Quality Analysis ... *Innovative Technologies*

Date Submitted:	12-Jul-19
Invoice No.:	A19-09061-1A6-Quant
Invoice Date:	06-Sep-19
Your Reference:	SJP PROJECT

MacDonald Mines Exploration Ltd.
145 Wellington Street West
Suite 1001
Toronto ON M5J 1H8
Canada

ATTN: Vice President of Exploration Quentin Yarie (INV+CERT)

CERTIFICATE OF ANALYSIS

5 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 1A6-50 Au-Cyanide Extraction-ICP/MS

REPORT **A19-09061-1A6-Quant**

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:

CERTIFIED BY:

Elitsa Hrischeva, Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au
Unit Symbol	ppb
Lower Limit	0.02
Method Code	BLEG-MS
802301	965
802302	1250
802303	1450
802304	1370
802305	1210

Analyte Symbol	Au
Unit Symbol	ppb
Lower Limit	0.02
Method Code	BLEG-MS
GC-800 Meas	817
GC-800 Cert	829
802301 Orig	1030
802301 Dup	897
Method Blank	< 0.02
Method Blank	< 0.02

Quality Analysis ... *Innovative Technologies*

Date Submitted: 12-Jul-19
Invoice No.: A19-09061-Au
Invoice Date: 31-Jul-19
Your Reference: SJP PROJECT

MacDonald Mines Exploration Ltd.
145 Wellington Street West
Suite 1001
Toronto ON M5J 1H8
Canada

ATTN: Vice President of Exploration Quentin Yarie (INV+CERT)

CERTIFICATE OF ANALYSIS

5 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-50 Au - Fire Assay AA (QOP AA-Au)
Code 1A6-50 Au-Cyanide Extraction-ICP/MS
Code UT-6M-RedPine Total Digestion ICP & ICP/MS

REPORT **A19-09061-Au**

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:

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613

Analyte Symbol	Au	Au
Unit Symbol	ppb	ppb
Lower Limit	5	0.02
Method Code	FA-AA	BLEG-MS
802301	1050	> 1000
802302	1640	> 1000
802303	1810	> 1000
802304	1330	> 1000
802305	1290	> 1000

Analyte Symbol	Au	Au
Unit Symbol	ppb	ppb
Lower Limit	5	0.02
Method Code	FA-AA	BLEG-MS
GC-800 Meas		860
GC-800 Cert		829
OREAS 254 Fire Assay Meas	2610	
OREAS 254 Fire Assay Cert	2550	
OREAS 220 (Fire Assay) Meas	856	
OREAS 220 (Fire Assay) Cert	866	
802301 Orig	1060	
802301 Dup	1050	
802305 Orig	1240	> 1000
802305 Dup	1340	> 1000
Method Blank		< 0.02
Method Blank		< 0.02
Method Blank	< 5	
Method Blank	< 5	

Quality Analysis ... *Innovative Technologies*

Date Submitted: 12-Jul-19
Invoice No.: A19-09061-TD
Invoice Date: 31-Jul-19
Your Reference: SJP PROJECT

MacDonald Mines Exploration Ltd.
145 Wellington Street West
Suite 1001
Toronto ON M5J 1H8
Canada

ATTN: Vice President of Exploration Quentin Yarie (INV+CERT)

CERTIFICATE OF ANALYSIS

5 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-50 Au - Fire Assay AA (QOP AA-Au)
Code 1A6-50 Au-Cyanide Extraction-ICP/MS
Code UT-6M-RedPine Total Digestion ICP & ICP/MS

REPORT **A19-09061-TD**

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:

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613

Analyte Symbol	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
Lower Limit	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5
Method Code	TD-MS	TD-ICP	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP
802301	0.35	6.48	2060	110	1.35	0.42	1.15	< 0.02	65.4	68.1	71	0.62	89.4	6.22	17.5	< 0.05	2.9	0.068	0.42	33.1	15.1	2.00	449
802302	0.57	6.19	4820	140	1.40	0.71	1.42	< 0.02	63.8	116	73	0.99	193	6.65	17.1	< 0.05	2.7	0.094	0.56	33.2	23.5	2.38	586
802303	1.23	6.22	6580	150	1.53	1.80	1.99	0.03	65.4	196	102	1.41	703	9.93	18.3	< 0.05	2.1	0.216	0.69	33.5	32.3	3.36	856
802304	0.12	7.12	56.5	70	2.05	0.46	0.50	< 0.02	70.9	16.1	84	0.51	25.5	8.90	24.3	< 0.05	2.1	0.089	0.27	36.7	8.8	2.24	341
802305	0.59	6.00	3700	160	1.34	0.64	1.77	< 0.02	61.4	111	90	1.01	227	6.53	16.2	< 0.05	2.7	0.100	0.63	31.1	26.8	2.54	683

Analyte Symbol	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1
Method Code	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS
802301	0.79	3.23	4.3	63.9	450	4.7	16.3	< 0.002	0.56	1.39	7.3	1	0.8	58.5	0.40	0.61	5.6	0.184	0.07	2.4	66	7.1	11.6
802302	0.82	2.68	4.9	66.0	420	5.0	24.1	< 0.002	0.65	2.81	10.7	2	1.1	55.8	0.43	1.18	6.4	0.202	0.13	2.5	78	7.2	14.1
802303	1.86	1.87	4.5	156	420	6.9	31.1	< 0.002	2.26	4.22	14.0	4	1.6	45.5	0.43	1.73	6.3	0.217	0.20	3.2	106	7.8	17.5
802304	0.67	3.25	4.3	78.3	480	5.0	12.3	< 0.002	0.18	0.43	6.1	< 1	1.2	44.4	0.39	0.35	5.5	0.153	0.05	2.8	73	6.1	9.1
802305	1.04	2.39	4.7	68.3	410	6.2	27.4	< 0.002	0.81	2.27	11.9	2	1.2	63.2	0.42	1.00	6.4	0.218	0.15	2.4	82	6.9	16.0

Analyte Symbol	Yb	Zn	Zr
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.1	2	0.5
Method Code	TD-MS	TD-ICP	TD-MS
802301	1.2	27	113
802302	1.4	38	108
802303	1.7	56	83.6
802304	0.8	21	80.1
802305	1.5	44	103

Analyte Symbol	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
Lower Limit	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5
Method Code	TD-MS	TD-ICP	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP
SDC-1 Meas		7.85	< 0.2	630	2.99		1.08		93.5	18.1	44	3.68	30.9	4.77	14.8		0.9		2.64	39.3	34.1	1.02	889
SDC-1 Cert		8.34	0.220	630	3.00		1.00		93.00	18.0	64.00	4.00	30.000	4.82	21.00		8.30		2.72	42.00	34.0	1.02	880.00
SDC-1 Meas		7.75	< 0.2	590	3.20		1.07		85.6	19.6	46	3.97	27.4	4.68	22.9		1.1		1.50	40.7	38.4	1.00	877
SDC-1 Cert		8.34	0.220	630	3.00		1.00		93.00	18.0	64.00	4.00	30.000	4.82	21.00		8.30		2.72	42.00	34.0	1.02	880.00
Oreas 72a (4 Acid Digest) Meas			2.2							155	157		273	8.80									
Oreas 72a (4 Acid Digest) Cert			14.7							157	228		316	9.63									
Oreas 72a (4 Acid Digest) Meas			2.9							151	146		303	9.17									
Oreas 72a (4 Acid Digest) Cert			14.7							157	228		316	9.63									
OREAS 101b (4 Acid) Meas									> 500	39.2			389	10.2					2.30	655		1.20	938
OREAS 101b (4 Acid) Cert									1325	45			412	10.7					2.36	754		1.23	927
OREAS 101b (4 Acid) Meas									> 500	45.5			400	10.2					1.51	801		1.21	938
OREAS 101b (4 Acid) Cert									1325	45			412	10.7					2.36	754		1.23	927
OREAS 101b (4 Acid) Meas									> 500	44.0			427	10.3					2.31	830		1.21	931
OREAS 101b (4 Acid) Cert									1325	45			412	10.7					2.36	754		1.23	927
OREAS 98 (4 Acid) Meas	41.8					96.6				113			> 10000										
OREAS 98 (4 Acid) Cert	45.1					97.2				121			148000.0										
OREAS 98 (4 Acid) Meas	42.5					92.1				107			> 10000										
OREAS 98 (4 Acid) Cert	45.1					97.2				121			148000.0										
DNC-1a Meas				90			7.05			55.4	124		82.6	6.57	12.9					3.6	4.6		
DNC-1a Cert				118			8.21			57	270		100	6.97	15					3.6	5.2		
DNC-1a Meas				90			7.37			54.7	126		84.9	6.67	13.0					3.7	4.4		
DNC-1a Cert				118			8.21			57	270		100	6.97	15					3.6	5.2		
OREAS 13b (4-Acid) Meas	0.98		57.0							76.0	8890		2250										
OREAS 13b (4-Acid) Cert	0.86		57							75	8650.000		2327.0000										
OREAS 13b (4-Acid) Meas	0.86		47.8							71.3	9210		2070										
OREAS 13b (4-Acid) Cert	0.86		57							75	8650.000		2327.0000										
OREAS 904 (4 ACID) Meas	0.57	6.27	88.7	190	8.22	3.65	0.05		83.1	81.6	56	3.18	5890	6.86	13.6	0.06	0.4	0.210	2.57	37.9	15.5	0.59	449

