



**Date Submitted:** 07-Nov-14  
**Invoice No.:** A14-08614  
**Invoice Date:** 11-Dec-14  
**Your Reference:** NW CORDILLERA

Geological Survey of Canada  
475-601 BOOTH ST  
OTTAWA ON K1A0E8  
Canada

ATTN: Alex Zagorevski

## CERTIFICATE OF ANALYSIS

69 Rock samples were submitted for analysis.

The following analytical package was requested:

Code 4LITHORES (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

REPORT **A14-08614**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

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:

A handwritten signature in black ink, appearing to read "Emmanuel Esemé". The signature is written over a horizontal line.

Emmanuel Esemé, 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
ZE14-905	64.38	16.43	2.91	0.054	0.82	3.29	4.71	3.01	0.343	0.14	2.80	98.88	3	1	54	30	3	< 20	< 10	40	18	1.0	< 5
ZE14-906	67.02	17.66	2.62	0.065	0.92	2.50	5.50	2.84	0.305	0.10	0.92	100.4	4	1	48	30	5	< 20	< 10	40	19	1.0	< 5
ZE14-907	60.59	16.33	5.58	0.123	2.45	5.23	4.50	2.56	0.637	0.26	0.68	98.94	13	2	139	30	14	< 20	100	70	20	1.1	< 5
ZE14-908	59.62	16.74	5.89	0.108	2.85	6.17	4.92	1.63	0.666	0.27	0.91	99.78	14	2	162	70	17	30	40	60	20	1.1	10
ZE14-909	65.66	16.15	4.52	0.101	1.75	4.84	3.51	2.24	0.440	0.14	0.92	100.3	10	1	91	30	10	< 20	< 10	40	15	1.1	< 5
ZE14-911	63.99	17.62	4.68	0.164	0.73	2.46	4.80	5.09	0.338	0.14	0.72	100.7	4	3	34	40	4	< 20	< 10	60	19	1.7	< 5
ZE14-912	61.47	16.96	5.25	0.146	1.52	5.67	3.31	3.41	0.588	0.21	2.19	100.7	9	1	109	30	8	< 20	< 10	60	19	1.5	< 5
ZE14-913a	72.15	13.60	2.21	0.073	0.39	1.57	4.00	3.80	0.225	0.07	0.50	98.58	4	2	21	50	2	< 20	< 10	< 30	15	1.5	< 5
ZE14-913b	62.35	15.85	4.28	0.114	1.87	3.87	4.49	2.16	0.515	0.21	2.53	98.24	8	2	64	130	10	50	10	120	19	1.5	< 5
ZE14-914	61.22	15.24	4.63	0.083	1.89	4.59	3.35	2.76	0.477	0.15	6.30	100.7	11	1	110	60	11	< 20	< 10	30	15	1.2	< 5
ZE14-915	59.29	16.21	5.74	0.112	3.03	4.72	4.19	3.14	0.653	0.28	1.01	98.37	12	2	139	90	16	40	70	70	19	1.3	9
ZE14-916	51.64	17.83	4.66	0.150	1.00	6.95	5.00	4.31	0.534	0.28	6.41	98.77	7	3	115	< 20	8	< 20	< 10	40	19	0.9	6
ZE14-922	60.09	16.25	5.69	0.068	1.95	6.12	3.55	0.72	0.493	0.20	4.72	99.86	10	< 1	134	20	9	< 20	1290	30	18	1.3	< 5
ZE14-K003c	72.64	13.43	1.15	0.035	0.32	2.01	2.70	5.48	0.178	0.03	0.79	98.78	2	< 1	23	80	2	< 20	50	30	13	1.4	< 5
ZE14-K004	62.27	16.24	5.34	0.147	1.79	5.64	3.47	2.46	0.603	0.22	0.98	99.17	11	1	119	30	10	< 20	20	70	18	1.2	< 5
ZE14-K006	63.50	16.44	4.96	0.117	1.53	4.64	3.65	3.31	0.565	0.17	0.95	99.84	9	1	96	20	9	< 20	< 10	40	17	1.3	< 5
ZE14-K007a	59.68	16.98	5.65	0.143	1.91	5.56	3.92	1.83	0.625	0.21	2.90	99.41	11	1	117	30	11	< 20	30	60	18	1.4	< 5
ZE14-K008	61.41	16.84	3.81	0.087	1.68	5.91	3.84	3.19	0.603	0.22	0.88	98.48	10	1	103	30	8	< 20	30	40	17	1.2	< 5
ZE14-K009	62.34	16.72	5.76	0.144	1.96	5.73	3.57	2.37	0.617	0.22	1.49	100.9	10	1	118	20	11	< 20	< 10	70	18	1.2	< 5
