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Methodology for Whole-Rock Lithogeochemistry, Assay, and Portable X-ray Fluorescence Geochemical Datasets Associated with the Preliminary Bedrock Geology Map of the Eastern Cobequid Highlands, Nova Scotia

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Introduction

This report summarizes the methods used to obtain and evaluate the whole-rock lithogeochemistry, assays, and portable X-ray fluorescence (pXRF) data that were products of the eastern Cobequid Highlands bedrock-mapping project (MacHattie, 2018). These data are contained in a GIS-enabled digital product (MacHattie and MacMullen, 2018a). All lithogeochemical analyses and assays were performed by Activation Laboratories Limited in Ancaster, Ontario, between 2011 and 2017. All certificates of analysis and data tables provided from the lab are included in Appendix A.

Lithogeochemistry Samples

Between 2011 and 2017, a total of 47 representative samples of rhyolite, basalt, and siliciclastic sedimentary rocks were collected and analyzed for their major- and trace-element concentrations. These data can be found in reports A11-1172, A12-01452, A13-04457, and A16-00701 in Appendix A. Samples that are redacted from Appendix A were not a part of the current study, and thus are not included here or in MacHattie and MacMullen (2018a).

At Activation Laboratories, fresh 0.2 to 1 kg samples were crushed in mild steel and mechanically split (riffle), after which 100 to 200 g were pulverized with mild steel to at least 95% minus 150 mesh. All samples had their major elements and trace elements analyzed by either the 4LITHO or 4LITHORES geochemical packages. This includes a lithium metaborate/tetraborate fusion followed by analysis by ICP-MS. Some samples (reports A11-1172 and A12-01452) had their F concentrations determined by fusion specific ion electrode analysis (code 4F-F).

Assay Samples

Between 2011 and 2017, a total of 70 samples of variably silicified and/or sulphidized rhyolite and basalt were collected and analyzed for their major- and trace-element concentrations, including Au. These data can be found in reports A11-13057, A15-10068, A17-08387, and A17-11275 in Appendix A. At Activation Laboratories, samples weighing between 150 g and 2900 g (*see* MacHattie and MacMullen, 2018a) were crushed in mild steel and mechanically split (riffle), after which 100 to 1000 g were pulverized with mild steel to at least 95% minus 150 mesh.

Samples in report A11-13057 are the original samples collected and analyzed at the time bedrock Au was first documented in the area (MacHattie, 2013). These samples had their major and trace elements analyzed by the 4LITHO geochemical package, which is used for non-mineralized bedrock samples. In addition, the Ultratrace 1 (UT-1) geochemical package was also applied to these samples. Compared with 4LITHO, this package provides some additional major elements and a more expansive trace-element dataset, including Au. A partial aqua regia acid digestion is employed for UT-1 and the analysis is

conducted by ICP-MS. Gold was also determined by fire assay and analysis by atomic absorption (code 1A2). Sulphur was determined by infrared spectroscopy (code 4F-S).

Samples in report A15-10068 had their major elements determined by X-ray fluorescence (XRF) and selected major elements and a wide range of trace elements (including Au) by the Ultratrace 2 (UT-2) geochemical package. A partial aqua regia acid digestion is employed for UT-2, and the analysis is conducted by ICP-MS or ICP-OES.

Samples in A17-08387 had selected major and trace elements analyzed by Activation Laboratories Geochemical Exploration for Epithermal Deposits multi-method geochemical package (code 1EPI/MS). For most elements in this package, a four-acid digestion of the sample is followed by analysis by either ICP-OES or ICP-MS. In this package, a subset of the elements, including Au, is determined by instrumental neutron activation analysis. Mercury concentrations were determined by cold vapour FIMS (code 1G). There was also a separate Au analysis by fire assay and analysis by instrumental neutron activation analysis (INAA, code 1A1).

Samples in report A17-11275 are the same samples submitted for analysis in reports A11-13057 and A15-10068. The returned pulps from those original analyses were resubmitted to acquire Hg concentrations and a complete Au fire assay dataset. Mercury concentrations were determined by cold vapour FIMS (code 1G). Samples from report A15-10068 had Au determined by fire assay and analysis by instrumental neutron activation analysis (INAA, code 1A1).

