



Date Submitted: 23-Dec-15
Invoice No.: A15-11277
Invoice Date: 28-Jan-16
Your Reference: COOK AREA TILL SAMPLING

MINNESOTA DEPT OF NAT RESOURCES
500 LAFAYETTE RD BOX 45
ST PAUL MN 55155-4045
United States

ATTN: Don Elsenheimer

CERTIFICATE OF ANALYSIS

38 Pulp samples were submitted for analysis.

The following analytical package was requested:

REPORT A15-11277

Code 1C-Exp Fire Assay-ICP/MS
Code 3A-Medium HMC INAA(INAAGEO)
Code 3A-Small HMC INAA(INAAGEO)
Code 4LITHO (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

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Notes:

We recommend reanalysis by fire assay Au, Pt, Pd Code 8 if values exceed upper limit. 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.

CERTIFIED BY:

[Handwritten signature]

Emmanuel Esemé, Ph.D.
Quality Control

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Results

Activation Laboratories Ltd.

Report: A15-11277

Analyte Symbol	Pd	Pt	Au	Au	Ag	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Hg	Ir	Mo	Na	Ni	Rb	Sb	Sc	Se
Unit Symbol	ppb	ppb	ppb	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	1	2	5	5	2	200	5	1	5	10	2	0.02	1	5	50	20	0.05	200	50	0.2	0.1	20
Method Code	FA-MS	FA-MS	FA-MS	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
CAT-401	< 1	3	6																				
CAT-402	< 1	3	5																				
CAT-403	< 1	2	4																				
CAT-404	< 1	3	5																				
CAT-405	< 1	2	4																				
CAT-406	< 1	4	11																				
CAT-407	< 1	2	4																				
CAT-408	< 1	3	5																				
CAT-409	< 1	2	4																				
CAT-410	< 1	4	5																				
CAT-411	< 1	4	18																				
CAT-412	< 1	3	8																				
CAT-413	< 1	2	3																				
CAT-414	< 1	5	9																				
CAT-415	< 1	3	6																				
CAT-416	< 1	3	6																				
CAT-418	< 1	2	5																				
CAT-419	< 1	3	3																				
CAT-421	< 1	3	5																				
CAT-401 HMC				< 5	< 5	< 2	< 200	< 5	< 1	28	350	< 2	44.4	< 1	< 5	< 50	< 20	< 0.05	< 200	< 50	2.2	3.1	< 20
CAT-402 HMC				< 5	< 5	12	< 200	< 5	< 1	40	710	< 2	> 75.0	< 1	< 5	< 50	< 20	0.06	< 200	< 50	0.7	4.0	< 20
CAT-403 HMC				< 5	< 5	16	< 200	< 5	< 1	141	4960	< 2	> 75.0	< 1	< 5	< 50	< 20	0.18	< 200	< 50	0.6	8.8	< 20
CAT-404 HMC				< 5	< 5	< 2	< 200	< 5	< 1	13	940	< 2	13.2	< 1	< 5	< 50	< 20	< 0.05	< 200	< 50	< 0.2	2.0	< 20
CAT-405 HMC				< 5	< 5	< 2	< 200	< 5	< 1	35	1550	< 2	52.9	< 1	< 5	< 50	< 20	0.13	< 200	< 50	< 0.2	3.9	< 20
CAT-406 HMC				< 5	< 5	< 2	< 200	< 5	3	78	4230	< 2	> 75.0	< 1	< 5	< 50	< 20	0.19	< 200	< 50	0.6	15.1	< 20
CAT-407 HMC				< 5	< 5	< 2	< 200	< 5	< 1	52	2040	< 2	46.6	< 1	< 5	< 50	< 20	0.13	< 200	< 50	< 0.2	11.8	< 20
CAT-408 HMC				< 5	< 5	< 2	< 200	< 5	< 1	8	540	< 2	12.4	< 1	< 5	< 50	< 20	< 0.05	< 200	< 50	< 0.2	2.4	< 20
CAT-409 HMC				< 5	< 5	< 2	< 200	< 5	< 1	53	5460	< 2	51.1	< 1	< 5	< 50	< 20	0.13	< 200	< 50	4.6	11.2	< 20
CAT-410 HMC				< 5	< 5	12	< 200	< 5	< 1	83	5600	< 2	> 75.0	< 1	< 5	< 50	< 20	0.17	< 200	< 50	0.6	9.1	< 20
CAT-411 HMC				< 5	< 5	< 2	< 200	< 5	< 1	61	2060	< 2	> 75.0	< 1	< 5	< 50	< 20	0.26	< 200	< 50	1.1	19.9	< 20
CAT-412 HMC				< 5	< 5	3	< 200	< 5	< 1	37	2530	< 2	> 75.0	< 1	< 5	< 50	< 20	0.14	< 200	< 50	< 0.2	6.8	< 20
CAT-413 HMC				< 5	< 5	< 2	< 200	< 5	< 1	71	2640	< 2	> 75.0	< 1	< 5	< 50	< 20	0.18	< 200	< 50	0.6	19.8	< 20
CAT-414 HMC				< 5	< 5	8	< 200	< 5	< 1	71	3190	< 2	> 75.0	< 1	< 5	< 50	< 20	0.25	< 200	< 50	< 0.2	10.1	< 20
CAT-415 HMC				< 5	< 5	6	< 200	< 5	< 1	118	5380	< 2	> 75.0	< 1	< 5	< 50	< 20	0.22	< 200	< 50	< 0.2	21.8	< 20
CAT-416 HMC				< 5	< 5	6	< 200	< 5	< 1	71	5250	< 2	> 75.0	< 1	< 5	< 50	< 20	0.14	< 200	< 50	< 0.2	6.8	< 20
CAT-418 HMC				84	< 5	21	< 200	< 5	< 1	134	7970	< 2	> 75.0	< 1	< 5	< 50	< 20	0.22	< 200	< 50	3.0	12.5	< 20
CAT-419 HMC				< 5	< 5	< 2	< 200	< 5	1	16	970	< 2	14.7	< 1	< 5	< 50	< 20	< 0.05	< 200	< 50	< 0.2	1.8	< 20
CAT-421HMC				< 5	< 5	< 2	< 200	< 5	< 1	67	8000	< 2	46.3	< 1	< 5	< 50	< 20	0.16	< 200	< 50	1.2	14.4	< 20