Analyte Symbol	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
Lower Limit	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5
Method Code	TD-MS	TD-ICP	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP
OREAS 904 (4 ACID) Cert	0.551	6.30	98.0	194	7.86	4.05	0.0460		86.0	83.0	54.0	3.79	6120	6.68	16.7	0.180	5.00	0.220	3.31	43.2	16.7	0.556	410
OREAS 904 (4 ACID) Meas		6.16		170			0.05				57			6.68					2.17			0.57	435
OREAS 904 (4 ACID) Cert		6.30		194			0.0460				54.0			6.68					3.31			0.556	410
SBC-1 Meas				740							100												
SBC-1 Cert				788.0							109												
SBC-1 Meas				790							97												
SBC-1 Cert				788.0							109												
OREAS 45d (4-Acid) Meas		7.66	5.1	180	0.75	0.31	0.20		35.1	30.5	465	3.90	365	14.0	20.8		1.1	0.079	0.41	16.7	20.5	0.24	490
OREAS 45d (4-Acid) Cert		8.150	13.8	183.0	0.79	0.31	0.185		37.20	29.50	549	3.910	371	14.5	21.20		3.830	0.096	0.412	16.9	21.5	0.245	490.000
OREAS 45d (4-Acid) Meas		7.85	7.9	180	0.77	0.31	0.21		34.4	28.5	557	3.73	365	14.4	20.1		2.6	0.099	0.41	16.6	20.2	0.25	521
OREAS 45d (4-Acid) Cert		8.150	13.8	183.0	0.79	0.31	0.185		37.20	29.50	549	3.910	371	14.5	21.20		3.830	0.096	0.412	16.9	21.5	0.245	490.000
OREAS 96 (4 Acid) Meas	12.3					24.9				50.9			> 10000										
OREAS 96 (4 Acid) Cert	11.5					26.3				49.9			39300										
OREAS 96 (4 Acid) Meas	11.4					27.9				49.9			> 10000										
OREAS 96 (4 Acid) Cert	11.5					26.3				49.9			39300										
OREAS 96 (4 Acid) Meas	11.2					27.7				49.6			> 10000										
OREAS 96 (4 Acid) Cert	11.5					26.3				49.9			39300										
OREAS 923 (4 Acid) Meas	1.72	7.00	6.2	420	2.30	19.9	0.50	0.35	78.9	26.1	68	6.83	4620	6.29	18.7		3.7	0.500	2.45	43.4	32.6	1.69	956
OREAS 923 (4 Acid) Cert	1.60	7.29	7.61	434	2.42	21.4	0.473	0.420	83.0	23.1	71.0	6.70	4230	6.43	20.3		3.42	0.520	2.51	42.2	31.4	1.69	950
OREAS 923 (4 Acid) Meas	1.98	7.23	4.5	420	2.63	23.2	0.52	0.25	79.7	24.3	73	6.83	4840	6.55	19.4		3.7	0.557	1.95	42.9	33.7	1.75	961
OREAS 923 (4 Acid) Cert	1.60	7.29	7.61	434	2.42	21.4	0.473	0.420	83.0	23.1	71.0	6.70	4230	6.43	20.3		3.42	0.520	2.51	42.2	31.4	1.69	950
OREAS 621 (4 Acid) Meas	66.5	6.19	78.0		1.96	3.81	2.11	294	45.1	29.3	38	2.79	3680	3.68	25.3		4.9	1.78	1.63	16.8	13.8	0.52	499
OREAS 621 (4 Acid) Cert	69.0	6.40	77.0		1.69	3.93	1.97	284	46.6	29.3	37.1	3.28	3630	3.70	24.6		4.41	1.83	2.20	21.6	14.2	0.507	532
OREAS 621 (4 Acid) Meas	64.2	6.19	72.8		1.56	3.64	2.13	276	43.2	30.1	30	2.87	3720	3.69	25.2		4.8	1.71	2.06	16.3	13.2	0.52	515
OREAS 621 (4 Acid) Cert	69.0	6.40	77.0		1.69	3.93	1.97	284	46.6	29.3	37.1	3.28	3630	3.70	24.6		4.41	1.83	2.20	21.6	14.2	0.507	532
OREAS 621 (4	66.3	6.44	74.3		1.57	4.11	2.20	268	44.5	30.4	31	3.44	4020	3.83	24.5		4.7	1.74	1.56	18.6	13.4	0.53	533