Portable X-ray Fluorescence Data

An Innov-X/Olympus X-5000 portable X-ray fluorescence (pXRF) analyzer was used to analyze rock samples collected during the eastern Cobequid Highlands bedrock mapping. MacHattie and MacMullen (2018a) include a compilation of 1851 volcanic, sub-volcanic, and sedimentary rock samples collected between 2009 and 2017 and analyzed between 2011 and 2017. The elements (n=28) included in this dataset (S, K, Ca, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, As, Se, Rb, Sr, Y, Zr, Nb, Mo, Cd, Sn, Sb, Ba, Ce, W, Pb, Th, and U) are all reported in parts per million (ppm). All analyses were performed on thoroughly washed and dried flat surfaces of cut rock-slabs, which were typically thicker than 1 cm. Most samples were analyzed in at least three separate spots. The individual spot analyses (n=5624), as well as calculated averages for the 1851 samples, are included in MacHattie and MacMullen (2018a).

In order to evaluate the pXRF analyzer's performance, two internal reference samples (basalt and rhyolite) have been routinely analyzed since the unit was purchased in 2010. This allows an estimation of potential analytical 'drift' (i.e. precision and accuracy) over time and hence ensures meaningful interpretation of the data. The results have shown no analytical drift and a consistent reproducibility.

In order to calculate more meaningful and useful averages, non-detects have been assigned a value equal to half the 'detection limit,' which is taken as the minimum value obtained for a given batch of analyses that were compiled by the year the samples were collected or analyzed. For example, 431 samples were collected in 2017 and analyzed in 2017 and 2018 (17TM series). A total of 1297 analyses were conducted on these 431 samples; a minimum value of 4.4 ppm was found for As, and the non-detects were assigned a value of 2.2 ppm (n=323/1297 analyses) for the averaged data. In contrast, the minimum value obtained for Zn in the 2017 data series was 6.9 ppm; only 6 of the 1297 analyses were non-detects for Zn, and these were assigned a value of 3.45 ppm. Importantly, as stated above, the raw individual spot analyses and the calculated averages are both included in MacHattie and MacMullen (2018a), and users can choose to their own way to deal with data that approach or are below the detection limit. As

with any dataset, when concentrations levels approach the detection limit of the method, caution should be exercised.

There are changes to two important parameters included in MacHattie and MacMullen (2018a) that users of the data contained therein should take into consideration. First, in 2014 the runtime per spot was changed from 3 minutes to 1.5 minutes. Second, also in 2014, the calibration of Ni and Th was changed (Cal A to Cal B). How runtime per spot influences results is discussed next. This is followed by an evaluation of the pXRF data and how the Cal A versus Cal B setting influences results.

The decision to decrease the total runtime per spot was simply to the expedite acquisition of the data. The major difference between long and short runtimes is that data acquired with a longer runtime have an apparent increased sensitivity. This results in detections at lower apparent concentration levels for some elements in the 3-minute runtime dataset as the detection limit is approached. This is particularly evident for S, As, Se, Cd, Sb, and U. Using Sb as an example, the pre-2014 dataset has widespread detect in the 1 to 5 ppm concentration range, which is essentially the background or detection limit for that dataset. This low-level background is evident in the 2011 data series (11TM series) where a significant number of samples were collected and analyzed (3-minute runtime) as part of this project. In contrast, post-2014 data with the shorter runtime have minimum detects for Sb of 9 to 10 ppm. When data acquired under different runtimes are utilized together, this runtime 'artifact' should be taken into account for these elements. Importantly, both datasets show that 'anomalous' Sb concentrations are in the 10 to 15 ppm range (extending up to values >100 ppm), that is, approximately 2 to 3 times greater than the background or detection limit of the 3-minute runtime and coincident with that of the 1.5-minute runtime.