Analyte Symbol	Sr	Ta	Th	U	W	Zn	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Mass	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O
Unit Symbol	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g	%	%	%	%	%	%	%	%
Lower Limit	0.2	1	0.5	0.5	4	200	1	3	10	0.1	0.2	2	0.2	0.05		0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
CAT-401																55.45	12.42	7.98	0.218	2.11	3.07	1.48	1.43
CAT-402																62.67	12.69	6.47	0.104	1.95	2.09	2.16	1.83
CAT-403																67.81	12.88	5.12	0.051	1.48	1.94	2.34	1.92
CAT-404																64.30	13.12	5.16	0.072	1.54	2.00	2.09	1.87
CAT-405																67.71	13.43	4.92	0.054	1.59	1.80	2.23	1.94

Analyte Symbol	Sr	Ta	Th	U	W	Zn	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Mass	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O
Unit Symbol	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g	%	%	%	%	%	%	%	%
Lower Limit	0.2	1	0.5	0.5	4	200	1	3	10	0.1	0.2	2	0.2	0.05		0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
CAT-406																61.04	13.28	5.94	0.091	2.11	2.38	2.29	1.69
CAT-407																65.53	13.22	4.99	0.055	1.69	1.89	2.18	1.77
CAT-408																60.65	14.51	6.79	0.068	2.46	2.42	2.25	1.48
CAT-409																65.65	12.76	4.58	0.064	1.44	1.99	2.24	1.90
CAT-410																62.11	14.10	6.11	0.068	1.96	2.23	2.23	1.61
CAT-411																49.42	12.14	8.24	0.193	3.10	2.41	2.06	1.26
CAT-412																61.03	14.53	6.99	0.108	2.54	2.74	2.43	1.75
CAT-413																60.04	13.12	5.97	0.116	2.22	2.18	2.05	1.51
CAT-414																56.01	13.92	7.35	0.074	2.21	1.98	1.98	1.45
CAT-415																62.27	13.26	6.26	0.072	1.81	1.87	1.92	1.63
CAT-416																60.16	14.15	6.32	0.065	2.00	2.04	2.17	1.68
CAT-418																65.88	12.55	4.97	0.055	1.42	1.77	2.05	1.78
CAT-419																67.61	11.96	5.03	0.061	1.70	2.11	2.07	1.86
CAT-421																61.73	13.13	5.90	0.071	2.87	2.60	2.34	1.63
CAT-401 HMC	< 0.2	< 1	0.9	1.3	< 4	< 200	6	< 3	< 10	1.0	< 0.2	< 2	< 0.2	< 0.05	0.867								
CAT-402 HMC	< 0.2	< 1	8.1	< 0.5	< 4	< 200	13	36	< 10	2.0	< 0.2	< 2	0.6	0.07	6.15								
CAT-403 HMC	< 0.2	< 1	6.7	< 0.5	< 4	300	13	48	< 10	2.0	0.3	< 2	1.4	0.07	10.2								
CAT-404 HMC	< 0.2	< 1	0.9	< 0.5	< 4	< 200	1	< 3	< 10	0.3	< 0.2	< 2	< 0.2	< 0.05	2.36								
CAT-405 HMC	< 0.2	< 1	< 0.5	< 0.5	< 4	< 200	6	10	< 10	1.0	< 0.2	< 2	< 0.2	< 0.05	1.79								
CAT-406 HMC	< 0.2	< 1	3.7	2.5	< 4	600	10	19	< 10	1.6	0.7	< 2	0.8	< 0.05	5.86								
CAT-407 HMC	< 0.2	< 1	1.9	< 0.5	< 4	300	9	8	< 10	1.5	< 0.2	< 2	< 0.2	< 0.05	1.77								
CAT-408 HMC	< 0.2	< 1	0.5	< 0.5	< 4	< 200	2	7	< 10	0.4	< 0.2	< 2	< 0.2	< 0.05	2.47								
CAT-409 HMC	< 0.2	< 1	7.0	< 0.5	< 4	600	16	31	< 10	3.3	< 0.2	< 2	< 0.2	< 0.05	1.08								
CAT-410 HMC	< 0.2	< 1	2.8	< 0.5	< 4	900	15	45	< 10	2.0	< 0.2	< 2	< 0.2	< 0.05	3.88								
CAT-411 HMC	< 0.2	< 1	8.3	< 0.5	< 4	< 200	14	55	< 10	2.9	0.6	< 2	1.9	0.10	4.68								
CAT-412 HMC	< 0.2	< 1	1.1	< 0.5	< 4	< 200	7	17	< 10	1.2	< 0.2	< 2	0.7	< 0.05	16.1								
CAT-413 HMC	< 0.2	< 1	2.1	< 0.5	< 4	300	11	35	< 10	2.1	< 0.2	< 2	< 0.2	< 0.05	3.96								
CAT-414 HMC	< 0.2	< 1	7.1	< 0.5	< 4	600	12	26	50	1.9	< 0.2	< 2	1.0	0.05	6.87								
CAT-415 HMC	< 0.2	< 1	8.7	< 0.5	< 4	500	17	66	30	2.5	0.9	< 2	1.5	< 0.05	5.86								
CAT-416 HMC	< 0.2	< 1	1.9	< 0.5	< 4	400	8	23	< 10	1.1	< 0.2	< 2	1.3	< 0.05	10.5								
CAT-418 HMC	< 0.2	< 1	8.7	2.2	< 4	600	18	74	< 10	2.5	< 0.2	< 2	< 0.2	0.05	3.17								
CAT-419 HMC	< 0.2	< 1	< 0.5	< 0.5	< 4	< 200	1	< 3	< 10	0.3	< 0.2	< 2	< 0.2	< 0.05	2.75								
CAT-421HMC	< 0.2	< 1	5.7	< 0.5	< 4	1300	15	48	60	2.8	< 0.2	< 2	< 0.2	< 0.05	1.19								

