Quality Analysis ... *Innovative Technologies*

Date Submitted:	05-Jul-18
Invoice No.:	A18-08793-TD
Invoice Date:	17-Aug-18
Your Reference:	BMK-2017

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

24 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code ME-MS61-RedPine Total Digestion ICP & ICP/MS

REPORT **A18-08793-TD**

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Notes:

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

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

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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
712001	26.1	7.16	> 10000	10	0.70	13.1	0.34	0.64	72.7	114	30	< 0.05	> 10000	6.55	17.1	0.30	1.7	1.27	0.03	33.6	1.8	0.36	83
712002	3.20	4.89	> 10000	20	0.50	3.57	0.33	0.08	3.32	148	13	0.11	2000	2.58	9.59	0.20	1.8	0.150	0.02	1.4	2.5	0.54	136
712003	15.3	5.61	> 10000	10	0.60	19.1	0.20	0.55	12.5	641	19	0.06	> 10000	11.1	11.1	0.40	1.7	1.23	0.02	4.8	1.1	0.25	61
712004	19.0	5.54	> 10000	40	0.50	88.4	0.40	0.19	14.1	> 10000	101	0.35	7330	7.54	10.4	0.40	0.7	0.260	0.03	6.5	6.6	1.47	255
712005	1.22	5.37	3800	20	0.50	1.13	0.38	3.59	5.42	130	13	0.06	1720	1.13	9.54	0.20	1.7	0.070	0.02	2.1	2.0	0.31	89
712006	0.06	6.44	183	50	1.60	0.16	6.24	0.02	21.0	67.4	307	0.20	41.9	8.36	14.3	0.50	0.5	0.040	0.09	12.1	31.6	6.75	1340
712007	1.06	1.35	53.9	10	0.10	0.98	6.85	0.12	2.23	79.0	371	0.07	1210	8.49	4.32	0.30	0.5	0.010	0.03	0.9	0.5	10.6	1160
712008	0.06	5.81	43.8	50	0.50	0.05	2.47	0.02	11.7	21.9	105	0.11	119	0.94	11.6	0.30	2.4	< 0.005	0.27	4.5	3.6	0.60	289
712009	0.64	8.78	1.2	60	0.50	0.22	10.1	0.28	17.8	128	24	0.41	303	12.4	36.1	0.50	1.8	0.180	0.09	9.0	10.1	1.22	1470
