97	4.99	
Ni	mg/kg	2	269.25	272.50	2	296.31	294.94	2	282.03	285.90			2	264.45	245.82	
Os	mg/kg															
Pb	mg/kg	2	5.91	5.98	2	6.58	6.67	2	6.06	6.17	2	5.5	2	6.69	7.14	
Pd	mg/kg															
Pr	mg/kg	2	0.83	0.80	2	1.02	1.03	2	1.03	1.05	2	1.14	2	1.03	1.06	
Pt	mg/kg	2	0.38	0.35												
Rb	mg/kg	2	3.75	3.69	2	4.17	4.21	2	3.68	3.70			2	3.57	3.62	
Re	mg/kg															
Rh	mg/kg	2	0.03	0.02												
Ru	mg/kg															
S	mg/kg															
Sb	mg/kg	2	0.67	0.52	2	0.94	0.93	2	0.88	0.90			2	0.81	0.81	
Sc	mg/kg	2	24.71	25.18	2	31.69	31.64	2	31.48	31.24	2	42	2	32.32	32.17	
Se	mg/kg												2	0.01	0.02	
Sm	mg/kg	2	0.61	0.60	2	1.29	1.33	2	1.34	1.39	2	1.79	2	1.36	1.38	
Sn	mg/kg	2	1.53	1.43	2	2.25	2.56	2	1.18	1.36			2	2.40	2.07	
Sr	mg/kg	2	124.08	127.58	2	137.17	136.37	2	142.99	144.49	2	167.31	2	146.93	145.39	
Ta	mg/kg				2	0.08	0.09	2	0.08	0.08	2	0.14	2	0.09	0.08	
Tb	mg/kg	2	0.24	0.20	2	0.34	0.35	2	0.35	0.36	2	0.5	2	0.38	0.38	
Te	mg/kg															
Th	mg/kg	2	0.15	0.13	2	0.23	0.23	2	0.22	0.23	2	0.34	2	0.25	0.24	
Tl	mg/kg				2	0.08	0.08									
Tm	mg/kg	2	0.15	0.16	2	0.27	0.26	2	0.26	0.27	2	0.31	2	0.28	0.29	
U	mg/kg	2	0.03	0.03	2	0.08	0.10	2	0.05	0.06	2	0.11	2	0.07	0.11	
V	mg/kg	2	145.83	146.96	2	157.95	156.04	2	149.32	149.88	2	156.54	2	150.90	151.46	
W	mg/kg												2	0.3	0.08	
Y	mg/kg	2	11.78	11.97	2	15.49	15.36	2	16.52	16.61	2	19.52	2	17.19	17.42	
Yb	mg/kg	2	1.12	1.36	2	1.89	1.92	2	1.87	1.93	2	2.25	2	1.99	2.06	
Zn	mg/kg	2	72.02	72.81	2	69.24	74.44	2	65.33	64.38	2	50.38	2	70.78	71.49	
Zr	mg/kg	2	26.70	26.68	2	32.69	32.52	2	33.64	33.81	2	39.55	2	35.45	36.00	

Code	1	2	3	4
Method	EPMA	LA-ICP-MS	SEM	Micro-XRF

Table 3 G-probe 13 contributed data for GP-DB (DNC-1G)

