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2017 SOIL SAMPLING

ARSENO LAKE PROJECT

January, 2018 **A. Stone**

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SUMMARY

On June 6, 2017 a Goldcorp field crew spent the day sampling near Arseno Lake in order to establish an orientation line for a soil sampling program. A total of 11 soil samples and 1 outcrop sample were taken. The work was carried out within active mining claims held solely by Goldcorp Canada Ltd. The Arseno Lake area is located approximately 60 kilometers to the Northwest of Goldcorp's Musselwhite Mine and 18km East of North Caribou Lake First Nation Community.

INTRODUCTION

This report is written on behalf of Goldcorp Canada Ltd. by the staff of Musselwhite Mine. The report discusses work conducted within the boundaries of three claim groups; PA4281788, PA4281789 and PA4281790.

The program was designed and implemented by the exploration department at Musselwhite Mine along with Goldcorp's in-house geochemical expert. Sampling was conducted by Goldcorp employees. Access to the site was by helicopter provided by Wisk-Air Helicopters Ltd. The samples were sent to Act Labs in Thunder Bay for analysis.

LOCATION AND ACCESS

All work in this report was conducted within claim group boundaries held by Goldcorp Canada Ltd. The claims are located approximately 60km Northwest of Musselwhite Mine, which is a gold producing mine that is 100% owned and operated by Goldcorp Canada Ltd. and 18km east of the North Caribou Lake First Nation community located on the North shore of Weagamow Lake. The claims are located approximately 525 km north-north-west of Thunder Bay and 180 km north-north-west of Pickle Lake with geographic coordinates of 52.9787° N latitude and 91.0721° W longitude (**Figure 1**).

The claims were accessed by Helicopter provided by Wisk-Air Helicopters Ltd based out of Thunder Bay, ON. The program was based out of Musselwhite Mine, the field crew was made up of

Musslewhite Mine geologists and the in-house Geochemical Expert (Thomas Bissig) from the Toronto corporate office.

Sampling preformed during this program took place within the boundaries of the above stated claim groups, located in the Keeyask Lake Area within the Patricia Mining Division, District of Kenora, Northwestern Ontario. The claims are located on NTS map sheet 53 B/14, Weagamow Lake.

Figure 1: General Location Map

LAND TENURE & OWNERSHIP

The claim group PA4281788 is 256 ha (16 claim units), PA4281789 is 256 ha (16 claim units) and PA4281790 is 256 ha (16 claim units) in size. All claim blocks are owned 100% by Goldcorp Canada Ltd.

PROPERTY GEOLOGY

The above mentioned claims are located within the Northern extent of the North Caribou Greenstone Belt which hosts the Musselwhite Mine. The geology within the claims is based off of 1:250,000 regional map created by the Ontario Geological Survey.

The lithology mapped within the Arseno Lake area is as follows:

11	**Gneissic tonalite suite:** tonalite to granodiorite - foliated to gneissic - with minor supracrustal inclusions (2.5-3.2 Ga)
7	**Metasedimentary rocks:** wacke, siltstone, arkose, argillite, slate, mudstone, marble, chert, iron formation, minor metavolcanic rocks, conglomerate, arenite, paragneiss, migmatites (2.5-3.2 Ga)
3	**Mafic metavolcanic and metasedimentary rocks:** mafic metavolcanic rocks, minor iron formation (2.8-32. Ga)
26	**Mafic intrusive rocks, mafic dikes and mafic sills:** Pickle Crow mafic dike; normally magnetized northwest-trending subswarm (Molson swarm) (circa 1876 Ma)

PROGRAM DESCRIPTION

A 600m North-South Trending orientation line was designed to cross the mapped package of metasedimentary and metavolcanic rocks. Sample stations were planned to be taken 50m apart. Holes were dug using hand tools targeting the Bf horizon, if an outcrop sample was attainable no soil sample was taken. Training was conducted by the Goldcorp Geochemical Expert prior to the program commencing.

A total of 11 soils and 1 outcrop sample were attained. Three of the planned sample locations were unattainable due to lack of sample medium (ie boulder field, no outcrop). Samples were dried at Musselwhite mine before being shipped to Act Labs in Thunder Bay, ON. Sample coordinate locations can be found in **Table 1** and can be observed on the map in **Figure 2.**

Prior to the field program beginning a number of days were spent collecting data: this included compiling assessment reports, reading drill logs, analyzing geophysical surveys and comparing drill holes with surficial mapping. This work was completed by Musselwhite geologists to make sure no prior work was overlooked or needlessly duplicated. Based off of the previous drilling and geophysics, the east-west steeply dipping metasediment package appeared to host the mineralization.

Table 1: Sample Locations

Station	Easting	Northing	Type
AS-01-300N	629712	5871932	Fluvial gravel
AS-01-250N	629722.8	5871875	Outcrop
AS-01-200N (org)	629711	5871831	Ah
AS-01-200N (gravel)	629710	5871830	Fluvial gravel
AS-01-150N	629705.3	5871779	Ah
AS-01-100N	629704.8	5871725	Ah
AS-01-050N	629707.5	5871675	No Sample
AS-01-000	629708.1	5871625	No Sample
AS-01-050S	629704.4	5871578	Ah
AS-01-100S	629731.2	5871526	Clay
AS-01-150S	629735	5871481	No Sample
AS-01-200S	629706.8	5871428	Bf
AS-01-250S	629709.3	5871374	Bf
AS-01-300S	629703	5871327	Bf
Sample L1	629557	5871698	B gravel

Figure 2: Map showing sample locations and property geology

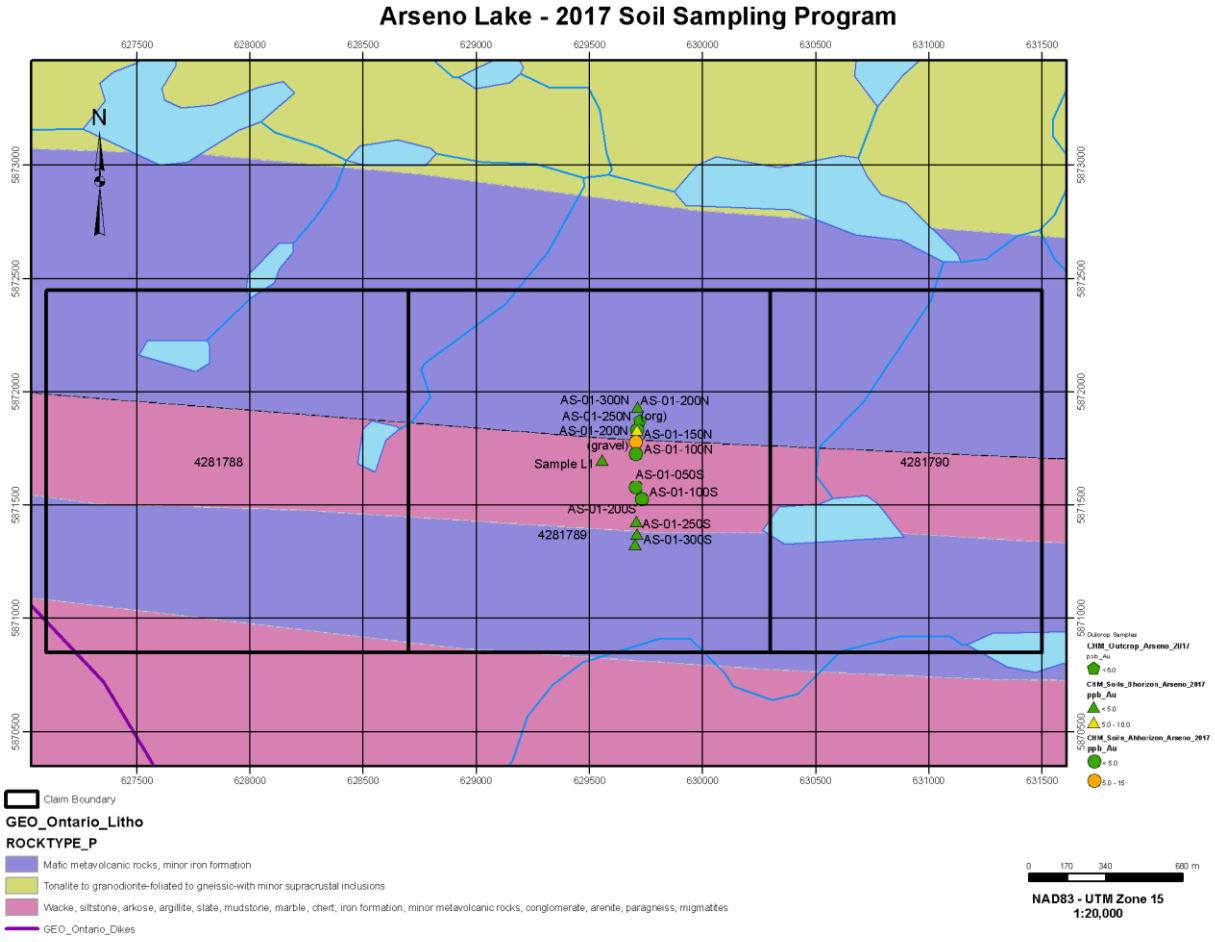

Table 2: Assay Results of Soil and Outcrop samples.

Sample	Batch	Layer	ppb Au	ppm Ag	ppm Zn	ppm As	ppm Cu	ppm Pb
832001	A17-07442	Fluvial gravel	2.5	0.025	72	8.9	15.3	20.7
837249	A17-10882	Ah	2.5	0.07	20.7	0.05	17.2	1
832002	A17-07442	Fluvial gravel	6	0.07	124	10.6	30.1	23.3
837246	A17-10882	Ah	11	1.29	26.9	156	112	7.2
837248	A17-10882	Ah	2.5	0.46	19.5	1.9	208	8.3
837247	A17-10882	Ah	2.5	0.14	84.1	18.4	28.5	2.6
837245	A17-10882	Clay / Ah	2.5	0.025	75.6	1.6	22.1	19.1
832003	A17-07442	Bf	2.5	0.025	30.1	1.8	10.8	18.8
832004	A17-07442	Bf	2.5	0.025	29.5	1.8	18.2	20
832005	A17-07442	Bf	2.5	0.025	28.8	2.3	14.5	19.8
832006	A17-07442	B gravel	2.5	0.025	89.3	9.4	32.9	27.9
832451	A17-07439	Mafic Volcanic	2.5	0.05	92.1	2.3	57.2	12.6

Only two samples (837249 + 832002) revealed gold values above detection limits of 5ppb. Sample 832002 also showed elevated Arsenic, zinc and lead values and 837246 showed elevated silver, arsenic and copper values. The samples were located along the northern-most contact of the metasedimentary package, this lines up with the previous diamond drilling in 1987. The historic drill intercepts also revealed polymetallic enrichments within iron formation/metachert horizons bounded by the larger schistose meta-sediment package.

Based on the results from the limited soil samples taken it can be inferred that there are elevated base and precious metal values in the soils. These values correlate well with the previous diamond drilling results. To further our understanding and confirm an east-west treading mineralized horizon in this area, a more detailed surface sampling program and possibly surface geophysics program should be conducted.

STATEMENT OF EXPENDITURES

A total of $18,497.13 was spent during this program on PA4281789. **Table 3** provides a complete breakdown of expenditure. Invoices can be found in **Appendix 3**.

Camp Costs	3 people	4 days	$80/day	$960
Corporate Specialist		4 days	$2,000/day	$8,000
Training	6 hours	Senior Geologist	$70/hr	$420
	6 hours	Exploration Geologist	$50/hr	$720
Historic Data Compilation	8 hours	Senior Geologist	$70/hr	$560
	48 hours	Exploration Geologist	$50/hr	$2,400
Planning	6 hours	Senior Geologist	$70/hr	$420
Sampling	6 hours	Senior Geologist	$70/hr	$420
	6 hours	Exploration Geologist	$50/hr	$300
Report Writing	8 hours	Senior Geologist	$70/hr	$560
	16 hours	Exploration Geologist	$50/hr	$800
Helicopter	1.8 hours		$1,100/hr	$1,980
Samples	12 Samples	Prep and Analysis		$533
Lab Equipment		pH Testing Equipment		$423
			Total	$18,496

Table 3: Detailed breakdown of expenditures.

STATEMENT OF QUALIFICATIONS

I, Andrew Stone, herby certify that:

1. I am the author of this report.
2. I have a Bachelor of Science in Earth Sciences from the University of Victoria, Victoria British Columbia.
3. I am registered Professional Geologist #169882 of the Association of Professional Engineers and Geoscientists of British Columbia.
4. I am employed by Goldcorp Canada Ltd. at Musselwhite Mine.
5. I agree with all the information contained within this report and believe that it is an accurate description of the worked performed.
6. I reside in the town of Duncan, British Columbia, Canada.

Name: 

Date: January 5, 2018

Goldcorp Canada Ltd.

Musselwhite Mine

979 Alloy Drive

Thunder Bay, ON

P7B 5Z8

APPENDIX 1: ASSAY CERTIFICATES

Quality Analysis ... *Innovative Technologies*

Date Submitted: 20-Jul-17
Invoice No.: A17-07439
Invoice Date: 08-Aug-17
Your Reference: Exploration

GOLDCORP Canada Ltd--Musselwhite Mine
P.O. Box 7500
Thunder bay Ontario P7B 6S8
Canada

ATTN: Katie Lucas

CERTIFICATE OF ANALYSIS

15 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 1A2-GC Musselwhite Tbay Au - Fire Assay AA

REPORT **A17-07439**

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.
1201 Walsh Street West, Thunder Bay, Ontario, Canada, P7E 4X6
TELEPHONE +807 622-6707 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Tbay@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Date Submitted: 20-Jul-17
Invoice No.: A17-07439
Invoice Date: 08-Aug-17
Your Reference: Exploration

GOLDCORP Canada Ltd--Musselwhite Mine
P.O. Box 7500
Thunder bay Ontario P7B 6S8
Canada

ATTN: Katie Lucas

CERTIFICATE OF ANALYSIS

15 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code UT-4 Total Digestion ICP/MS

REPORT **A17-07439**

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
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Results **Activation Laboratories Ltd.** **Report: A17-07439**

	FA-AA	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Au	B	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Ni	Er	Be	Ho	Hg	Ag	Cs	Co	Eu
DESCRIPTION	g/mt	ppm	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm
E832451	< 0.005	10	20.5	1.20	4.31	7.49	0.25	7.34	0.2	232	395	2660	7.42	1.4	100	1.7	0.3	0.6	70	0.05	1.12	49.3	0.52
[redacted]	0.007	8	46.5	2.74	0.15	7.51	2.18	1.21	< 0.1	6	14.0	120	0.75	1.7	12.6	0.6	3.0	0.2	80	0.20	5.48	2.0	0.24
[redacted]	< 0.005	< 1	39.6	2.00	0.23	6.64	2.67	0.84	< 0.1	3	12.8	279	1.16	1.0	2.2	1.3	1.8	0.4	60	< 0.05	6.12	1.4	0.34
[redacted]	< 0.005	< 1	6.1	2.39	3.82	7.79	0.15	6.37	0.2	223	73.4	1570	11.1	2.3	92.2	3.2	0.5	1.1	110	< 0.05	0.14	49.3	0.86
[redacted]	0.014	< 1	15.8	1.93	3.76	8.03	0.28	6.55	0.1	304	89.9	1650	11.4	2.5	109	3.2	0.6	1.1	90	< 0.05	0.62	54.4	0.83
[redacted]	< 0.005	< 1	16.9	0.35	10.7	4.88	0.06	7.44	< 0.1	157	1140	1640	8.54	0.9	546	1.0	0.1	0.4	100	< 0.05	0.07	58.9	0.31
[redacted]	< 0.005	< 1	45.7	1.61	1.67	8.00	> 5.00	1.65	< 0.1	78	166	1330	4.10	5.1	100	1.1	1.2	0.4	80	< 0.05	6.45	22.8	0.62
[redacted]	< 0.005	< 1	7.6	1.35	5.62	4.69	0.07	7.61	0.3	214	397	1800	10.5	1.3	192	1.5	0.3	0.5	70	< 0.05	0.29	63.8	0.54
[redacted]	0.021	< 1	5.5	1.80	4.09	4.34	0.04	2.19	0.2	105	98.6	869	9.80	2.6	34.0	1.8	0.9	0.6	80	< 0.05	0.22	16.4	0.64
[redacted]	< 0.005	< 1	20.0	2.47	0.28	7.27	4.29	1.12	< 0.1	21	16.6	239	1.73	6.1	2.8	0.7	1.1	0.3	60	< 0.05	1.76	6.7	0.64
[redacted]	0.008	23	7.0	1.31	5.56	5.15	0.06	7.19	0.4	266	138	1780	11.9	1.3	150	1.7	0.4	0.6	70	< 0.05	0.26	68.6	0.57
[redacted]	0.005	8	13.6	0.66	5.15	6.36	0.46	7.47	0.5	267	445	1840	11.3	1.8	180	2.2	1.4	0.8	70	< 0.05	1.47	59.7	0.95
[redacted]	0.139	5	7.2	0.43	11.4	2.43	0.08	6.11	0.1	135	2310	1570	9.51	0.5	736	0.8	0.1	0.3	120	< 0.05	1.12	89.8	0.33
[redacted]	< 0.005	1	55.6	0.73	1.59	4.01	0.37	2.65	< 0.1	63	93.7	505	2.45	0.6	71.6	0.8	0.4	0.3	90	0.09	5.98	11.0	0.37
[redacted]	< 0.005	< 1	163	0.27	1.72	6.36	1.53	4.09	0.2	79	229	1500	5.50	1.9	109	2.1	0.7	0.7	70	< 0.05	7.58	28.3	0.79
GXR-1 Meas		7	8.0	0.05	0.21	2.05	0.05	0.91	2.7	85	14.8	902	25.4	0.5	43.3		0.9		2930	31.5	3.06	8.4	0.52
GXR-1 Cert		15.0	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	41.0		1.22		3900	31.0	3.00	8.20	0.690
GXR-1 Meas		< 1	8.4	0.05	0.22	2.44	0.05	0.93	2.5	91	18.0	970	26.4	0.5	46.3		1.0		1930	31.2	3.08	8.7	0.55
GXR-1 Cert		15.0	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	41.0		1.22		3900	31.0	3.00	8.20	0.690
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
SDC-1 Meas		< 1	35.4	1.53	1.02	8.48	2.58	1.05		32	42.9	798	4.73	0.7	34.4	3.4	2.9	1.2	140		4.20	18.1	1.34
SDC-1 Cert		13.00	34.0	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	38.0	4.10	3.00	1.50	200.00		4.00	18.0	1.70
SDC-1 Meas		2	39.0	1.60	1.07	8.77	2.63	1.13		37	59.6	869	4.89	0.7	36.3	3.5	3.3	1.3	70		4.25	18.9	1.42
SDC-1 Cert		13.00	34.0	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	38.0	4.10	3.00	1.50	200.00		4.00	18.0	1.70
GXR-6 Meas		9	34.1	0.09	0.60	> 10.0	1.74	0.17	0.1	114	41.3	942	5.29	1.9	24.5		1.0		110	0.20	4.36	13.2	0.55
GXR-6 Cert		9.80	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	27.0		1.40		68.0	1.30	4.20	13.8	0.760
GXR-6 Meas		< 1	36.2	0.10	0.62	> 10.0	2.00	0.18	0.1	120	55.2	1000	5.43	1.9	26.2		1.1		90	0.19	4.38	13.9	0.57
GXR-6 Cert		9.80	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	27.0		1.40		68.0	1.30	4.20	13.8	0.760
DNC-1a Meas			5.0							148	172				289							61.7	0.51
DNC-1a Cert			5.2							148	270				247							57	0.59
DNC-1a Meas			4.9							151	199				290							61.6	0.52
DNC-1a Cert			5.2							148	270				247							57	0.59
SBC-1 Meas			171						0.4	213	109			3.0	88.9	3.4	3.2	1.2			8.72	22.8	1.67
SBC-1 Cert			163						0.40	220.0	109			3.7	82.8	3.80	3.20	1.40			8.2	22.7	1.98
SBC-1 Meas			173						0.4	227	85.7			3.5	94.0	3.4	3.5	1.3			8.83	24.0	1.71
SBC-1 Cert			163						0.40	220.0	109			3.7	82.8	3.80	3.20	1.40			8.2	22.7	1.98
SdAR-M2 (U.S.G.S.) Meas			17.1						5.4	24	51.7			4.0	52.6	2.4	6.4	0.8	1230		1.92	12.9	0.97
SdAR-M2 (U.S.G.S.) Cert			17.9						5.1	25.2	49.6			7.29	48.8	3.58	6.6	1.21	1440.00		1.82	12.4	1.44
SdAR-M2			17.8						5.4	17	33.4			3.5	52.6	2.6	7.0	1.0	790		1.90	12.8	1.20