712010	0.09	5.35	> 10000	20	0.50	4.18	0.13	< 0.02	55.0	410	89	0.08	292	16.7	13.1	0.30	2.0	0.040	0.12	29.2	1.9	0.45	33
712011	0.11	0.57	4900	< 10	0.10	10.6	1.42	< 0.02	1.66	120	10	0.05	463	35.5	1.93	0.60	0.2	0.010	< 0.01	0.8	0.4	0.06	63
712012	0.01	1.31	90.7	< 10	0.20	0.06	3.04	< 0.02	17.3	70.3	36	0.06	5.2	2.19	3.84	0.30	0.8	< 0.005	0.18	9.4	0.6	1.37	199
712013	0.02	6.17	24.6	390	1.50	0.28	0.22	< 0.02	37.0	15.5	126	1.59	39.4	3.88	15.0	0.50	3.3	0.030	1.76	15.6	20.1	1.79	261
712014	0.10	5.73	26.3	490	1.60	0.24	0.27	0.12	62.4	23.7	84	0.82	125	4.14	13.4	0.30	2.9	0.040	2.11	28.0	22.5	1.54	275
712015	0.02	7.57	14.3	730	2.30	0.07	0.21	0.04	41.5	8.6	107	1.12	23.9	3.56	18.6	0.80	3.8	0.050	2.58	20.4	26.7	1.93	240
712016	0.03	5.14	16.6	380	0.70	0.10	1.94	0.04	28.1	14.1	72	0.80	35.1	2.33	9.74	0.20	1.6	0.020	0.97	15.5	12.2	0.96	568
712017	0.01	6.19	17.7	370	1.00	0.35	0.99	< 0.02	63.3	17.7	136	1.65	33.2	2.58	13.6	0.30	4.1	< 0.005	1.30	34.2	12.3	0.99	362
712018	0.05	5.91	65.6	40	1.20	0.07	0.85	< 0.02	136	110	80	< 0.05	4.8	2.62	13.5	0.20	4.0	< 0.005	0.46	73.1	1.0	0.31	205
712019	0.05	5.12	20.9	50	1.10	0.05	0.83	< 0.02	39.5	25.1	104	0.82	7.8	2.03	16.4	0.20	3.8	< 0.005	0.68	19.0	4.2	1.05	141
712020	0.13	7.16	8.5	130	2.00	0.12	0.37	< 0.02	90.4	21.8	85	1.84	31.5	2.49	17.9	0.20	4.6	0.015	1.44	44.8	8.6	1.29	89
712021	0.07	6.36	64.7	30	1.30	0.11	2.93	< 0.02	49.8	115	56	< 0.05	7.7	2.91	22.4	0.20	4.4	< 0.005	0.41	23.0	1.2	1.42	247
712022	0.10	6.66	53.7	30	2.10	0.02	1.17	< 0.02	69.6	32.0	84	0.45	17.6	1.55	19.2	0.20	4.1	< 0.005	0.50	37.2	4.4	1.31	84
712023	0.03	3.08	127	10	0.70	0.48	2.25	< 0.02	89.2	231	42	< 0.05	8.6	7.18	8.06	0.20	1.5	< 0.005	0.23	45.2	0.8	1.03	116
712024	0.05	6.56	77.7	30	1.40	0.12	2.41	< 0.02	107	24.8	93	0.11	5.9	1.77	14.4	0.10	4.0	< 0.005	0.67	55.3	3.0	1.31	217