ZE14-K010a	63.17	17.48	4.47	0.122	1.29	5.86	3.85	1.94	0.466	0.17	0.82	99.65	7	1	85	40	7	< 20	10	50	19	1.5	< 5
ZE14-K012c	64.18	16.05	4.37	0.122	1.53	4.84	3.20	3.01	0.499	0.16	1.24	99.21	9	1	103	30	6	< 20	130	50	17	2.0	< 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	3	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
ZE14-906	40	925	5.8	88	11.0	< 2	< 0.5	< 0.1	< 1	0.3	1.3	2079	8.09	13.8	1.82	7.26	1.47	0.555	1.27	0.17	0.95	0.19	0.57
ZE14-907	50	671	15.3	96	12.7	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	1149	16.8	33.0	4.22	16.8	3.50	1.06	3.06	0.47	2.82	0.56	1.69
ZE14-908	36	915	13.9	118	33.3	< 2	< 0.5	< 0.1	< 1	0.7	1.3	1301	62.8	131	16.5	61.6	10.7	3.01	6.73	0.75	3.49	0.57	1.50
ZE14-909	41	435	11.6	114	10.5	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	1508	24.8	41.3	4.39	15.9	2.75	0.865	2.33	0.36	2.16	0.43	1.34
ZE14-911	120	327	26.0	179	10.3	< 2	< 0.5	< 0.1	1	0.2	2.6	2312	31.6	59.5	7.11	26.1	4.89	1.15	4.24	0.76	4.19	0.89	2.82
ZE14-912	71	647	16.8	116	6.2	< 2	< 0.5	< 0.1	< 1	< 0.2	0.6	2897	16.0	28.6	3.58	15.0	3.02	0.968	2.87	0.48	2.99	0.61	1.77
ZE14-913a	99	162	16.4	128	5.7	< 2	< 0.5	< 0.1	1	< 0.2	1.8	1636	31.8	54.5	5.92	20.8	3.51	0.610	2.73	0.42	2.60	0.57	1.76
ZE14-913b	43	659	12.0	130	10.3	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	1396	25.2	47.4	5.77	22.1	3.94	1.21	3.08	0.40	2.34	0.43	1.25
ZE14-914	54	476	12.0	89	9.0	< 2	< 0.5	< 0.1	< 1	< 0.2	1.9	1972	22.8	38.2	4.30	16.1	2.80	0.940	2.35	0.36	2.10	0.46	1.37
ZE14-915	69	626	14.1	150	8.9	3	< 0.5	< 0.1	< 1	1.2	1.9	1061	15.7	31.3	3.98	16.5	3.66	1.06	2.95	0.43	2.71	0.55	1.60
ZE14-916	116	456	18.6	234	15.0	< 2	0.6	< 0.1	2	0.4	2.8	740	43.3	78.9	9.20	33.8	5.77	1.61	4.55	0.63	3.52	0.67	2.09
ZE14-922	14	338	10.4	60	4.6	< 2	< 0.5	< 0.1	< 1	< 0.2	1.0	356	6.75	13.8	1.89	8.35	1.96	0.715	1.86	0.31	1.96	0.42	1.21
ZE14-K003c	119	230	7.1	61	1.2	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	1979	15.7	14.2	1.62	5.36	0.93	0.224	0.91	0.15	0.96	0.20	0.65
ZE14-K004	48	437	17.4	85	10.3	< 2	< 0.5	< 0.1	< 1	< 0.2	0.6	1789	19.1	33.8	4.18	15.7	3.53	1.03	3.10	0.49	3.11	0.67	1.93
ZE14-K006	72	441	16.5	110	7.8	< 2	< 0.5	< 0.1	< 1	< 0.2	0.5	2150	17.8	31.6	3.89	15.5	3.26	1.01	2.98	0.49	3.02	0.61	1.91
ZE14-K007a	40	460	18.8	99	8.5	< 2	< 0.5	< 0.1	< 1	< 0.2	1.1	1327	19.5	35.4	4.50	18.0	3.91	1.17	3.63	0.56	3.46	0.73	2.27
ZE14-K008	74	499	18.4	112	7.6	< 2	< 0.5	< 0.1	< 1	< 0.2	0.8	1735	18.9	35.7	4.39	17.7	3.75	1.18	3.42	0.53	3.29	0.67	2.04
ZE14-K009	42	495	19.9	108	9.1	< 2	< 0.5	< 0.1	< 1	< 0.2	0.6	2354	20.0	37.2	4.58	17.9	3.71	1.19	3.26	0.54	3.42	0.69	2.18
ZE14-K010a	52	513	15.1	113	4.8	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	1765	14.2	26.7	3.22	13.3	2.73	0.810	2.55	0.41	2.38	0.50	1.57
ZE14-K012c	82	407	15.6	92	5.0	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	2114	17.6	31.7	3.63	14.3	2.93	0.870	2.54	0.42	2.57	0.52	1.58