	FA-AA	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Au	B	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Ni	Er	Be	Ho	Hg	Ag	Cs	Co	Eu
DESCRIPTION	g/mt	ppm	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm
(U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert			17.9						5.1	25.2	49.6			7.29	48.8	3.58	6.6	1.21	1440.00		1.82	12.4	1.44
OREAS 254 Meas	2.52																						
OREAS 254 Cert	2.55																						
OREAS 218 Meas	0.554																						
OREAS 218 Cert	0.525																						
[redacted]	0.008																						
[redacted]	0.009																						
[redacted]		1	55.6	0.73	1.59	4.01	0.37	2.65	< 0.1	63	93.7	505	2.45	0.6	71.6	0.8	0.4	0.3	90	0.09	5.98	11.0	0.37
[redacted]		< 1	56.3	0.75	1.58	3.99	0.37	2.66	< 0.1	63	72.0	511	2.44	0.4	71.7	0.8	0.4	0.3	70	0.11	6.04	11.0	0.37
Method Blank	< 0.005																						
Method Blank		13	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	2.7	< 1	< 0.01	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	90	< 0.05	< 0.05	< 0.1	< 0.05
Method Blank		14	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	3.2	6	< 0.01	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	70	< 0.05	< 0.05	< 0.1	< 0.05
Method Blank		13	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	2.8	6	< 0.01	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	70	< 0.05	< 0.05	< 0.1	< 0.05

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Bi	Se	Zn	Ga	As	Rb	Y	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
E832451	0.09	0.4	92.1	15.3	2.3	5.8	17.0	55	3.6	0.63	< 0.1	1	2.6	< 0.1	66	6.2	12.7	1.5	6.6	1.7	2.4	0.4	2.7
[redacted]	34.6	< 0.1	22.8	23.3	< 0.1	131	8.5	30	20.2	0.74	< 0.1	1	0.1	0.2	710	9.0	17.3	1.8	5.9	1.5	1.5	0.2	1.4
[redacted]	0.66	< 0.1	18.5	16.7	< 0.1	62.0	12.9	70	6.9	1.08	< 0.1	2	< 0.1	< 0.1	1040	15.2	34.0	3.1	10.7	1.9	2.0	0.3	2.2
[redacted]	0.12	< 0.1	111	19.3	< 0.1	1.8	31.9	97	0.2	0.10	< 0.1	< 1	< 0.1	< 0.1	34	3.8	10.3	1.6	7.5	2.5	3.8	0.7	5.0
[redacted]	0.04	< 0.1	109	20.4	< 0.1	5.8	31.4	105	0.6	0.17	< 0.1	< 1	< 0.1	< 0.1	90	4.5	10.7	1.5	7.7	2.3	3.4	0.7	4.8
[redacted]	0.06	0.6	73.4	10.5	21.8	0.8	10.5	38	1.9	0.30	< 0.1	< 1	0.4	< 0.1	4	1.7	4.0	0.6	2.7	0.8	1.3	0.2	1.6
[redacted]	0.23	0.3	73.1	21.2	1.5	105	11.4	225	8.5	1.88	< 0.1	2	< 0.1	< 0.1	581	22.1	43.1	4.6	16.5	2.6	2.4	0.3	1.9
[redacted]	0.07	0.2	97.8	11.9	14.1	1.1	15.1	51	1.1	1.48	< 0.1	< 1	0.3	< 0.1	90	2.8	6.5	1.0	4.9	1.5	2.2	0.4	2.6
[redacted]	0.58	4.5	78.3	21.5	27.8	1.0	18.4	116	7.8	6.96	< 0.1	< 1	1.4	1.1	30	8.5	16.7	1.8	6.8	1.6	2.2	0.4	2.9
[redacted]	0.06	< 0.1	41.8	17.9	< 0.1	119	8.5	262	7.5	0.96	< 0.1	2	< 0.1	< 0.1	950	74.4	145	14.3	50.6	7.5	5.4	0.4	2.0
[redacted]	0.05	0.2	107	14.2	75.4	0.9	18.1	54	2.8	0.26	< 0.1	1	4.1	< 0.1	53	3.4	8.5	1.2	6.2	1.8	2.6	0.4	3.1
[redacted]	0.14	0.5	178	15.8	5.5	16.0	22.4	75	0.5	0.19	0.1	< 1	0.2	< 0.1	124	5.2	12.2	1.7	8.1	2.2	3.0	0.5	3.7
[redacted]	0.14	0.8	80.6	7.4	256	2.3	8.4	20	0.2	0.33	< 0.1	< 1	1.0	< 0.1	21	1.4	3.6	0.6	2.9	0.9	1.3	0.2	1.4
[redacted]	0.45	0.2	25.8	8.9	0.1	32.7	8.5	37	1.6	1.81	< 0.1	1	< 0.1	< 0.1	99	5.0	12.7	1.1	4.8	1.1	1.3	0.2	1.4
[redacted]	0.10	0.2	72.5	14.3	8.8	68.0	21.7	84	0.5	0.44	< 0.1	1	0.1	< 0.1	267	16.5	31.4	3.8	14.5	2.9	3.4	0.5	3.5
GXR-1 Meas	1310	15.8	711	8.5	441	2.5	34.0	27	0.9	16.5	0.9	25	15.7	6.1	700	8.0	14.5		8.8	2.7	4.2	0.7	4.6
GXR-1 Cert	1380	16.6	760	13.8	427	14.0	32.0	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30
GXR-1 Meas	1340	17.5	765	12.8	436	2.7	36.3	28	1.0	17.3	0.9	27	25.1	7.6	719	8.0	15.0		8.9	2.9	4.3	0.7	4.9
GXR-1 Cert	1380	16.6	760	13.8	427	14.0	32.0	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
SDC-1 Meas			94.4	20.3	< 0.1	94.3		27	0.5			< 1	< 0.1		657	42.5	83.1		41.7	7.9	7.1	0.9	6.0
SDC-1 Cert			103.00	21.00	0.220	127.00		290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Bi	Se	Zn	Ga	As	Rb	Y	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SDC-1 Meas			102	23.6	< 0.1	100		25	0.3			< 1	< 0.1		691	42.5	87.1		42.7	8.5	7.6	1.0	6.4
SDC-1 Cert			103.00	21.00	0.220	127.00		290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70
GXR-6 Meas	0.19	0.4	116	22.9	229	63.0	13.3	76	1.5	0.36	< 0.1	< 1	0.6	< 0.1	1300	13.6	33.4		13.1	2.6	2.4	0.3	2.3
GXR-6 Cert	0.290	0.940	118	35.0	330	90.0	14.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80
GXR-6 Meas	0.19	0.8	122	30.0	232	66.9	13.7	73	0.4	0.51	< 0.1	1	0.9	< 0.1	1380	12.6	32.8		12.9	2.5	2.3	0.3	2.3
GXR-6 Cert	0.290	0.940	118	35.0	330	90.0	14.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80
DNC-1a Meas			63.9	15.1		2.6	18.5	44	1.4				0.3		114	4.1			5.4				
DNC-1a Cert			70	15		5	18.0	38.0	3				0.96		118	3.6			5.20				
DNC-1a Meas			63.3	15.0		3.0	19.1	43	1.9				0.4		115	3.9			5.2				
DNC-1a Cert			70	15		5	18.0	38.0	3				0.96		118	3.6			5.20				
SBC-1 Meas	0.63		175	22.9	22.6	119	34.6	126	13.9	2.24		4	1.0		823	52.5	101	12.2	50.7	9.7	8.6	1.0	6.4
SBC-1 Cert	0.70		186	27.0	25.7	147	36.5	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10
SBC-1 Meas	0.68		183	27.1	24.5	126	36.3	135	19.0	1.90		4	1.2		850	51.8	104	13.2	50.5	9.6	8.9	1.1	6.7
SBC-1 Cert	0.70		186	27.0	25.7	147	36.5	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10
SdAR-M2 (U.S.G.S.) Meas	1.03		723	16.2		93.8	23.7	143	10.2	11.4					979	36.0	82.5	8.1	31.3	5.6	4.8	0.6	4.1
SdAR-M2 (U.S.G.S.) Cert	1.05		760	17.6		149	32.7	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88
SdAR-M2 (U.S.G.S.) Meas	1.03		739	20.4		118	27.4	118	2.8	5.22					1050	45.4	93.5	10.8	39.0	6.7	5.8	0.8	4.8
SdAR-M2 (U.S.G.S.) Cert	1.05		760	17.6		149	32.7	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88
OREAS 254 Meas																							
OREAS 254 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
[redacted]																							
[redacted]																							
[redacted]	0.45	0.2	25.8	8.9	0.1	32.7	8.5	37	1.6	1.81	< 0.1	1	< 0.1	< 0.1	99	5.0	12.7	1.1	4.8	1.1	1.3	0.2	1.4
[redacted]	0.51	< 0.1	25.1	8.7	< 0.1	33.1	8.5	23	1.3	1.82	< 0.1	1	< 0.1	< 0.1	102	5.1	13.1	1.2	4.9	1.1	1.4	0.2	1.4
Method Blank																							
Method Blank	0.03	< 0.1	< 0.2	0.1	< 0.1	< 0.2	< 0.1	< 1	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	0.02	< 0.1	< 0.2	0.2	< 0.1	< 0.2	< 0.1	< 1	< 0.1	0.13	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	0.02	< 0.1	< 0.2	0.1	< 0.1	< 0.2	< 0.1	< 1	< 0.1	0.07	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Cu	Ge	Tm	Yb	Lu	Ta	Sr	W	Re	Tl	Pb	Th	U
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
E832451	57.2	0.7	0.3	1.7	0.2	0.2	94.1	0.5	< 0.001	< 0.05	12.6	2.3	0.5
[redacted]	9.3	0.1	< 0.1	0.7	< 0.1	9.0	86.9	0.7	< 0.001	1.14	29.2	8.4	3.1
[redacted]	9.9	< 0.1	0.2	1.4	0.2	0.5	60.1	0.2	< 0.001	0.35	17.1	11.7	2.4
[redacted]	51.0	0.3	0.5	3.3	0.4	< 0.1	172	< 0.1	< 0.001	< 0.05	2.9	1.1	0.3
[redacted]	63.3	0.6	0.5	3.4	0.5	< 0.1	124	0.2	< 0.001	< 0.05	2.5	1.1	0.3
[redacted]	4.8	0.7	0.2	1.1	0.1	0.1	7.2	0.6	< 0.001	< 0.05	< 0.5	0.7	0.2

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Cu	Ge	Tm	Yb	Lu	Ta	Sr	W	Re	Tl	Pb	Th	U
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
[redacted]	48.2	0.4	0.2	1.2	0.2	0.3	85.7	1.3	< 0.001	0.45	13.2	6.4	2.3
[redacted]	127	0.7	0.2	1.5	0.2	< 0.1	51.4	0.2	0.003	< 0.05	5.5	0.6	0.2
[redacted]	28.0	0.4	0.3	2.2	0.3	0.5	31.8	1.5	0.001	< 0.05	7.1	4.2	1.3
[redacted]	11.0	< 0.1	< 0.1	0.6	< 0.1	0.3	208	11.5	< 0.001	0.82	37.6	43.4	2.8
[redacted]	52.6	2.9	0.3	1.7	0.2	0.2	48.3	1.4	< 0.001	< 0.05	4.8	0.6	0.2
[redacted]	105	0.6	0.3	2.2	0.3	< 0.1	85.2	0.2	< 0.001	< 0.05	3.5	1.1	0.3
[redacted]	40.9	0.8	0.1	0.7	< 0.1	< 0.1	24.7	0.1	< 0.001	< 0.05	3.0	0.2	< 0.1
[redacted]	68.6	0.3	0.1	0.9	0.1	< 0.1	148	1.9	< 0.001	0.07	4.4	2.0	0.5
[redacted]	40.4	0.3	0.3	2.3	0.3	< 0.1	76.9	< 0.1	< 0.001	0.33	7.6	4.1	1.1
GXR-1 Meas	1190		0.3	2.3	0.3	< 0.1	291	144		0.23	710	2.4	31.9
GXR-1 Cert	1110		0.430	1.90	0.280	0.175	275	164		0.390	730	2.44	34.9
GXR-1 Meas	1220		0.4	2.3	0.3	< 0.1	315	156		0.27	737	2.5	33.2
GXR-1 Cert	1110		0.430	1.90	0.280	0.175	275	164		0.390	730	2.44	34.9
DH-1a Meas												> 500	2390
DH-1a Cert												910	2629
DH-1a Meas												> 500	2570
DH-1a Cert												910	2629
SDC-1 Meas	34.2		0.5	3.3		< 0.1	159	< 0.1		0.48	22.3	10.7	2.7
SDC-1 Cert	30.000		0.65	4.00		1.20	180.00	0.80		0.70	25.00	12.00	3.10
SDC-1 Meas	32.3		0.5	3.4		< 0.1	165	< 0.1		0.50	23.5	11.9	3.0
SDC-1 Cert	30.000		0.65	4.00		1.20	180.00	0.80		0.70	25.00	12.00	3.10
GXR-6 Meas	70.2			1.7	0.2	< 0.1	34.0	0.3		2.01	90.3	4.8	1.4
GXR-6 Cert	66.0			2.40	0.330	0.485	35.0	1.90		2.20	101	5.30	1.54
GXR-6 Meas	72.0			1.7	0.2	< 0.1	32.7	< 0.1		2.17	96.1	4.8	1.4
GXR-6 Cert	66.0			2.40	0.330	0.485	35.0	1.90		2.20	101	5.30	1.54
DNC-1a Meas	104			2.0			139				5.1		
DNC-1a Cert	100			2.0			144				6.3		
DNC-1a Meas	105			2.0			143				5.4		
DNC-1a Cert	100			2.0			144				6.3		
SBC-1 Meas	31.7		0.5	3.4	0.4	0.6	163	1.5		0.74	33.3	14.7	5.6
SBC-1 Cert	31.0000		0.56	3.64	0.54	1.10	178.0	1.60		0.89	35.0	15.8	5.76
SBC-1 Meas	35.4		0.5	3.5	0.4	0.8	168	1.6		0.81	36.3	15.8	5.9
SBC-1 Cert	31.0000		0.56	3.64	0.54	1.10	178.0	1.60		0.89	35.0	15.8	5.76
SdAR-M2 (U.S.G.S.) Meas	251		0.4	2.6	0.3	0.2	119	0.4			761	10.4	2.1
SdAR-M2 (U.S.G.S.) Cert	236.0000		0.54	3.63	0.54	1.8	144	2.8			808	14.2	2.53
SdAR-M2 (U.S.G.S.) Meas	244		0.4	2.8	0.4	0.2	129	0.1			786	13.8	2.5
SdAR-M2 (U.S.G.S.) Cert	236.0000		0.54	3.63	0.54	1.8	144	2.8			808	14.2	2.53
OREAS 254 Meas													
OREAS 254 Cert													

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Cu	Ge	Tm	Yb	Lu	Ta	Sr	W	Re	Tl	Pb	Th	U
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
OREAS 218 Meas													
OREAS 218 Cert													
[redacted]													
[redacted]													
[redacted]	68.6	0.3	0.1	0.9	0.1	< 0.1	148	1.9	< 0.001	0.07	4.4	2.0	0.5
[redacted]	70.8	0.5	0.1	0.9	0.1	< 0.1	149	1.4	< 0.001	0.09	4.2	2.1	0.6
Method Blank													
Method Blank	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.001	< 0.05	< 0.5	< 0.1	< 0.1
Method Blank	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.001	< 0.05	< 0.5	< 0.1	< 0.1
Method Blank	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.001	< 0.05	< 0.5	< 0.1	< 0.1

Quality Analysis ... *Innovative Technologies*

Date Submitted: 20-Jul-17
Invoice No.: A17-07442
Invoice Date: 08-Aug-17
Your Reference: Exploration

GOLDCORP Canada Ltd--Musselwhite Mine
P.O. Box 7500
Thunder bay Ontario P7B 6S8
Canada

ATTN: Katie Lucas

CERTIFICATE OF ANALYSIS

33 Soil samples were submitted for analysis.

The following analytical package(s) were requested:

Code 13-Conductivity Conductivity
Code 13-Paste pH Paste pH
Code 7-Bioleach Bioleach ICPMS
Code UT-1-0.5g Aqua Regia ICP/MS