Analyte Symbol	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
Lower Limit	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5
Method Code	TD-MS	TD-ICP	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP
Acid) Meas																							
OREAS 621 (4 Acid) Cert	69.0	6.40	77.0		1.69	3.93	1.97	284	46.6	29.3	37.1	3.28	3630	3.70	24.6		4.41	1.83	2.20	21.6	14.2	0.507	532
OREAS 522 (4 Acid) Meas		3.72					3.59				33			23.0					2.73			1.11	3690
OREAS 522 (4 Acid) Cert		3.95					3.65				29.6			24.6					2.83			1.12	3970
OREAS 522 (4 Acid) Meas		3.67					3.55				32			22.8					2.65			1.10	3670
OREAS 522 (4 Acid) Cert		3.95					3.65				29.6			24.6					2.83			1.12	3970
Oreas 77b (4 Acid Digest) Meas		1.63		100			2.74				227			25.6					0.30			2.37	585
Oreas 77b (4 Acid Digest) Cert		1.94		118			3.06				280			29.9					0.361			2.59	640
Oreas 77b (4 Acid Digest) Meas		1.65		100			2.76				229			26.0					0.31			2.41	597
Oreas 77b (4 Acid Digest) Cert		1.94		118			3.06				280			29.9					0.361			2.59	640
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	< 5
Method Blank	< 0.01		< 0.2		< 0.05	< 0.01		< 0.02	< 0.01	< 0.1		< 0.05	0.4		0.12	< 0.05	< 0.1	0.009		< 0.5	< 0.2		
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	< 5
Method Blank	< 0.01		< 0.2		< 0.05	< 0.01		< 0.02	< 0.01	< 0.1		< 0.05	< 0.2		0.16	< 0.05	< 0.1	0.007		< 0.5	< 0.2		
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	
Method Blank	0.01		0.3		< 0.05	< 0.01		< 0.02	< 0.01	< 0.1		< 0.05	2.1		0.14	< 0.05	< 0.1	< 0.005		< 0.5	< 0.2		
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	< 5
Method Blank	< 0.01		< 0.2		< 0.05	0.01		< 0.02	0.06	< 0.1		< 0.05	< 0.2		0.10	< 0.05	< 0.1	0.005		< 0.5	< 0.2		
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	
Method Blank	< 0.01		0.5		< 0.05	< 0.01		< 0.02	0.05	< 0.1		< 0.05	< 0.2		0.14	< 0.05	< 0.1	0.005		< 0.5	< 0.2		
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	
Method Blank	< 0.01		1.4		< 0.05	< 0.01		< 0.02	< 0.01	< 0.1		< 0.05	0.7		0.15	< 0.05	< 0.1	0.007		< 0.5	< 0.2		
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	
Method Blank	< 0.01		< 0.2		< 0.05	0.03		< 0.02	< 0.01	< 0.1		< 0.05	< 0.2		0.12	< 0.05	< 0.1	0.011		< 0.5	< 0.2		
Method Blank	< 0.01	< 0.01	< 0.2	< 10	< 0.05	0.11	< 0.01	0.02	< 0.01	< 0.1	1	< 0.05	0.5	< 0.01	0.24	0.06	< 0.1	< 0.005	< 0.01	< 0.5	< 0.2	< 0.01	
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	
Method Blank	< 0.01	< 0.01	< 0.2	< 10	< 0.05	0.03	< 0.01	< 0.02	< 0.01	< 0.1	1	< 0.05	< 0.2	< 0.01	0.29	< 0.05	< 0.1	< 0.005	< 0.01	< 0.5	< 0.2	< 0.01	