## Results

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
MMI-14-32-5	0.261	1.68	0.258	1.5	0.10	< 0.5	0.15	< 5	< 0.1	2.38	1.19
MMI-14-30-1	0.250	1.63	0.250	0.9	0.06	< 0.5	0.06	< 5	< 0.1	0.42	0.25
MMI-14-31-1	0.208	1.51	0.222	1.9	0.38	< 0.5	0.25	8	< 0.1	2.99	1.04
MMI-14-34-1	0.224	1.49	0.233	1.6	0.08	< 0.5	0.23	< 5	< 0.1	1.39	1.00
ZE14-788	0.231	1.57	0.254	2.7	0.61	< 0.5	0.28	< 5	< 0.1	5.83	5.79
ZE14-820a	0.218	1.52	0.235	1.1	1.20	< 0.5	0.28	7	< 0.1	1.06	0.86
ZE14-820b	0.366	2.55	0.399	1.8	1.13	< 0.5	0.22	8	< 0.1	0.88	0.52
ZE14-821	0.381	2.68	0.435	1.5	1.10	< 0.5	0.31	19	< 0.1	2.25	1.75
ZE14-822a	0.443	2.90	0.464	2.7	0.32	< 0.5	0.17	6	< 0.1	2.31	1.15
ZE14-822b	0.317	1.95	0.294	2.7	0.60	< 0.5	< 0.05	< 5	< 0.1	0.98	0.39
ZE14-823a	0.266	1.56	0.215	5.1	1.56	< 0.5	< 0.05	< 5	< 0.1	1.29	0.65
ZE14-825a	0.221	1.54	0.231	2.1	0.23	< 0.5	< 0.05	< 5	< 0.1	1.03	0.58
ZE14-826a	0.258	1.64	0.251	2.2	0.21	2.4	0.28	< 5	< 0.1	2.17	1.60
ZE14-830	0.314	2.07	0.318	2.3	0.25	< 0.5	0.18	< 5	< 0.1	3.49	1.34
ZE14-832	0.284	1.87	0.288	1.7	0.21	< 0.5	0.13	< 5	< 0.1	1.98	0.81
ZE14-836b	0.208	1.39	0.209	1.7	0.58	1.0	0.44	23	< 0.1	2.52	1.28
ZE14-836c	0.199	1.31	0.195	1.6	0.49	6.5	0.57	11	< 0.1	2.57	1.48
ZE14-836d	0.231	1.46	0.207	2.3	0.84	1.0	0.59	23	0.4	4.44	2.03
ZE14-838b	0.216	1.48	0.242	1.9	0.14	< 0.5	0.20	< 5	< 0.1	2.98	1.42
ZE14-842a	0.399	2.68	0.423	3.6	0.73	< 0.5	0.14	< 5	< 0.1	4.38	1.76
ZE14-843a	0.273	1.64	0.222	2.0	0.32	< 0.5	0.31	6	< 0.1	1.58	0.81
ZE14-843b	0.174	1.16	0.182	2.8	0.67	< 0.5	0.38	15	< 0.1	6.45	1.97
ZE14-843c	0.218	1.29	0.172	1.7	0.26	< 0.5	0.11	5	< 0.1	1.17	0.67
ZE14-843d	0.374	2.29	0.330	3.4	0.48	< 0.5	0.22	6	< 0.1	1.93	0.92