Lab identifier Data Quality	units	Method Code	CO11A	CO11B	Method Code	CO12A	CO12B	Method Code	CO13A	CO13B	Method Code	CO14A	CO14B
			2	2		2	2		2	2		2	2
Elem/Compound			LA-HHXRF	LA-HHXRF		EPMA	EPMA		EPMA	EPMA		EPMA	EPMA
SiO2	% m/m	2	45.82	44.01	3	47.4	47.41	3	46.786	46.465	3	47.713	47.573
TiO2	% m/m	2	0.47	0.47	3	0.48	0.47	3	0.490	0.492	3	0.474	0.471
Al2O3	% m/m	2	17.60	17.64	3	18.56	18.58	3	18.251	18.279	3	19.046	19.020
Fe2O3T	% m/m	2			3	9.88	9.92	3	9.170	9.228	3		
Fe(II)O	% m/m											8.981	9.080
MnO	% m/m	2	0.129	0.129	3	0.16	0.15	3	0.147	0.146	3	0.155	0.151
MgO	% m/m	2	9.78	9.78	3	10.09	10.04	3	10.096	10.146	3	10.343	10.404
CaO	% m/m	4	11.39	11.29	3	11.32	11.31	3	11.454	11.397	3	11.571	11.574
Na2O	% m/m	2	1.76	1.77	3	1.91	1.86	3	1.973	2.022	3	1.883	1.854
K2O	% m/m	2	0.20	0.20	3	0.23	0.23	3	0.228	0.226	3	0.228	0.225
P2O5	% m/m	2			3	0.07	0.06	3	0.071	0.069	3	0.066	0.063
Ag	mg/kg	2	0.88	1.19									
As	mg/kg	2	5.65	6.24									
Au	mg/kg	2	0.19	0.24									
B	mg/kg	2											
Ba	mg/kg	2	100.5	99.9				3	125	100			
Be	mg/kg	2											
Bi	mg/kg	2	0.04	0.03									
Br	mg/kg												
Cd	mg/kg	2	0.07	0.06									
Ce	mg/kg	2	8.06	7.88									
Cl	mg/kg							3	23	18			
Co	mg/kg	2	59.13	59.21									
Cr	mg/kg	2	297.57	298.47									
Cs	mg/kg	2											
Cu	mg/kg	2	94.07	93.20									
Dy	mg/kg	2	2.58	2.60									
Er	mg/kg	2	1.70	1.67									
Eu	mg/kg	2	0.60	0.58									
F	mg/kg												
Ga	mg/kg	2	20.38	20.38									
Gd	mg/kg	2	1.96	1.98									
Ge	mg/kg	2	1.73	1.75									
Hf	mg/kg	2	0.94	0.95									
Hg	mg/kg												
Ho	mg/kg	2	0.068	0.058									
I	mg/kg												
In	mg/kg	2	0.041	0.047									
Ir	mg/kg	2	0.13	0.14									
La	mg/kg	2	3.55	3.55									
Li	mg/kg												
Lu	mg/kg	2	0.29	0.28									
Mn	mg/kg												
Mo	mg/kg	2	0.35	0.38									
Nb	mg/kg	2	1.40	1.45									
Nd	mg/kg	2	4.89	4.94									
Ni	mg/kg	2	273.93	273.93									
Os	mg/kg												
Pb	mg/kg		5.88	5.90									
Pd	mg/kg												
Pr	mg/kg	2	1.05	1.05									
Pt	mg/kg		0.86	1.23									
Rb	mg/kg	2	3.18	3.12									
Re	mg/kg												
Rh	mg/kg												
Ru	mg/kg												
S	mg/kg												
Sb	mg/kg	2	0.85	0.85									
Sc	mg/kg	2	35.31	35.51									
Se	mg/kg	2	0.19	0.03									
Sm	mg/kg	2	1.41	1.39									
Sn	mg/kg	2	1.12	1.24									
Sr	mg/kg	2	136.6	136.0				3	143	103			
Ta	mg/kg	2	0.08	0.07									
Tb	mg/kg	2	0.34	0.35									
Te	mg/kg												
Th	mg/kg	2	0.23	0.24									
Ti	mg/kg		0.05	0.07									
Tm	mg/kg	2	0.25	0.26									
U	mg/kg	2	0.056	0.062									
V	mg/kg	2	159.13	156.80									
W	mg/kg	2	0.04	0.05									
Y	mg/kg	2	15.67	15.77									
Yb	mg/kg	2	1.86	1.84									
Zn	mg/kg	2	73.07	68.90									
Zr	mg/kg	2	35.67	35.24				3	73	65			

Code	1	2	3	1
Method	EPMA	LA-ICP-MS	SEM	Micro-XRF