In Appendix B (a spreadsheet file), pXRF data (single spot, 1.5-minute runtime) for the 48 returned pulps from the lithogeochemical analyses conducted at Activation Laboratories are compared to the data provided by the lab for these pulps (worksheets XRF_pulp_vs_4LITHO_Data and XRF_pulp_vs_4LITHO_Plots), as are the pXRF data from the 48 rock slabs provided in MacHattie and MacMullen (2018a) (worksheets XRF_Slab_vs_4LITHO_Data and XRF_Slab_vs_4LITHO_Plots in Appendix B). In these worksheets, 22 elements (K, Ca, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, As, Rb, Sr, Y, Zr, Nb, Mo, Sn, Ba, Ce, Pb, and Th) are 'evaluated' (plotted) and a comparison between homogeneous rock pulps versus more heterogeneous and coarser grained rock slabs can be made. An additional comparison is made between the returned pulps from report A11-13057 (Appendix A) and the Activation Laboratories data for S, As, Se, Cd, and Sb (worksheets XRF_vs_UT1_and_4F_Data and XRF_vs_UT1_and_4F_Plots in Appendix B). In this report, these elements were determined either by partial aqua regia acid digestion and ICP-MS (UT-1) or by infrared spectroscopy (S, code 4F).

Good to excellent agreement and/or correlation is found between the single-spot pXRF analysis of the 48 pulps and the lithogeochemical data obtained from Activation Laboratories for most of the 22 elements evaluated. Several of the elements have slopes close to 1 and are extremely well correlated using a linear (e.g. Ti slope =1.09, R^2=0.997) or polynomial regression (e.g. Ca and Fe). Some key elements like Y and Nb are extremely well correlated (R^2=0.99-0.96) but have slopes <1 (0.66-0.61). This indicates that these elements are over estimated by the pXRF calibration compared to the laboratory data. The Activation Laboratories results are considered closest to the true concentrations. If so, these regressions can be used to extract a more accurate concentration for these. For example, using the y=0.66x equation for the Y regression indicates that a pXRF analysis of 300 ppm may actually be closer to 200 ppm (Appendix B, worksheet XRF_pulp_vs_4LITHO_plots). Some elements cannot be fully evaluated from this dataset because there is not enough compositional variation (e.g. Sn) and/or concentration levels are too low in most samples to be detected (e.g. W and U).

A comparison of the regressions for the pulps discussed above and the same regressions using rocks slab averages yielded predictable differences. Overall, these two datasets are in excellent agreement indicating that analysis of fine-grained relatively homogeneous rock-slabs are comparable to that of pulverized rock (e.g. see regressions for Ti in Appendix B, worksheet XRF_SLAB_vs_4LITHO_Plots). The data for the rock slabs are generally more scattered as predicted.

As noted above, approximately half of the 48 rock slabs were analyzed with the Cal A calibration for Ni and Th (the factory default for the pXRF) and the rest analyzed using Cal B. The rock-slab dataset can be used to highlight the difference between the two settings so that correct interpretations can be when made when using the data. For Ni, the initial factory calibration (Cal A) was simply erroneous and no meaningful Ni data can be found in that dataset. The new Ni calibration (Cal B) resulted in much more reliable and accurate data (slope=0.82, R^2=0.86) when compared to the laboratory analyses. For Th, the initial factory calibration (Cal A) substantially overestimated Th (slope=0.18) but did so systematically (R^2=0.93). The new Th calibration (Cal B) agrees much more closely with the laboratory data (slope=0.94) and is also well correlated (R^2=0.85). As such, when using the compiled dataset for Th, a correction should be applied to the Th concentrations determined using calibration A by employing the equation shown on the plot (Appendix B, worksheet XRF_Slab_vs_4LITHO_Plots).

The pXRF data for rock pulps were compared to the data from report A11-13057 (Appendix A). In this report, S was determined by infrared spectroscopy and the key tracer elements were determined by aqua regia digestion and analysis by ICP-MS (As, Se, Cd and Sb). The regression for S indicates that the pXRF data on homogeneous pulps is indistinguishable from the laboratory data, and regressions for As, Se, Cd, and Sb have slopes close to 1 and are well correlated, even for elements at very low concentrations (e.g. Se and Cd).

Summary

Representative whole-rock lithogeochemistry for 48 samples of basalt, rhyolite, and sedimentary rocks and 70 whole-rock assays, including a complete Au (fire assay) and Hg (cold vapour FIMS) dataset, are provided in the lithogeochemical database (MacHattie and MacMullen, 2018a) associated with the bedrock-mapping project (MacHattie, 2018; MacHattie and MacMullen, 2018b). A total of 1851 cut rock-slab samples were analyzed by pXRF (S, K, Ca, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, As, Se, Rb, Sr, Y, Zr, Nb, Mo, Cd, Sn, Sb, Ba, Ce, W, Pb, Th, and U), and both the individual spot analyses (n=5624) as well as sample averages are compiled. Comparison of the pXRF data from both pulps and rock slabs to certified analytical results indicates that the pXRF data is of exceptional quality and suitable for discerning different rock compositions (e.g. Zr/Ti) and identifying anomalous concentrations of metals commonly associated with epithermal Au mineralization (e.g. As and Sb). Hence, pXRF results can be used with a significant degree of confidence.