ZE14-844	0.208	1.41	0.217	2.0	0.64	< 0.5	0.23	21	< 0.1	4.01	1.44
ZE14-845a	0.269	1.77	0.253	1.8	0.13	< 0.5	0.08	< 5	< 0.1	1.02	0.56
ZE14-845b	0.201	1.22	0.181	3.1	0.42	< 0.5	0.19	15	< 0.1	2.57	1.32
ZE14-845c	0.186	1.23	0.175	2.7	0.86	< 0.5	0.23	18	< 0.1	3.46	1.40
ZE14-847	0.328	2.22	0.357	4.0	0.93	< 0.5	0.25	7	< 0.1	9.75	3.23
ZE14-849	0.233	1.54	0.233	1.5	0.12	< 0.5	< 0.05	< 5	< 0.1	0.84	0.43
ZE14-850a	0.260	1.86	0.312	3.4	0.48	< 0.5	0.21	9	< 0.1	6.09	1.96
ZE14-850b	0.418	2.71	0.390	2.4	0.24	< 0.5	0.08	< 5	< 0.1	1.77	1.15
ZE14-850c	0.334	2.37	0.365	4.2	0.70	< 0.5	0.13	< 5	< 0.1	7.77	3.20
ZE14-851b	0.175	1.15	0.174	1.1	0.05	< 0.5	< 0.05	10	< 0.1	1.27	0.72
ZE14-854a	0.158	0.92	0.144	1.7	< 0.01	< 0.5	< 0.05	< 5	< 0.1	0.40	0.21
ZE14-854b	0.228	1.28	0.177	1.7	0.02	< 0.5	0.06	< 5	< 0.1	0.62	0.32
ZE14-854c	0.120	0.74	0.119	1.1	0.24	< 0.5	0.07	14	< 0.1	1.00	0.90
ZE14-854d	0.298	1.98	0.293	3.1	1.26	< 0.5	0.07	9	< 0.1	4.06	2.63
ZE14-855a	0.263	1.67	0.274	1.9	0.20	< 0.5	0.08	< 5	< 0.1	2.97	1.58
ZE14-855b	0.287	1.87	0.273	1.9	0.16	< 0.5	< 0.05	7	< 0.1	2.37	1.34
ZE14-856	0.207	1.38	0.211	1.3	0.07	< 0.5	< 0.05	< 5	< 0.1	1.72	1.03
ZE14-860	0.248	1.72	0.277	1.7	0.10	< 0.5	0.11	< 5	< 0.1	1.25	0.49
ZE14-862	0.218	1.42	0.224	1.7	0.09	< 0.5	< 0.05	< 5	< 0.1	1.42	0.51
ZE14-867	0.279	1.87	0.284	1.3	0.09	< 0.5	< 0.05	< 5	< 0.1	1.35	1.03
ZE14-872a	0.236	1.61	0.242	1.7	0.09	< 0.5	0.51	< 5	0.1	1.62	0.94
ZE14-875	0.230	1.47	0.228	1.7	0.12	< 0.5	0.31	< 5	< 0.1	1.32	0.80
ZE14-877	0.255	1.63	0.261	1.8	0.09	< 0.5	0.10	< 5	< 0.1	1.65	1.01
ZE14-902	0.297	2.04	0.318	1.7	0.11	< 0.5	0.17	< 5	< 0.1	1.81	1.11
ZE14-905	0.114	0.78	0.122	2.1	0.18	1.0	0.59	8	0.2	2.11	1.26