Analyte Symbol	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag
Unit Symbol	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20	10	30	1	1	5	2	1	2	0.5
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-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
CAT-401	0.860	0.27	13.50	98.80	15	1	137	503	168	15	192	120	35	130	110	90	15	2	< 5	54	7	< 2	< 0.5
CAT-402	0.725	0.13	7.93	98.75	14	1	109	502	208	14	160	110	18	90	90	70	14	2	< 5	63	5	< 2	< 0.5
CAT-403	0.898	0.10	4.95	99.49	9	2	113	613	279	15	284	140	14	40	20	100	16	2	< 5	62	10	2	< 0.5
CAT-404	0.921	0.11	7.74	98.91	10	1	102	596	245	14	238	110	12	40	10	90	14	1	< 5	60	6	< 2	< 0.5
CAT-405	0.865	0.10	5.82	100.4	9	2	101	608	257	14	255	130	14	40	10	80	16	2	< 5	63	10	2	< 0.5
CAT-406	0.847	0.14	8.77	98.60	12	1	110	510	245	14	199	130	17	70	30	80	14	2	< 5	53	6	< 2	< 0.5
CAT-407	0.885	0.10	6.47	98.78	10	2	103	536	242	15	245	140	14	50	30	120	17	2	< 5	59	10	2	0.5
CAT-408	0.795	0.19	7.86	99.47	14	2	118	468	216	15	179	150	18	70	50	120	17	2	< 5	51	8	< 2	< 0.5
CAT-409	0.871	0.08	7.37	98.95	9	1	94	584	273	13	257	100	12	40	10	60	14	1	< 5	59	8	< 2	< 0.5
CAT-410	0.870	0.17	9.27	100.7	11	1	116	515	245	14	230	140	15	60	20	100	17	2	5	52	9	2	< 0.5

Analyte Symbol	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag
Unit Symbol	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20	10	30	1	1	5	2	1	2	0.5
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-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
CAT-411	0.638	0.17	20.08	99.70	17	1	119	375	167	19	126	170	31	90	150	110	15	2	8	45	6	2	< 0.5
CAT-412	0.783	0.12	7.08	100.1	13	1	123	481	249	13	193	140	24	90	80	90	14	1	< 5	56	6	< 2	< 0.5
CAT-413	0.783	0.20	10.62	98.82	12	2	114	478	209	12	182	150	20	60	40	120	16	2	< 5	57	9	2	< 0.5
CAT-414	0.792	0.15	13.99	99.90	12	1	123	468	192	11	188	130	22	80	40	80	15	1	< 5	51	7	< 2	< 0.5
CAT-415	0.979	0.11	9.79	99.96	11	1	120	585	204	14	255	120	16	60	30	110	16	2	< 5	57	10	< 2	< 0.5
CAT-416	0.849	0.10	8.97	98.49	11	1	120	537	232	13	222	140	18	70	30	90	15	2	< 5	53	8	< 2	< 0.5
CAT-418	0.976	0.05	7.08	98.58	9	1	104	610	238	14	254	110	13	50	10	90	15	2	< 5	57	9	< 2	< 0.5
CAT-419	0.935	0.10	6.92	100.3	10	1	109	562	230	14	287	110	11	40	20	110	14	2	< 5	69	10	< 2	< 0.5
CAT-421	0.799	0.25	7.44	98.76	13	1	113	476	230	13	174	190	18	90	30	70	15	2	< 5	56	6	< 2	< 0.5
CAT-401 HMC																							
CAT-402 HMC																							
CAT-403 HMC																							
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CAT-415 HMC																							
CAT-416 HMC																							
CAT-418 HMC																							
CAT-419 HMC																							
CAT-421HMC																							