Caution should be used when interpretations rely on data close to the detection limit and rock heterogeneity should also be strictly evaluated. The latter can be assessed by examining the standard deviation of individual analyses for a given sample and element of interest.

References

MacHattie, T.G., 2013. Newly recognized epithermal-style gold occurrences associated with Late Devonian to Early Carboniferous bi-modal volcanism in the northeastern Cobequid Highlands; *in* Mineral Resources Branch Report of Activities, (ed.) D.R. MacDonald and E.W. MacDonald; Nova Scotia Department of Natural Resources, Report ME 2012-001, p. 31-39.

MacHattie, T.G., 2018. Preliminary bedrock geology map of the eastern Cobequid Highlands, Nova Scotia; Nova Scotia Department of Natural Resources, Open File Map ME 2018-005, scale 1:35 000.

MacHattie, T.G. and MacMullen, C.C., 2018a. DP ME 505, Version 1, 2018. Lithogeochemical Data from the Warwick Mountain Area, Eastern Cobequid Highlands, Nova Scotia; Nova Scotia Department of Natural Resources, Digital Product ME 505. <https://novascotia.ca/natr/meb/download/dp505.asp>

MacHattie, T.G. and MacMullen, C.C., 2018b. DP ME 504, Version 1, 2018. Digital Version of Nova Scotia Department of Natural Resources Open File Map ME 2018-005, Preliminary Bedrock Geology Map of the Eastern Cobequid Highlands, Nova Scotia, scale 1:35 000, by T.G. MacHattie 2018; Nova Scotia Department of Natural Resources, Digital Product 504. <https://novascotia.ca/natr/meb/download/dp504.asp>

Appendix A. Certificates of Analysis

In addition to the following text, Microsoft Excel files with the data are in the accompanying zip archive "OFR_ME_2018-004_Appendix_A.zip".

Quality Analysis ... *Innovative Technologies*

Date Submitted: 18-Feb-11
Invoice No.: A11-1172
Invoice Date: 15-Mar-11
Your Reference: Wentworth

Nova Scotia Department of Natural Resources
1701 Hollis Street
P.O. Box 698
Halifax NS B3J 2T9
Canada

ATTN: Trevor MacHattie

CERTIFICATE OF ANALYSIS

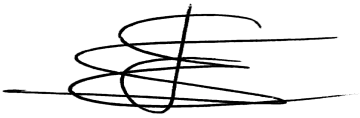
9 Rock samples were submitted for analysis.

The following analytical packages were requested: Code 4F-F Fusion Specific Ion Electrode-ISE
Code 4LITHO (1-10) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

REPORT **A11-1172**

Notes:
We recommend using option 4B1 for accurate levels of the base metals Cu, Pb, Zn, Ni and Ag. Option 4B-INAA for As, Sb, high W >100ppm, Cr >1000ppm and Sn >50ppm by Code 5D. Values for these elements provided by Fusion ICP/MS, are order of magnitude only and are provided for general information. Mineralized samples should have the Quant option selected or request assays for values which exceed the range of option 4B1. Total includes all elements in % oxide to the left of total.

CERTIFIED BY :



Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited
LAB 266
LAB 266
Accrédité CCN

ACTIVATION LABORATORIES LTD.