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
ZE14-906	0.091	0.61	0.096	1.6	0.12	< 0.5	0.18	7	< 0.1	1.43	0.66
ZE14-907	0.270	1.81	0.311	2.8	0.45	< 0.5	0.23	9	< 0.1	3.54	1.89
ZE14-908	0.198	1.23	0.178	2.2	0.21	< 0.5	0.16	6	< 0.1	22.3	0.71
ZE14-909	0.211	1.39	0.219	2.2	0.40	< 0.5	0.24	5	< 0.1	8.02	2.62
ZE14-911	0.478	3.29	0.478	4.0	0.84	< 0.5	0.49	10	< 0.1	11.5	3.18
ZE14-912	0.278	1.87	0.295	2.7	0.50	< 0.5	0.24	9	< 0.1	4.53	1.88
ZE14-913a	0.282	1.99	0.309	3.1	0.72	< 0.5	0.33	9	< 0.1	9.41	2.37
ZE14-913b	0.188	1.26	0.188	3.1	0.43	0.8	0.36	26	< 0.1	4.35	2.38
ZE14-914	0.205	1.40	0.237	2.3	0.42	< 0.5	0.32	< 5	< 0.1	7.87	2.05
ZE14-915	0.233	1.55	0.260	3.8	0.37	< 0.5	0.23	11	< 0.1	5.51	2.70
ZE14-916	0.337	2.29	0.335	5.2	0.80	1.5	0.24	< 5	< 0.1	19.6	8.48
ZE14-922	0.189	1.33	0.206	1.6	0.10	< 0.5	0.10	< 5	< 0.1	1.66	0.60
ZE14-K003c	0.103	0.75	0.126	1.8	0.18	< 0.5	0.41	10	< 0.1	8.83	2.96
ZE14-K004	0.312	2.18	0.321	2.4	0.47	< 0.5	0.28	7	< 0.1	4.51	1.72
ZE14-K006	0.294	1.89	0.298	2.4	0.45	< 0.5	0.27	< 5	< 0.1	3.99	1.74
ZE14-K007a	0.352	2.41	0.362	2.7	0.46	< 0.5	0.25	6	< 0.1	3.99	1.50
ZE14-K008	0.328	2.23	0.365	2.2	0.43	< 0.5	0.33	7	< 0.1	3.78	1.76
ZE14-K009	0.334	2.31	0.356	2.9	0.55	< 0.5	0.25	< 5	< 0.1	3.40	1.35
ZE14-K010a	0.260	1.86	0.280	2.7	0.44	< 0.5	0.16	8	< 0.1	3.61	1.41
ZE14-K012c	0.263	1.85	0.295	2.3	0.55	< 0.5	0.31	8	0.2	4.56	2.39