REPORT **A17-07442**

Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

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	ISE	pH Meter	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Conductivity	Paste pH	Al	Ca	Fe	K	Mg	Ag	As	Au	Ba	Be	Bi	Br	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu		
DESCRIPTION	µS/cm	-	ppm	ppm	ppm	ppm	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb		
E832001	184	6.23	123	1250	88	22	199	0.6	123	0.09	346	11.6	0.4	227	10.9	1080	10.1	51	1.88	103	30.0	14.0	10.4		
E832002	99.0	5.80	276	985	176	7	175	0.8	191	0.05	828	21.4	1.1	263	43.3	2420	90.9	114	2.09	317	70.0	32.0	25.5		
E832003	26.0	5.65	279	11	39	12	3	0.4	13.9	< 0.05	502	16.8	< 0.1	134	0.74	343	9.9	89	2.02	43.0	12.3	5.41	5.34		
E832004	28.0	5.68	297	11	22	7	2	0.4	22.7	0.07	363	22.7	0.1	214	0.66	240	7.4	46	1.49	67.0	11.4	5.00	4.54		
E832005	170	6.36	233	15	12	113	4	0.7	22.4	< 0.05	329	23.2	< 0.1	166	0.73	346	5.9	27	4.07	57.9	14.9	6.57	6.33		
E832006	166	5.80	347	810	301	22	115	0.9	122	0.23	1080	20.7	2.9	585	7.56	1240	99.2	302	10.6	397	39.5	18.0	14.7		
[redacted]	73.0	5.06	694	144	232	34	12	0.5	29.1	0.15	603	17.4	0.7	577	2.02	347	54.0	539	1.54	139	18.5	7.66	6.94		
[redacted]	77.0	4.98	507	194	243	34	20	0.5	25.2	0.14	635	14.6	1.0	376	2.67	240	60.4	518	0.95	155	15.9	6.90	5.97		
[redacted]	140	6.39	141	472	89	39	18	0.5	443	0.62	829	16.5	0.4	531	13.6	1250	16.5	142	3.61	979	54.5	28.0	22.5		
[redacted]	471	9.20	10.7	384	32	70	139	1.7	82.8	3.88	495	2.09	1.3	201	11.0	46.3	42.2	34	4.58	797	11.9	6.46	1.96		
[redacted]	50.0	5.82	294	899	424	< 5	127	0.8	71.8	0.30	2140	18.8	1.4	72	11.8	1360	160	433	9.07	195	46.2	19.4	15.5		
[redacted]	54.0	5.87	512	835	392	12	68	1.4	153	0.22	3980	33.9	3.8	142	4.94	2510	110	1230	5.33	463	83.2	36.5	31.2		
[redacted]	46.0	5.87	580	902	264	14	78	1.4	72.4	0.22	4460	33.3	2.2	190	6.85	1960	132	1050	16.9	509	76.1	31.4	27.0		
[redacted]	39.0	5.99	298	563	354	7	35	0.6	40.1	0.20	3220	13.0	1.3	237	2.84	650	51.2	488	10.1	159	31.4	15.2	10.0		
[redacted]	51.0	5.42	414	282	441	7	39	0.5	37.1	0.16	1690	17.7	1.9	436	1.97	571	44.0	780	23.0	286	26.8	12.5	8.48		
[redacted]	55.0	4.31	440	50	200	< 5	16	0.4	28.8	0.17	446	11.6	3.6	351	3.84	269	24.5	787	17.3	148	14.2	6.39	4.11		
[redacted]	58.0	4.53	591	10	169	7	5	0.5	72.5	0.07	933	21.2	0.9	602	2.44	152	20.2	385	4.96	188	13.1	5.85	3.95		
[redacted]	43.0	5.47	552	77	145	< 5	7	0.5	26.9	< 0.05	615	24.1	0.6	696	0.66	1170	17.8	479	1.38	267	36.0	15.5	13.1		
[redacted]	101	6.40	155	1140	90	< 5	466	1.5	128	< 0.05	642	21.1	0.1	456	5.88	1160	11.7	1540	52.2	2110	87.8	44.2	31.2		
[redacted]	437	9.93	29.1	299	56	329	38	1.0	42.1	< 0.05	1710	4.13	< 0.1	560	0.82	1870	102	29	3.68	314	23.5	9.37	8.82		
[redacted]	29.0	5.64	363	110	186	14	33	1.2	198	0.87	455	23.4	0.4	357	1.41	109	64.3	382	15.9	224	7.37	3.69	2.17		
[redacted]	40.0	5.45	301	49	78	8	6	0.6	85.9	< 0.05	1450	19.5	0.3	429	1.76	210	45.1	278	2.94	116	12.3	5.71	4.03		
[redacted]	43.0	5.00	533	14	138	< 5	5	0.6	88.1	< 0.05	485	21.6	0.8	730	0.34	352	21.7	711	4.11	242	19.3	8.40	5.94		
[redacted]	26.0	5.31	277	12	87	< 5	2	0.3	37.2	< 0.05	227	12.9	0.2	255	0.33	133	11.7	414	3.32	99.9	7.83	3.59	2.39		
[redacted]	33.0	4.78	599	13	194	< 5	5	0.3	59.5	0.09	577	15.1	1.1	516	2.16	261	18.6	646	3.03	243	13.5	5.94	4.24		
[redacted]	23.0	4.80	242	< 5	57	< 5	5	0.7	516	< 0.05	378	6.40	< 0.1	437	0.66	108	23.3	403	4.07	243	14.1	7.29	3.96		
[redacted]	37.0	4.67	508	47	453	5	6	0.7	137	0.30	1520	18.2	2.0	462	2.69	333	32.0	1040	7.60	272	15.0	6.66	4.82		
[redacted]	76.0	5.56	442	466	326	10	65	0.6	761	0.08	2030	29.3	1.3	396	4.19	456	205	937	20.5	549	21.6	10.6	6.89		
[redacted]	45.0	5.75	213	701	254	7	84	0.8	28.1	0.11	1890	12.0	1.1	288	3.29	1030	69.4	310	5.39	169	35.9	18.4	12.0		
[redacted]	488	9.40	10.4	414	29	75	156	1.8	91.3	5.48	602	2.14	1.0	226	11.9	47.3	41.7	29	4.61	859	11.7	6.60	1.95		
[redacted]	46.0	6.34	244	576	385	7	65	0.9	38.3	0.27	2330	11.0	2.3	328	2.16	850	145	466	10.1	159	29.9	15.6	10.8		
[redacted]	61.0	6.48	233	880	138	6	122	0.9	22.9	< 0.05	1890	12.3	0.5	646	5.81	1360	14.2	282	7.99	292	37.8	18.9	12.8		
[redacted]	20.0	5.30	558	27	145	< 5	6	0.5	20.3	< 0.05	1550	25.6	0.3	880	1.71	1100	16.2	385	8.00	211	44.2	19.1	15.0		
GXR-1 Meas																									
GXR-1 Cert																									
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DH-1a Meas																									

	ISE	pH Meter	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Conductivity	Paste pH	Al	Ca	Fe	K	Mg	Ag	As	Au	Ba	Be	Bi	Br	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
DESCRIPTION	µS/cm	-	ppm	ppm	ppm	ppm	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DH-1a Cert																							
DH-1a Meas																							
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DH-1a Meas																							
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GXR-4 Meas																							
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GXR-6 Meas																							
GXR-6 Cert																							
TILL-1 Meas					122				245	0.18	1630	42.5		945		969	56.1	162	0.71	2350		85.2	59.5
TILL-1 Cert					48100.00				18000	13	702000	2400.0		6400.0		71000	18000	65000	1000.0	47000		3600.0	1300.0
TILL-1 Meas					119				239	0.17	1580	40.3		911		937	52.7	162	0.65	2340		83.3	59.3
TILL-1 Cert					48100.00				18000	13	702000	2400.0		6400.0		71000	18000	65000	1000.0	47000		3600.0	1300.0
TILL-2 Meas					407				824	0.18	2720	169		4220		1450	89.1	637	11.9	5220		77.8	41.5
TILL-2 Cert					38400.00				26000	2	540000	4000.0		12200.0		98000	15000	74000	12000	150000		3700.0	1000.0
TILL-2 Meas					387				823	0.21	2670	178		4340		1440	89.4	644	11.9	5310		79.6	41.5
TILL-2 Cert					38400.00				26000	2	540000	4000.0		12200.0		98000	15000	74000	12000	150000		3700.0	1000.0
BL-4a Meas																							
BL-4a Cert																							
BL-4a Meas																							
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BL-4a Meas																							
BL-4a Cert																							
BL-4a Meas																							
BL-4a Cert																							
DL-1a Meas																							
DL-1a Cert																							

Results **Activation Laboratories Ltd.** **Report: A17-07442**

	ISE	pH Meter	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Conductivity	Paste pH	Al	Ca	Fe	K	Mg	Ag	As	Au	Ba	Be	Bi	Br	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
DESCRIPTION	µS/cm	-	ppm	ppm	ppm	ppm	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL-1a Meas																							
DL-1a Cert																							
DL-1a Meas																							
DL-1a Cert																							
DL-1a Meas																							
DL-1a Cert																							
OREAS 45d (Aqua Regia) Meas																							
OREAS 45d (Aqua Regia) Cert																							
OREAS 45d (Aqua Regia) Meas																							
OREAS 45d (Aqua Regia) Cert																							
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
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SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
E832003 Orig			279	11	39	12	3	0.4	13.9	< 0.05	502	16.8	< 0.1	134	0.74	343	9.9	89	2.02	43.0	12.3	5.41	5.34
E832003 Dup			268	10	36	12	3	0.4	12.2	< 0.05	471	15.6	< 0.1	140	0.69	321	9.0	83	1.68	43.0	11.3	5.11	4.86
[redacted]																							
[redacted]																							
[redacted]																							
[redacted]																							
[redacted]			512	835	392	12	68	1.4	153	0.22	3980	33.9	3.8	142	4.94	2510	110	1230	5.33	463	83.2	36.5	31.2
[redacted]			503	806	386	12	67	1.2	152	0.15	3880	33.6	3.9	130	5.04	2410	112	1210	5.15	457	81.1	34.8	30.2
[redacted]			363	110	186	14	33	1.2	198	0.87	455	23.4	0.4	357	1.41	109	64.3	382	15.9	224	7.37	3.69	2.17
[redacted]			360	113	188	15	33	1.3	198	< 0.05	445	22.0	0.3	348	1.80	108	63.2	388	15.2	227	7.26	3.55	2.13
Method Blank																							
Method Blank																							
Method Blank																							

	ISE	pH Meter	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Conductivity	Paste pH	Al	Ca	Fe	K	Mg	Ag	As	Au	Ba	Be	Bi	Br	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu
DESCRIPTION	µS/cm	-	ppm	ppm	ppm	ppm	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Method Blank																							
Method Blank		6.13																					
Method Blank		6.87																					
Method Blank			< 0.5	< 5	< 1	< 5	< 2	< 0.2	< 0.5	< 0.05	< 1	0.27	< 0.1	< 5	< 0.05	< 0.02	0.6	< 2	< 0.01	1.5	< 0.01	< 0.01	< 0.01
Method Blank			< 0.5	< 5	< 1	< 5	< 2	< 0.2	< 0.5	< 0.05	< 1	0.62	< 0.1	< 5	< 0.05	< 0.02	0.8	< 2	< 0.01	1.4	0.07	0.04	0.03

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Ga	Gd	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	Os	Pb	Pd	Pr	Pt	Rb	Re
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
E832001	23.2	58.3	1.11	3.05	< 0.05	5.00	98	0.2	756	35.8	1.71	4660	11	8.4	< 0.03	26.8	< 1	53.0	< 0.5	141	< 0.5	37.2	0.02
E832002	59.1	132	2.70	6.05	< 0.05	11.4	144	0.5	1250	29.5	3.60	66700	15	18.0	< 0.03	212	< 1	99.1	0.7	329	< 0.5	46.4	0.04
E832003	37.5	18.6	0.38	1.05	< 0.05	1.99	155	< 0.1	183	< 0.2	0.61	159	9	2.4	< 0.03	< 0.2	< 1	24.6	< 0.5	39.8	< 0.5	91.9	< 0.01
E832004	33.0	15.6	0.22	1.20	< 0.05	1.85	281	< 0.1	121	< 0.2	0.59	233	27	2.6	< 0.03	< 0.2	< 1	20.4	< 0.5	26.9	< 0.5	50.9	0.02
E832005	26.9	22.3	0.41	0.81	< 0.05	2.42	210	< 0.1	180	< 0.2	0.72	52.9	50	2.1	< 0.03	< 0.2	< 1	10.2	< 0.5	40.2	< 0.5	333	< 0.01
E832006	104	70.9	1.92	5.43	0.06	6.32	178	0.5	725	45.0	2.18	2460	13	30.1	< 0.03	480	< 1	120	1.5	179	< 0.5	76.6	0.02
[redacted]	115	22.3	0.48	2.34	0.07	3.01	198	0.3	202	14.5	0.73	1190	6	15.8	< 0.03	180	< 1	137	0.6	40.4	< 0.5	118	0.01
[redacted]	133	18.4	0.30	2.48	0.10	2.67	156	0.4	146	11.1	0.69	2430	6	16.2	< 0.03	169	< 1	157	0.8	29.6	< 0.5	68.8	0.02
[redacted]	41.5	91.3	1.57	3.81	0.06	9.45	157	0.1	762	2.6	4.46	1930	10	2.6	25.2	236	< 1	11.5	1.1	186	< 0.5	181	0.02
[redacted]	17.3	10.1	0.47	3.78	< 0.05	2.33	4	< 0.1	21.4	19.8	0.91	536	3230	1.7	16.6	58.5	< 1	59.4	4.4	7.12	< 0.5	334	0.02
[redacted]	138	75.3	2.67	5.55	< 0.05	7.42	59	0.4	901	39.6	1.90	23200	19	28.9	< 0.03	414	< 1	162	1.2	167	< 0.5	91.9	< 0.01
[redacted]	228	139	4.76	11.0	< 0.05	13.5	106	0.7	1220	36.1	3.73	10500	11	30.6	< 0.03	528	< 1	225	3.3	312	< 0.5	104	0.03
[redacted]	293	122	2.63	11.1	< 0.05	12.1	128	0.7	1100	78.9	3.25	10700	11	27.6	< 0.03	399	< 1	261	3.5	236	< 0.5	172	< 0.01
[redacted]	199	43.1	1.66	3.98	0.06	5.32	147	0.4	362	29.1	1.89	2640	6	24.6	< 0.03	198	< 1	140	1.3	89.6	< 0.5	81.0	< 0.01
[redacted]	177	35.3	1.30	3.25	0.05	4.51	177	0.5	317	29.5	1.52	691	22	24.6	< 0.03	143	< 1	89.2	1.1	68.8	< 0.5	57.2	0.02
[redacted]	99.7	15.9	0.41	1.99	0.06	2.45	122	0.3	166	16.3	0.70	753	10	16.0	< 0.03	133	< 1	128	0.6	29.2	< 0.5	37.8	0.02
[redacted]	65.0	12.4	0.47	3.11	0.09	2.20	295	0.3	84.2	2.0	0.69	674	10	8.5	< 0.03	19.2	< 1	79.9	1.1	17.1	< 0.5	87.5	< 0.01
[redacted]	36.5	53.4	1.07	2.67	< 0.05	5.82	290	0.2	646	0.4	1.58	185	7	4.7	< 0.03	32.4	< 1	38.2	0.7	122	< 0.5	21.7	0.01
[redacted]	21.6	135	2.31	7.64	< 0.05	15.4	285	0.3	1180	9.9	6.23	986	5	2.2	786	2980	< 1	3.6	2.3	275	< 0.5	53.3	0.01
[redacted]	79.1	73.4	2.67	5.67	0.06	3.33	2	0.1	1160	276	0.91	4850	13	12.2	< 0.03	10.2	< 1	63.2	2.8	274	< 0.5	926	0.02
[redacted]	46.0	7.62	0.55	3.11	0.07	1.31	280	0.2	52.9	15.5	0.51	15400	12	5.9	< 0.03	48.9	< 1	51.1	1.0	12.0	< 0.5	147	< 0.01
[redacted]	59.9	14.4	0.30	2.18	0.06	2.08	211	0.2	109	3.5	0.67	2030	9	3.7	< 0.03	19.6	< 1	41.3	0.7	23.9	< 0.5	63.8	0.01
[redacted]	30.5	22.5	0.32	3.78	0.07	3.18	425	0.3	182	5.1	1.05	190	11	4.6	< 0.03	29.5	< 1	38.0	1.3	39.1	< 0.5	48.4	0.01
[redacted]	14.5	9.12	0.14	2.00	0.05	1.32	188	0.1	72.1	1.6	0.48	210	8	3.2	< 0.03	4.0	< 1	17.1	0.7	15.6	< 0.5	26.7	< 0.01
[redacted]	129	15.7	0.44	2.42	< 0.05	2.29	289	0.3	159	6.7	0.79	228	10	15.2	< 0.03	29.4	< 1	128	0.7	28.4	< 0.5	52.0	0.02
[redacted]	15.8	13.2	0.27	1.67	< 0.05	2.58	292	< 0.1	53.0	5.4	0.99	105	4	0.6	< 0.03	39.8	< 1	3.6	0.6	13.3	< 0.5	38.7	< 0.01
[redacted]	113	18.1	0.65	2.52	0.11	2.50	177	0.4	196	20.3	0.88	468	11	21.8	< 0.03	74.4	< 1	139	0.9	34.8	< 0.5	131	< 0.01
[redacted]	146	27.7	1.85	2.93	0.07	3.80	220	0.5	210	66.8	1.62	6080	18	11.7	< 0.03	508	< 1	130	0.9	48.5	< 0.5	179	0.01
[redacted]	125	56.5	1.48	4.07	< 0.05	6.27	114	0.3	579	53.0	2.47	3150	7	22.5	< 0.03	145	< 1	85.3	1.3	130	< 0.5	92.3	< 0.01
[redacted]	19.2	10.2	0.22	3.55	< 0.05	2.31	4	< 0.1	21.6	20.5	0.86	554	3560	1.7	16.5	56.2	< 1	58.2	4.5	7.07	< 0.5	344	0.03
[redacted]	176	46.6	1.99	4.40	< 0.05	5.28	129	0.3	473	61.5	2.23	4570	16	34.0	< 0.03	150	< 1	113	1.5	113	< 0.5	121	< 0.01
[redacted]	78.8	59.0	1.16	4.80	< 0.05	6.67	274	0.3	615	40.9	2.90	1090	9	7.6	< 0.03	119	< 1	17.4	1.3	134	< 0.5	52.8	0.01

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Ga	Gd	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	Os	Pb	Pd	Pr	Pt	Rb	Re
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
E832033	60.9	59.8	1.08	2.97	0.07	7.22	420	0.3	595	4.1	1.94	232	8	4.6	< 0.03	23.1	< 1	58.9	0.9	120	< 0.5	63.6	0.02
GXR-1 Meas																							
GXR-1 Cert																							
GXR-1 Meas																							
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GXR-4 Meas																							
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GXR-6 Meas																							
GXR-6 Cert																							
GXR-6 Meas																							
GXR-6 Cert																							
TILL-1 Meas				4.06	0.13				1010	< 0.2	9.43	53000	15	5.8	1760	53.5		183				43.3	
TILL-1 Cert				13000	90.0				28000	15000	600.0	1420000	2000	10000	26000	24000		22000				44000	
TILL-1 Meas				4.14	0.09				989	1.0	9.38	51100	15	5.5	1730	52.8		174				42.8	
TILL-1 Cert				13000	90.0				28000	15000	600.0	1420000	2000	10000	26000	24000		22000				44000	
TILL-2 Meas				13.6	0.17				853	24.3	8.70	16900	124	23.8	161	81.0		373				224	
TILL-2 Cert				11000	70.0				44000	47000	600.0	780000	14000	20000	36000	32000		31000				143000	
TILL-2 Meas				14.4	0.16				857	21.2	8.79	16200	136	23.7	164	84.9		364				224	
TILL-2 Cert				11000	70.0				44000	47000	600.0	780000	14000	20000	36000	32000		31000				143000	

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Ga	Gd	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	Os	Pb	Pd	Pr	Pt	Rb	Re
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
BL-4a Meas																							
BL-4a Cert																							
BL-4a Meas																							
BL-4a Cert																							
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OREAS 45d (Aqua Regia) Meas																							
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OREAS 45d (Aqua Regia) Cert																							
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
SdAR-M2 (U.S.G.S.) Meas																							
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SdAR-M2 (U.S.G.S.) Cert																							
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
E832003 Orig	37.5	18.6	0.38	1.05	< 0.05	1.99	155	< 0.1	183	< 0.2	0.61	159	9	2.4	< 0.03	< 0.2	< 1	24.6	< 0.5	39.8	< 0.5	91.9	< 0.01
E832003 Dup	34.5	17.2	0.36	1.04	< 0.05	1.93	146	< 0.1	173	< 0.2	0.57	150	9	2.1	< 0.03	< 0.2	< 1	27.1	< 0.5	38.0	< 0.5	90.2	0.02
[redacted]																							