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Analyte Symbol	F	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Analysis Method	FUS-ISE	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
10TM-0003	0.04	47.78	16.47	11.34	0.203	7.04	10.06	2.66	0.99	1.526	0.17	1.92	100.2	38	< 1	263	240	46	110	70	130	18	2	< 5
10TM-0019	0.09	47.47	14.54	15.02	0.264	5.53	7.44	3.13	1.64	2.842	0.53	1.15	99.55	31	2	313	70	47	60	60	250	24	2	< 5
10TM-0103A	0.10	58.19	15.87	9.02	0.178	2.27	4.50	4.25	3.40	1.661	0.70	0.78	100.8	17	5	99	< 20	20	50	20	150	27	2	< 5
10TM-0103B	0.04	64.71	15.19	5.26	0.090	0.92	2.38	3.75	5.42	0.761	0.26	0.65	99.39	9	5	33	40	7	< 20	< 10	80	23	2	< 5
10TM-0120	0.05	45.11	14.70	14.76	0.532	6.22	8.69	2.56	1.60	2.635	0.45	1.73	98.99	39	1	373	90	38	60	70	440	18	2	< 5
10TM-0138	0.04	58.75	13.46	9.24	0.165	2.75	4.94	3.28	3.14	1.602	0.27	1.36	98.95	25	3	182	60	18	20	50	150	16	2	< 5
10TM-0164	0.02	46.77	14.89	12.88	0.194	7.34	9.16	2.76	1.25	2.206	0.28	2.04	99.77	40	< 1	319	260	47	100	80	120	19	2	< 5
10TM-0168A	0.15	51.68	13.77	12.51	0.211	4.12	6.10	3.50	2.61	2.507	0.53	2.04	99.59	29	4	266	40	27	30	40	130	20	1	< 5
10TM-0244	0.03	45.00	16.26	13.65	0.220	7.22	7.74	2.72	1.07	2.334	0.28	3.65	100.1	26	< 1	247	40	46	90	40	100	16	1	< 5

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	2	2	4	1	2	0.5	0.2	1	0.5	0.5	3	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05
Analysis Method	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
10TM-0003	61	374	30	124	9	< 2	< 0.5	< 0.2	2	0.5	7.3	484	11.8	28.5	3.60	17.3	4.7	1.33	5.3	0.9	5.5	1.1	3.2	0.47
10TM-0019	91	308	52	265	24	< 2	1.0	< 0.2	5	< 0.5	6.1	348	31.2	66.7	8.49	38.3	9.3	2.56	9.5	1.5	9.1	1.8	5.1	0.74
10TM-0103A	173	262	62	644	46	5	2.1	< 0.2	12	< 0.5	7.4	670	67.1	145	16.0	65.4	13.7	2.91	12.5	2.0	11.9	2.3	6.8	1.04
10TM-0103B	166	161	75	682	46	6	2.1	< 0.2	5	< 0.5	3.9	573	73.7	153	16.6	63.3	13.2	1.76	12.1	2.0	12.2	2.4	7.2	1.08
10TM-0120	90	319	32	177	11	< 2	0.5	< 0.2	1	< 0.5	7.4	817	13.9	35.1	4.57	21.6	5.5	1.77	5.7	0.9	5.3	1.0	2.9	0.41
10TM-0138	99	220	52	390	20	< 2	1.1	< 0.2	3	2.0	1.4	493	30.9	70.2	8.18	34.6	8.0	1.64	7.8	1.3	7.9	1.6	4.6	0.68
10TM-0164	58	394	28	149	9	< 2	< 0.5	< 0.2	2	< 0.5	9.6	381	14.4	31.2	3.96	18.7	4.9	1.75	5.3	0.8	5.1	1.0	2.8	0.40
10TM-0168A	73	210	46	348	19	< 2	1.0	< 0.2	4	2.1	1.9	395	27.6	65.6	8.04	35.9	8.6	2.27	8.5	1.3	7.9	1.5	4.3	0.62
10TM-0244	46	505	25	140	10	< 2	< 0.5	< 0.2	1	< 0.5	5.6	288	10.3	26.0	3.41	16.4	4.2	1.51	4.6	0.7	4.4	0.8	2.4	0.34

Analyte Symbol	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
10TM-0003	3.2	0.49	3.0	0.6	< 1	1.3	< 5	< 0.4	1.1	0.3
10TM-0019	4.8	0.74	6.0	1.9	1	0.7	48	< 0.4	4.3	1.1
10TM-0103A	6.8	1.01	14.2	3.3	2	1.2	38	< 0.4	22.0	5.3
10TM-0103B	7.2	1.10	14.1	3.4	< 1	0.8	34	< 0.4	18.8	4.0
10TM-0120	2.6	0.41	3.5	0.9	< 1	1.1	99	< 0.4	1.0	0.3
10TM-0138	4.7	0.75	7.5	1.7	< 1	0.6	35	< 0.4	7.7	2.0
10TM-0164	2.6	0.41	3.3	0.7	< 1	1.8	52	< 0.4	1.6	0.4
10TM-0168A	4.2	0.63	7.2	1.6	2	0.4	104	< 0.4	5.2	1.4
10TM-0244	2.2	0.35	2.9	0.8	< 1	0.4	< 5	< 0.4	0.8	0.2

