Quality Analysis ... *Innovative Technologies*

Date Submitted: 09-Mar-17
Invoice No.: A17-02261
Invoice Date: 21-Mar-17
Your Reference: 3000623172

Geological Survey of Canada-PQ
490 rue de la Couronne
Quebec Quebec G1K 9A9
Canada

ATTN: Jean Bedard

CERTIFICATE OF ANALYSIS

23 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 4LITHORES (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

REPORT **A17-02261**

Notes:

We recommend using option 4B1 for accurate levels of the base metals Cu, Pb, Zn, Ni and Ag. Option 4B-INAA for As, Sb, high W >100ppm, Cr >1000ppm and Sn >50ppm by Code 5D. Values for these elements provided by Fusion ICP/MS, are order of magnitude only and are provided for general information. Mineralized samples should have the Quant option selected or request assays for values which exceed the range of option 4B1. Total includes all elements in % oxide to the left of total. Zr is now being reported from FUS-ICP instead of FUS-MS.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

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Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	0.5	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
16ZEAB-23B	34.08	10.69	12.98	0.196	8.75	24.54	0.04	0.09	1.676	0.14	7.21	100.4	34	< 1	398	60	27	30	< 10	40	6	1.2	< 5
14ZEAB-24C	55.72	14.98	5.90	0.101	4.51	13.59	0.22	0.12	0.740	0.15	2.52	98.55	23	< 1	119	290	16	< 20	20	50	18	1.3	< 5
16ZEAB-25A	23.29	1.12	6.39	0.089	28.86	3.17	0.01	0.13	0.015	< 0.01	36.15	99.24	8	< 1	37	2070	76	1310	20	50	1	0.5	42
16ZEAB-26A	48.58	13.24	12.45	0.203	6.42	8.88	3.70	0.21	1.827	0.16	3.11	98.79	38	< 1	340	200	41	80	40	100	18	1.6	< 5
16ZEAB-27A	49.28	13.52	11.90	0.175	7.85	9.17	3.11	0.32	1.195	0.10	2.50	99.12	44	< 1	336	190	45	90	140	70	16	1.7	< 5
16ZEAB-33A	49.46	0.63	7.77	0.162	20.16	18.78	0.06	< 0.01	0.023	< 0.01	2.81	99.86	64	< 1	163	1630	51	370	10	< 30	< 1	1.7	< 5
16ZEAB-49A	53.90	15.36	9.30	0.173	6.50	4.09	4.16	0.53	1.009	0.10	3.42	98.55	33	< 1	280	60	31	40	< 10	40	14	0.8	< 5
16ZEAB-62A	52.69	14.33	8.94	0.158	6.90	8.19	4.68	0.04	0.506	0.04	2.56	99.03	36	< 1	262	100	36	60	90	100	12	1.2	< 5
16ZEAB-62B	45.00	7.35	13.54	0.155	19.50	8.63	0.60	0.08	0.694	0.06	4.53	100.2	21	< 1	146	1540	109	890	190	90	11	1.0	< 5
16ZEAB-67A1	53.95	14.05	7.55	0.135	9.42	7.21	3.66	0.50	0.823	0.13	2.29	99.72	25	< 1	163	720	37	200	< 10	80	16	1.2	< 5
16ZEAB-70A	50.82	14.11	13.23	0.210	5.70	8.21	4.12	0.40	1.727	0.15	1.45	100.1	41	< 1	389	90	38	40	60	100	18	1.4	< 5
16ZEAB-79A	48.98	12.56	13.63	0.183	6.92	10.99	2.89	0.09	1.519	0.12	2.42	100.3	47	< 1	402	180	44	80	170	80	18	1.7	< 5
16ZEAB-103A	51.04	13.39	11.99	0.218	7.04	9.46	3.67	0.25	1.320	0.09	2.36	100.8	47	< 1	411	180	47	70	200	100	12	1.9	< 5
16ZEAB-106A	48.77	14.85	13.13	0.197	5.76	8.39	4.05	0.08	1.649	0.11	2.60	99.59	42	< 1	403	40	37	20	30	100	15	1.0	< 5
16ZEAB-113A	68.17	13.62	5.11	0.102	2.14	1.84	3.40	2.91	0.526	0.22	1.45	99.49	10	2	107	40	10	< 20	80	80	17	1.4	< 5
16ZEAB-124A	52.44	14.14	11.31	0.182	3.94	13.78	2.07	0.15	1.378	0.14	1.01	100.6	33	< 1	302	50	27	20	< 10	90	16	0.8	< 5
16ZEAB-133A	49.09	13.69	12.55	0.174	9.01	7.28	3.16	0.26	0.964	0.06	2.91	99.14	50	< 1	376	90	45	70	190	80	15	1.7	< 5
16ZEAB-181B	46.61	12.30	8.90	0.147	9.85	10.56	2.92	1.66	1.317	1.09	4.00	99.35	23	2	202	570	37	140	60	90	17	1.3	< 5
16ZEAB-188A	50.36	13.26	8.70	0.145	12.52	8.72	2.47	0.95	0.844	0.10	2.39	100.5	30	< 1	181	810	43	280	< 10	40	15	1.3	< 5
16ZEAB-202A	47.60	16.32	11.24	0.174	7.51	13.71	1.51	0.17	1.324	0.09	0.52	100.2	41	< 1	310	310	42	90	60	70	17	2.0	< 5
16ZEAB-235A	50.41	12.42	13.88	0.233	6.39	10.02	4.06	0.20	1.936	0.15	0.46	100.2	43	< 1	423	80	39	40	20	100	19	1.5	< 5
16ZEAB-244A	36.83	0.58	7.04	0.144	37.90	0.09	0.01	< 0.01	0.007	< 0.01	17.57	100.2	7	< 1	26	2450	97	1780	10	40	< 1	1.0	< 5
16ZEAB-258E	53.14	14.98	7.51	0.096	5.88	10.01	4.40	0.10	0.651	0.06	2.45	99.28	34	< 1	281	30	29	50	< 10	< 30	14	1.1	< 5