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS
SAMPLE	Ga	Gd	Ge	Hf	Hg	Ho	I	In	La	Li	Lu	Mn	Mo	Nb	Nd	Ni	Os	Pb	Pd	Pr	Pt	Rb	Re
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
[redacted]																							
[redacted]																							
[redacted]	228	139	4.76	11.0	< 0.05	13.5	106	0.7	1220	36.1	3.73	10500	11	30.6	< 0.03	528	< 1	225	3.3	312	< 0.5	104	0.03
[redacted]	227	135	4.31	11.0	< 0.05	12.9	110	0.7	1180	34.9	3.56	10200	10	30.8	< 0.03	527	< 1	217	3.1	294	< 0.5	102	0.01
[redacted]	46.0	7.62	0.55	3.11	0.07	1.31	280	0.2	52.9	15.5	0.51	15400	12	5.9	< 0.03	48.9	< 1	51.1	1.0	12.0	< 0.5	147	< 0.01
[redacted]	45.8	7.49	0.63	3.09	0.05	1.29	289	0.2	51.5	14.6	0.48	15800	12	6.0	< 0.03	47.0	< 1	48.6	0.9	11.6	< 0.5	148	< 0.01
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank	0.2	< 0.03	< 0.05	< 0.04	< 0.05	< 0.01	< 1	< 0.1	< 0.01	< 0.2	0.01	< 0.1	< 2	< 0.2	< 0.03	< 0.2	< 1	< 0.1	< 0.5	0.01	< 0.5	< 0.1	< 0.01
Method Blank	0.1	0.10	< 0.05	< 0.04	< 0.05	< 0.01	< 1	< 0.1	< 0.01	< 0.2	0.09	< 0.1	< 2	< 0.2	< 0.03	< 0.2	< 1	< 0.1	< 0.5	0.04	< 0.5	< 0.1	0.02

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Ru	Sb	Sc	Se	Sm	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Ti	S	P	Li
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	%	%	%	ppm
E832001	< 0.05	1.2	53.0	9	73.1	488	1.08	6.74	< 1	137	0.5	1.70	200	133	6.87	205	11.5	814	59.6	0.114	< 1	0.048	30.4
E832002	< 0.05	1.9	89.6	24	176	595	1.99	15.9	< 1	447	0.7	4.07	303	242	4.28	360	25.6	2680	109	0.157	< 1	0.072	46.7
E832003	< 0.05	1.5	38.6	7	24.0	80.3	0.24	2.55	< 1	31.9	0.9	0.65	27.9	69	4.18	57.2	3.99	< 2	25.3	0.092	< 1	0.060	17.5
E832004	< 0.05	1.6	45.3	18	19.0	61.8	0.19	2.29	< 1	24.1	1.0	0.60	25.0	125	8.51	53.3	3.88	< 2	29.6	0.093	< 1	0.061	18.8
E832005	< 0.05	1.8	59.0	24	28.8	73.7	0.12	3.14	< 1	15.2	1.0	0.77	35.2	161	22.1	73.8	5.01	< 2	22.0	0.085	< 1	0.059	16.7
E832006	< 0.05	1.5	51.0	9	98.8	523	2.84	8.88	< 1	221	1.4	2.33	144	350	7.17	179	15.0	324	117	0.215	< 1	0.035	53.6
[redacted]	< 0.05	0.8	36.6	13	26.7	276	1.77	3.58	< 1	24.6	0.4	0.90	23.7	153	17.5	77.8	5.31	177	55.7	0.101	< 1	0.021	7.8
[redacted]	< 0.05	1.1	47.7	14	21.4	367	1.60	3.01	< 1	33.6	0.3	0.81	16.5	221	10.2	66.2	4.82	260	67.7	0.085	< 1	0.017	6.6
[redacted]	< 0.05	4.8	85.9	43	114	233	0.29	11.5	< 1	112	2.2	3.81	93.0	348	10.3	348	27.1	124	99.0	0.185	< 1	0.027	56.8
[redacted]	< 0.05	23.3	19.8	< 1	9.39	1480	0.10	1.90	< 1	3.22	6.5	0.88	2.20	233	5.45	70.6	5.48	78	139	0.257	< 1	0.043	1.6
[redacted]	< 0.05	1.6	94.9	< 1	91.8	689	3.05	10.0	< 1	253	1.3	2.29	120	649	2.68	229	13.9	625	117	0.145	< 1	0.035	21.8
[redacted]	< 0.05	0.6	142	17	176	898	2.24	18.1	< 1	463	1.2	4.37	82.6	1330	3.32	393	27.3	267	301	0.122	< 1	0.040	23.5
[redacted]	< 0.05	1.0	137	8	150	976	2.20	16.4	< 1	472	1.1	3.86	84.5	855	2.83	339	23.4	600	308	0.192	< 1	0.044	36.5
[redacted]	< 0.05	0.2	56.8	< 1	56.2	636	2.16	6.28	< 1	194	0.6	2.07	38.3	363	1.84	148	13.4	503	102	0.123	< 1	0.020	21.5
[redacted]	< 0.05	3.6	64.9	6	43.1	512	2.32	5.24	< 1	108	1.3	1.65	70.2	659	2.16	128	10.3	21	87.7	0.171	< 1	0.027	78.6
[redacted]	< 0.05	1.7	37.1	3	18.2	167	1.83	2.55	< 1	45.7	0.9	0.81	30.1	252	2.86	62.5	4.48	100	49.5	0.196	< 1	0.011	72.4
[redacted]	< 0.05	3.4	51.4	10	13.9	68.4	0.76	2.36	< 1	56.2	0.7	0.76	26.6	176	0.60	58.1	4.81	13	94.3	0.117	< 1	0.018	17.5
[redacted]	< 0.05	1.2	83.2	21	65.5	62.0	0.51	7.43	< 1	88.6	1.3	1.93	57.7	130	1.87	170	11.9	< 2	68.8	0.140	< 1	0.049	31.8
[redacted]	< 0.05	6.5	202	27	174	808	0.26	18.2	< 1	152	2.8	5.80	181	92	5.31	641	40.8	< 2	200	0.071	< 1	0.041	30.1
[redacted]	< 0.05	15.0	35.3	5	110	1250	0.47	6.68	< 1	380	9.3	0.95	62.5	148	197	92.6	6.05	548	246	0.135	< 1	0.073	17.6
[redacted]	< 0.05	2.6	42.4	27	9.31	153	0.38	1.34	< 1	47.5	1.6	0.48	39.7	206	5.24	34.6	3.32	< 2	87.7	0.125	< 1	0.045	30.3
[redacted]	< 0.05	1.7	53.8	11	17.0	108	0.32	2.30	< 1	32.9	1.1	0.72	28.0	110	3.36	57.3	4.61	< 2	58.4	0.100	< 1	0.046	18.7
[redacted]	< 0.05	1.7	72.6	19	27.3	48.0	0.46	3.68	< 1	71.4	0.9	1.09	49.1	134	4.62	81.5	7.02	< 2	95.9	0.145	< 1	0.025	33.5
[redacted]	< 0.05	1.7	37.3	3	11.2	26.4	0.31	1.47	< 1	53.5	0.6	0.48	17.7	46	5.79	33.5	2.99	< 2	51.9	0.070	< 1	0.038	12.0

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Ru	Sb	Sc	Se	Sm	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Ti	S	P	Li
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	%	%	%	ppm
[redacted]	< 0.05	4.4	42.1	12	18.1	61.6	1.86	2.55	< 1	54.1	0.7	0.75	40.5	296	2.57	60.2	4.66	115	68.5	0.128	< 1	0.025	16.5
[redacted]	< 0.05	0.5	117	15	13.2	7.4	0.03	2.41	< 1	9.44	2.0	0.99	12.3	227	25.9	77.7	6.50	< 2	52.6	0.264	< 1	0.016	22.7
[redacted]	< 0.05	1.4	45.2	15	21.1	158	1.81	2.84	< 1	74.0	1.0	0.82	33.2	629	7.75	67.7	5.08	< 2	76.8	0.111	< 1	0.015	10.9
[redacted]	< 0.05	6.8	50.0	5	33.1	438	0.65	4.05	< 1	69.1	1.4	1.46	67.7	581	3.76	109	9.48	103	83.2	0.222	< 1	0.021	82.2
[redacted]	< 0.05	1.3	77.1	2	74.5	976	2.23	7.48	< 1	176	1.0	2.45	49.0	404	3.37	180	16.3	140	105	0.153	< 1	0.023	27.9
[redacted]	< 0.05	27.7	20.0	< 1	9.47	1580	0.09	1.88	< 1	3.36	6.7	0.91	2.34	256	5.76	73.1	5.38	130	139	0.223	< 1	0.035	1.3
[redacted]	< 0.05	< 0.2	74.6	< 1	62.3	973	3.14	6.24	< 1	163	1.1	2.17	38.4	624	4.49	146	14.7	181	122	0.161	< 1	0.028	27.0
[redacted]	< 0.05	1.3	81.1	9	74.2	657	0.61	7.75	< 1	161	2.0	2.44	112	159	2.89	205	16.2	21	130	0.132	< 1	0.024	43.2
[redacted]	< 0.05	1.2	91.8	20	75.5	234	0.46	8.92	< 1	71.0	1.8	2.35	63.3	85	3.09	202	14.2	< 2	72.6	0.140	< 1	0.031	27.1
GXR-1 Meas																				0.005	< 1	0.041	3.7
GXR-1 Cert																				0.036	0.257	0.0650	8.20
GXR-1 Meas																				0.005	< 1	0.049	4.4
GXR-1 Cert																				0.036	0.257	0.0650	8.20
GXR-1 Meas																				0.005	< 1	0.039	3.8
GXR-1 Cert																				0.036	0.257	0.0650	8.20
GXR-1 Meas																				0.005	< 1	0.048	4.2
GXR-1 Cert																				0.036	0.257	0.0650	8.20
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas																				0.126	2	0.153	8.4
GXR-4 Cert																				0.29	1.77	0.120	11.1
GXR-4 Meas																				0.108	2	0.121	6.8
GXR-4 Cert																				0.29	1.77	0.120	11.1
GXR-4 Meas																				0.134	2	0.149	8.4
GXR-4 Cert																				0.29	1.77	0.120	11.1
GXR-6 Meas																					< 1	0.038	23.0
GXR-6 Cert																					0.0160	0.0350	32.0
GXR-6 Meas																					< 1	0.045	24.6
GXR-6 Cert																					0.0160	0.0350	32.0
GXR-6 Meas																					< 1	0.042	23.0
GXR-6 Cert																					0.0160	0.0350	32.0
GXR-6 Meas																					< 1	0.039	23.1
GXR-6 Cert																					0.0160	0.0350	32.0
TILL-1 Meas		113	329		294	519	0.50	36.8		106			86.5	303		914	69.6	698	61.3				
TILL-1 Cert		7800.0	13000		5900.0	291000	700.0	1100.0		5600.0			2200.0	99000		38000	3900.0	98000	502000				
TILL-1 Meas		112	329		294	515	0.53	36.5		104			84.3	295		899	68.6	779	61.4				

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Ru	Sb	Sc	Se	Sm	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Ti	S	P	Li
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	%	%	%	ppm
TILL-1 Cert		7800.0	13000		5900.0	291000	700.0	1100.0		5600.0			2200.0	99000		38000	3900.0	98000	502000				
TILL-2 Meas		8.1	208		193	681	1.59	31.1		286			264	372	74.7	808	64.1	657	336				
TILL-2 Cert		800.0	12000		7400.0	144000	1900.0	1200.0		18400.0			5700.0	77000	5000	40000	3700.0	130000	390000				
TILL-2 Meas		8.4	211		194	674	1.64	31.6		291			282	373	78.7	829	65.6	689	349				
TILL-2 Cert		800.0	12000		7400.0	144000	1900.0	1200.0		18400.0			5700.0	77000	5000	40000	3700.0	130000	390000				
BL-4a Meas																							
BL-4a Cert																							
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DL-1a Meas																							
DL-1a Cert																							
DL-1a Meas																							
DL-1a Cert																							
OREAS 45d (Aqua Regia) Meas																					< 1	0.026	10.5
OREAS 45d (Aqua Regia) Cert																					0.045	0.035	11.9
OREAS 45d (Aqua Regia) Meas																					< 1	0.039	15.4
OREAS 45d (Aqua Regia) Cert																					0.045	0.035	11.9
SdAR-M2 (U.S.G.S.) Meas																							9.2
SdAR-M2 (U.S.G.S.) Cert																							18
SdAR-M2 (U.S.G.S.) Meas																							9.9
SdAR-M2 (U.S.G.S.) Cert																							18
SdAR-M2 (U.S.G.S.) Meas																							11.4
SdAR-M2 (U.S.G.S.) Cert																							17.9

	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	Bioleach-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Ru	Sb	Sc	Se	Sm	Sr	Ta	Tb	Te	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Ti	S	P	Li
DESCRIPTION	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	%	%	%	ppm
SdAR-M2 (U.S.G.S.) Meas																							11.6
SdAR-M2 (U.S.G.S.) Cert																							17.9
E832003 Orig	< 0.05	1.5	38.6	7	24.0	80.3	0.24	2.55	< 1	31.9	0.9	0.65	27.9	69	4.18	57.2	3.99	< 2	25.3				
E832003 Dup	< 0.05	0.5	37.0	7	22.3	74.1	0.23	2.42	< 1	30.3	0.9	0.62	26.7	69	3.99	53.5	3.73	23	24.8				
[redacted]																				0.101	< 1	0.021	7.8
[redacted]																				0.094	< 1	0.021	7.4
[redacted]																				0.185	< 1	0.027	56.8
[redacted]																				0.169	< 1	0.025	56.5
[redacted]	< 0.05	0.6	142	17	176	898	2.24	18.1	< 1	463	1.2	4.37	82.6	1330	3.32	393	27.3	267	301				
[redacted]	< 0.05	0.7	139	15	169	879	2.24	17.4	< 1	441	1.1	4.25	78.5	1290	3.06	386	26.9	319	300				
[redacted]	< 0.05	2.6	42.4	27	9.31	153	0.38	1.34	< 1	47.5	1.6	0.48	39.7	206	5.24	34.6	3.32	< 2	87.7				
[redacted]	< 0.05	1.7	43.0	26	9.14	153	0.38	1.30	< 1	45.5	1.6	0.50	37.6	203	4.71	35.7	3.17	91	89.5				
Method Blank																				< 0.001	< 1	0.001	< 0.1
Method Blank																				< 0.001	< 1	0.001	< 0.1
Method Blank																				< 0.001	< 1	0.001	0.1
Method Blank																				< 0.001	< 1	0.001	< 0.1
Method Blank																							
Method Blank																							
Method Blank	< 0.05	< 0.2	< 0.5	< 1	< 0.03	0.5	< 0.01	< 0.01	< 1	0.04	< 0.2	< 0.01	0.02	< 1	< 0.01	< 0.02	< 0.02	< 2	< 0.5				
Method Blank	< 0.05	< 0.2	< 0.5	< 1	< 0.03	0.5	< 0.01	< 0.01	2	0.18	< 0.2	0.01	0.03	2	< 0.01	< 0.02	0.03	< 2	< 0.5				

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Sr	Y		
DESCRIPTION	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm		
E832001	0.1	4	0.028	0.45	0.89	0.15	0.23	1.15	1.6	50	29	301	2.74	7.1	13.2	13.8	49.1	5.38	< 0.1	6.1	31.5	18.2	6.56		
E832002	0.2	5	0.031	0.61	1.34	0.19	0.29	1.00	3.0	59	42	593	3.35	11.2	27.3	28.6	98.6	7.30	< 0.1	9.3	43.2	19.1	8.84		
E832003	0.3	5	0.024	0.19	1.74	0.06	0.12	0.15	1.5	36	26	90	1.81	4.7	12.8	9.59	19.3	5.36	< 0.1	0.5	9.3	8.8	3.35		
E832004	0.4	4	0.031	0.22	1.95	0.05	0.19	0.20	2.1	30	28	110	1.67	4.7	13.1	17.4	20.3	4.04	< 0.1	0.4	6.3	9.5	3.85		
E832005	0.4	4	0.036	0.19	2.11	0.06	0.18	0.15	1.9	28	29	90	1.65	4.5	11.7	13.1	19.1	3.89	< 0.1	1.0	5.9	8.7	3.27		
E832006	0.2	6	0.029	0.43	1.69	0.13	0.57	0.56	2.8	60	47	237	3.02	18.1	108	28.9	69.2	9.80	< 0.1	7.6	15.6	15.3	5.36		
[redacted]	0.2	3	0.025	0.17	1.06	0.05	0.11	0.19	1.4	42	31	76	1.34	2.8	11.0	3.05	12.4	6.44	< 0.1	0.5	10.0	9.2	2.63		
[redacted]	0.1	3	0.023	0.12	0.94	0.05	0.09	0.20	1.3	31	23	65	0.99	2.0	7.0	3.03	10.9	5.74	< 0.1	0.1	8.8	10.0	2.14		
[redacted]	0.5	3	0.059	0.63	1.93	0.11	0.53	0.41	4.3	121	113	397	6.13	18.9	281	259	49.5	7.61	< 0.1	82.6	26.2	12.3	8.83		
[redacted]	0.1	4	0.262	0.21	1.02	0.09	1.36	1.00	1.6	44	21	188	1.58	6.9	20.7	36.9	30.0	3.54	< 0.1	7.8	9.2	34.0	9.47		
[redacted]	0.1	5	0.029	0.40	0.90	0.11	0.11	0.49	2.3	45	38	260	2.19	7.5	22.7	8.40	39.7	5.64	< 0.1	0.2	20.3	12.6	4.00		
[redacted]	0.2	5	0.029	0.51	1.16	0.10	0.15	0.41	2.8	46	70	219	2.38	8.7	46.4	12.7	34.7	5.53	< 0.1	0.9	18.1	10.8	4.32		
[redacted]	0.2	5	0.039	0.61	1.41	0.14	0.19	0.56	4.7	56	45	275	2.40	11.7	37.2	21.0	47.6	8.37	< 0.1	0.3	21.7	14.3	6.17		
[redacted]	< 0.1	4	0.026	0.26	0.84	0.06	0.11	0.30	1.3	33	31	135	1.32	5.3	22.3	6.83	19.9	4.66	< 0.1	< 0.1	9.3	10.8	3.20		
[redacted]	0.2	4	0.029	0.91	1.74	0.06	0.18	0.26	3.9	66	57	223	2.87	13.4	49.6	24.1	33.8	8.02	< 0.1	0.2	8.6	8.3	3.53		
[redacted]	0.1	5	0.024	1.17	1.64	0.16	0.57	0.08	3.2	78	85	143	2.09	10.4	62.1	10.1	27.5	9.73	< 0.1	0.3	8.5	5.2	1.44		
[redacted]	0.1	3	0.018	0.19	1.37	0.05	0.21	0.09	1.5	45	30	93	1.76	3.6	10.9	9.13	19.4	8.09	< 0.1	1.7	10.4	6.0	2.07		
[redacted]																									