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
712001	0.39	5.36	3.3	163	190	20.1	< 0.1	< 0.002	6.22	14.3	5.7	11	5.0	25.7	0.39	1.55	4.1	0.235	0.93	0.9	28	1.9	30.2
712002	0.27	3.39	1.6	46.4	40	5.5	0.4	< 0.002	0.98	13.4	2.9	2	0.5	25.6	0.26	0.84	4.4	0.111	< 0.02	0.7	22	1.5	4.4
712003	0.64	4.18	0.6	335	140	21.3	0.2	< 0.002	9.60	42.2	8.2	16	2.4	27.5	< 0.05	3.49	7.0	0.113	0.63	1.0	23	1.2	13.1
712004	0.36	3.22	< 0.1	3150	50	13.5	1.1	0.003	5.49	31.8	28.3	24	0.6	39.8	< 0.05	11.2	5.7	0.065	0.12	1.1	71	0.8	10.6
712005	0.17	3.92	2.1	21.1	120	4.5	0.3	< 0.002	0.38	3.21	2.4	< 1	0.5	30.7	0.27	0.14	4.3	0.126	< 0.02	0.6	15	1.4	4.5
712006	0.21	0.49	2.2	191	140	3.6	1.2	< 0.002	0.06	1.88	37.6	< 1	0.7	167	0.12	< 0.05	0.9	0.209	< 0.02	0.3	189	0.8	9.0
712007	0.18	0.11	0.6	599	80	2.1	0.6	0.002	0.74	0.90	42.3	4	0.2	4.5	< 0.05	0.22	0.5	0.172	0.04	0.2	192	1.1	5.4
712008	0.06	4.51	0.1	27.8	110	4.1	2.7	< 0.002	0.01	< 0.05	8.0	< 1	< 0.2	24.6	< 0.05	< 0.05	8.9	0.099	0.02	1.1	21	0.1	8.5
712009	0.08	0.19	0.4	73.8	350	9.2	5.0	< 0.002	1.31	< 0.05	42.3	< 1	3.1	200	< 0.05	< 0.05	0.5	0.421	0.03	0.2	337	0.3	27.7
712010	1.32	3.77	2.6	494	700	12.4	2.1	< 0.002	> 10.0	22.2	24.7	16	0.9	72.4	< 0.05	1.51	8.4	0.160	0.03	1.8	91	25.4	7.0
712011	0.40	0.43	0.6	1730	140	19.2	0.2	< 0.002	> 10.0	6.51	61.2	37	0.4	26.9	< 0.05	1.08	0.6	0.025	< 0.02	0.3	19	1.3	20.8
712012	0.77	1.04	1.1	135	390	0.7	1.6	< 0.002	1.23	0.18	3.7	2	0.3	17.3	0.09	< 0.05	1.9	0.045	< 0.02	0.4	25	1.5	3.7
712013	0.92	2.03	2.1	68.9	420	6.0	70.7	< 0.002	0.24	0.33	11.5	< 1	1.4	74.0	< 0.05	< 0.05	8.2	0.266	0.35	2.3	91	0.4	11.0
712014	1.58	1.35	7.0	199	570	7.0	66.4	0.003	0.72	0.50	13.1	2	1.9	42.0	0.48	< 0.05	8.9	0.255	0.29	2.6	93	6.1	19.9
712015	1.24	1.89	2.2	52.0	640	3.8	91.8	0.003	0.09	< 0.05	17.8	< 1	1.9	59.2	< 0.05	< 0.05	11.9	0.349	0.33	3.4	135	0.3	12.4
712016	3.97	2.30	2.4	47.3	330	4.9	35.0	< 0.002	0.29	0.30	8.3	< 1	0.6	100	0.16	< 0.05	3.1	0.187	0.18	1.1	68	1.8	7.9
712017	0.68	3.18	0.6	62.5	640	9.3	46.4	0.002	0.27	0.23	11.1	< 1	1.4	123	< 0.05	< 0.05	7.4	0.286	0.29	3.1	80	0.2	14.3
712018	0.69	4.42	4.9	111	600	1.7	4.2	0.002	2.08	0.16	3.6	3	0.7	39.4	0.42	0.13	6.7	0.195	0.02	1.4	64	1.6	8.2
712019	1.05	4.00	7.2	65.2	380	1.6	26.3	0.003	0.45	0.23	9.9	1	0.9	56.7	0.56	< 0.05	5.9	0.282	0.14	2.6	90	1.5	7.7
712020	1.79	4.03	6.9	66.4	510	7.9	76.8	< 0.002	0.38	0.28	15.1	< 1	1.8	109	0.44	0.08	13.0	0.367	0.35	4.4	116	2.8	15.5
712021	0.36	6.02	8.3	175	450	3.1	1.3	< 0.002	2.01	0.53	9.1	2	1.1	44.0	0.70	0.11	6.0	0.296	0.06	1.4	69	7.3	7.9
712022	1.56	4.95	7.6	83.9	500	3.2	16.3	0.004	0.64	0.43	16.2	1	1.0	40.6	0.64	0.11	9.5	0.283	0.16	2.8	106	4.1	10.8
712023	1.31	2.28	2.0	512	1610	3.1	2.0	0.003	7.69	0.30	10.0	14	0.3	23.5	0.16	0.50	9.7	0.071	0.05	0.9	46	2.2	29.8
712024	1.33	4.92	5.8	90.4	670	2.4	4.7	0.004	0.93	0.23	10.8	1	1.3	49.1	0.39	0.15	14.1	0.266	0.04	2.6	102	3.3	12.1