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	2	0.5	1	0.2	2	0.5	0.1	1	0.2	0.1	2	0.05	0.05	0.01	0.05	0.01	0.005	0.01	0.01	0.01	0.01	0.01
Method Code	FUS-MS	FUS-ICP	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
16ZEAB-23B	5	52	31.9	90	2.1	< 2	< 0.5	< 0.1	< 1	< 0.2	23.0	30	3.27	10.6	1.77	9.52	3.26	1.26	4.34	0.83	5.46	1.15	3.26
14ZEAB-24C	2	250	18.7	106	8.0	< 2	< 0.5	< 0.1	3	0.5	0.3	65	18.0	36.0	4.27	16.9	3.56	1.19	3.41	0.55	3.32	0.67	1.91
16ZEAB-25A	8	131	0.5	< 1	< 0.2	< 2	< 0.5	< 0.1	< 1	11.5	4.2	37	< 0.05	< 0.05	< 0.01	0.08	< 0.01	< 0.005	0.04	< 0.01	0.07	0.02	0.06
16ZEAB-26A	4	112	44.8	116	3.2	< 2	< 0.5	< 0.1	1	1.4	0.4	35	4.85	14.8	2.40	13.4	4.65	1.63	6.51	1.18	7.74	1.63	4.74
16ZEAB-27A	5	119	22.3	57	2.1	< 2	< 0.5	< 0.1	< 1	0.2	0.5	319	2.87	8.70	1.41	7.25	2.64	1.05	3.59	0.62	3.89	0.80	2.27
16ZEAB-33A	< 1	3	0.8	< 1	< 0.2	< 2	< 0.5	< 0.1	< 1	< 0.2	< 0.1	8	< 0.05	< 0.05	< 0.01	0.10	0.02	0.019	0.09	0.01	0.08	0.02	0.08
16ZEAB-49A	6	112	24.4	67	1.5	< 2	< 0.5	< 0.1	< 1	0.4	0.3	64	3.68	9.52	1.47	7.56	2.58	0.775	3.44	0.62	4.01	0.86	2.55
16ZEAB-62A	< 1	270	13.8	32	0.5	< 2	< 0.5	< 0.1	< 1	< 0.2	< 0.1	100	1.63	4.15	0.63	3.42	1.12	0.713	1.66	0.33	2.18	0.46	1.48
16ZEAB-62B	2	25	15.0	48	2.1	< 2	< 0.5	< 0.1	< 1	< 0.2	1.3	7	2.44	6.98	1.08	5.40	1.76	0.573	2.19	0.39	2.59	0.51	1.50
16ZEAB-67A1	11	122	18.5	104	9.0	< 2	< 0.5	< 0.1	< 1	< 0.2	0.4	289	12.1	25.5	3.14	13.4	3.15	1.04	3.37	0.55	3.32	0.67	1.90
16ZEAB-70A	8	247	40.0	104	1.9	< 2	< 0.5	< 0.1	< 1	< 0.2	0.5	194	3.54	11.6	1.99	10.8	3.95	1.45	5.69	1.06	7.08	1.46	4.23
16ZEAB-79A	1	85	29.2	73	3.0	< 2	< 0.5	< 0.1	< 1	0.3	< 0.1	40	4.00	10.5	1.69	9.13	3.15	1.15	4.37	0.81	5.06	1.06	3.04
16ZEAB-103A	11	91	30.9	60	1.7	< 2	< 0.5	< 0.1	< 1	1.7	1.0	48	2.10	6.53	1.15	6.84	2.72	0.937	3.98	0.78	5.28	1.15	3.34
16ZEAB-106A	1	75	26.4	61	0.3	< 2	< 0.5	< 0.1	< 1	< 0.2	< 0.1	30	1.70	6.30	1.21	6.84	2.52	1.07	3.72	0.68	4.52	0.98	2.78
16ZEAB-113A	64	601	17.4	104	5.8	< 2	< 0.5	< 0.1	1	< 0.2	2.5	2162	17.8	37.0	4.22	16.6	3.61	1.08	3.38	0.53	3.08	0.61	1.78
16ZEAB-124A	2	290	36.8	101	1.4	< 2	< 0.5	< 0.1	< 1	< 0.2	< 0.1	137	3.55	11.5	1.96	10.8	3.72	1.23	4.95	0.96	6.30	1.34	3.90
16ZEAB-133A	6	124	22.2	46	1.7	< 2	< 0.5	< 0.1	< 1	< 0.2	0.2	145	2.26	6.58	1.16	6.13	2.32	0.889	3.15	0.57	3.85	0.81	2.25
16ZEAB-181B	22	626	26.4	254	23.1	< 2	< 0.5	< 0.1	1	< 0.2	0.2	1734	71.5	145	17.5	68.0	12.8	3.35	8.95	1.09	5.61	0.94	2.37
16ZEAB-188A	24	163	18.6	74	5.9	< 2	< 0.5	< 0.1	< 1	< 0.2	0.4	376	7.62	17.8	2.42	10.7	2.82	0.913	3.19	0.52	3.17	0.66	1.83
16ZEAB-202A	3	97	29.7	71	1.2	< 2	< 0.5	< 0.1	< 1	< 0.2	0.2	8	2.58	8.36	1.49	8.01	2.86	1.15	4.08	0.81	5.09	1.08	3.04
16ZEAB-235A	2	134	42.5	116	2.4	< 2	< 0.5	< 0.1	1	< 0.2	0.2	25	4.31	13.8	2.33	12.4	4.41	1.66	6.09	1.13	7.13	1.50	4.46
16ZEAB-244A	< 1	< 2	< 0.5	< 1	< 0.2	< 2	< 0.5	< 0.1	< 1	0.4	< 0.1	< 2	< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	0.03	< 0.01	0.03
16ZEAB-258E	1	255	12.3	12	0.6	< 2	< 0.5	< 0.1	< 1	< 0.2	0.2	344	1.80	4.27	0.65	3.63	1.32	0.961	1.72	0.31	2.09	0.49	1.30