Analyte Symbol	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb
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	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
CAT-401	< 0.2	1	< 0.5	3.0	16.1	32.0	3.58	13.5	2.8	0.69	2.5	0.4	2.6	0.5	1.7	0.25	1.7	0.26	3.6	0.8	< 1	< 0.1	7
CAT-402	< 0.2	< 1	< 0.5	2.6	20.2	42.9	4.64	17.3	3.4	0.85	3.0	0.5	2.7	0.5	1.5	0.23	1.6	0.23	2.8	0.6	< 1	0.1	10
CAT-403	< 0.2	1	1.1	2.6	19.7	39.5	4.34	18.0	3.0	0.85	2.9	0.4	2.5	0.5	1.5	0.23	1.6	0.24	7.0	1.1	2	0.3	16
CAT-404	< 0.2	< 1	< 0.5	2.5	19.3	37.9	4.40	16.6	3.2	0.76	2.5	0.4	2.6	0.5	1.6	0.24	1.6	0.25	4.2	0.8	< 1	0.1	10
CAT-405	< 0.2	2	1.3	2.2	16.9	35.7	3.81	14.0	2.6	0.72	2.3	0.4	2.2	0.5	1.3	0.21	1.4	0.24	6.0	1.0	2	0.3	14
CAT-406	< 0.2	< 1	< 0.5	1.9	18.3	40.8	4.08	16.2	3.1	0.82	2.8	0.4	2.5	0.5	1.5	0.23	1.6	0.25	3.9	0.7	< 1	0.1	10
CAT-407	< 0.2	2	1.2	2.5	18.5	38.6	4.14	15.5	2.7	0.77	2.5	0.4	2.3	0.5	1.5	0.23	1.5	0.23	6.0	1.1	2	0.3	14
CAT-408	< 0.2	1	1.3	2.0	16.0	35.1	3.73	15.0	2.8	0.91	2.6	0.4	2.4	0.5	1.5	0.25	1.6	0.23	4.5	0.9	2	0.3	12
CAT-409	< 0.2	< 1	< 0.5	2.1	18.0	37.0	4.17	16.2	3.1	0.80	2.6	0.4	2.5	0.5	1.5	0.23	1.5	0.24	4.7	0.9	< 1	0.1	11
CAT-410	< 0.2	1	1.2	2.4	16.8	35.0	3.79	14.3	2.6	0.77	2.4	0.4	2.1	0.4	1.2	0.20	1.4	0.22	5.2	0.9	2	0.2	14
CAT-411	< 0.2	2	1.2	2.1	26.9	53.7	6.23	25.1	4.6	1.19	4.1	0.5	3.1	0.6	1.9	0.28	1.8	0.29	3.2	0.8	2	0.2	20
CAT-412	< 0.2	< 1	< 0.5	2.1	18.1	54.4	4.20	15.9	3.2	0.84	2.6	0.4	2.5	0.5	1.4	0.21	1.4	0.22	3.7	0.7	< 1	< 0.1	10
CAT-413	< 0.2	1	1.1	2.1	15.3	36.3	3.58	13.8	2.7	0.80	2.8	0.4	2.1	0.4	1.2	0.20	1.4	0.22	4.5	0.9	3	0.3	13
CAT-414	< 0.2	< 1	< 0.5	2.3	14.4	31.1	3.23	12.7	2.4	0.65	2.1	0.3	2.1	0.4	1.3	0.19	1.3	0.20	3.6	0.7	< 1	< 0.1	8
CAT-415	< 0.2	1	< 0.5	2.6	18.3	38.4	4.03	15.3	3.0	0.72	2.5	0.4	2.6	0.5	1.5	0.25	1.7	0.28	4.9	0.9	< 1	0.1	11