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
712001	2.6	23	74.0
712002	0.5	12	80.0
712003	1.3	28	134
712004	1.1	20	131
712005	0.5	121	70.0
712006	0.9	55	18.0
712007	0.7	34	17.0
712008	1.0	15	94.0
712009	2.7	112	47.0
712010	0.8	2	108
712011	2.1	4	16.0
712012	0.3	< 2	26.0
712013	1.4	25	111
712014	2.0	77	101
712015	1.6	57	135
712016	0.8	35	55.0
712017	1.5	40	141
712018	0.9	4	145
712019	1.0	5	139
712020	1.8	13	165
712021	1.0	< 2	158
712022	1.3	2	148
712023	1.8	17	57.0
712024	1.4	5	144

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
GXR-4 Meas	3.90	6.59	104	100	2.20	19.5	1.06	0.23	125	15.0	40	2.96	6450	2.90	17.8		1.5	0.210	3.77	65.3	12.0	1.67	163
GXR-4 Cert	4.00	7.20	98.0	1640	1.90	19.0	1.01	0.860	102	14.6	64.0	2.80	6520	3.09	20.0		6.30	0.270	4.01	64.5	11.1	1.66	155
GXR-4 Meas	3.58	6.42	111	270	2.00	18.4	1.01	0.18	99.3	14.9	47	2.56	6230	2.93	17.7		1.2	0.180	3.96	57.9	11.5	1.68	150
GXR-4 Cert	4.00	7.20	98.0	1640	1.90	19.0	1.01	0.860	102	14.6	64.0	2.80	6520	3.09	20.0		6.30	0.270	4.01	64.5	11.1	1.66	155
GXR-4 Meas	3.72	6.51	109	110	2.10	18.8	1.01	0.06	105	15.4	41	2.72	6620	2.93	19.3		1.3	0.190	3.49	62.4	11.5	1.67	155
GXR-4 Cert	4.00	7.20	98.0	1640	1.90	19.0	1.01	0.860	102	14.6	64.0	2.80	6520	3.09	20.0		6.30	0.270	4.01	64.5	11.1	1.66	155
SDC-1 Meas		7.82	< 0.2	660	2.70		1.10		74.7	17.9	38	3.84	27.7	4.57	19.4		0.8		2.65	35.6	33.3	0.98	906
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		7.81		670			1.10				48			4.60					2.64			0.99	916
SDC-1 Cert		8.34		630			1.00				64.00			4.82					2.72			1.02	880.00
SDC-1 Meas		7.70		670			1.04				38			4.60					2.70			0.99	891
SDC-1 Cert		8.34		630			1.00				64.00			4.82					2.72			1.02	880.00
GXR-6 Meas	0.36	12.8	228	1320	1.20	0.21	0.17	0.04	42.0	14.8	50	4.44	67.8	5.44	28.4		1.9	0.080	1.80	15.0	36.5	0.59	1080
GXR-6 Cert	1.30	17.7	330	1300	1.40	0.290	0.180	1.00	36.0	13.8	96.0	4.20	66.0	5.58	35.0		4.30	0.260	1.87	13.9	32.0	0.609	1010
GXR-6 Meas	0.35	12.3	299	1310	1.20	0.17	0.18	0.07	33.0	14.4	61	4.32	69.2	5.44	26.1		2.3	0.050	1.82	14.2	35.3	0.61	1100
GXR-6 Cert	1.30	17.7	330	1300	1.40	0.290	0.180	1.00	36.0	13.8	96.0	4.20	66.0	5.58	35.0		4.30	0.260	1.87	13.9	32.0	0.609	1010
GXR-6 Meas		12.6		1320			0.18				59			5.46					1.86			0.61	1110
GXR-6 Cert		17.7		1300			0.180				96.0			5.58					1.87			0.609	1010
OREAS 97 (4 Acid) Meas	19.2					41.3				60.1			> 10000										
OREAS 97 (4 Acid) Cert	19.6					40.1				62.9			63100.00										
OREAS 97 (4 Acid) Meas	19.7					40.5				63.9			> 10000										
OREAS 97 (4 Acid) Cert	19.6					40.1				62.9			63100.00										
OREAS 97 (4 Acid) Meas																							
OREAS 97 (4 Acid) Cert																							
OREAS 98 (4 Acid) Meas	44.7					96.7				119			> 10000										
OREAS 98 (4 Acid) Cert	45.1					97.2				121			148000.0										
OREAS 98 (4 Acid) Meas	47.5					96.3				131			> 10000										
OREAS 98 (4 Acid) Cert	45.1					97.2				121			148000.0										
OREAS 98 (4 Acid) Meas																							
OREAS 98 (4 Acid) Cert																							
DNC-1a Meas				100						59.4	133		92.8		14.6					4.0	4.6		
DNC-1a Cert				118						57	270		100		15					3.6	5.2		
DNC-1a Meas				100							133												