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Sr	Y
DESCRIPTION	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
[redacted]	0.4	6	0.037	0.41	2.48	0.07	0.20	0.26	3.6	52	55	160	2.60	11.2	37.1	23.6	23.5	6.76	< 0.1	3.1	10.1	9.0	5.18
[redacted]	0.2	4	0.031	2.82	2.39	0.05	0.04	0.80	2.8	84	1540	237	5.72	49.0	599	149	28.5	6.25	< 0.1	9.8	4.8	16.8	8.11
[redacted]	< 0.1	2	0.162	0.27	0.87	0.69	< 0.02	0.30	3.5	27	25	347	2.80	9.3	6.9	15.9	54.5	4.85	< 0.1	< 0.1	52.4	17.4	8.78
[redacted]	0.3	4	0.022	0.63	1.72	0.06	0.24	0.16	1.6	52	58	2310	4.72	17.9	23.2	13.4	40.7	7.53	< 0.1	25.3	18.4	7.5	1.94
[redacted]	0.3	4	0.036	0.31	1.38	0.07	0.16	0.24	2.1	33	43	153	1.80	9.7	37.4	20.5	17.1	3.60	< 0.1	12.7	10.5	9.7	3.89
[redacted]	0.3	4	0.031	0.40	2.02	0.08	0.30	0.16	3.0	61	68	158	2.72	8.2	30.4	21.5	23.3	7.52	< 0.1	15.1	16.1	8.4	3.43
[redacted]	0.3	3	0.032	0.23	1.07	0.03	0.13	0.23	1.7	22	40	92	1.47	5.9	26.7	17.7	9.1	2.21	< 0.1	8.2	3.5	7.9	3.95
[redacted]	0.2	3	0.024	0.27	1.56	0.05	0.16	0.16	1.9	45	38	105	1.65	4.4	17.8	14.2	15.7	6.51	< 0.1	3.3	6.4	6.3	3.02
[redacted]	0.2	2	0.032	1.18	2.61	0.13	0.05	0.17	7.9	174	171	315	5.44	35.0	137	147	57.9	8.96	< 0.1	124	17.3	1.0	3.32
[redacted]	0.1	3	0.027	0.24	0.69	0.05	0.12	0.16	1.2	41	37	109	1.70	4.4	17.6	10.9	11.9	4.62	< 0.1	4.6	8.5	7.3	2.31
[redacted]	0.5	5	0.029	1.40	3.06	0.08	0.21	0.43	8.2	103	296	729	4.24	34.2	214	95.7	156	11.6	< 0.1	41.4	15.7	10.3	3.30
[redacted]	0.1	3	0.029	0.42	0.90	0.07	0.12	0.33	2.0	43	29	184	1.89	7.0	20.1	9.44	27.0	5.12	< 0.1	< 0.1	19.4	11.9	3.77
[redacted]	0.1	3	0.230	0.18	0.87	0.07	0.88	0.86	1.5	37	17	158	1.34	5.8	18.3	32.3	25.0	2.93	< 0.1	7.4	8.1	30.0	8.37
[redacted]	0.1	4	0.031	0.39	0.89	0.08	0.13	0.31	1.9	52	39	206	2.34	7.7	22.7	9.51	25.0	5.56	< 0.1	0.9	18.7	12.0	4.41
[redacted]	0.2	5	0.028	0.36	1.09	0.09	0.13	0.40	1.8	44	36	184	2.21	8.1	39.9	14.9	29.8	4.75	< 0.1	0.9	17.1	11.6	4.63
[redacted]	0.4	4	0.025	0.33	2.13	0.07	0.16	0.16	2.9	49	46	140	2.71	10.1	41.8	20.8	25.3	6.19	< 0.1	1.1	13.7	10.0	4.28
GXR-1 Meas	0.6	11	0.043	0.12	0.27	0.03	1410	0.77	0.6	74	11	871	22.4	7.9	42.3	1090	742	3.92		398	2.0	171	26.6
GXR-1 Cert	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8		427	14.0	275	32.0
GXR-1 Meas	0.6	13	0.050	0.12	0.33	0.03	1490	0.82	0.9	79	9	945	23.5	8.2	44.8	1110	796	4.28		420	2.2	192	28.8
GXR-1 Cert	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8		427	14.0	275	32.0
GXR-1 Meas	0.6	12	0.044	0.11	0.28	0.03	1330	0.72	0.5	68	8	740	20.1	7.2	37.9	975	649	3.32		365	1.9	151	23.8
GXR-1 Cert	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8		427	14.0	275	32.0
GXR-1 Meas	0.7	14	0.051	0.13	0.33	0.03	1480	0.82	0.6	75	8	886	22.5	7.8	40.0	1070	709	3.18		405	2.1	179	28.3
GXR-1 Cert	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8		427	14.0	275	32.0
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	1.4	5	0.163	1.61	2.78	1.79	19.3	0.86	7.8	89	62	148	3.05	15.0	45.5	6390	70.2	11.3		104	88.3	66.3	12.3
GXR-4 Cert	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0		98.0	160	221	14.0
GXR-4 Meas	1.2	4	0.129	1.27	2.25	1.40	16.6	0.71	6.2	70	50	120	2.51	12.9	38.4	5380	60.0	9.90		87.9	77.0	56.7	10.3
GXR-4 Cert	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0		98.0	160	221	14.0
GXR-4 Meas	1.4	5	0.155	1.55	2.76	1.77	19.2	0.86	7.8	86	62	154	2.95	14.8	43.6	6240	68.1	11.8		104	92.7	68.3	12.6
GXR-4 Cert	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0		98.0	160	221	14.0
GXR-6 Meas	0.9	6	0.094	0.36	7.25	1.14	0.16	0.14	28.9	183	88	1140	5.63	14.8	28.0	71.5	127	11.3		250	64.3	30.4	7.12
GXR-6 Cert	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0		330	90.0	35.0	14.0
GXR-6 Meas	0.8	9	0.091	0.40	7.69	1.27	0.17	0.14	29.2	182	85	1170	5.58	14.8	28.9	68.7	131	13.7		251	65.9	30.8	7.15
GXR-6 Cert	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0		330	90.0	35.0	14.0
GXR-6 Meas	0.8	6	0.086	0.39	7.31	1.22	0.16	0.14	28.8	174	83	1060	5.41	14.1	26.6	67.1	122	13.4		242	59.5	28.9	6.41

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Sr	Y
DESCRIPTION	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GXR-6 Cert	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0		330	90.0	35.0	14.0
GXR-6 Meas	0.8	6	0.084	0.37	6.82	1.13	0.16	0.14	27.2	168	78	1080	5.56	14.5	26.8	69.1	116	13.4		237	59.1	28.1	6.54
GXR-6 Cert	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0		330	90.0	35.0	14.0
TILL-1 Meas																							
TILL-1 Cert																							
TILL-1 Meas																							
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DL-1a Meas																							
DL-1a Cert																							
OREAS 45d (Aqua Regia) Meas			0.034	0.12	4.14	0.08	0.19	0.07	38.5	151	373	330	10.1	21.4	173	268	26.3	13.8		3.1	18.2	9.6	3.69
OREAS 45d (Aqua Regia) Cert			0.031	0.144	4.860	0.097	0.30	0.09	41.50	201.0	467	400.000	13.650	26.2	176.0	345.0	30.6	17.9		6.50	20.9	11.0	5.08
OREAS 45d (Aqua Regia) Meas			0.046	0.17	5.64	0.13	0.27	0.09	50.1	214	511	452	13.9	30.1	240	346	34.9	18.2		3.4	24.0	11.7	5.03
OREAS 45d (Aqua Regia) Cert			0.031	0.144	4.860	0.097	0.30	0.09	41.50	201.0	467	400.000	13.650	26.2	176.0	345.0	30.6	17.9		6.50	20.9	11.0	5.08
SdAR-M2 (U.S.G.S.) Meas	3.7						0.86		1.5	16	9			11.5	44.7	216	681	2.87			15.7	16.5	15.3
SdAR-M2 (U.S.G.S.) Cert	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6			149	144	32.7
SdAR-M2 (U.S.G.S.) Meas	3.4						0.84		1.5	15	8			11.3	45.3	194	664	2.83			15.5	15.8	14.5
SdAR-M2 (U.S.G.S.) Cert	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6			149	144	32.7

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Sr	Y
DESCRIPTION	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SdAR-M2 (U.S.G.S.) Meas	4.0						1.02		2.1	18	10			13.0	51.3	242	766	3.39			18.0	18.7	16.7
SdAR-M2 (U.S.G.S.) Cert	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6			149	144	32.7
SdAR-M2 (U.S.G.S.) Meas	4.4						1.07		2.2	19	11			14.0	54.8	248	797	3.78			19.4	20.2	18.1
SdAR-M2 (U.S.G.S.) Cert	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6			149	144	32.7
E832003 Orig																							
E832003 Dup																							
[redacted]	0.2	3	0.025	0.17	1.06	0.05	0.11	0.19	1.4	42	31	76	1.34	2.8	11.0	3.05	12.4	6.44	< 0.1	0.5	10.0	9.2	2.63
	0.2	3	0.023	0.15	1.04	0.05	0.10	0.19	0.9	39	27	71	1.27	2.6	10.1	2.76	11.2	6.03	< 0.1	0.4	9.3	8.7	2.27
	0.5	3	0.059	0.63	1.93	0.11	0.53	0.41	4.3	121	113	397	6.13	18.9	281	259	49.5	7.61	< 0.1	82.6	26.2	12.3	8.83
	0.5	3	0.052	0.60	1.78	0.11	0.52	0.42	4.2	108	99	368	5.35	17.6	264	244	47.4	7.00	< 0.1	79.0	25.7	12.0	7.98
Method Blank	< 0.1	1	0.013	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	1	1	< 1	< 0.01	< 0.1	< 0.1	0.06	< 0.1	0.16	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01
Method Blank	< 0.1	1	0.012	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	1	< 1	< 1	< 0.01	< 0.1	< 0.1	1.21	< 0.1	0.13	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01
Method Blank	< 0.1	1	0.012	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	1	1	< 1	< 0.01	< 0.1	< 0.1	0.07	< 0.1	0.14	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01
Method Blank	< 0.1	1	0.010	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	1	1	< 1	< 0.01	< 0.1	< 0.1	0.52	< 0.1	0.14	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01
Method Blank																							
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	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu	Gd	Tb	Dy	Ho	Er
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
E832001	2.8	3.6	0.34	0.072	< 0.02	0.87	< 0.02	< 0.02	2.31	49.5	20.1	42.9	0.07	3.6	14.0	2.0	< 0.1	0.4	1.8	0.2	1.1	0.2	0.6
E832002	3.1	4.1	0.52	0.152	< 0.02	1.03	< 0.02	< 0.02	3.19	66.5	26.8	56.6	0.35	5.2	19.9	2.8	0.1	0.5	2.5	0.3	1.6	0.3	0.8
E832003	4.7	2.8	0.26	0.038	< 0.02	0.64	< 0.02	< 0.02	1.15	33.5	7.9	17.4	0.01	1.7	7.07	1.1	< 0.1	0.3	1.0	0.1	0.7	0.1	0.3
E832004	7.2	2.7	0.21	0.053	< 0.02	0.69	< 0.02	< 0.02	0.96	37.0	10.9	22.1	0.04	2.0	7.89	1.2	< 0.1	0.3	1.0	0.2	0.8	0.2	0.4
E832005	8.0	2.3	0.29	0.108	< 0.02	0.70	< 0.02	< 0.02	0.90	29.4	8.8	18.9	0.04	1.6	6.68	1.1	< 0.1	0.3	1.0	0.1	0.7	0.1	0.3
E832006	4.3	5.6	0.38	0.195	< 0.02	1.49	0.03	0.03	4.52	62.2	16.6	41.5	0.05	3.6	14.2	2.1	< 0.1	0.4	1.7	0.2	1.1	0.2	0.6
E832007	3.2	3.1	0.26	0.089	< 0.02	0.62	< 0.02	< 0.02	0.93	22.9	9.0	17.4	0.03	1.9	7.44	1.2	< 0.1	0.2	0.9	0.1	0.5	0.1	0.3
E832008	2.8	2.5	0.31	0.037	< 0.02	0.70	< 0.02	< 0.02	0.97	22.6	5.5	11.1	< 0.01	1.2	4.70	0.8	< 0.1	0.2	0.7	< 0.1	0.4	< 0.1	0.2
E832009	12.6	1.9	0.49	0.033	< 0.02	0.76	0.28	0.04	4.19	86.0	36.9	73.7	0.42	7.8	30.1	4.2	0.7	0.7	3.1	0.3	1.7	0.3	0.8
E832010	23.0	0.1	5.03	1.28	< 0.02	0.83	2.35	< 0.02	0.58	42.0	3.5	8.88	0.04	1.1	5.72	1.5	< 0.1	0.3	2.0	0.3	1.7	0.4	0.9
E832011	3.7	3.0	0.52	0.049	< 0.02	0.89	< 0.02	< 0.02	2.18	53.1	14.9	29.9	0.05	2.8	11.0	1.6	< 0.1	0.3	1.3	0.2	0.8	0.2	0.4
E832012	2.9	2.3	0.32	0.039	< 0.02	0.77	< 0.02	< 0.02	1.59	54.5	13.3	28.4	0.01	2.6	10.4	1.6	< 0.1	0.3	1.4	0.2	0.8	0.2	0.4
E832013	2.7	3.2	0.61	0.056	0.02	1.31	< 0.02	0.02	2.43	69.4	13.0	28.9	0.05	2.9	12.8	2.2	< 0.1	0.4	2.0	0.2	1.2	0.2	0.6
E832014	3.1	2.2	0.22	0.031	< 0.02	0.75	< 0.02	< 0.02	1.52	37.7	10.5	21.2	< 0.01	2.1	8.46	1.3	< 0.1	0.2	1.0	0.1	0.6	0.1	0.3

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu	Gd	Tb	Dy	Ho	Er	
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
[redacted]	7.8	2.9	0.47	0.031	< 0.02	1.04	< 0.02	< 0.02	3.07	34.6	11.0	22.1	< 0.01	2.2	8.47	1.3	< 0.1	0.3	1.2	0.1	0.7	0.1	0.3	
[redacted]	12.4	2.0	0.43	0.009	< 0.02	0.72	< 0.02	< 0.02	4.88	39.1	4.3	8.00	< 0.01	0.8	3.14	0.5	< 0.1	0.1	0.5	< 0.1	0.3	< 0.1	0.1	
[redacted]	4.5	2.4	0.54	0.041	< 0.02	0.94	0.04	< 0.02	1.51	32.1	7.6	15.7	0.02	1.5	5.95	1.1	< 0.1	0.2	0.9	< 0.1	0.4	< 0.1	0.2	
[redacted]	7.6	3.5	0.35	0.043	< 0.02	3.20	< 0.02	< 0.02	1.55	43.8	15.4	30.6	< 0.01	2.9	11.4	1.9	< 0.1	0.4	1.5	0.2	1.0	0.2	0.5	
[redacted]	1.0	0.5	0.10	0.131	< 0.02	0.25	0.79	< 0.02	6.98	62.8	20.2	25.9	0.09	4.0	15.9	2.2	0.5	0.4	1.9	0.2	1.2	0.3	0.7	
[redacted]	35.9	0.9	1.49	< 0.002	< 0.02	1.92	0.02	< 0.02	1.04	129	69.3	147	0.02	14.2	56.5	7.8	< 0.1	0.4	5.1	0.5	2.1	0.3	0.7	
[redacted]	4.8	2.0	0.69	0.049	< 0.02	0.84	0.23	< 0.02	3.34	44.3	8.5	18.3	0.03	1.6	6.08	0.9	0.1	0.1	0.7	< 0.1	0.4	< 0.1	0.2	
[redacted]	7.5	2.0	0.26	0.024	< 0.02	0.65	0.03	< 0.02	1.52	48.8	8.8	18.5	< 0.01	1.9	7.57	1.2	< 0.1	0.3	1.1	0.1	0.7	0.1	0.4	
[redacted]	9.1	2.7	0.41	0.033	< 0.02	1.00	0.07	< 0.02	2.42	39.7	10.3	20.8	0.02	2.0	8.04	1.4	< 0.1	0.2	1.1	0.1	0.7	0.1	0.3	
[redacted]	8.1	1.8	0.17	0.009	< 0.02	0.47	0.02	< 0.02	0.79	19.8	9.3	18.1	< 0.01	1.9	7.55	1.2	< 0.1	0.2	1.0	0.1	0.7	0.1	0.4	
[redacted]	6.8	2.7	0.31	0.030	< 0.02	0.85	0.02	< 0.02	1.07	26.0	9.3	17.6	< 0.01	1.8	6.88	1.0	< 0.1	0.2	0.8	0.1	0.6	0.1	0.3	
[redacted]	9.1	0.2	0.37	0.016	< 0.02	0.44	0.22	0.16	2.42	47.7	3.4	6.45	0.02	0.6	2.85	0.5	0.2	0.1	0.6	< 0.1	0.5	0.1	0.3	
[redacted]	5.7	2.4	0.28	0.037	< 0.02	0.60	< 0.02	< 0.02	1.07	25.4	6.1	13.0	0.03	1.2	4.91	0.7	< 0.1	0.2	0.6	< 0.1	0.4	< 0.1	0.2	
[redacted]	4.8	1.8	0.60	0.063	0.03	0.90	0.22	< 0.02	3.55	66.7	10.0	22.0	0.21	2.0	7.85	1.3	< 0.1	0.2	0.9	0.1	0.6	0.1	0.3	
[redacted]	4.6	2.5	0.32	0.032	< 0.02	0.72	< 0.02	< 0.02	1.94	34.6	11.2	23.8	< 0.01	2.3	9.28	1.4	< 0.1	0.3	1.0	0.1	0.7	0.1	0.3	
[redacted]	21.1	0.1	4.42	1.20	< 0.02	0.67	2.06	< 0.02	0.51	33.6	3.1	7.67	< 0.01	1.0	5.07	1.4	< 0.1	0.3	1.5	0.3	1.4	0.3	0.8	
[redacted]	5.1	2.1	0.59	0.027	< 0.02	0.84	< 0.02	< 0.02	1.95	33.9	14.8	31.5	0.01	3.1	12.5	2.0	< 0.1	0.3	1.5	0.2	0.8	0.2	0.4	
[redacted]	2.2	2.6	0.21	0.057	< 0.02	0.76	< 0.02	< 0.02	2.41	65.4	14.5	38.8	0.07	3.0	11.9	1.7	< 0.1	0.4	1.4	0.2	0.8	0.2	0.4	
[redacted]	3.7	3.2	0.46	0.041	0.02	0.85	< 0.02	< 0.02	2.58	47.5	15.1	31.0	0.03	3.0	11.7	1.7	< 0.1	0.3	1.4	0.2	0.9	0.2	0.4	
GXR-1 Meas	9.8	0.1	15.6	28.3	0.72	23.4	81.4	13.0	2.67	174	4.9	10.1	2.61		6.26	2.0	14.7	0.5	3.1	0.6	3.7			
GXR-1 Cert	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690	4.20	0.830	4.30			
GXR-1 Meas	9.4	0.1	17.4	30.2	0.76	25.7	88.9	14.4	2.97	210	5.2	11.1	2.68		6.75	2.2	16.0	0.5	3.3	0.6	4.0			
GXR-1 Cert	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690	4.20	0.830	4.30			
GXR-1 Meas	8.1	0.1	14.7	26.4	0.68	21.8	75.8	12.0	2.55	177	4.6	9.76	2.53		5.90	2.0	13.2	0.4	2.8	0.6	3.5			
GXR-1 Cert	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690	4.20	0.830	4.30			
GXR-1 Meas	9.4	0.1	17.2	30.9	0.79	25.4	89.0	14.0	3.00	220	5.3	11.0	2.63		6.67	2.4	14.6	0.5	3.2	0.7	4.0			
GXR-1 Cert	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690	4.20	0.830	4.30			
DH-1a Meas																								
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DH-1a Meas																								
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GXR-4 Meas	9.4	0.2	288	3.46	0.21	6.22	3.70	0.94	2.51	36.0	49.1	98.7	0.34		39.1	5.9	5.3	1.3	4.4	0.5	2.4			
GXR-4 Cert	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63	5.25	0.360	2.60			
GXR-4 Meas	7.7	0.2	251	2.95	0.17	5.10	3.14	0.76	2.10	33.2	40.9	83.4	0.22		33.8	4.8	4.4	1.1	3.4	0.4	2.0			
GXR-4 Cert	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63	5.25	0.360	2.60			
GXR-4 Meas	8.3	0.2	301	3.59	0.23	6.32	3.79	0.97	2.62	41.7	49.5	98.9	0.28		40.3	5.7	5.4	1.3	4.4	0.5	2.3			
GXR-4 Cert	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63	5.25	0.360	2.60			
GXR-6 Meas	13.8	< 0.1	1.69	0.278	0.07	1.31	2.17	0.06	3.82	1010	11.1	33.5	0.08		12.2	2.4	< 0.1	0.6	1.9	0.3	1.4			
GXR-6 Cert	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760	2.97	0.415	2.80			