Analyte Symbol	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1
Method Code	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS
SDC-1 Meas		1.49	0.1	36.7	560	24.8	120			< 0.05	16.0		2.1	170	< 0.05		12.7	0.101	0.73	2.9	32	< 0.1	
SDC-1 Cert		1.52	21.00	38.0	690	25.00	127.00			0.54	17.00		3.00	180.00	1.20		12.00	0.606	0.70	3.10	102.00	0.80	
SDC-1 Meas		1.47	< 0.1	34.6	560	23.0	101			< 0.05	16.5		0.5	171	< 0.05		12.6	0.225	0.58	2.6	53	< 0.1	
SDC-1 Cert		1.52	21.00	38.0	690	25.00	127.00			0.54	17.00		3.00	180.00	1.20		12.00	0.606	0.70	3.10	102.00	0.80	
Oreas 72a (4 Acid Digest) Meas				6760					1.50														
Oreas 72a (4 Acid Digest) Cert				6930.000					1.74														
Oreas 72a (4 Acid Digest) Meas				7210					1.54														
Oreas 72a (4 Acid Digest) Cert				6930.000					1.74														
OREAS 101b (4 Acid) Meas	20.0			8.1	1110	21.6											34.4	0.353		352	74		129
OREAS 101b (4 Acid) Cert	20.1			8.2	1118	23											36.4	0.35		387	77		133
OREAS 101b (4 Acid) Meas	20.4			8.6	1050	21.4											38.0	0.350		408	74		129
OREAS 101b (4 Acid) Cert	20.1			8.2	1118	23											36.4	0.35		387	77		133
OREAS 101b (4 Acid) Meas	20.6			9.2	1110	22.0											39.8	0.346		413	75		127
OREAS 101b (4 Acid) Cert	20.1			8.2	1118	23											36.4	0.35		387	77		133
OREAS 98 (4 Acid) Meas						319			> 10.0	10.1		141	195										
OREAS 98 (4 Acid) Cert						345			15.5	20.1		158	206										
OREAS 98 (4 Acid) Meas						318			> 10.0	7.53		136	200										
OREAS 98 (4 Acid) Cert						345			15.5	20.1		158	206										
DNC-1a Meas		1.37	1.4	240		6.1	3.4			0.77	28.9			142				0.267			132		14.9
DNC-1a Cert		1.40	3	247		6.3	5			0.96	31			144				0.29			148		18.0
DNC-1a Meas		1.40	1.4	253		6.3	3.5			0.78	30.6			136				0.268			132		14.7
DNC-1a Cert		1.40	3	247		6.3	5			0.96	31			144				0.29			148		18.0
OREAS 13b (4-Acid) Meas	9.85			2120					1.08														
OREAS 13b (4-Acid) Cert	9.0			2247.000					1.2														
OREAS 13b (4-Acid) Meas	8.65			2050					1.06														
OREAS 13b (4-Acid) Cert	9.0			2247.000					1.2														
OREAS 904 (4 ACID) Meas	2.09	0.04		39.2	940	10.3	106		0.06	0.76	10.4	4	2.6	22.6	0.12		14.5		0.57	8.7	82	2.3	30.4