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
DNC-1a Cert				118							270												
DNC-1a Meas				100							117												
DNC-1a Cert				118							270												
SBC-1 Meas			25.8	480	3.00	0.61		0.48	99.9	23.0	79	8.29	28.6		26.0		3.5			53.3	164		
SBC-1 Cert			25.7	788.0	3.20	0.70		0.40	108.0	22.7	109	8.2	31.0		27.0		3.7			52.5	163		
SBC-1 Meas				720							68												
SBC-1 Cert				788.0							109												
SBC-1 Meas				770							92												
SBC-1 Cert				788.0							109												
OREAS 45d (4-Acid) Meas		7.42	7.8	180	0.70	0.35	0.19		41.9	31.1	539	4.11	380	13.1	20.5		2.1	0.100	0.39	18.9	21.0	0.23	505
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		7.66	11.1	190	0.80	0.28	0.19		32.0	29.0	532	3.65	344	13.5	20.5		2.8	0.100	0.40	16.8	21.3	0.24	529
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		7.75	7.1	190	0.80	0.30	0.19		31.8	29.1	511	3.56	353	13.8	20.9		1.9	0.060	0.40	16.5	21.0	0.24	508
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		7.38		190			0.19				494			13.6					0.41			0.24	514
OREAS 45d (4-Acid) Cert		8.150		183.0			0.185				549			14.5					0.412			0.245	490.000
OREAS 96 (4 Acid) Meas	11.1					28.1				49.0			> 10000										
OREAS 96 (4 Acid) Cert	11.5					26.3				49.9			39300										
OREAS 96 (4 Acid) Meas	11.3					26.2				49.1			> 10000										
OREAS 96 (4 Acid) Cert	11.5					26.3				49.9			39300										
OREAS 96 (4 Acid) Meas																							
OREAS 96 (4 Acid) Cert																							
712020 Orig	0.13	7.10	8.8	130	2.00	0.12	0.37	< 0.02	89.2	21.6	83	1.77	31.6	2.46	17.7	0.20	4.4	0.020	1.43	44.2	8.4	1.27	87
712020 Dup	0.14	7.22	8.1	130	2.00	0.12	0.37	< 0.02	91.6	21.9	88	1.90	31.3	2.53	18.1	0.20	4.7	0.010	1.45	45.5	8.8	1.30	91
712020 Orig		5.83		110			0.33				100			2.50					1.42			1.26	84
712020 Dup		6.69		130			0.35				82			2.49					1.45			1.27	84
712024 Orig	0.05	6.56	77.7	30	1.40	0.12	2.41	< 0.02	107	24.8	93	0.11	5.9	1.77	14.4	0.10	4.0	< 0.005	0.67	55.3	3.0	1.31	217
712024 Split PREP DUP	0.05	6.51	78.2	30	1.40	0.11	2.38	0.05	113	25.6	93	0.13	4.2	1.83	14.1	0.10	4.1	< 0.005	0.66	57.9	2.9	1.29	218
Method Blank	< 0.01	< 0.01	< 0.2	< 10	< 0.05	< 0.01	< 0.01	< 0.02	0.01	< 0.1	< 1	< 0.05	1.3	< 0.01	0.34	0.10	< 0.1	< 0.005	< 0.01	< 0.5	< 0.2	< 0.01	< 5
Method Blank	< 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	0.37	0.20	< 0.1	< 0.005	< 0.01	< 0.5	< 0.2	< 0.01	< 5