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu	Gd	Tb	Dy	Ho	Er
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GXR-6 Meas	13.4	< 0.1	1.76	0.279	0.06	1.26	2.20	0.04	4.07	1010	11.0	33.7	0.09		12.4	2.4	0.1	0.6	2.0	0.3	1.4		
GXR-6 Cert	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760	2.97	0.415	2.80		
GXR-6 Meas	13.4	< 0.1	1.59	0.256	0.06	1.03	1.91	0.03	3.49	958	10.2	31.9	0.07		11.4	2.2	0.3	0.6	1.7	0.2	1.3		
GXR-6 Cert	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760	2.97	0.415	2.80		
GXR-6 Meas	14.0	< 0.1	1.64	0.255	0.06	1.18	1.98	0.03	3.51	952	10.6	31.6	0.08		11.5	2.2	0.2	0.6	1.9	0.2	1.4		
GXR-6 Cert	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760	2.97	0.415	2.80		
TILL-1 Meas																							
TILL-1 Cert																							
TILL-1 Meas																							
TILL-1 Cert																							
TILL-2 Meas																							
TILL-2 Cert																							
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TILL-2 Cert																							
BL-4a Meas																							
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DL-1a Cert																							
OREAS 45d (Aqua Regia) Meas					0.06	1.50				70.3	8.6	20.6											
OREAS 45d (Aqua Regia) Cert					0.085	1.950				80	9.960	24.8											
OREAS 45d (Aqua Regia) Meas					0.08	2.23				95.1	11.4	28.1											
OREAS 45d (Aqua Regia) Cert					0.085	1.950				80	9.960	24.8											
SdAR-M2 (U.S.G.S.) Meas	6.0	3.1	10.2						0.76	103	34.0	77.2	4.45	7.6	31.9	5.2		0.5	3.9	0.5	2.8	0.6	1.6
SdAR-M2 (U.S.G.S.) Cert	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44	6.28	0.97	5.88	1.21	3.58
SdAR-M2	5.6	3.0	9.94						0.74	100	32.0	74.2	4.19	7.2	30.5	4.9		0.5	3.8	0.5	2.7	0.6	1.5

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu	Gd	Tb	Dy	Ho	Er
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
(U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44	6.28	0.97	5.88	1.21	3.58
SdAR-M2 (U.S.G.S.) Meas	6.7	3.7	11.7						0.88	121	39.8	91.0	4.90	8.7	36.8	6.0		0.6	4.5	0.6	3.2	0.7	1.8
SdAR-M2 (U.S.G.S.) Cert	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44	6.28	0.97	5.88	1.21	3.58
SdAR-M2 (U.S.G.S.) Meas	6.6	4.3	12.6						0.95	129	41.4	92.9	5.27	9.1	37.6	6.3		0.6	4.7	0.6	3.3	0.7	1.8
SdAR-M2 (U.S.G.S.) Cert	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44	6.28	0.97	5.88	1.21	3.58
E832003 Orig																							
E832003 Dup																							
[redacted]	3.2	3.1	0.26	0.089	< 0.02	0.62	< 0.02	< 0.02	0.93	22.9	9.0	17.4	0.03	1.9	7.44	1.2	< 0.1	0.2	0.9	0.1	0.5	0.1	0.3
[redacted]	3.2	2.8	0.24	0.038	< 0.02	0.63	< 0.02	< 0.02	0.85	22.8	9.3	18.4	0.02	1.8	6.78	1.0	< 0.1	0.2	0.8	< 0.1	0.5	< 0.1	0.2
[redacted]	12.6	1.9	0.49	0.033	< 0.02	0.76	0.28	0.04	4.19	86.0	36.9	73.7	0.42	7.8	30.1	4.2	0.7	0.7	3.1	0.3	1.7	0.3	0.8
[redacted]	12.7	1.6	0.45	0.036	< 0.02	0.70	0.26	0.04	4.11	83.8	36.4	75.9	0.38	8.0	32.6	3.8	0.6	0.7	2.9	0.3	1.5	0.3	0.7
[redacted]																							
[redacted]																							
[redacted]																							
[redacted]																							
Method Blank	0.1	< 0.1	< 0.01	< 0.002	< 0.02	0.10	< 0.02	< 0.02	< 0.02	6.9	< 0.5	0.08	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	0.2	< 0.1	0.06	0.002	< 0.02	0.08	< 0.02	< 0.02	< 0.02	7.9	< 0.5	0.03	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	0.1	< 0.1	< 0.01	< 0.002	< 0.02	0.07	< 0.02	< 0.02	< 0.02	5.8	< 0.5	0.02	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	0.1	< 0.1	0.02	< 0.002	< 0.02	0.08	< 0.02	< 0.02	< 0.02	5.7	< 0.5	0.02	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
E832001	< 0.1	0.5	< 0.1	< 0.1	< 0.05	5.3	< 0.001	< 0.5	0.14	10.4	5.9	2.0	90
E832002	0.1	0.6	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.22	14.1	7.8	2.9	80
E832003	< 0.1	0.3	< 0.1	0.1	< 0.05	0.7	< 0.001	< 0.5	0.03	8.11	5.0	0.8	40
E832004	< 0.1	0.3	< 0.1	0.2	< 0.05	0.3	< 0.001	< 0.5	0.02	8.99	7.1	0.8	70
E832005	< 0.1	0.3	< 0.1	0.2	< 0.05	0.4	< 0.001	< 0.5	< 0.02	8.19	6.5	0.8	40
E832006	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.29	17.8	7.9	1.7	150
E832007	< 0.1	0.2	< 0.1	< 0.1	< 0.05	0.2	< 0.001	415	0.04	5.09	3.7	0.5	90
E832008	< 0.1	0.2	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.02	5.78	2.0	0.3	50
E832009	0.1	0.8	0.1	0.3	< 0.05	0.5	< 0.001	9.1	0.23	12.9	19.5	1.9	40
E832010	0.1	0.7	< 0.1	0.5	< 0.05	0.2	< 0.001	3120	0.04	6.48	0.5	0.1	30
E832011	< 0.1	0.3	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.08	5.48	4.8	1.0	40
E832012	< 0.1	0.3	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.07	5.87	4.3	0.6	20

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
[redacted]	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.18	7.83	5.0	0.7	120
[redacted]	< 0.1	0.3	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.07	6.19	4.3	0.5	70
[redacted]	< 0.1	0.3	< 0.1	0.1	< 0.05	0.1	< 0.001	< 0.5	0.07	7.61	4.3	0.7	70
[redacted]	< 0.1	0.1	< 0.1	0.3	< 0.05	0.1	< 0.001	< 0.5	0.05	6.48	2.7	0.5	40
[redacted]	< 0.1	0.2	< 0.1	0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.06	5.76	4.4	0.4	70
[redacted]	< 0.1	0.4	< 0.1	0.2	< 0.05	0.3	< 0.001	< 0.5	0.08	8.68	5.7	0.9	50
[redacted]	< 0.1	0.6	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.14	3.30	2.2	1.4	40
[redacted]	< 0.1	0.5	< 0.1	0.8	< 0.05	13.1	< 0.001	< 0.5	0.36	13.3	46.7	2.0	20
[redacted]	< 0.1	0.2	< 0.1	< 0.1	< 0.05	0.5	< 0.001	< 0.5	0.08	9.53	5.2	0.5	30
[redacted]	< 0.1	0.3	< 0.1	0.2	< 0.05	0.4	< 0.001	< 0.5	0.12	5.88	4.5	0.5	140
[redacted]	< 0.1	0.3	< 0.1	0.2	< 0.05	0.4	< 0.001	< 0.5	0.12	8.21	7.0	0.8	90
[redacted]	< 0.1	0.3	< 0.1	0.2	< 0.05	0.9	< 0.001	< 0.5	< 0.02	3.76	6.1	0.6	60
[redacted]	< 0.1	0.2	< 0.1	0.2	< 0.05	0.7	< 0.001	< 0.5	0.05	7.14	4.2	0.8	50
[redacted]	< 0.1	0.3	< 0.1	0.2	< 0.05	7.8	< 0.001	1.1	0.25	3.38	0.8	0.1	20
[redacted]	< 0.1	0.2	< 0.1	0.2	< 0.05	3.2	< 0.001	< 0.5	< 0.02	4.34	2.5	0.4	20
[redacted]	< 0.1	0.3	< 0.1	0.1	< 0.05	0.3	< 0.001	< 0.5	0.11	13.3	4.7	0.6	20
[redacted]	< 0.1	0.3	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.06	5.39	4.3	0.5	20
[redacted]	0.1	0.6	< 0.1	0.5	< 0.05	0.2	< 0.001	2770	< 0.02	5.75	0.5	0.1	< 10
[redacted]	< 0.1	0.3	< 0.1	0.1	< 0.05	0.6	< 0.001	< 0.5	0.15	6.09	8.1	0.7	120
[redacted]	< 0.1	0.4	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.14	6.64	4.3	1.0	100
[redacted]	< 0.1	0.3	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.11	8.01	6.9	0.9	80
GXR-1 Meas	0.3	1.9	0.2	0.2	< 0.05	149		3080	0.33	738	1.5	30.9	3390
GXR-1 Cert	0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-1 Meas	0.3	2.0	0.3	0.2	< 0.05	157		3510	0.36	787	1.6	33.1	3700
GXR-1 Cert	0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-1 Meas	0.3	1.6	0.2	0.2	< 0.05	127		2900	0.32	679	1.4	29.5	3310
GXR-1 Cert	0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-1 Meas	0.3	1.9	0.3	0.2	< 0.05	149		3370	0.39	762	1.6	32.8	3900
GXR-1 Cert	0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
DH-1a Meas											> 200	2420	
DH-1a Cert											910	2629	
DH-1a Meas											> 200	2270	
DH-1a Cert											910	2629	
DH-1a Meas											> 200	2360	
DH-1a Cert											910	2629	
DH-1a Meas											> 200	2490	
DH-1a Cert											910	2629	
GXR-4 Meas	0.1	0.8	0.1	0.3	< 0.05	10.8		408	3.06	49.5	18.1	5.0	160
GXR-4 Cert	0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-4 Meas	0.1	0.6	0.1	0.2	< 0.05	8.7		345	2.54	41.9	14.7	4.2	160
GXR-4 Cert	0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-4 Meas	0.1	0.8	0.1	0.3	< 0.05	10.6		524	3.17	48.8	17.8	4.9	170
GXR-4 Cert	0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
GXR-6 Meas		0.7	0.1	0.4	< 0.05	< 0.1		67.5	2.07	107	4.0	0.8	180
GXR-6 Cert		2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
GXR-6 Meas		0.7	0.1	0.4	< 0.05	< 0.1		66.4	2.05	107	4.1	0.8	120
GXR-6 Cert		2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
GXR-6 Meas		0.7	0.1	0.4	< 0.05	< 0.1		66.2	1.92	99.5	3.8	0.8	180
GXR-6 Cert		2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
GXR-6 Meas		0.7	0.1	0.4	< 0.05	< 0.1		98.5	1.94	103	3.9	0.8	90
GXR-6 Cert		2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
TILL-1 Meas													
TILL-1 Cert													
TILL-1 Meas													
TILL-1 Cert													
TILL-2 Meas													
TILL-2 Cert													
TILL-2 Meas													
TILL-2 Cert													
BL-4a Meas												1210	
BL-4a Cert												1250	
BL-4a Meas												998	
BL-4a Cert												1250	
BL-4a Meas												1210	
BL-4a Cert												1250	
BL-4a Meas												1180	
BL-4a Cert												1250	
DL-1a Meas											73.0	109	
DL-1a Cert											76.0	116	
DL-1a Meas											73.1	104	
DL-1a Cert											76.0	116	
DL-1a Meas											74.2	111	
DL-1a Cert											76.0	116	
DL-1a Meas											73.1	113	
DL-1a Cert											76.0	116	
OREAS 45d (Aqua Regia) Meas								25.4		14.1	8.1	1.2	
OREAS 45d (Aqua Regia) Cert								21		17.00	11.3	1.64	
OREAS 45d (Aqua Regia) Meas								16.6		19.1	10.8	1.7	
OREAS 45d (Aqua Regia) Cert								21		17.00	11.3	1.64	
SdAR-M2 (U.S.G.S.) Meas	0.2	1.3	0.2	0.2	< 0.05	0.9				688	10.2	1.4	1020
SdAR-M2	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	

	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
SAMPLE	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
(U.S.G.S.) Cert													1440.00
SdAR-M2 (U.S.G.S.) Meas	0.2	1.3	0.2	0.2	< 0.05	0.9				652	9.7	1.3	930
SdAR-M2 (U.S.G.S.) Cert	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00
SdAR-M2 (U.S.G.S.) Meas	0.2	1.5	0.2	0.2	< 0.05	0.9				781	11.5	1.6	1140
SdAR-M2 (U.S.G.S.) Cert	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00
SdAR-M2 (U.S.G.S.) Meas	0.3	1.5	0.2	0.2	< 0.05	1.0				813	12.3	1.6	1270
SdAR-M2 (U.S.G.S.) Cert	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00
E832003 Orig													
E832003 Dup													
[redacted]	< 0.1	0.2	< 0.1	< 0.1	< 0.05	0.2	< 0.001	415	0.04	5.09	3.7	0.5	90
	< 0.1	0.2	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	< 0.02	4.62	3.1	0.4	70
	0.1	0.8	0.1	0.3	< 0.05	0.5	< 0.001	9.1	0.23	12.9	19.5	1.9	40
	0.1	0.7	0.1	0.2	< 0.05	0.5	< 0.001	9.4	0.22	11.8	13.8	1.7	40
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	70
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	0.15	< 0.1	< 0.1	90
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	30
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	50
Method Blank													
Method Blank													
Method Blank													
Method Blank													

Quality Analysis ... *Innovative Technologies*

Date Submitted: 03-Oct-17
Invoice No.: A17-10882
Invoice Date: 10-Nov-17
Your Reference: Exploration

GOLDCORP Canada Ltd--Musselwhite Mine
P.O. Box 7500
Thunder bay Ontario P7B 6S8
Canada

ATTN: Katie Lucas

CERTIFICATE OF ANALYSIS

36 Soil samples were submitted for analysis.

The following analytical package(s) were requested: Code UT-4 Total Digestion ICP/MS

REPORT **A17-10882**

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
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Date Submitted: 03-Oct-17
Invoice No.: A17-10882
Invoice Date: 10-Nov-17
Your Reference: Exploration

GOLDCORP Canada Ltd--Musselwhite Mine
P.O. Box 7500
Thunder bay Ontario P7B 6S8
Canada

ATTN: Katie Lucas

CERTIFICATE OF ANALYSIS

36 Soil samples were submitted for analysis.

The following analytical package(s) were requested: Code 1A2-GC Musselwhite Tbay Au - Fire Assay AA

REPORT **A17-10882**

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

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E-MAIL Tbay@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Results **Activation Laboratories Ltd.** **Report: A17-10882**