Analyte Symbol	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1
Method Code	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS
OREAS 904 (4 ACID) Cert	2.12	0.0340		40.1	980	10.6	130		0.0630	1.48	11.2	3.30	2.83	27.2	0.540		14.3		0.520	8.43	76.0	2.12	31.5
OREAS 904 (4 ACID) Meas		0.03			910				0.06												80		
OREAS 904 (4 ACID) Cert		0.0340			980				0.0630												76.0		
SBC-1 Meas																		0.495			208		
SBC-1 Cert																		0.51			220.0		
SBC-1 Meas																		0.510			212		
SBC-1 Cert																		0.51			220.0		
OREAS 45d (4-Acid) Meas	0.12	0.09	< 0.1	228	340	20.1	41.8		0.04	< 0.05	49.8		< 0.2	32.1	< 0.05		15.4	0.089	0.23	2.7	77	< 0.1	10.3
OREAS 45d (4-Acid) Cert	2.500	0.101	14.50	231.0	420.000	21.8	42.1		0.049	0.82	49.30		2.78	31.30	1.02		14.5	0.773	0.27	2.63	235.0	1.62	9.53
OREAS 45d (4-Acid) Meas	0.57	0.10	1.4	226	370	20.4	39.8		0.05	0.06	48.8		0.6	29.5	< 0.05		15.6	0.350	0.24	2.7	148	< 0.1	10.2
OREAS 45d (4-Acid) Cert	2.500	0.101	14.50	231.0	420.000	21.8	42.1		0.049	0.82	49.30		2.78	31.30	1.02		14.5	0.773	0.27	2.63	235.0	1.62	9.53
OREAS 96 (4 Acid) Meas						94.2			4.01	4.77		27	64.4										
OREAS 96 (4 Acid) Cert						101			4.19	5.09		40.7	65.6										
OREAS 96 (4 Acid) Meas						95.9			4.01	3.25		38	63.3										
OREAS 96 (4 Acid) Cert						101			4.19	5.09		40.7	65.6										
OREAS 96 (4 Acid) Meas						94.2			3.94	4.28		38	61.6										
OREAS 96 (4 Acid) Cert						101			4.19	5.09		40.7	65.6										
OREAS 923 (4 Acid) Meas	1.01	0.31	14.8	38.8	620	82.5	167		0.66	1.27	14.1	6	12.9	41.4	1.12		18.2	0.407	0.85	3.3	90	4.7	24.7
OREAS 923 (4 Acid) Cert	0.930	0.324	14.1	35.8	630	83.0	166		0.691	1.29	13.1	6.54	13.3	43.0	1.11		16.5	0.405	0.860	3.06	91.0	4.85	26.4
OREAS 923 (4 Acid) Meas	1.04	0.32	14.6	37.2	640	80.3	150		0.69	1.33	13.4	6	13.2	45.9	1.08		17.9	0.420	0.83	3.2	92	5.1	24.8
OREAS 923 (4 Acid) Cert	0.930	0.324	14.1	35.8	630	83.0	166		0.691	1.29	13.1	6.54	13.3	43.0	1.11		16.5	0.405	0.860	3.06	91.0	4.85	26.4
OREAS 621 (4 Acid) Meas	14.6	1.28	8.8	30.8	360	> 10000	73.3		4.40	17.7	6.8	6	5.5	58.8			4.6	0.184	2.22	2.9	33	1.9	13.4
OREAS 621 (4 Acid) Cert	13.6	1.31	8.61	26.2	359	13600	84.0		4.48	139	6.24	5.64	5.25	91.0			7.48	0.149	1.96	2.83	31.8	2.35	11.1
OREAS 621 (4 Acid) Meas	14.6	1.29	9.0	27.6	360	> 10000	76.1		4.38	20.2	6.3	6	5.4	57.9			4.4	0.185	2.17	2.9	33	2.0	12.6
OREAS 621 (4 Acid) Cert	13.6	1.31	8.61	26.2	359	13600	84.0		4.48	139	6.24	5.64	5.25	91.0			7.48	0.149	1.96	2.83	31.8	2.35	11.1
OREAS 621 (4	14.5	1.33	9.5	27.0	380	> 10000	74.9		4.51	22.3	6.7	5	5.4	59.3			5.1	0.192	2.06	2.8	35	2.2	12.0