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.005	0.01	0.002	0.1	0.01	0.5	0.05	5	0.1	0.05	0.01
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
16ZEAB-23B	0.476	3.13	0.491	2.2	0.14	< 0.5	0.42	< 5	< 0.1	0.17	0.11
14ZEAB-24C	0.288	1.79	0.291	2.5	0.53	0.9	0.18	7	0.2	4.24	1.76
16ZEAB-25A	0.010	0.07	0.014	< 0.1	< 0.01	< 0.5	0.07	< 5	0.2	< 0.05	0.01
16ZEAB-26A	0.691	4.51	0.695	3.2	0.19	< 0.5	< 0.05	< 5	< 0.1	0.29	0.12
16ZEAB-27A	0.349	2.34	0.347	1.5	0.11	< 0.5	0.08	< 5	< 0.1	0.29	0.06
16ZEAB-33A	0.013	0.09	0.016	< 0.1	< 0.01	< 0.5	0.07	< 5	< 0.1	< 0.05	< 0.01
16ZEAB-49A	0.395	2.61	0.409	2.0	0.04	< 0.5	0.05	9	< 0.1	0.45	0.17
16ZEAB-62A	0.230	1.64	0.265	0.9	< 0.01	< 0.5	< 0.05	< 5	< 0.1	0.18	0.11
16ZEAB-62B	0.216	1.46	0.246	1.2	0.12	< 0.5	< 0.05	< 5	< 0.1	0.18	0.08
16ZEAB-67A1	0.274	1.77	0.292	2.5	0.67	< 0.5	0.06	< 5	< 0.1	1.85	0.83
16ZEAB-70A	0.618	4.17	0.641	2.7	0.09	< 0.5	0.07	< 5	< 0.1	0.18	0.11
16ZEAB-79A	0.443	2.86	0.460	2.0	0.20	< 0.5	< 0.05	< 5	< 0.1	0.19	0.10
16ZEAB-103A	0.512	3.28	0.557	1.7	0.10	< 0.5	0.08	< 5	< 0.1	0.15	0.11
16ZEAB-106A	0.391	2.63	0.421	1.6	< 0.01	< 0.5	< 0.05	< 5	< 0.1	0.09	0.05
16ZEAB-113A	0.253	1.70	0.287	2.6	0.20	< 0.5	0.40	10	< 0.1	4.07	1.75
16ZEAB-124A	0.577	3.91	0.611	2.5	0.01	< 0.5	< 0.05	< 5	< 0.1	0.20	0.12
16ZEAB-133A	0.346	2.20	0.365	1.4	0.10	< 0.5	0.10	< 5	< 0.1	0.17	0.08
16ZEAB-181B	0.316	1.94	0.281	4.9	1.32	< 0.5	0.15	7	< 0.1	12.5	3.88
16ZEAB-188A	0.245	1.69	0.276	1.9	0.39	< 0.5	0.19	< 5	< 0.1	1.18	0.50
16ZEAB-202A	0.451	2.94	0.460	2.0	0.04	< 0.5	< 0.05	< 5	< 0.1	0.13	0.10
16ZEAB-235A	0.652	4.21	0.683	3.0	0.12	< 0.5	< 0.05	< 5	< 0.1	0.22	0.11
16ZEAB-244A	< 0.005	0.03	0.006	< 0.1	< 0.01	< 0.5	< 0.05	< 5	< 0.1	< 0.05	< 0.01
16ZEAB-258E	0.188	1.35	0.212	0.4	< 0.01	< 0.5	< 0.05	< 5	< 0.1	< 0.05	0.02