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
Method Blank	< 0.01	< 0.01	< 0.2	< 10	< 0.05	< 0.01	< 0.01	< 0.02	0.01	< 0.1		< 0.05	< 0.2	< 0.01	0.38	0.20	< 0.1	< 0.005	< 0.01	< 0.5	< 0.2	< 0.01	< 5
Method Blank	< 0.01	< 0.01	< 0.2	< 10	< 0.05	< 0.01	< 0.01	< 0.02	0.01	< 0.1		< 0.05	1.0	< 0.01	0.38	0.20	< 0.1	< 0.005	< 0.01	< 0.5	< 0.2	< 0.01	
Method Blank	< 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	0.38	0.20	< 0.1	< 0.005	< 0.01	< 0.5	< 0.2	< 0.01	< 5
Method Blank		< 0.01		< 10			< 0.01				2			< 0.01					< 0.01			< 0.01	< 5
Method Blank		< 0.01		< 10			< 0.01				2			< 0.01					< 0.01			< 0.01	
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 0.01	< 5
Method Blank		< 0.01		< 10			< 0.01							< 0.01					< 0.01			< 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
GXR-4 Meas	343	0.47	10.1	42.7	1350	54.6	143		1.82	4.82	8.2	6	7.7	229	0.60	0.84	21.0	0.280	3.33	6.3	92	39.3	13.4
GXR-4 Cert	310	0.564	10.0	42.0	1200	52.0	160		1.77	4.80	7.70	5.60	5.60	221	0.790	0.970	22.5	0.29	3.20	6.20	87.0	30.8	14.0
GXR-4 Meas	328	0.51	8.0	39.9	1400	47.6	150		1.73	4.15	6.7	6	7.0	209	0.55	0.83	19.4	0.260	3.31	5.6	90	33.3	12.6
GXR-4 Cert	310	0.564	10.0	42.0	1200	52.0	160		1.77	4.80	7.70	5.60	5.60	221	0.790	0.970	22.5	0.29	3.20	6.20	87.0	30.8	14.0
GXR-4 Meas	336	0.51	9.2	41.8	1360	52.0	158		1.73	4.30	8.2	6	7.5	217	0.55	0.75	19.0	0.269	3.38	5.8	89	34.9	13.3
GXR-4 Cert	310	0.564	10.0	42.0	1200	52.0	160		1.77	4.80	7.70	5.60	5.60	221	0.790	0.970	22.5	0.29	3.20	6.20	87.0	30.8	14.0
SDC-1 Meas		1.40	0.1	33.7	560	23.8	114			< 0.05	13.1		0.2	160	< 0.05		10.1	0.070	0.61	2.3	33	< 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		1.41			560													0.074			34		
SDC-1 Cert		1.52			690													0.606			102.00		
SDC-1 Meas		1.52			580													0.087			32		
SDC-1 Cert		1.52			690													0.606			102.00		
GXR-6 Meas	0.50	0.09	0.3	26.3	350	109	89.9		0.02	0.48	27.5	< 1	0.6	40.9	< 0.05	< 0.05	5.7		2.26	1.6	103	0.2	13.2
GXR-6 Cert	2.40	0.104	7.50	27.0	350	101	90.0		0.0160	3.60	27.6	0.940	1.70	35.0	0.485	0.0180	5.30		2.20	1.54	186	1.90	14.0
GXR-6 Meas	0.84	0.10	0.6	26.8	400	108	87.0		0.02	0.58	28.4	< 1	0.9	40.7	< 0.05	< 0.05	5.4		2.41	1.5	168	0.2	12.3
GXR-6 Cert	2.40	0.104	7.50	27.0	350	101	90.0		0.0160	3.60	27.6	0.940	1.70	35.0	0.485	0.0180	5.30		2.20	1.54	186	1.90	14.0
GXR-6 Meas		0.10			380				0.02												150		
GXR-6 Cert		0.104			350				0.0160												186		
OREAS 97 (4 Acid) Meas						146			6.83	7.07		66	95.6										
OREAS 97 (4 Acid) Cert						147			6.07	9.23		71.4	95.7										
OREAS 97 (4 Acid) Meas						145			6.49	3.18		67	95.9										
OREAS 97 (4 Acid) Cert						147			6.07	9.23		71.4	95.7										
OREAS 97 (4 Acid) Meas									6.55														
OREAS 97 (4 Acid) Cert									6.07														
OREAS 98 (4 Acid) Meas						346			> 10.0	5.69		153	207										
OREAS 98 (4 Acid) Cert						345			15.5	20.1		158	206										
OREAS 98 (4 Acid) Meas						348			> 10.0	5.57		161	214										
OREAS 98 (4 Acid) Cert						345			15.5	20.1		158	206										
OREAS 98 (4 Acid) Meas									> 10.0														
OREAS 98 (4 Acid) Cert									15.5														
DNC-1a Meas			1.5	272		6.4	3.6			0.78	31.8			142				0.275			147		15.5
DNC-1a Cert			3	247		6.3	5			0.96	31			144				0.29			148		18.0
DNC-1a Meas																		0.267			141		