Analyte Symbol	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y
Unit Symbol	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1
Method Code	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS
Acid) Meas																							
OREAS 621 (4 Acid) Cert	13.6	1.31	8.61	26.2	359	13600	84.0		4.48	139	6.24	5.64	5.25	91.0			7.48	0.149	1.96	2.83	31.8	2.35	11.1
OREAS 522 (4 Acid) Meas		0.61			790				2.24									0.310			151		
OREAS 522 (4 Acid) Cert		0.633			890				2.50									0.344			164		
OREAS 522 (4 Acid) Meas		0.60			780				2.21									0.313			150		
OREAS 522 (4 Acid) Cert		0.633			890				2.50									0.344			164		
Oreas 77b (4 Acid Digest) Meas		0.38																0.057			34		
Oreas 77b (4 Acid Digest) Cert		0.434																0.0640			33.6		
Oreas 77b (4 Acid Digest) Meas		0.39																0.057			35		
Oreas 77b (4 Acid Digest) Cert		0.434																0.0640			33.6		
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	0.06		< 0.1	< 0.2		0.6	< 0.1	< 0.002		< 0.05	< 0.1	< 1	< 0.2	< 0.2	< 0.05	< 0.05	< 0.2		< 0.02	< 0.1		< 0.1	< 0.1
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	< 0.05		< 0.1	< 0.2		0.7	< 0.1	< 0.002		< 0.05	< 0.1	< 1	< 0.2	< 0.2	< 0.05	< 0.05	< 0.2		< 0.02	< 0.1		< 0.1	< 0.1
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	0.19		< 0.1	< 0.2		0.7	0.1	< 0.002		< 0.05	< 0.1	< 1	0.3	< 0.2	< 0.05	< 0.05	< 0.2		< 0.02	< 0.1		< 0.1	< 0.1
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	0.08		< 0.1	< 0.2		0.5	< 0.1	< 0.002		< 0.05	< 0.1	< 1	< 0.2	< 0.2	< 0.05	< 0.05	< 0.2		< 0.02	< 0.1		< 0.1	< 0.1
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	0.07		< 0.1	< 0.2		0.6	< 0.1	< 0.002		< 0.05	< 0.1	< 1	< 0.2	< 0.2	< 0.05	< 0.05	< 0.2		< 0.02	< 0.1		< 0.1	< 0.1
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	< 0.05		< 0.1	< 0.2		0.6	< 0.1	< 0.002		< 0.05	< 0.1	< 1	< 0.2	< 0.2	< 0.05	< 0.05	< 0.2		< 0.02	< 0.1		< 0.1	< 0.1
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	< 0.05		< 0.1	< 0.2		0.6	< 0.1	< 0.002		< 0.05	< 0.1	< 1	< 0.2	< 0.2	< 0.05	< 0.05	< 0.2		< 0.02	< 0.1		< 0.1	< 0.1
Method Blank	0.27	< 0.01	< 0.1	0.2	< 10	0.5	< 0.1	< 0.002	< 0.01	< 0.05	< 0.1	2	< 0.2	< 0.2	< 0.05	0.06	< 0.2	< 0.005	0.11	< 0.1	< 1	< 0.1	< 0.1
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank	< 0.05	< 0.01	< 0.1	< 0.2	< 10	< 0.5	< 0.1	< 0.002	< 0.01	< 0.05	0.1	2	< 0.2	0.2	< 0.05	< 0.05	< 0.2	< 0.005	< 0.02	< 0.1	< 1	< 0.1	< 0.1