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	0.5	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas	11.21	1.87	0.76	0.013	0.34	42.95	0.87	0.55	0.118	30.25					1604								
NIST 694 Cert	11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2					1740								
DNC-1 Meas	46.75	18.55	9.86	0.147	9.93	11.41	1.87	0.22	0.477	0.06			31		152	290	56	260	100	70	14		
DNC-1 Cert	47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.070			31		148	270	57	247	100	70	15		
GBW 07113 Meas	71.55	12.70	3.11	0.139	0.14	0.59	2.45	5.38	0.273	0.04			5	4	6								
GBW 07113 Cert	72.8	13.0	3.21	0.140	0.160	0.590	2.57	5.43	0.300	0.0500			5.00	4.00	5.00								
LKSD-3 Meas																100	31		40	140			26
LKSD-3 Cert																87.0	30.0		35.0	152			27.0
TDB-1 Meas																250		90	330	160			
TDB-1 Cert																251		92	323	155			
W-2a Meas	52.92	15.28	10.79	0.168	6.21	11.07	2.21	0.62	1.086	0.12			35	< 1	270	90	43	70	110	80	18	1.6	
W-2a Cert	52.4	15.4	10.7	0.163	6.37	10.9	2.14	0.626	1.06	0.130			36.0	1.30	262	92.0	43.0	70.0	110	80.0	17.0	1.00	
SY-4 Meas	49.81	20.47	6.04	0.107	0.49	7.99	6.94	1.67	0.283	0.12			1	3	7								
SY-4 Cert	49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66	0.287	0.131			1.1	2.6	8.0								
CTA-AC-1 Meas																			60				
CTA-AC-1 Cert																			54.0				
BIR-1a Meas	48.18	15.67	11.43	0.171	9.59	13.57	1.81	0.02	0.979	0.03			44	< 1	324	380	50	180	120	80	16		
BIR-1a Cert	47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96	0.021			44	0.58	310	370	52	170	125	70	16		
NCS DC86312 Meas																							
NCS DC86312 Cert																							
NCS DC70009 (GBW07241) Meas																		< 20	930	100	17	10.9	71
NCS DC70009 (GBW07241) Cert																		2.8	960	100	16.5	11.2	69.9
OREAS 100a (Fusion) Meas																	18		180				
OREAS 100a (Fusion) Cert																	18.1		169				
OREAS 101a (Fusion) Meas																	50		440				
OREAS 101a (Fusion) Cert																	48.8		434				
OREAS 101b (Fusion) Meas																	46		420				
OREAS 101b (Fusion) Cert																	47		416				
JR-1 Meas																		< 20		30	18	2.0	16
JR-1 Cert																		1.67		30.6	16.1	1.88	16.3
16ZEAB-113A Orig	67.80	13.67	5.11	0.102	2.13	1.84	3.37	2.89	0.528	0.22	1.45	99.10	10	2	106	50	10	< 20	80	70	17	1.4	< 5