Analyte Symbol	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb
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	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
CAT-416	< 0.2	< 1	< 0.5	2.5	18.2	38.9	4.07	15.3	2.9	0.73	2.4	0.4	2.4	0.5	1.4	0.22	1.4	0.23	4.1	0.9	< 1	< 0.1	10
CAT-418	< 0.2	1	0.8	2.6	18.7	37.1	4.03	15.0	2.9	0.72	2.5	0.4	2.4	0.5	1.5	0.23	1.6	0.25	4.5	0.9	< 1	0.2	12
CAT-419	< 0.2	1	< 0.5	2.8	18.2	36.4	4.13	15.5	2.9	0.70	2.5	0.4	2.5	0.5	1.6	0.24	1.6	0.25	5.4	0.9	< 1	0.2	9
CAT-421	< 0.2	< 1	< 0.5	2.1	14.8	32.0	3.47	13.3	2.7	0.78	2.4	0.4	2.4	0.5	1.4	0.21	1.4	0.23	3.5	0.7	< 1	0.1	9
CAT-401 HMC																							
CAT-402 HMC																							
CAT-403 HMC																							
CAT-404 HMC																							
CAT-405 HMC																							
CAT-406 HMC																							
CAT-407 HMC																							
CAT-408 HMC																							
CAT-409 HMC																							
CAT-410 HMC																							
CAT-411 HMC																							
CAT-412 HMC																							
CAT-413 HMC																							
CAT-414 HMC																							
CAT-415 HMC																							
CAT-416 HMC																							
CAT-418 HMC																							
CAT-419 HMC																							
CAT-421HMC																							

Analyte Symbol	Bi	Th	U
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS
CAT-401	< 0.4	3.8	1.5
CAT-402	< 0.4	4.6	1.4
CAT-403	< 0.4	4.7	1.4
CAT-404	< 0.4	4.1	1.5
CAT-405	< 0.4	4.4	1.4
CAT-406	< 0.4	4.4	1.3
CAT-407	< 0.4	5.0	1.4
CAT-408	< 0.4	4.0	1.2
CAT-409	< 0.4	4.0	1.5
CAT-410	< 0.4	3.9	1.2
CAT-411	< 0.4	4.4	1.1
CAT-412	< 0.4	4.9	1.4
CAT-413	< 0.4	3.6	1.2
CAT-414	< 0.4	3.8	1.3
CAT-415	< 0.4	4.5	1.7
CAT-416	< 0.4	4.3	1.4
CAT-418	< 0.4	4.3	1.6
CAT-419	< 0.4	4.1	1.6
CAT-421	< 0.4	3.3	1.1
CAT-401 HMC			

Analyte Symbol	Bi	Th	U
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS
CAT-402 HMC			
CAT-403 HMC			
CAT-404 HMC			
CAT-405 HMC			
CAT-406 HMC			
CAT-407 HMC			
CAT-408 HMC			
CAT-409 HMC			
CAT-410 HMC			
CAT-411 HMC			
CAT-412 HMC			
CAT-413 HMC			
CAT-414 HMC			
CAT-415 HMC			
CAT-416 HMC			
CAT-418 HMC			
CAT-419 HMC			
CAT-421HMC			

Analyte Symbol	Pd	Pt	Au	Au	Ag	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Hg	Ir	Mo	Na	Ni	Rb	Sb	Sc	Se
Unit Symbol	ppb	ppb	ppb	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	1	2	5	5	2	200	5	1	5	10	2	0.02	1	5	50	20	0.05	200	50	0.2	0.1	20
Method Code	FA-MS	FA-MS	FA-MS	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
NIST 694 Meas																							
NIST 694 Cert																							
DNC-1 Meas																							
DNC-1 Cert																							
GBW 07113 Meas																							
GBW 07113 Cert																							
LKSD-3 Meas																							
LKSD-3 Cert																							
TDB-1 Meas																							
TDB-1 Cert																							
W-2a Meas																							
W-2a Cert																							
SY-4 Meas																							
SY-4 Cert																							
CTA-AC-1 Meas																							
CTA-AC-1 Cert																							
BIR-1a Meas																							
BIR-1a Cert																							
NCS DC86312 Meas																							
NCS DC86312 Cert																							
NCS DC70009 (GBW07241) Meas																							
NCS DC70009 (GBW07241) Cert																							
OREAS 100a (Fusion) Meas																							
OREAS 100a (Fusion) Cert																							
OREAS 101a (Fusion) Meas																							
OREAS 101a (Fusion) Cert																							
OREAS 101b (Fusion) Meas																							
OREAS 101b (Fusion) Cert																							
JR-1 Meas																							
JR-1 Cert																							
CDN-PGMS-24 Meas	5190	1130	889																				
CDN-PGMS-24 Cert	4880.00	1090.00	806.000																				
CDN-PGMS-25 Meas	1920	412	488																				
CDN-PGMS-25 Cert	1830	400	483																				
DMMAS 118 Meas				1710		1680	1100			43	80		3.48					2.18			6.3	6.0	
DMMAS 118 Cert				1729		1661	1264			45	83		3.25					2.21			6.6	6.1	
DMMAS 118 Meas				1710		1700	1100			45	80		3.43					2.17			6.6	6.3	
DMMAS 118 Cert				1729		1661	1264			45	83		3.25					2.21			6.6	6.1	
DMMAS 118 Meas				1790		1740	1200			43	80		3.44					2.22			6.5	6.4	
DMMAS 118 Cert				1729		1661	1264			45	83		3.25					2.21			6.6	6.1	
DMMAS 118 Meas				1670		1670	1300			44	90		3.45					2.26			6.7	6.3	