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
DNC-1a Cert																		0.29			148		
DNC-1a Meas																		0.270			148		
DNC-1a Cert																		0.29			148		
SBC-1 Meas	2.08		15.0	84.7		35.8	149			1.04	20.6		3.5	179	1.05		15.6	0.483	0.95	5.7	228	1.6	30.3
SBC-1 Cert	2.40		15.3	82.8		35.0	147			1.01	20.0		3.3	178.0	1.10		15.8	0.51	0.89	5.76	220.0	1.60	36.5
SBC-1 Meas																		0.444			223		
SBC-1 Cert																		0.51			220.0		
SBC-1 Meas																		0.497			226		
SBC-1 Cert																		0.51			220.0		
OREAS 45d (4-Acid) Meas	0.49	0.09	0.9	253	340	22.7	44.7		0.04	0.05	46.4		0.7	31.3	0.07		15.4	0.125	0.36	3.0	107	0.2	11.1
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	0.73	0.09	0.9	232	360	21.1	39.3		0.04	< 0.05	49.2		1.0	29.5	< 0.05		14.1	0.125	0.25	2.6	109	0.3	9.8
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	0.34	0.10	0.2	235	400	21.3	37.8		0.05	< 0.05	47.8		0.7	29.8	< 0.05		13.9	0.444	0.27	2.7	182	0.1	10.1
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		0.10			360				0.04									0.229			131		
OREAS 45d (4-Acid) Cert		0.101			420.000				0.049									0.773			235.0		
OREAS 96 (4 Acid) Meas						102			4.22	4.37		39	66.3										
OREAS 96 (4 Acid) Cert						101			4.19	5.09		40.7	65.6										
OREAS 96 (4 Acid) Meas						96.2			4.06	2.43		39	64.3										
OREAS 96 (4 Acid) Cert						101			4.19	5.09		40.7	65.6										
OREAS 96 (4 Acid) Meas									4.02														
OREAS 96 (4 Acid) Cert									4.19														
712020 Orig	1.72	3.97	6.6	65.1	500	7.8	75.1	< 0.002	0.38	0.26	15.0	< 1	1.8	107	0.42	0.06	12.8	0.354	0.34	4.3	115	2.7	15.1
712020 Dup	1.85	4.08	7.2	67.8	520	7.9	78.4	0.002	0.39	0.30	15.3	< 1	1.9	112	0.46	0.10	13.1	0.381	0.36	4.4	118	3.0	15.8
712020 Orig		4.44			460				0.35									0.357			116		
712020 Dup		4.33			500				0.36									0.349			114		
712024 Orig	1.33	4.92	5.8	90.4	670	2.4	4.7	0.004	0.93	0.23	10.8	1	1.3	49.1	0.39	0.15	14.1	0.266	0.04	2.6	102	3.3	12.1
712024 Split PREP DUP	1.37	4.91	6.8	89.1	670	2.3	6.9	0.005	0.96	0.23	11.5	1	1.4	50.4	0.50	0.06	14.4	0.284	0.03	2.6	104	3.3	12.6
Method Blank	< 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 Blank	0.06	< 0.01	< 0.1	0.4	< 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