Quality Control

Analyte Symbol	F	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Analysis Method	FUS-ISE	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
DH-1a Meas																								
DH-1a Cert																								
TAN-1 Meas																								
TAN-1 Cert																								
NIST 694 Meas		11.62	1.91	0.75	0.012	0.35	43.09	0.88	0.56	0.117	30.24					1670								
NIST 694 Cert		11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2					1740								
NIST 694 Meas		11.62	1.91	0.75	0.012	0.35	43.09	0.88	0.56	0.117	30.24					1670								
NIST 694 Cert		11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2					1740								
DNC-1 Meas		46.76	18.58	9.92	0.147	10.11	11.29	1.90	0.23	0.487	0.06			31		154	270	58	250	100	70			
DNC-1 Cert		47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.070			31		148.0	270.0	57.0	247	100.0	70.0			
GBW 07113 Meas	0.13																							
GBW 07113 Cert	0.130																							
LKSD-3 Meas																	80	31	50	30	140			23
LKSD-3 Cert																	87.0	30.0	47.0	35.0	152			27.0
TDB-1 Meas																	230		90	350	170			
TDB-1 Cert																	251		92	323	155			
DR-N Meas	0.05																							
DR-N Cert	0.0500																							
UB-N Meas	0.01																							
UB-N Cert	0.00950																							
W-2a Meas	0.02																							
W-2a Cert	0.0205																							
W-2a Meas		52.60	15.17	10.79	0.168	6.38	11.04	2.23	0.63	1.082	0.12			35	< 1	278	80	44	70	110	90	18	2	< 5
W-2a Cert		52.4	15.4	10.7	0.163	6.37	10.9	2.14	0.626	1.06	0.130			36.0	1.30	262	92.0	43.0	70.0	110	80.0	17.0	1.00	1.20
SY-4 Meas		49.85	20.56	6.22	0.107	0.50	8.10	6.91	1.69	0.284	0.12			1	3	< 5								
SY-4 Cert		49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66	0.287	0.131			1.1	2.6	8.0								
CTA-AC-1 Meas																		< 1		60	60			
CTA-AC-1 Cert																		2.72		54.0	38.0			
BIR-1a Meas		48.17	15.44	11.17	0.174	9.73	13.46	1.82	0.02	0.954	< 0.01			44	< 1	337	370	53	170	130	80	15		< 5
BIR-1a Cert		47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96	0.021			44	0.58	310	370	52	170	125	70	16		0.44
NCS DC86312 Meas																								
NCS DC86312 Cert																								
NCS DC70014 Meas																		25	70	2590	7400	25		
NCS DC70014 Cert																		26.2	70.9	2600.00	7400.00	25.2		
NCS DC86316 Meas																								
NCS DC86316 Cert																								
NCS DC70009 (GBW07241) Meas																	30	3	< 20	980	100	17	11	72
NCS DC70009 (GBW07241) Cert																	30	3.7	2.8	960.000	100.000	16.5	11.2	69.9
SGR-1b Meas	0.20																							
SGR-1b Cert	0.1960																							
OREAS 100a (Fusion) Meas																		17		170				
OREAS 100a (Fusion) Cert																		18.1		169				
OREAS 101a (Fusion) Meas																		48		430				
OREAS 101a (Fusion) Cert																		48.8		434				
OREAS 101b (Fusion) Meas																		45	< 20	420				
OREAS 101b (Fusion) Cert																		47	9	416				
JR-1 Meas																	< 20	< 1	< 20	< 10	30	17	3	16
JR-1 Cert																	2.83	0.83	1.67	2.68	30.6	16.1	1.88	16.3
SARM 3 Meas																								
SARM 3 Cert																								
USZ 44-2007 Meas																								