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	0.5	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
16ZEAB-113A Dup	68.55	13.56	5.11	0.101	2.15	1.85	3.43	2.93	0.525	0.22	1.45	99.87	10	2	108	40	10	< 20	90	90	16	1.4	< 5
Method Blank	< 0.01	< 0.01	0.01	0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01			< 1	< 1	< 5	< 20	< 1	< 20	< 10	< 30	< 1	< 0.5	< 5
Method Blank	< 0.01	< 0.01	0.01	0.002	< 0.01	< 0.01	< 0.01	< 0.01	0.001	< 0.01			< 1	< 1	< 5								

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	2	0.5	1	0.2	2	0.5	0.1	1	0.2	0.1	2	0.05	0.05	0.01	0.05	0.01	0.005	0.01	0.01	0.01	0.01	0.01
Method Code	FUS-MS	FUS-ICP	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas																							
NIST 694 Cert																							
DNC-1 Meas		141	16.2	34	2.8					1.0		107	3.90			5.20		0.610					
DNC-1 Cert		144.0	18.0	38	3					0.96		118	3.6			5.20		0.59					
GBW 07113 Meas		39		398								497											
GBW 07113 Cert		43.0		403								506											
LKSD-3 Meas	78		29.0			< 2	2.5			1.0	2.4		52.9				8.70	1.60		0.90	5.20		
LKSD-3 Cert	78.0		30.0			2.00	2.70			1.30	2.30		52.0				8.00	1.50		1.00	4.90		
TDB-1 Meas	21		34.5										16.8	40.6		24.5		2.00					
TDB-1 Cert	23		36										17	41		23		2.1					
W-2a Meas	20	195	20.8	90	7.5	< 2				0.8		173	10.4	23.9		13.0	3.40	1.10		0.62	3.90	0.77	
W-2a Cert	21.0	190	24.0	94.0	7.90	0.600				0.790		182	10.0	23.0		13.0	3.30	1.00		0.630	3.60	0.760	
SY-4 Meas		1213		540								346											
SY-4 Cert		1191		517								340											
CTA-AC-1 Meas			288										> 2000	> 3000		1150	162	45.5	124	13.3			
CTA-AC-1 Cert			272										2176	3326		1087	162	46.7	124	13.9			
BIR-1a Meas		107	14.6	13						0.6		7	0.70	2.00		2.60	1.10	0.550	2.00		3.60		
BIR-1a Cert		110	16	18						0.58		6	0.63	1.9		2.5	1.1	0.55	2.0		4		
NCS DC86312 Meas			962										> 2000	191		1610			224	33.6	190	38.1	
NCS DC86312 Cert			976										2360	190		1600			225.0	34.6	183	36	
NCS DC70009 (GBW07241) Meas	490		138				1.9	1.0	> 1000	3.0	39.2		23.7	60.4	8.00	32.8	12.5	0.150	15.4	3.10	21.2	4.40	13.8
NCS DC70009 (GBW07241) Cert	500		128				1.8	1.3	1701	3.1	41		23.7	60.3	7.9	32.9	12.5	0.16	14.8	3.3	20.7	4.5	13.4
OREAS 100a (Fusion) Meas			147			25							265	475	49.1	159	23.4	3.81	23.7	3.79			
OREAS 100a (Fusion) Cert			142			24.1							260	463	47.1	152	23.6	3.71	23.6	3.80			
OREAS 101a (Fusion) Meas			191			22							826	1410	129	410	51.7	8.36	46.4		33.7	6.71	20.6
OREAS 101a (Fusion) Cert			183			21.9							816	1396	134	403	48.8	8.06	43.4		33.3	6.46	19.5
OREAS 101b (Fusion) Meas			184			20							801	1370	129	392	51.0	8.17		5.05	32.5	6.46	19.7
OREAS 101b (Fusion) Cert			178			20.9							789	1331	127	378	48	7.77		5.37	32.1	6.34	18.7
JR-1 Meas	250				14.6	4		< 0.1	3	1.3	19.6		21.4	50.6	6.10	25.1	6.03	0.310		1.00			
JR-1 Cert	257				15.2	3.25		0.028	2.86	1.19	20.8		19.7	47.2	5.58	23.3	6.03	0.30		1.01			
16ZEAB-113A Orig	64	599	17.5	103	6.0	< 2	< 0.5	< 0.1	1	< 0.2	2.5	2148	18.0	37.2	4.27	16.8	3.67	1.10	3.46	0.54	3.13	0.61	1.79
16ZEAB-113A	63	602	17.2	106	5.6	< 2	< 0.5	< 0.1	1	< 0.2	2.5	2176	17.7	36.7	4.18	16.5	3.54	1.05	3.31	0.52	3.03	0.61	1.77