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
Method Blank	0.08	< 0.01	< 0.1	0.5	< 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 Blank	0.15	< 0.01	< 0.1	0.5	< 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	0.9	< 0.1
Method Blank	0.07	< 0.01	< 0.1	0.5	< 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 Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 1		
Method Blank		< 0.01			< 10				< 0.01									< 0.005			< 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
GXR-4 Meas	1.0	73	52.0
GXR-4 Cert	1.60	73.0	186
GXR-4 Meas	1.0	73	39.0
GXR-4 Cert	1.60	73.0	186
GXR-4 Meas	1.1	75	44.0
GXR-4 Cert	1.60	73.0	186
SDC-1 Meas	3.1	103	29.0
SDC-1 Cert	4.00	103.00	290.00
SDC-1 Meas		104	
SDC-1 Cert		103.00	
SDC-1 Meas		104	
SDC-1 Cert		103.00	
GXR-6 Meas	1.8	135	62.0
GXR-6 Cert	2.40	118	110
GXR-6 Meas	1.8	135	86.0
GXR-6 Cert	2.40	118	110
GXR-6 Meas		136	
GXR-6 Cert		118	
OREAS 97 (4 Acid) Meas		597	
OREAS 97 (4 Acid) Cert		646	
OREAS 97 (4 Acid) Meas		612	
OREAS 97 (4 Acid) Cert		646	
OREAS 97 (4 Acid) Meas		617	
OREAS 97 (4 Acid) Cert		646	
OREAS 98 (4 Acid) Meas		1240	
OREAS 98 (4 Acid) Cert		1360	
OREAS 98 (4 Acid) Meas		1280	
OREAS 98 (4 Acid) Cert		1360	
OREAS 98 (4 Acid) Meas		1310	
OREAS 98 (4 Acid) Cert		1360	
DNC-1a Meas	1.9	60	40.0
DNC-1a Cert	2.0	70	38.0
DNC-1a Meas		58	

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
DNC-1a Cert		70	
DNC-1a Meas		56	
DNC-1a Cert		70	
SBC-1 Meas	3.3	198	122
SBC-1 Cert	3.64	186	134.0
SBC-1 Meas		187	
SBC-1 Cert		186	
SBC-1 Meas		186	
SBC-1 Cert		186	
OREAS 45d (4-Acid) Meas	1.5	42	76.0
OREAS 45d (4-Acid) Cert	1.33	45.7	141
OREAS 45d (4-Acid) Meas	1.4	44	105
OREAS 45d (4-Acid) Cert	1.33	45.7	141
OREAS 45d (4-Acid) Meas	1.4	46	70.0
OREAS 45d (4-Acid) Cert	1.33	45.7	141
OREAS 45d (4-Acid) Meas		45	
OREAS 45d (4-Acid) Cert		45.7	
OREAS 96 (4 Acid) Meas		428	
OREAS 96 (4 Acid) Cert		457	
OREAS 96 (4 Acid) Meas		443	
OREAS 96 (4 Acid) Cert		457	
OREAS 96 (4 Acid) Meas		446	
OREAS 96 (4 Acid) Cert		457	
712020 Orig	1.8	13	164
712020 Dup	1.8	12	166
712020 Orig		10	
712020 Dup		10	
712024 Orig	1.4	5	144
712024 Split PREP DUP	1.4	6	149
Method Blank	< 0.1	< 2	< 0.5
Method Blank	< 0.1	< 2	< 0.5

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
Method Blank	< 0.1	< 2	< 0.5
Method Blank	< 0.1	< 2	< 0.5
Method Blank	< 0.1	< 2	< 0.5
Method Blank		< 2	
Method Blank		< 2	
Method Blank		< 2	
Method Blank		< 2	