QC

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	3	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		148		34								109	3.60			4.91		0.596					
DNC-1 Cert		144.0		38								118	3.6			5.20		0.59					
LKSD-3 Meas						2	2.7				2.3		50.0	88.5		43.8	7.87	1.41				4.68	
LKSD-3 Cert						2.00	2.70				2.30		52.0	90.0		44.0	8.00	1.50				4.90	
W-2a Meas		201		80		< 2	0.7					173	10.1	21.7				0.942				3.43	
W-2a Cert		190		94.0		0.600	0.0460					182	10.0	23.0				1.00				3.60	
SY-4 Meas		1182		533								357											
SY-4 Cert		1191		517								340											
CTA-AC-1 Meas													> 2000	> 3000			171	46.8	130	15.2			
CTA-AC-1 Cert													2176	3326			162	46.7	124	13.9			
BIR-1a Meas		111		14	0.6					0.6		8				2.37	1.10	0.514	1.86				
BIR-1a Cert		110		18	0.6					0.58		6				2.5	1.1	0.55	2.0				
NCS DC86312 Meas			977										> 2000	169		1600			235	33.7	187	35.8	100
NCS DC86312 Cert			976										2360	190		1600			225.0	34.6	183	36	96.2
ZW-C Meas					195																		
ZW-C Cert					198																		
NCS DC70009 (GBW07241) Meas	499		132						> 1000	2.9	41.4		23.3	57.3	7.94	31.1	12.3		15.1	3.23	20.8	4.34	13.5
NCS DC70009 (GBW07241) Cert	500		128						1701	3.1	41		23.7	60.3	7.9	32.9	12.5		14.8	3.3	20.7	4.5	13.4
OREAS 100a (Fusion) Meas			137			26							273	480	48.9	163	25.6	3.88	21.8	3.82	24.4	5.11	15.8
OREAS 100a (Fusion) Cert			142			24.1							260	463	47.1	152	23.6	3.71	23.6	3.80	23.2	4.81	14.9
OREAS 101a (Fusion) Meas			174			22							819	1450	134	417	52.8	8.20		5.65	33.0	6.68	19.9
OREAS 101a (Fusion) Cert			183			21.9							816	1396	134	403	48.8	8.06		5.92	33.3	6.46	19.5
JR-1 Meas	244				14.2	3	< 0.5	< 0.1	3			20.2		20.1	46.1	6.07	24.1	5.84	0.296		0.99	6.24	
JR-1 Cert	257				15.2	3.25	0.031	0.028	2.86			20.8		19.7	47.2	5.58	23.3	6.03	0.30		1.01	5.69	
ZE14-832 Orig	25	470	17.5	61	7.0	< 2	< 0.5	< 0.1	< 1	0.3	0.5	550	15.1	29.9	3.89	16.9	3.89	1.29	3.73	0.55	3.27	0.66	1.98
ZE14-832 Dup	25	489	17.8	61	7.2	< 2	< 0.5	< 0.1	< 1	0.3	0.5	552	15.5	30.2	3.97	16.9	3.90	1.33	3.87	0.57	3.36	0.67	1.90
ZE14-849 Orig	10	530	14.4	53	3.5	< 2	< 0.5	< 0.1	< 1	0.5	0.2	187	5.68	12.6	1.97	9.35	2.58	0.836	2.58	0.43	2.60	0.54	1.60
ZE14-849 Split	10	542	15.0	51	3.8	< 2	< 0.5	< 0.1	< 1	0.7	0.2	187	5.28	12.3	1.87	9.14	2.63	0.822	2.62	0.45	2.86	0.59	1.74
ZE14-850b Orig	28	365	27.3	95	5.5	< 2	< 0.5	< 0.1	3	< 0.2	0.5	610	13.6	28.9	4.18	18.6	4.81	1.27	5.18	0.83	5.03	1.00	2.93
ZE14-850b Dup	28	380	27.5	94	5.2	< 2	< 0.5	< 0.1	3	< 0.2	0.5	606	13.9	29.0	4.09	17.7	4.79	1.35	5.18	0.86	5.18	1.04	2.95
ZE14-877 Orig	16	493	15.8	60	2.4	< 2	< 0.5	< 0.1	< 1	0.2	2.0	493	9.27	20.6	2.93	13.8	3.32	0.982	3.22	0.47	2.84	0.59	1.75
ZE14-877 Dup	16	480	16.1	58	2.3	< 2	< 0.5	< 0.1	< 1	0.2	2.1	488	10.4	21.3	2.89	13.3	3.32	1.02	3.17	0.50	2.78	0.60	1.77
ZE14-906 Orig	40	925	5.8	88	11.0	< 2	< 0.5	< 0.1	< 1	0.3	1.3	2079	8.09	13.8	1.82	7.26	1.47	0.555	1.27	0.17	0.95	0.19	0.57
ZE14-906 Split	42	913	6.1	104	2.9	< 2	< 0.5	< 0.1	< 1	< 0.2	1.3	2002	7.71	13.2	1.75	7.03	1.49	0.543	1.21	0.17	1.00	0.20	0.59
ZE14-916 Orig	116	456	18.6	234	15.0	< 2	0.6	< 0.1	2	0.4	2.8	740	43.3	78.9	9.20	33.8	5.77	1.61	4.55	0.63	3.52	0.67	2.09
ZE14-916 Split	123	460	19.8	232	13.8	< 2	0.7	< 0.1	2	0.4	2.8	736	40.9	73.6	8.78	33.4	5.85	1.61	4.16	0.61	3.51	0.69	2.03
ZE14-K003c Orig	121	231	7.2	57	1.2	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	1961	16.0	14.4	1.66	5.32	0.95	0.230	0.92	0.15	0.99	0.20	0.66
ZE14-K003c Dup	117	230	7.0	64	1.2	< 2	< 0.5	< 0.1	< 1	< 0.2	0.8	1996	15.4	13.9	1.58	5.39	0.92	0.218	0.91	0.16	0.93	0.20	0.64
ZE14-K012c Orig	81	405	15.6	94	5.0	< 2	< 0.5	< 0.1	< 1	< 0.2	0.9	2130	17.5	31.5	3.58	14.3	3.00	0.851	2.47	0.41	2.48	0.49	1.51
ZE14-K012c Dup	82	409	15.6	90	5.0	< 2	< 0.5	< 0.1	1	0.3	0.9	2098	17.7	31.9	3.68	14.2	2.85	0.889	2.60	0.43	2.67	0.54	1.64