Analyte Symbol	Pd	Pt	Au	Au	Ag	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Hg	Ir	Mo	Na	Ni	Rb	Sb	Sc	Se
Unit Symbol	ppb	ppb	ppb	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	1	1	2	5	5	2	200	5	1	5	10	2	0.02	1	5	50	20	0.05	200	50	0.2	0.1	20
Method Code	FA-MS	FA-MS	FA-MS	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
DMMAS 118 Cert				1729		1661	1264			45	83		3.25					2.21			6.6	6.1	
CAT-406 Orig																							
CAT-406 Dup																							
CAT-410 Orig	< 1	4	5																				
CAT-410 Dup	< 1	3	6																				
Method Blank																							
Method Blank	< 1	1	2																				
Method Blank				< 5	< 5	< 2	< 200	< 5	< 1	< 5	< 10	< 2	< 0.02	< 1	< 5	< 50	< 20	< 0.05	< 200	< 50	< 0.2	< 0.1	< 20
Method Blank				< 5	< 5	< 2	< 200	< 5	< 1	< 5	< 10	< 2	< 0.02	< 1	< 5	< 50	< 20	< 0.05	< 200	< 50	< 0.2	< 0.1	< 20

Analyte Symbol	Sr	Ta	Th	U	W	Zn	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Mass	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O
Unit Symbol	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g	%	%	%	%	%	%	%	%
Lower Limit	0.2	1	0.5	0.5	4	200	1	3	10	0.1	0.2	2	0.2	0.05		0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
NIST 694 Meas																11.25	1.88	0.74	0.010	0.34	42.66	0.86	0.54
NIST 694 Cert																11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510
DNC-1 Meas																47.51	18.42	9.84	0.150	10.14	11.49	1.92	0.23
DNC-1 Cert																47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234
GBW 07113 Meas																71.82	13.04	3.19	0.140	0.15	0.62	2.46	5.42
GBW 07113 Cert																72.8	13.0	3.21	0.140	0.160	0.590	2.57	5.43
LKSD-3 Meas																							
LKSD-3 Cert																							
TDB-1 Meas																							
TDB-1 Cert																							
W-2a Meas																53.00	15.24	10.58	0.160	6.26	11.20	2.22	0.62
W-2a Cert																52.4	15.4	10.7	0.163	6.37	10.9	2.14	0.626
SY-4 Meas																49.84	20.07	6.15	0.110	0.50	8.10	6.94	1.65
SY-4 Cert																49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66
CTA-AC-1 Meas																							
CTA-AC-1 Cert																							
BIR-1a Meas																47.50	15.88	11.68	0.170	9.59	13.46	1.80	0.02
BIR-1a Cert																47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030
NCS DC86312 Meas																							
NCS DC86312 Cert																							
NCS DC70009 (GBW07241) Meas																							
NCS DC70009 (GBW07241) Cert																							
OREAS 100a (Fusion) Meas																							
OREAS 100a (Fusion) Cert																							
OREAS 101a (Fusion) Meas																							
OREAS 101a (Fusion) Cert																							
OREAS 101b (Fusion) Meas																							
OREAS 101b (Fusion) Cert																							

Analyte Symbol	Sr	Ta	Th	U	W	Zn	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Mass	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O
Unit Symbol	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g	%	%	%	%	%	%	%	%
Lower Limit	0.2	1	0.5	0.5	4	200	1	3	10	0.1	0.2	2	0.2	0.05		0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
JR-1 Meas																							
JR-1 Cert																							
CDN-PGMS-24 Meas																							
CDN-PGMS-24 Cert																							
CDN-PGMS-25 Meas																							
CDN-PGMS-25 Cert																							
DMMAS 118 Meas				15.2			17	34		2.2													
DMMAS 118 Cert				15.9			16.9	30		2.2													
DMMAS 118 Meas				15.5			17	29		2.1													
DMMAS 118 Cert				15.9			16.9	30		2.2													
DMMAS 118 Meas				16.5			17	32		2.3													
DMMAS 118 Cert				15.9			16.9	30		2.2													
DMMAS 118 Meas				15.0			16	29		2.0													
DMMAS 118 Cert				15.9			16.9	30		2.2													
CAT-406 Orig																61.04	13.28	5.94	0.091	2.11	2.38	2.29	1.69
CAT-406 Dup																61.33	13.24	5.95	0.092	2.10	2.37	2.26	1.66
CAT-410 Orig																							
CAT-410 Dup																							
Method Blank																							
Method Blank																							
Method Blank	< 0.2	< 1	< 0.5	< 0.5	< 4	< 200	< 1	< 3	< 10	< 0.1	< 0.2	< 2	< 0.2	< 0.05	1.00								
Method Blank	< 0.2	< 1	< 0.5	< 0.5	< 4	< 200	< 1	< 3	< 10	< 0.1	< 0.2	< 2	< 0.2	< 0.05	10.0								