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	2	0.5	1	0.2	2	0.5	0.1	1	0.2	0.1	2	0.05	0.05	0.01	0.05	0.01	0.005	0.01	0.01	0.01	0.01	0.01
Method Code	FUS-MS	FUS-ICP	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
Dup																							
Method Blank	< 1	< 2	< 0.5	< 1	< 0.2	< 2	< 0.5	< 0.1	< 1	< 0.2	< 0.1	< 2	< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Method Blank		< 2		< 1								< 2											

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.005	0.01	0.002	0.1	0.01	0.5	0.05	5	0.1	0.05	0.01
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas											
NIST 694 Cert											
DNC-1 Meas		2.10									
DNC-1 Cert		2.0									
GBW 07113 Meas											
GBW 07113 Cert											
LKSD-3 Meas		2.80	0.420	4.5	0.73					11.5	4.90
LKSD-3 Cert		2.70	0.400	4.80	0.700					11.4	4.60
TDB-1 Meas		3.20								2.50	
TDB-1 Cert		3.4								2.7	
W-2a Meas		2.00	0.320	2.4	0.45	< 0.5			< 0.1		0.55
W-2a Cert		2.10	0.330	2.60	0.500	0.300			0.0300		0.530
SY-4 Meas											
SY-4 Cert											
CTA-AC-1 Meas		10.6	1.09		2.57					22.7	
CTA-AC-1 Cert		11.4	1.08		2.65					21.8	
BIR-1a Meas		1.70		0.6				< 5			
BIR-1a Cert		1.7		0.60				3			
NCS DC86312 Meas	14.8	93.4									
NCS DC86312 Cert	15.1	87.79									
NCS DC70009 (GBW07241) Meas	2.30	16.2	2.34			2180	1.88			29.0	
NCS DC70009 (GBW07241) Cert	2.2	14.9	2.4			2200	1.8			28.3	
OREAS 100a (Fusion) Meas			2.47								
OREAS 100a (Fusion) Cert			2.26								
OREAS 101a (Fusion) Meas	2.90	18.7	2.64							38.6	460
OREAS 101a (Fusion) Cert	2.90	17.5	2.66							36.6	422
OREAS 101b (Fusion) Meas	2.86	18.4	2.80							39.2	434
OREAS 101b (Fusion) Cert	2.66	17.6	2.58							37.1	396
JR-1 Meas	0.690	4.90	0.740	4.3	2.01	1.7	1.48	20	0.6	27.4	9.30
JR-1 Cert	0.67	4.55	0.71	4.51	1.86	1.59	1.56	19.3	0.56	26.7	8.88
16ZEAB-113A Orig	0.254	1.64	0.286	2.8	0.19	< 0.5	0.33	9	< 0.1	4.04	1.73
16ZEAB-113A	0.253	1.76	0.287	2.4	0.21	0.5	0.46	10	< 0.1	4.10	1.76

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.005	0.01	0.002	0.1	0.01	0.5	0.05	5	0.1	0.05	0.01
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
Dup											
Method Blank	< 0.005	< 0.01	< 0.002	< 0.1	< 0.01	< 0.5	< 0.05	< 5	< 0.1	< 0.05	< 0.01
Method Blank											