	FA-AA	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Au	B	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Ni	Er	Be	Ho	Hg	Ag	Cs	Co	Eu		
DESCRIPTION	g/mt	ppm	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm		
[redacted]	< 0.005	< 1	37.0	1.98	0.97	6.37	1.30	1.98	< 0.1	36	55.2	449	3.27	5.8	21.5	1.2	1.2	0.4	20	< 0.05	1.60	9.4	0.93		
[redacted]	< 0.005	< 1	28.2	1.75	1.03	5.90	1.20	1.96	0.1	94	103	622	6.15	7.4	30.0	2.0	1.1	0.6	20	< 0.05	2.03	11.7	0.71		
[redacted]	0.005	< 1	23.4	2.15	0.94	6.89	1.34	2.03	< 0.1	109	88.4	471	5.48	3.9	29.7	1.2	1.3	0.4	10	< 0.05	2.33	9.5	0.64		
[redacted]	< 0.005	16	20.8	2.20	0.88	6.26	1.31	2.22	0.1	93	146	526	4.91	6.4	31.3	1.4	1.1	0.4	60	< 0.05	1.21	10.0	0.64		
[redacted]	0.006	< 1	20.2	2.51	0.65	7.58	1.53	1.96	< 0.1	43	34.3	365	2.29	1.6	26.0	1.3	1.5	0.3	60	< 0.05	1.05	9.5	0.72		
[redacted]	< 0.005	< 1	15.3	2.42	0.81	7.10	1.33	2.19	0.1	70	53.0	399	3.22	0.3	26.0	1.2	1.4	0.3	40	< 0.05	1.00	8.3	0.67		
[redacted]	0.226	< 1	25.9	2.10	0.74	7.18	1.29	1.69	< 0.1	70	71.1	351	3.61	1.6	28.3	1.0	1.3	0.3	50	0.11	2.05	9.1	0.58		
[redacted]	< 0.005	< 1	40.7	2.07	0.97	7.66	1.10	1.60	0.1	60	69.0	505	5.65	3.6	35.6	1.1	1.4	0.4	30	< 0.05	2.35	13.6	0.65		
[redacted]	< 0.005	< 1	45.0	1.85	0.84	6.88	1.16	1.45	< 0.1	108	89.4	545	7.25	7.1	29.9	1.0	1.1	0.3	20	< 0.05	2.86	13.2	0.45		
[redacted]	< 0.005	< 1	13.2	2.36	0.20	6.38	4.07	1.11	< 0.1	24	12.5	233	1.64	6.2	4.0	1.3	0.9	0.5	< 10	< 0.05	1.12	44.7	0.74		
[redacted]	< 0.005	< 1	9.3	2.57	0.64	6.08	1.44	1.86	< 0.1	62	73.8	358	2.77	4.6	20.1	0.9	1.0	0.3	< 10	< 0.05	0.73	6.0	0.54		
[redacted]	< 0.005	< 1	15.6	2.22	0.58	6.41	1.66	1.59	< 0.1	44	49.2	247	2.23	4.4	22.5	0.9	1.1	0.3	< 10	< 0.05	1.00	7.1	0.51		
[redacted]	< 0.005	< 1	12.5	2.52	0.55	6.39	1.54	1.76	< 0.1	49	50.6	327	2.12	5.2	17.2	0.9	1.1	0.3	< 10	< 0.05	0.84	7.4	0.54		
[redacted]	< 0.005	17	10.6	2.40	0.57	6.02	1.76	1.71	< 0.1	39	47.7	293	1.64	4.8	18.5	1.1	1.2	0.4	60	< 0.05	0.81	6.0	0.70		
E837245	< 0.005	24	45.5	1.69	1.17	8.00	2.03	1.61	< 0.1	70	56.8	644	3.50	3.7	42.3	1.8	1.9	0.5	60	< 0.05	4.21	13.9	0.93		
E837246	0.011	< 1	4.0	0.15	0.15	3.23	0.20	2.28	1.6	18	24.1	3320	1.16	< 0.1	45.6	6.4	1.0	2.0	160	1.29	1.31	3.1	4.10		
E837247	< 0.005	11	2.2	0.14	0.14	1.34	0.14	1.63	1.0	14	28.2	523	1.02	0.3	27.1	0.9	0.3	0.3	70	0.14	1.05	5.6	0.51		
E837248	< 0.005	< 1	13.9	0.82	0.22	4.02	0.75	2.15	0.4	24	26.6	137	0.79	0.1	32.3	1.5	0.7	0.6	70	0.46	2.39	3.7	1.33		
E837249	< 0.005	5	1.1	0.04	0.19	0.63	0.06	4.21	0.3	9	11.9	47	0.27	< 0.1	11.3	0.4	0.1	0.1	30	0.07	0.26	0.6	0.22		
E837250	3.13	< 1	6.2	1.50	1.33	5.54	2.40	2.99	0.1	48	59.5	523	3.48	1.0	29.3	1.5	1.2	0.5	20	1.29	19.2	15.9	0.64		
[redacted]	< 0.005	< 1	33.8	1.86	0.83	6.95	2.16	1.17	< 0.1	49	51.7	350	3.37	3.6	28.7	1.0	1.3	0.3	< 10	< 0.05	2.39	10.4	0.52		
[redacted]	< 0.005	< 1	19.6	2.03	0.76	6.55	1.12	2.00	0.1	78	93.8	501	3.86	4.6	38.6	1.3	1.6	0.4	< 10	< 0.05	1.55	14.8	0.84		
[redacted]	< 0.005	< 1	19.5	2.07	1.06	6.22	1.34	2.25	0.1	108	149	935	5.85	6.8	38.2	1.5	1.1	0.4	10	< 0.05	1.21	15.4	0.77		
[redacted]	< 0.005	< 1	25.8	1.75	1.02	5.38	1.15	2.12	< 0.1	115	180	742	7.55	7.3	34.8	1.7	1.0	0.5	20	< 0.05	1.59	14.4	0.79		
[redacted]	< 0.005	2	19.9	> 3.00	0.72	8.41	1.91	2.11	< 0.1	52	38.4	276	2.55	2.3	23.0	0.7	1.6	0.2	60	< 0.05	1.19	7.4	0.51		
[redacted]	< 0.005	< 1	13.1	2.50	0.85	6.58	1.36	2.22	< 0.1	35	103	537	3.25	4.5	26.2	1.3	1.4	0.4	40	< 0.05	0.71	8.8	0.74		
[redacted]	< 0.005	< 1	18.0	2.32	0.89	6.90	1.26	2.11	< 0.1	85	79.6	487	4.45	1.4	31.6	1.3	1.3	0.4	40	< 0.05	0.95	10.2	0.69		
[redacted]	0.006	< 1	27.9	2.58	0.71	7.63	2.22	1.57	< 0.1	52	43.2	292	3.33	2.0	23.9	0.8	1.2	0.3	50	< 0.05	1.78	8.3	0.51		
[redacted]	< 0.005	< 1	19.4	> 3.00	0.91	7.97	1.80	2.44	< 0.1	50	48.5	556	2.94	2.2	27.9	1.0	1.4	0.3	30	< 0.05	1.07	11.2	0.62		
[redacted]	3.12	< 1	6.6	1.61	1.38	5.79	2.34	3.09	< 0.1	43	57.4	532	3.59	0.6	29.4	1.4	1.1	0.5	30	1.28	19.3	16.5	0.63		
[redacted]	< 0.005	< 1	22.2	2.75	0.88	7.25	1.72	2.20	< 0.1	38	71.2	457	3.28	3.8	35.8	1.1	1.4	0.4	20	< 0.05	1.24	9.7	0.66		
[redacted]	< 0.005	2	20.8	2.68	1.11	7.25	1.41	2.49	< 0.1	84	98.9	690	5.41	5.2	34.2	1.4	1.2	0.4	30	< 0.05	1.34	12.0	0.69		
[redacted]	< 0.005	19	15.0	> 3.00	0.64	7.67	1.78	1.99	< 0.1	61	48.7	292	2.24	1.7	18.7	0.7	1.2	0.2	50	< 0.05	1.28	6.5	0.39		
[redacted]	< 0.005	14	23.6	2.59	0.81	7.19	1.48	2.03	< 0.1	71	139	402	3.89	3.5	24.5	1.1	1.3	0.3	60	< 0.05	1.42	8.7	0.58		
[redacted]	< 0.005	< 1	31.7	2.42	0.81	8.21	1.63	1.79	< 0.1	80	52.5	364	4.02	0.4	35.7	0.9	1.5	0.3	50	< 0.05	1.53	12.4	0.54		
[redacted]	< 0.005	16	1.1	0.04	0.39	0.49	0.07	6.12	0.4	5	4.2	56	0.29	< 0.1	5.0	0.3	0.1	< 0.1	80	0.05	0.24	1.2	0.16		
GXR-1 Meas		< 1	7.0	0.04	0.19	1.73	0.04	0.80	2.6	77	9.9	851	23.7	0.5	40.0		0.8		820	33.5	2.99	7.6	0.59		
GXR-1 Cert		15.0	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	41.0		1.22		3900	31.0	3.00	8.20	0.690		
DH-1a Meas																									
DH-1a Cert																									
GXR-4 Meas		< 1	10.7	0.51	1.71	6.40	4.12	0.96	0.2	86	42.8	155	3.07	1.4	41.7		2.0		< 10	3.72	2.65	13.9	1.28		
GXR-4 Cert		4.50	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	42.0		1.90		110	4.00	2.80	14.6	1.63		
SDC-1 Meas		< 1	32.0	1.44	0.96	7.81	2.59	0.94		35	34.8	806	4.57	0.9	34.8	3.5	2.6	1.1	50		3.76	17.0	1.35		

Results **Activation Laboratories Ltd.** **Report: A17-10882**

	FA-AA	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Au	B	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Ni	Er	Be	Ho	Hg	Ag	Cs	Co	Eu
DESCRIPTION	g/mt	ppm	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm
SDC-1 Cert		13.00	34.0	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	38.0	4.10	3.00	1.50	200.00		4.00	18.0	1.70
GXR-6 Meas		< 1	33.9	0.09	0.61	> 10.0	2.01	0.16	< 0.1	156	57.7	1060	5.93	2.4	25.8		1.1		10	0.25	4.31	14.0	0.65
GXR-6 Cert		9.80	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	27.0		1.40		68.0	1.30	4.20	13.8	0.760
DNC-1a Meas			4.0							143	126				271							55.4	0.53
DNC-1a Cert			5.2							148	270				247							57	0.59
SBC-1 Meas			155						0.3	215	87.9			3.5	90.6	3.6	2.9	1.2			8.32	22.3	1.78
SBC-1 Cert			163						0.40	220.0	109			3.7	82.8	3.80	3.20	1.40			8.2	22.7	1.98
OREAS 45d (4-Acid) Meas			19.8	0.09	0.23	7.30	0.40	0.18		115	448	472	14.1	2.3	237	1.3	0.7	0.4			3.71	29.6	0.55
OREAS 45d (4-Acid) Cert			21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830	231.0	1.38	0.79	0.46			3.910	29.50	0.57
SdAR-M2 (U.S.G.S.) Meas			19.1						5.3	24	33.2			1.7	55.0	3.0	7.2	0.9	1180		1.73	13.4	1.25
SdAR-M2 (U.S.G.S.) Cert			17.9						5.1	25.2	49.6			7.29	48.8	3.58	6.6	1.21	1440.00		1.82	12.4	1.44
SdAR-M2 (U.S.G.S.) Meas			19.1						4.9	23	35.6			3.8	52.3	3.1	7.3	0.9	200		1.76	13.6	1.20
SdAR-M2 (U.S.G.S.) Cert			17.9						5.1	25.2	49.6			7.29	48.8	3.58	6.6	1.21	1440.00		1.82	12.4	1.44
OREAS 220 (Fire Assay) Meas	0.867																						
OREAS 220 (Fire Assay) Cert	0.828																						
OREAS 222(FIRE ASSAY) Meas	1.24																						
OREAS 222(FIRE ASSAY) Cert	1.22																						
[redacted]		< 1	28.2	1.75	1.03	5.90	1.20	1.96	0.1	94	103	622	6.15	7.4	30.0	2.0	1.1	0.6	20	< 0.05	2.03	11.7	0.71
[redacted]		< 1	27.4	1.87	1.04	6.02	1.23	1.98	< 0.1	113	127	658	6.54	7.9	31.9	2.0	1.1	0.6	10	< 0.05	2.00	12.0	0.78
[redacted]		16	20.8	2.20	0.88	6.26	1.31	2.22	0.1	93	146	526	4.91	6.4	31.3	1.4	1.1	0.4	60	< 0.05	1.21	10.0	0.64
[redacted]		9	21.7	2.31	0.89	6.49	1.35	2.21	< 0.1	87	100	499	4.70	2.8	30.7	1.4	1.3	0.4	60	< 0.05	1.29	10.0	0.69
[redacted]	< 0.005																						
[redacted]	< 0.005																						
[redacted]	< 0.005																						
[redacted]	< 0.005																						
[redacted]		< 1	22.2	2.75	0.88	7.25	1.72	2.20	< 0.1	38	71.2	457	3.28	3.8	35.8	1.1	1.4	0.4	20	< 0.05	1.24	9.7	0.66
[redacted]		< 1	21.6	2.88	0.87	7.79	1.74	2.25	< 0.1	38	64.8	412	3.18	3.0	30.8	1.0	1.3	0.3	30	< 0.05	1.20	9.3	0.69
Method Blank			< 0.5	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.1	< 1	8.0	26	0.01	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	50	< 0.05	< 0.05	< 0.1	< 0.05
Method Blank			< 0.5	< 0.01	< 0.01	0.12	< 0.01	0.01	< 0.1	< 1	5.1	16	0.01	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	60	< 0.05	< 0.05	< 0.1	< 0.05
Method Blank			< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	8.3	15	< 0.01	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	70	< 0.05	< 0.05	< 0.1	< 0.05
Method Blank			< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	16.4	30	< 0.01	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	60	< 0.05	< 0.05	< 0.1	< 0.05
Method Blank	< 0.005																						
Method Blank	< 0.005																						

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Bi	Se	Zn	Ga	As	Rb	Y	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
[redacted]	0.11	< 0.1	53.9	14.7	< 0.1	54.2	11.3	250	0.4	0.10	< 0.1	< 1	< 0.1	< 0.1	422	25.4	60.5	6.9	26.2	4.2	3.2	0.4	2.1
[redacted]	0.19	< 0.1	65.5	22.5	< 0.1	66.9	17.1	290	0.8	0.28	< 0.1	< 1	< 0.1	< 0.1	400	23.4	48.7	5.7	22.1	4.3	3.7	0.6	3.3
[redacted]	0.22	< 0.1	48.9	22.0	2.5	65.9	10.8	150	1.0	0.53	< 0.1	1	< 0.1	< 0.1	419	20.8	42.4	4.4	15.8	2.7	2.3	0.4	2.1
[redacted]	0.16	< 0.1	43.1	17.9	0.2	46.9	13.0	258	1.7	0.44	< 0.1	< 1	< 0.1	< 0.1	450	17.3	40.7	4.5	17.6	2.7	3.1	0.5	2.4
[redacted]	0.10	< 0.1	29.7	14.1	0.4	49.9	11.0	70	4.1	0.39	< 0.1	< 1	< 0.1	< 0.1	538	16.4	40.8	4.0	15.6	2.8	2.5	0.4	2.1
[redacted]	0.13	< 0.1	40.2	15.0	0.2	44.2	10.6	29	2.6	0.31	< 0.1	< 1	< 0.1	< 0.1	442	11.1	25.8	3.0	12.5	2.6	2.2	0.4	2.0
[redacted]	0.16	< 0.1	59.9	17.1	1.5	48.8	9.2	81	3.9	0.52	< 0.1	1	0.1	< 0.1	447	11.9	26.5	2.7	10.6	2.1	2.0	0.3	1.7
[redacted]	0.20	< 0.1	81.1	20.3	0.5	43.3	11.2	142	0.2	0.21	< 0.1	1	< 0.1	< 0.1	389	22.7	46.6	4.7	17.7	3.1	2.7	0.4	2.0
[redacted]	0.20	< 0.1	77.8	21.5	0.8	53.6	8.8	282	1.4	0.43	< 0.1	< 1	< 0.1	< 0.1	417	12.6	26.3	2.7	10.3	1.7	1.6	0.3	1.6
[redacted]	0.05	< 0.1	47.3	11.2	< 0.1	114	14.0	319	8.4	0.59	< 0.1	9	0.3	< 0.1	986	92.6	189	19.6	67.9	10.5	6.8	0.8	3.4
[redacted]	0.09	< 0.1	24.3	14.0	0.8	40.2	8.7	191	5.3	0.29	< 0.1	< 1	0.1	< 0.1	459	12.3	27.7	3.0	11.7	2.1	1.9	0.3	1.5
[redacted]	0.09	< 0.1	23.2	10.4	0.6	46.6	7.8	187	3.5	0.23	< 0.1	< 1	< 0.1	< 0.1	544	13.2	28.2	3.0	11.2	2.2	1.8	0.3	1.5
[redacted]	0.08	< 0.1	30.7	12.6	< 0.1	48.9	8.5	209	5.3	0.30	< 0.1	< 1	0.2	< 0.1	503	11.6	26.1	2.9	11.6	1.9	2.0	0.3	1.5
[redacted]	0.08	< 0.1	24.0	11.0	0.5	46.0	10.3	204	6.0	0.18	< 0.1	< 1	0.1	< 0.1	566	21.8	52.1	5.0	18.0	3.1	2.7	0.4	2.1
E837245	0.24	< 0.1	75.6	17.5	1.6	103	16.1	144	1.3	0.14	< 0.1	< 1	< 0.1	< 0.1	653	34.4	80.2	7.8	28.5	5.1	3.9	0.6	3.1
E837246	0.12	0.8	26.9	2.5	156	9.6	68.1	4	1.2	1.47	< 0.1	< 1	0.2	< 0.1	183	363	486	64.2	226	32.2	22.0	2.6	12.3
E837247	0.09	1.6	84.1	1.4	18.4	6.2	8.8	12	1.4	1.37	< 0.1	< 1	0.2	< 0.1	158	33.5	67.8	6.8	23.9	3.5	2.7	0.4	1.6
E837248	0.08	1.3	19.5	6.4	1.9	29.8	17.6	9	2.2	1.15	< 0.1	< 1	0.2	< 0.1	318	94.6	146	18.1	61.7	8.5	6.8	0.8	3.8
E837249	0.03	0.7	20.7	0.4	< 0.1	2.7	4.2	4	0.5	1.15	< 0.1	< 1	0.1	< 0.1	93	22.9	31.4	4.2	13.6	1.7	1.2	0.1	0.7
E837250	0.68	< 0.1	51.0	16.8	4.3	567	13.2	39	< 0.1	0.58	< 0.1	< 1	0.2	< 0.1	58	3.9	10.1	1.4	6.4	2.0	2.4	0.5	2.7
[redacted]	0.13	< 0.1	44.2	14.6	0.7	81.1	8.4	149	1.0	0.24	< 0.1	< 1	< 0.1	< 0.1	627	14.8	35.1	3.3	12.4	2.6	1.8	0.3	1.6
[redacted]	0.15	< 0.1	47.0	15.6	40.2	35.5	12.5	210	7.3	0.78	< 0.1	1	0.2	< 0.1	377	34.1	71.7	7.0	25.5	3.5	3.3	0.5	2.6
[redacted]	0.17	< 0.1	49.2	17.3	0.7	55.3	13.3	295	2.3	0.39	< 0.1	< 1	< 0.1	< 0.1	422	26.7	55.0	5.1	18.4	3.2	2.8	0.5	2.4
[redacted]	0.22	< 0.1	58.4	16.9	< 0.1	55.6	14.5	297	0.6	0.18	< 0.1	< 1	< 0.1	< 0.1	391	26.0	59.1	6.0	22.5	3.8	3.2	0.5	2.7
[redacted]	0.10	< 0.1	28.0	17.2	< 0.1	62.6	6.1	101	1.0	0.26	< 0.1	< 1	< 0.1	< 0.1	592	7.7	16.3	1.7	6.2	1.2	1.1	0.2	1.0
[redacted]	0.10	< 0.1	34.2	14.3	< 0.1	38.9	13.7	181	0.2	< 0.05	< 0.1	< 1	< 0.1	< 0.1	407	32.4	68.1	7.0	26.0	3.6	3.4	0.5	2.6
[redacted]	0.11	< 0.1	41.3	15.1	0.3	38.9	12.0	94	4.2	0.35	< 0.1	< 1	< 0.1	< 0.1	408	20.0	44.2	4.7	18.1	3.2	2.7	0.4	2.2
[redacted]	0.21	< 0.1	42.3	15.8	1.6	69.4	7.9	91	0.9	0.52	< 0.1	< 1	< 0.1	< 0.1	602	15.0	32.0	3.2	11.9	1.9	1.7	0.3	1.5
[redacted]	0.12	< 0.1	32.2	16.6	< 0.1	53.3	8.9	88	0.5	0.15	< 0.1	< 1	< 0.1	< 0.1	550	10.1	24.8	2.6	10.4	1.8	1.8	0.3	1.6
[redacted]	0.91	< 0.1	52.9	16.9	2.6	520	13.4	26	< 0.1	0.37	< 0.1	< 1	0.1	< 0.1	59	3.7	9.8	1.3	6.1	2.0	2.3	0.5	2.6
[redacted]	0.12	< 0.1	41.3	16.3	< 0.1	57.9	10.8	161	0.6	0.12	< 0.1	< 1	< 0.1	< 0.1	525	19.7	42.7	4.5	16.7	2.8	2.6	0.4	2.1
[redacted]	0.18	< 0.1	51.9	20.0	< 0.1	61.1	12.9	211	1.0	0.21	< 0.1	< 1	< 0.1	< 0.1	432	19.9	42.9	4.5	17.4	3.2	2.7	0.4	2.2
[redacted]	0.14	< 0.1	26.7	18.9	0.9	61.6	6.3	71	4.8	0.58	< 0.1	1	0.1	< 0.1	535	6.9	14.3	1.5	5.9	1.2	0.9	0.2	1.0
[redacted]	0.14	< 0.1	51.7	20.1	0.7	67.6	10.4	157	0.7	0.29	< 0.1	< 1	< 0.1	< 0.1	435	17.7	35.6	3.6	13.5	2.3	2.3	0.4	1.9
[redacted]	0.14	< 0.1	53.9	17.3	2.4	56.7	9.2	43	3.4	0.77	< 0.1	< 1	< 0.1	< 0.1	474	12.2	28.0	2.9	10.9	1.9	1.8	0.3	1.6
[redacted]	0.05	0.9	25.1	0.9	< 0.1	3.1	3.1	4	0.5	0.39	< 0.1	< 1	0.1	< 0.1	73	8.8	13.2	1.8	6.7	0.7	0.8	0.1	0.6
GXR-1 Meas	1420	14.0	756	7.5	440	2.4	27.0	20	0.7	17.5	0.8	25	39.4	11.6	716	7.5	15.9		8.4	3.0	4.0	0.9	4.8
GXR-1 Cert	1380	16.6	760	13.8	427	14.0	32.0	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	17.4	5.5	65.6	10.8	107	134	13.8	51	9.5	311	0.2	7	5.0	1.0	1330	57.9	111		41.3	5.6	4.5	0.6	2.8
GXR-4 Cert	19.0	5.60	73.0	20.0	98.0	160	14.0	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60
SDC-1 Meas			98.7	19.3	< 0.1	104		33	0.3			< 1	< 0.1		628	37.1	86.1		37.9	6.7	6.3	1.1	5.9