Analyte Symbol	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag
Unit Symbol	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20	10	30	1	1	5	2	1	2	0.5
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-MS	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	0.120	30.18						1623															
NIST 694 Cert	0.110	30.2						1740															
DNC-1 Meas	0.480	0.06			31		157	107	146	15	37	280	57	250	100		16			5			
DNC-1 Cert	0.480	0.070			31		148	118	144.0	18.0	38	270	57	247	100		15			5			
GBW 07113 Meas	0.280	0.04			5	4	6	499	40	46	408												
GBW 07113 Cert	0.300	0.0500			5.00	4.00	5.00	506	43.0	43.0	403												
LKSD-3 Meas															40	150			25	85		3	2.5
LKSD-3 Cert															35.0	152			27.0	78.0		2.00	2.70
TDB-1 Meas												270		90							23		
TDB-1 Cert												251		92							23		
W-2a Meas	1.070	0.17			36	< 1	279	175	199	19	95		45		120			2		23		< 2	< 0.5
W-2a Cert	1.06	0.130			36.0	1.30	262	182	190	24.0	94.0		43.0		110			1.00		21.0		0.600	0.0460
SY-4 Meas	0.280	0.12			1	3	8	344	1191	114	539												
SY-4 Cert	0.287	0.131			1.1	2.6	8.0	340	1191	119	517												
CTA-AC-1 Meas															50	40							
CTA-AC-1 Cert															54.0	38.0							
BIR-1a Meas	0.990	0.01			43	< 1	333	7	108	13	15	370	49	170	120			16					
BIR-1a Cert	0.96	0.021			44	0.58	310	6	110	16	18	370	52	170	125			16					
NCS DC86312 Meas																							

Analyte Symbol	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag
Unit Symbol	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20	10	30	1	1	5	2	1	2	0.5
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-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NCS DC86312 Cert																							
NCS DC70009 (GBW07241) Meas													4		990		18	11	65	539			1.7
NCS DC70009 (GBW07241) Cert													3.7		960		16.5	11.2	69.9	500			1.8
OREAS 100a (Fusion) Meas													17		170								23
OREAS 100a (Fusion) Cert													18.1		169								24.1
OREAS 101a (Fusion) Meas													50		440								23
OREAS 101a (Fusion) Cert													48.8		434								21.9
OREAS 101b (Fusion) Meas													47		450								22
OREAS 101b (Fusion) Cert													47		416								20.9
JR-1 Meas														< 20	< 10		17	2	15	251	15	3	1.0
JR-1 Cert														1.67	2.68		16.1	1.88	16.3	257	15.2	3.25	0.031
CDN-PGMS-24 Meas																							
CDN-PGMS-24 Cert																							
CDN-PGMS-25 Meas																							
CDN-PGMS-25 Cert																							
DMMAS 118 Meas																							
DMMAS 118 Cert																							
DMMAS 118 Meas																							
DMMAS 118 Cert																							
DMMAS 118 Meas																							
DMMAS 118 Cert																							
DMMAS 118 Meas																							
DMMAS 118 Cert																							
CAT-406 Orig	0.847	0.14	8.77	98.60	12	1	110	510	245	14	199	130	17	70	30	80	14	2	< 5	53	6	< 2	< 0.5
CAT-406 Dup	0.832	0.13	8.77	98.74	12	1	109	504	241	13	206	130	17	70	30	80	14	1	< 5	53	7	< 2	< 0.5
CAT-410 Orig																							
CAT-410 Dup																							
Method Blank												< 20	< 1	< 20	< 10	< 30	< 1	< 1	< 5	< 2	< 1	< 2	< 0.5
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb
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	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	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			1.0					5.6		0.64							2.1						
DNC-1 Cert			0.96					5.20		0.59							2.0						
GBW 07113 Meas																							