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	3	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
Method Blank	< 1		< 0.5		< 0.2	< 2	< 0.5	< 0.1	< 1	< 0.2	< 0.1		< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

QC

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		1.99									
DNC-1 Cert		2.0									
LKSD-3 Meas		2.56	0.375			1.3				10.3	4.16
LKSD-3 Cert		2.70	0.400			2.00				11.4	4.60
W-2a Meas					0.47	< 0.5	0.07		< 0.1		
W-2a Cert					0.500	0.300	0.200		0.0300		
SY-4 Meas											
SY-4 Cert											
CTA-AC-1 Meas		10.9	1.15							23.9	4.04
CTA-AC-1 Cert		11.4	1.08							21.8	4.4
BIR-1a Meas		1.65		0.5				< 5			
BIR-1a Cert		1.7		0.60				3			
NCS DC86312 Meas	14.1	87.6	12.2							25.7	
NCS DC86312 Cert	15.1	87.79	11.96							23.6	
ZW-C Meas					81.3	334	34.0				
ZW-C Cert					82	320	34				
NCS DC70009 (GBW07241) Meas	2.31	16.1	2.31			2230				30.0	
NCS DC70009 (GBW07241) Cert	2.2	14.9	2.4			2200				28.3	
OREAS 100a (Fusion) Meas	2.52	16.2	2.33							54.1	141
OREAS 100a (Fusion) Cert	2.31	14.9	2.26							51.6	135
OREAS 101a (Fusion) Meas	2.99	19.0	2.66							37.4	432
OREAS 101a (Fusion) Cert	2.90	17.5	2.66							36.6	422
JR-1 Meas	0.684	4.94	0.700	4.3	1.89		1.42	23		26.7	8.68
JR-1 Cert	0.67	4.55	0.71	4.51	1.86		1.56	19.3		26.7	8.88
ZE14-832 Orig	0.288	1.87	0.290	1.6	0.22	< 0.5	0.11	< 5	< 0.1	1.95	0.75
ZE14-832 Dup	0.279	1.87	0.286	1.7	0.21	< 0.5	0.14	< 5	< 0.1	2.01	0.87
ZE14-849 Orig	0.233	1.54	0.233	1.5	0.12	< 0.5	< 0.05	< 5	< 0.1	0.84	0.43
ZE14-849 Split	0.245	1.58	0.249	1.5	0.16	< 0.5	0.07	< 5	< 0.1	0.91	0.42
ZE14-850b Orig	0.412	2.66	0.380	2.5	0.25	< 0.5	0.08	< 5	< 0.1	1.72	1.12
ZE14-850b Dup	0.425	2.76	0.401	2.4	0.23	< 0.5	0.07	< 5	< 0.1	1.82	1.19
ZE14-877 Orig	0.256	1.59	0.245	1.8	0.10	< 0.5	0.11	< 5	< 0.1	1.64	1.00
ZE14-877 Dup	0.255	1.67	0.277	1.7	0.08	< 0.5	0.10	< 5	< 0.1	1.65	1.02
ZE14-906 Orig	0.091	0.61	0.096	1.6	0.12	< 0.5	0.18	7	< 0.1	1.43	0.66
ZE14-906 Split	0.089	0.60	0.092	1.8	0.09	< 0.5	0.17	6	< 0.1	1.49	0.75

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
ZE14-916 Orig	0.337	2.29	0.335	5.2	0.80	1.5	0.24	< 5	< 0.1	19.6	8.48
ZE14-916 Split	0.320	2.14	0.340	5.4	0.82	1.9	0.21	< 5	< 0.1	20.1	8.82
ZE14-K003c Orig	0.104	0.74	0.120	1.8	0.18	< 0.5	0.39	11	< 0.1	8.91	2.90
ZE14-K003c Dup	0.101	0.76	0.131	1.9	0.18	< 0.5	0.44	10	< 0.1	8.74	3.02
ZE14-K012c Orig	0.254	1.85	0.287	2.3	0.54	< 0.5	0.30	7	0.2	4.53	2.39
ZE14-K012c Dup	0.272	1.85	0.303	2.3	0.56	0.7	0.31	8	0.2	4.59	2.40
Method Blank	< 0.005	< 0.01	< 0.002	< 0.1	< 0.01	< 0.5	< 0.05	< 5	< 0.1	< 0.05	< 0.01