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Bi	Se	Zn	Ga	As	Rb	Y	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SDC-1 Cert			103.00	21.00	0.220	127.00		290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70
GXR-6 Meas	0.19	0.3	133	23.9	312	77.4	12.7	92	0.8	1.04	< 0.1	< 1	0.5	< 0.1	1310	12.5	37.5		12.7	2.2	2.3	0.4	2.3
GXR-6 Cert	0.290	0.940	118	35.0	330	90.0	14.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80
DNC-1a Meas			62.2	14.2		3.2	15.9	39	1.4				0.6		107	3.4			4.9				
DNC-1a Cert			70	15		5	18.0	38.0	3				0.96		118	3.6			5.20				
SBC-1 Meas	0.68		196	25.1	25.8	131	31.8	131	14.5	2.26		3	1.1		840	49.1	111	12.5	48.8	10.0	7.8	1.3	6.7
SBC-1 Cert	0.70		186	27.0	25.7	147	36.5	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10
OREAS 45d (4-Acid) Meas	0.32		41.3	22.4	6.6	35.8	10.3	91	0.4	0.60	< 0.1	< 1	< 0.1		188	16.0	37.3	3.6	14.1	2.6	2.3	0.4	2.4
OREAS 45d (4-Acid) Cert	0.31		45.7	21.20	13.8	42.1	9.53	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26
SdAR-M2 (U.S.G.S.) Meas	0.98		835	16.5		114	25.8	77	5.6	11.3					1040	44.9	101	10.3	38.1	6.5	5.7	1.0	5.1
SdAR-M2 (U.S.G.S.) Cert	1.05		760	17.6		149	32.7	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88
SdAR-M2 (U.S.G.S.) Meas	0.99		771	12.9		111	25.3	124	9.6	11.5					1020	43.4	99.7	10.0	36.7	6.8	5.4	0.9	4.8
SdAR-M2 (U.S.G.S.) Cert	1.05		760	17.6		149	32.7	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88
OREAS 220 (Fire Assay) Meas																							
OREAS 220 (Fire Assay) Cert																							
OREAS 222(FIRE ASSAY) Meas																							
OREAS 222(FIRE ASSAY) Cert																							
[redacted]	0.19	< 0.1	65.5	22.5	< 0.1	66.9	17.1	290	0.8	0.28	< 0.1	< 1	< 0.1	< 0.1	400	23.4	48.7	5.7	22.1	4.3	3.7	0.6	3.3
[redacted]	0.18	< 0.1	62.9	22.7	< 0.1	65.1	17.1	334	0.6	0.33	< 0.1	< 1	< 0.1	< 0.1	398	24.4	53.5	5.9	23.5	3.7	3.7	0.6	3.1
[redacted]	0.16	< 0.1	43.1	17.9	0.2	46.9	13.0	258	1.7	0.44	< 0.1	< 1	< 0.1	< 0.1	450	17.3	40.7	4.5	17.6	2.7	3.1	0.5	2.4
[redacted]	0.17	< 0.1	43.4	17.7	< 0.1	51.7	11.8	162	0.7	0.42	< 0.1	< 1	< 0.1	< 0.1	459	17.7	42.2	4.5	17.2	2.7	2.5	0.4	2.2
[redacted]																							
[redacted]																							
[redacted]																							
[redacted]																							
[redacted]	0.12	< 0.1	41.3	16.3	< 0.1	57.9	10.8	161	0.6	0.12	< 0.1	< 1	< 0.1	< 0.1	525	19.7	42.7	4.5	16.7	2.8	2.6	0.4	2.1
[redacted]	0.11	< 0.1	39.0	16.4	< 0.1	57.7	9.9	130	0.5	0.11	< 0.1	< 1	< 0.1	< 0.1	521	18.3	40.7	4.3	16.9	2.4	2.3	0.4	1.9
Method Blank	< 0.02	< 0.1	2.7	0.1	< 0.1	< 0.2	< 0.1	< 1	< 0.1	0.18	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	< 0.02	< 0.1	0.3	0.2	< 0.1	0.3	< 0.1	< 1	< 0.1	0.05	< 0.1	< 1	< 0.1	< 0.1	3	0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	0.02	< 0.1	0.6	0.1	< 0.1	< 0.2	< 0.1	< 1	< 0.1	0.16	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	< 0.02	< 0.1	2.7	0.1	< 0.1	< 0.2	< 0.1	< 1	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank																							
Method Blank																							

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Cu	Ge	Tm	Yb	Lu	Ta	Sr	W	Re	Tl	Pb	Th	U
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
[redacted]	10.2	< 0.1	0.2	1.1	0.2	< 0.1	257	< 0.1	< 0.001	0.27	13.9	7.8	1.6
[redacted]	13.6	< 0.1	0.3	1.9	0.3	< 0.1	222	< 0.1	< 0.001	0.27	17.2	10.9	1.6
[redacted]	6.8	< 0.1	0.2	1.3	0.2	< 0.1	255	< 0.1	< 0.001	0.30	18.2	10.5	1.6
[redacted]	4.7	< 0.1	0.2	1.5	0.2	< 0.1	278	< 0.1	< 0.001	0.25	15.4	10.9	1.6
[redacted]	6.2	< 0.1	0.2	1.1	0.1	0.2	297	0.2	< 0.001	0.27	15.0	8.1	5.3
[redacted]	3.7	< 0.1	0.2	1.1	0.2	< 0.1	277	0.1	< 0.001	0.22	13.3	9.5	3.2
[redacted]	12.8	0.2	0.2	1.0	0.1	0.3	238	0.3	< 0.001	0.33	14.3	5.8	1.2
[redacted]	20.8	< 0.1	0.2	1.2	0.2	< 0.1	227	< 0.1	< 0.001	0.31	15.8	9.2	1.4
[redacted]	15.0	0.2	0.2	1.1	0.2	< 0.1	199	< 0.1	< 0.001	0.42	16.5	7.0	1.5
[redacted]	127	< 0.1	0.2	1.0	0.2	1.7	195	158	< 0.001	0.82	38.0	67.3	3.4
[redacted]	3.3	< 0.1	0.1	0.9	0.1	0.2	283	0.5	< 0.001	0.21	12.5	5.7	0.8
[redacted]	4.4	0.3	0.1	0.8	0.1	< 0.1	251	0.2	< 0.001	0.27	12.2	4.6	0.9
[redacted]	3.5	< 0.1	0.1	0.9	0.1	0.3	269	0.3	< 0.001	0.25	12.9	4.6	1.0
[redacted]	6.2	< 0.1	0.2	1.0	0.2	0.3	272	0.4	< 0.001	0.29	12.3	6.2	0.9
E837245	22.1	< 0.1	0.3	1.6	0.2	< 0.1	207	0.2	< 0.001	0.63	19.1	15.3	2.2
E837246	112	< 0.1	0.8	4.8	0.7	< 0.1	52.6	0.5	0.004	0.21	7.2	26.7	16.7
E837247	28.5	< 0.1	0.1	0.8	0.1	< 0.1	34.2	0.3	0.003	0.14	2.6	6.1	2.5
E837248	208	< 0.1	0.2	1.3	0.2	< 0.1	117	0.5	0.002	0.28	8.3	13.1	8.5
E837249	17.2	< 0.1	< 0.1	0.3	< 0.1	< 0.1	50.7	0.1	< 0.001	< 0.05	1.0	1.7	0.8
E837250	35.4	0.2	0.2	1.3	0.2	< 0.1	87.9	< 0.1	< 0.001	5.68	8.3	0.7	0.2
[redacted]	10.5	0.2	0.1	0.9	0.1	< 0.1	228	< 0.1	< 0.001	0.45	14.7	5.7	1.1
[redacted]	6.8	< 0.1	0.2	1.3	0.2	0.4	213	0.5	< 0.001	0.22	17.6	11.0	1.3
[redacted]	8.5	< 0.1	0.2	1.5	0.2	< 0.1	248	< 0.1	< 0.001	0.24	16.4	11.3	1.6
[redacted]	10.6	< 0.1	0.3	1.7	0.3	0.6	227	< 0.1	< 0.001	0.24	16.1	9.7	1.7
[redacted]	4.3	< 0.1	0.1	0.7	0.1	< 0.1	341	< 0.1	< 0.001	0.30	14.6	3.6	0.8
[redacted]	3.7	< 0.1	0.2	1.3	0.2	< 0.1	277	0.1	< 0.001	0.21	14.3	15.0	1.4
[redacted]	22.8	< 0.1	0.2	1.2	0.2	0.3	267	0.2	< 0.001	0.22	13.7	9.9	1.2
[redacted]	8.0	< 0.1	0.1	0.8	0.1	< 0.1	253	< 0.1	< 0.001	0.42	16.7	13.2	1.3
[redacted]	2.9	0.1	0.2	1.0	0.1	< 0.1	320	< 0.1	< 0.001	0.27	14.6	4.7	0.9
[redacted]	36.5	0.2	0.2	1.2	0.2	< 0.1	90.8	< 0.1	< 0.001	5.48	8.0	0.8	0.2
[redacted]	12.8	< 0.1	0.2	1.1	0.2	< 0.1	302	< 0.1	< 0.001	0.30	14.7	9.2	2.7
[redacted]	19.2	< 0.1	0.2	1.4	0.2	< 0.1	287	< 0.1	< 0.001	0.24	17.1	10.0	1.6
[redacted]	3.3	< 0.1	0.1	0.9	0.1	0.3	321	0.3	< 0.001	0.30	14.7	2.7	0.6
[redacted]	6.5	< 0.1	0.2	1.1	0.2	< 0.1	266	< 0.1	< 0.001	0.29	16.0	9.0	1.1
[redacted]	8.6	< 0.1	0.2	1.0	0.1	0.1	252	0.2	< 0.001	0.30	15.5	8.2	1.2
[redacted]	17.9	< 0.1	< 0.1	0.3	< 0.1	< 0.1	64.8	0.1	< 0.001	0.06	0.9	2.3	7.5
GXR-1 Meas	1150		0.4	2.3	0.3	< 0.1	265	165		0.41	752	2.9	36.4
GXR-1 Cert	1110		0.430	1.90	0.280	0.175	275	164		0.390	730	2.44	34.9
DH-1a Meas												> 500	2470
DH-1a Cert												910	2629
GXR-4 Meas	6400		0.2	1.1	0.1	0.6	215	38.2		3.15	47.7	23.7	5.9
GXR-4 Cert	6520		0.210	1.60	0.170	0.790	221	30.8		3.20	52.0	22.5	6.20
SDC-1 Meas	29.9		0.6	3.1		< 0.1	162	< 0.1		0.59	22.4	12.3	2.8

	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SAMPLE	Cu	Ge	Tm	Yb	Lu	Ta	Sr	W	Re	Tl	Pb	Th	U
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SDC-1 Cert	30.000		0.65	4.00		1.20	180.00	0.80		0.70	25.00	12.00	3.10
GXR-6 Meas	73.7			1.7	0.3	< 0.1	36.3	0.1		2.22	101	5.8	1.5
GXR-6 Cert	66.0			2.40	0.330	0.485	35.0	1.90		2.20	101	5.30	1.54
DNC-1a Meas	95.1			1.9			135				5.4		
DNC-1a Cert	100			2.0			144				6.3		
SBC-1 Meas	33.2		0.6	3.4	0.5	1.1	172	1.7		0.93	35.8	17.6	6.0
SBC-1 Cert	31.0000		0.56	3.64	0.54	1.10	178.0	1.60		0.89	35.0	15.8	5.76
OREAS 45d (4-Acid) Meas	365			1.4	0.2	< 0.1	28.2	0.1		0.25	20.8	15.6	2.9
OREAS 45d (4-Acid) Cert	371			1.33	0.18	1.02	31.30	1.62		0.27	21.8	14.5	2.63
SdAR-M2 (U.S.G.S.) Meas	265		0.5	2.9	0.4	0.3	142	0.6			754	14.9	2.4
SdAR-M2 (U.S.G.S.) Cert	236.00 00		0.54	3.63	0.54	1.8	144	2.8			808	14.2	2.53
SdAR-M2 (U.S.G.S.) Meas	249		0.5	2.8	0.4	0.3	138	0.5			730	15.3	2.5
SdAR-M2 (U.S.G.S.) Cert	236.00 00		0.54	3.63	0.54	1.8	144	2.8			808	14.2	2.53
OREAS 220 (Fire Assay) Meas													
OREAS 220 (Fire Assay) Cert													
OREAS 222(FIRE ASSAY) Meas													
OREAS 222(FIRE ASSAY) Cert													
[redacted]	13.6	< 0.1	0.3	1.9	0.3	< 0.1	222	< 0.1	< 0.001	0.27	17.2	10.9	1.6
[redacted]	13.4	< 0.1	0.3	1.8	0.3	< 0.1	227	< 0.1	< 0.001	0.25	16.8	14.2	1.5
[redacted]	4.7	< 0.1	0.2	1.5	0.2	< 0.1	278	< 0.1	< 0.001	0.25	15.4	10.9	1.6
[redacted]	4.5	< 0.1	0.2	1.3	0.2	< 0.1	279	< 0.1	< 0.001	0.24	15.7	7.6	1.2
[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]	12.8	< 0.1	0.2	1.1	0.2	< 0.1	302	< 0.1	< 0.001	0.30	14.7	9.2	2.7
[redacted]	4.8	< 0.1	0.2	1.1	0.2	< 0.1	302	< 0.1	< 0.001	0.30	14.2	8.4	1.2
Method Blank	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	< 0.1	< 0.001	< 0.05	< 0.5	< 0.1	< 0.1
Method Blank	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.6	< 0.1	< 0.001	< 0.05	< 0.5	0.1	< 0.1
Method Blank	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.001	< 0.05	< 0.5	< 0.1	< 0.1
Method Blank	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.001	< 0.05	< 0.5	< 0.1	< 0.1
Method Blank													
Method Blank													

APPENDIX 2: FIELD NOTES

Station	Sample	QA/QC	Easting	Northing	Elevation	Sample Description														Unit Above	Unit Below	Wet/Dry	Terrain	Trees	Comments	Sampler	Date
						Soil				%				Bedrock													
						Layer	Depth (cm)	Colour	PH	Gravel	Sand	Clay	Organic	Rock Type	Litho	Structure	Alteration	Mineralization	Mag Sus								
AS-01-300N	832001		629712	5871932		Fluvial gravel	70	pale brown		50	50		minor							Humus	?	Wet	flat, boggy	Jackpine, alder, lab tea	Looks like lake bottom sediment	MZ/DM/TB	06.11.2017
AS-01-250N	832451		629722.8	5871875	314.96									Mafic Volcanic	Green, fine grained, moderately foliated	FOL ~100° and is subvertical	Weak light green chlorite.	N/A	0.753				OC on edge of slightly higher ground	Jackpine, alder, lab tea		MZ/DM/TB	06.11.2017
AS-01-200N (org)	837249	837250 G900 3.19-3.20	629711	5871831		Ah	50	black				15	85							Humus	gravel	Wet	flat, boggy	Balsam, tamarack,alder,lab tea	Water table is ~70cm below surface	MZ/DM/TB	06.11.2017
AS-01-200N (gravel)	832002		629710	5871830		Fluvial gravel	95	pale brown		50	50									Ah	?	Wet	flat, boggy	Balsam, tamarack,alder,lab tea	Used auger	MZ/DM/TB	06.11.2017
AS-01-150N	837246		629705.3	5871779	317.60	Ah	40	black				35	65							Humus	boulders with minor gravel	Wet	flat, boggy	Small pine, lab tea, moss		MZ/DM/TB	06.11.2017
AS-01-100N	837248		629704.8	5871725	315.44	Ah	50	black				35	65							Humus	boulders	Wet	flat, boggy	Pine, lab tea, moss		MZ/DM/TB	06.11.2017
AS-01-050N			629707.5	5871675	313.27																				No Sample - Moss on boulders	MZ/DM/TB	06.11.2017
AS-01-000			629708.1	5871625	311.83																				No Sample - Moss on boulders	MZ/DM/TB	06.11.2017
AS-01-050S	837247		629704.4	5871578	314.71	Ah	60	black-dark brown				20	85							Humus	boulders	Wet		Large black spruce, alder, lab tea, moss	Increased dark brown coloured material compared to previous Ah samples.	MZ/DM/TB	06.11.2017
AS-01-100S	837245		629731.2	5871526	315.68	Clay / Ah	90	brown grey				100								Humus	?	Wet		Alder lab tea, pine	Moved 25m east to avoid large swamp. Used auger.	MZ/DM/TB	06.11.2017
AS-01-150S			629735	5871481	N/A																				No Sample - Moss on boulders	MZ/DM/TB	06.11.2017
AS-01-200S	832003		629706.8	5871428	314.71	Bf	40	golden brown			85	15								Ae	Bm	Damp	Slight hill on edge of boulder field	Pine, bircg, lab tea	Great soil profile: OR-Ah-Ae-Bf-Bm	MZ/DM/TB	06.11.2017
AS-01-250S	832004		629709.3	5871374	316.40	Bf	40	golden brown			85	15								Ae	Bm	Damp	Well drained high ground	Pine, spruce, moss	Good sample	MZ/DM/TB	06.11.2017
AS-01-300S	832005		629703	5871327	315.44	Bf	15	golden brown			85	15								Ae	Bm	Damp	Well drained high ground	Pine, spruce, moss	Good sample	MZ/DM/TB	06.11.2017
Sample L1	832006		629557	5871698	312.55	B gravel	35	dark brown		25	75									Ae/boulders	Water	Wet	higher boulder field	pPine, alder	Or-Ae-Bf-Water. Lots of sub rounded boulderes and gravel within the Bf layer (poorly sorted - likely water transport)	MZ/DM/TB	06.11.2017

APPENDIX 3: INVOICES