Analyte Symbol	Yb	Zn	Zr
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.1	2	0.5
Method Code	TD-MS	TD-ICP	TD-MS
SDC-1 Meas	3.6	109	32.3
SDC-1 Cert	4.00	103.00	290.00
SDC-1 Meas	3.3	106	41.9
SDC-1 Cert	4.00	103.00	290.00
Oreas 72a (4 Acid Digest) Meas			
Oreas 72a (4 Acid Digest) Cert			
Oreas 72a (4 Acid Digest) Meas			
Oreas 72a (4 Acid Digest) Cert			
OREAS 101b (4 Acid) Meas	13.1		
OREAS 101b (4 Acid) Cert	13.9		
OREAS 101b (4 Acid) Meas	12.4		
OREAS 101b (4 Acid) Cert	13.9		
OREAS 101b (4 Acid) Meas	13.0		
OREAS 101b (4 Acid) Cert	13.9		
OREAS 98 (4 Acid) Meas		1330	
OREAS 98 (4 Acid) Cert		1360	
OREAS 98 (4 Acid) Meas		1270	
OREAS 98 (4 Acid) Cert		1360	
DNC-1a Meas	1.9	57	37.8
DNC-1a Cert	2.0	70	38.0
DNC-1a Meas	1.9	59	38.0
DNC-1a Cert	2.0	70	38.0
OREAS 13b (4-Acid) Meas		113	
OREAS 13b (4-Acid) Cert		133	
OREAS 13b (4-Acid) Meas		143	
OREAS 13b (4-Acid) Cert		133	
OREAS 904 (4 ACID) Meas	3.3	27	29.9

Analyte Symbol	Yb	Zn	Zr
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.1	2	0.5
Method Code	TD-MS	TD-ICP	TD-MS
OREAS 904 (4 ACID) Cert	3.14	26.3	171
OREAS 904 (4 ACID) Meas		27	
OREAS 904 (4 ACID) Cert		26.3	
SBC-1 Meas		187	
SBC-1 Cert		186	
SBC-1 Meas		191	
SBC-1 Cert		186	
OREAS 45d (4-Acid) Meas	1.4	45	40.0
OREAS 45d (4-Acid) Cert	1.33	45.7	141
OREAS 45d (4-Acid) Meas	1.4	46	101
OREAS 45d (4-Acid) Cert	1.33	45.7	141
OREAS 96 (4 Acid) Meas		450	
OREAS 96 (4 Acid) Cert		457	
OREAS 96 (4 Acid) Meas		458	
OREAS 96 (4 Acid) Cert		457	
OREAS 96 (4 Acid) Meas		449	
OREAS 96 (4 Acid) Cert		457	
OREAS 923 (4 Acid) Meas	2.6	352	139
OREAS 923 (4 Acid) Cert	2.57	345	116
OREAS 923 (4 Acid) Meas	2.6	367	136
OREAS 923 (4 Acid) Cert	2.57	345	116
OREAS 621 (4 Acid) Meas	1.1	> 10000	180
OREAS 621 (4 Acid) Cert	0.990	52200	168
OREAS 621 (4 Acid) Meas	1.1	> 10000	181
OREAS 621 (4 Acid) Cert	0.990	52200	168
OREAS 621 (4	1.1	> 10000	188

Analyte Symbol	Yb	Zn	Zr
Unit Symbol	ppm	ppm	ppm
Lower Limit	0.1	2	0.5
Method Code	TD-MS	TD-ICP	TD-MS
Acid) Meas			
OREAS 621 (4 Acid) Cert	0.990	52200	168
OREAS 522 (4 Acid) Meas		30	
OREAS 522 (4 Acid) Cert		30.2	
OREAS 522 (4 Acid) Meas		29	
OREAS 522 (4 Acid) Cert		30.2	
Oreas 77b (4 Acid Digest) Meas		175	
Oreas 77b (4 Acid Digest) Cert		205	
Oreas 77b (4 Acid Digest) Meas		177	
Oreas 77b (4 Acid Digest) Cert		205	
Method Blank		< 2	
Method Blank	< 0.1		0.6
Method Blank		< 2	
Method Blank	< 0.1		< 0.5
Method Blank		< 2	
Method Blank	< 0.1		< 0.5
Method Blank		< 2	
Method Blank	< 0.1		< 0.5
Method Blank		< 2	
Method Blank	< 0.1		< 0.5
Method Blank		< 2	
Method Blank	< 0.1		< 0.5
Method Blank		< 2	
Method Blank	< 0.1		< 0.5
Method Blank	< 0.1	< 2	< 0.5
Method Blank		< 2	
Method Blank	< 0.1	< 2	< 0.5