Analyte Symbol	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	
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	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5	
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	
GBW 07113 Cert																								
LKSD-3 Meas			2	1.4	2.7	50.1	93.6		45.4	8.6	1.50		0.9					2.9	0.44	4.6	0.6			
LKSD-3 Cert			3.00	1.30	2.30	52.0	90.0		44.0	8.00	1.50		1.00					2.70	0.400	4.80	0.700			
TDB-1 Meas							44.2				2.30			7.3					3.6					
TDB-1 Cert							41				2.1			8					3.4					
W-2a Meas				0.9	10.4	22.2		11.9	3.1	1.10				3.6	0.7			2.0		2.6		1	< 0.1	
W-2a Cert				0.990	10.0	23.0		13.0	3.30	1.00				3.60	0.760			2.10		2.60		0.300	0.200	
SY-4 Meas																								
SY-4 Cert																								
CTA-AC-1 Meas					> 2000	> 3000		1140	164	44.7	131	15.0						10.9	1.12	1.8	2.7			
CTA-AC-1 Cert					2176	3326		1087	162	46.7	124	13.9						11.4	1.08	1.13	2.65			
BIR-1a Meas										0.54	2.0								0.32	0.6				
BIR-1a Cert										0.55	2.0								0.3	0.60				
NCS DC86312 Meas					> 2000	190		1600					34.7	197	37.3		14.5	91.6	12.9					
NCS DC86312 Cert					2360	190		1600					34.6	183	36		15.1	87.79	11.96					
NCS DC70009 (GBW07241) Meas	1.5	> 1000		44.4	24.2	60.1	8.20	33.8	13.1	0.15	15.0	3.0	21.1	4.3	13.3	2.20	15.8	2.33			2090			
NCS DC70009 (GBW07241) Cert	1.3	1701		41	23.7	60.3	7.9	32.9	12.5	0.16	14.8	3.3	20.7	4.5	13.4	2.2	14.9	2.4			2200			
OREAS 100a (Fusion) Meas					243	441	43.2	138	22.6	3.45		3.4	21.4	4.5	14.3	2.09	14.3	2.13						
OREAS 100a (Fusion) Cert					260	463	47.1	152	23.6	3.71		3.80	23.2	4.81	14.9	2.31	14.9	2.26						
OREAS 101a (Fusion) Meas					823	1420	130	404	51.0	8.08		5.5	32.3	6.5	20.3	2.90	18.1	2.66						
OREAS 101a (Fusion) Cert					816	1396	134	403	48.8	8.06		5.92	33.3	6.46	19.5	2.90	17.5	2.66						
OREAS 101b (Fusion) Meas							139					5.8	34.5	6.8					2.84					
OREAS 101b (Fusion) Cert							127					5.37	32.1	6.34					2.58					
JR-1 Meas	< 0.2	3		22.0	20.7	49.5		25.1	6.0	0.27			1.0					4.8		4.4		2	1.6	20
JR-1 Cert	0.028	2.86		20.8	19.7	47.2		23.3	6.03	0.30			1.01					4.55		4.51		1.59	1.56	19.3
CDN-PGMS-24 Meas																								
CDN-PGMS-24 Cert																								
CDN-PGMS-25 Meas																								
CDN-PGMS-25 Cert																								
DMMAS 118 Meas																								
DMMAS 118 Cert																								
DMMAS 118 Meas																								
DMMAS 118 Cert																								
DMMAS 118 Meas																								
DMMAS 118 Cert																								
DMMAS 118 Meas																								
DMMAS 118 Cert																								
CAT-406 Orig	< 0.2	< 1	< 0.5	1.9	18.3	40.8	4.08	16.2	3.1	0.82	2.8	0.4	2.5	0.5	1.5	0.23	1.6	0.25	3.9	0.7	< 1	0.1	10	
CAT-406 Dup	< 0.2	< 1	< 0.5	2.0	18.9	42.4	4.37	16.5	3.3	0.89	2.6	0.4	2.5	0.5	1.5	0.22	1.5	0.23	3.9	0.8	< 1	< 0.1	11	
CAT-410 Orig																								
CAT-410 Dup																								

Analyte Symbol	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb
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	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
Method Blank	< 0.2	< 1	< 0.5	< 0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.04	< 0.2	< 0.1	< 1	< 0.1	< 5
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Bi	Th	U
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas			
NIST 694 Cert			
DNC-1 Meas			
DNC-1 Cert			
GBW 07113 Meas			
GBW 07113 Cert			
LKSD-3 Meas		12.2	
LKSD-3 Cert		11.4	
TDB-1 Meas			
TDB-1 Cert			
W-2a Meas	< 0.4	2.2	0.6
W-2a Cert	0.0300	2.40	0.530
SY-4 Meas			
SY-4 Cert			
CTA-AC-1 Meas			4.3
CTA-AC-1 Cert			4.4
BIR-1a Meas			
BIR-1a Cert			
NCS DC86312 Meas			
NCS DC86312 Cert			
NCS DC70009 (GBW07241) Meas		30.4	
NCS DC70009 (GBW07241) Cert		28.3	
OREAS 100a (Fusion) Meas		52.2	145
OREAS 100a (Fusion) Cert		51.6	135
OREAS 101a (Fusion) Meas		37.9	
OREAS 101a (Fusion) Cert		36.6	
OREAS 101b (Fusion) Meas		37.1	416
OREAS 101b (Fusion) Cert		37.1	396
JR-1 Meas	0.5		
JR-1 Cert	0.56		
CDN-PGMS-24 Meas			
CDN-PGMS-24 Cert			
CDN-PGMS-25			

Analyte Symbol	Bi	Th	U
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS
Meas			
CDN-PGMS-25 Cert			
DMMAS 118 Meas			
DMMAS 118 Cert			
DMMAS 118 Meas			
DMMAS 118 Cert			
DMMAS 118 Meas			
DMMAS 118 Cert			
DMMAS 118 Meas			
DMMAS 118 Cert			
DMMAS 118 Meas			
DMMAS 118 Cert			
CAT-406 Orig	< 0.4	4.4	1.3
CAT-406 Dup	< 0.4	4.3	1.3
CAT-410 Orig			
CAT-410 Dup			
Method Blank	< 0.4	< 0.1	< 0.1
Method Blank			
Method Blank			
Method Blank			