Quality Control

Analyte Symbol	F	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Analysis Method	FUS-ISE	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
USZ 44-2007 Cert																								
BCR-2 Meas		54.17	13.42	13.78		3.55	7.18	3.13	1.80	2.237	0.35			33		438								
BCR-2 Cert		54.1	13.5	13.8		3.59	7.12	3.16	1.79	2.26	0.35			33		416								
10TM-0103A Orig	0.10	58.15	15.85	8.98	0.177	2.26	4.51	4.25	3.39	1.662	0.70	0.78	100.7	17	5	99								
10TM-0103A Dup	0.10	58.24	15.90	9.06	0.178	2.27	4.50	4.24	3.41	1.659	0.70	0.78	100.9	17	5	99								
10TM-0244 Orig	0.03	45.00	16.26	13.65	0.220	7.22	7.74	2.72	1.07	2.334	0.28	3.65	100.1	26	< 1	247	40	46	90	40	100	16	1	< 5
10TM-0244 Split	0.03	45.16	16.25	13.72	0.221	7.23	7.87	2.69	1.06	2.341	0.28	3.63	100.4	27	1	251	40	45	90	40	100	16	1	< 5
Method Blank Method Blank	< 0.01																							
Method Blank Method Blank																	< 20	< 1	< 20	< 10	< 30	< 1	< 1	< 5

Quality Control

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	2	2	4	1	2	0.5	0.2	1	0.5	0.5	3	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05
Analysis Method	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
DH-1a Meas																								
DH-1a Cert																								
TAN-1 Meas																								
TAN-1 Cert																								
NIST 694 Meas																								
NIST 694 Cert																								
NIST 694 Meas																								
NIST 694 Cert																								
DNC-1 Meas		143	16	35						1.0		103	3.8			5.0		0.59						
DNC-1 Cert		144.0	18.0	38						0.96		118	3.6			5.20		0.59						
GBW 07113 Meas																								
GBW 07113 Cert																								
LKSD-3 Meas	72					< 2	2.6		2	1.0	2.3		52.2	90.0		43.4	7.9	1.40		1.0	4.9			
LKSD-3 Cert	78.0					2.00	2.70		3.00	1.30	2.30		52.0	90.0		44.0	8.00	1.50		1.00	4.90			
TDB-1 Meas	23												18.4	43.3		24.5		1.99						
TDB-1 Cert	23												17	41		23		2.1						
DR-N Meas																								
DR-N Cert																								
UB-N Meas																								
UB-N Cert																								
W-2a Meas																								
W-2a Cert																								
W-2a Meas	20	198	19	85	7	< 2	< 0.5			1.0	0.9	170	11.2	24.1		13.7	3.4	1.12		0.7	3.9	0.8	2.4	0.33
W-2a Cert	21.0	190	24.0	94.0	7.90	0.600	0.0460			0.790	0.990	182	10.0	23.0		13.0	3.30	1.00		0.630	3.60	0.760	2.50	0.380
SY-4 Meas		1198	113	574								336												
SY-4 Cert		1191	119	517								340												
CTA-AC-1 Meas													> 2000	> 3000		1120	165	44.7	129	14.8				
CTA-AC-1 Cert													2176	3326		1087	162	46.7	124	13.9				
BIR-1a Meas		108	14	16	< 1					0.7		7		2.2		2.4	1.1	0.51	1.8					
BIR-1a Cert		110	16	18	0.6					0.58		6		1.9		2.5	1.1	0.55	2.0					
NCS DC86312 Meas													> 2000	188		1570			224	34.3	184	35.8	96.5	14.4
NCS DC86312 Cert													2360.000	190.000		1600.000			225.0	34.6	183.00	35.70	96.2	15.1
NCS DC70014 Meas						> 100	16.7			180			45.8	88.4	9.99	37.5	7.6	1.77	6.8	1.1	6.8	1.2	3.3	0.57
NCS DC70014 Cert						270.000	16.7			180.000			45.3	87.0	10.8	39.9	8.0	1.8	7.4	1.1	6.7	1.3	3.5	0.57
NCS DC86316 Meas																								
NCS DC86316 Cert																								
NCS DC70009 (GBW07241) Meas	503						2.1	1.3	> 1000		43.4				8.50	35.0	12.8	0.13	14.5	3.3	20.9	4.3	12.8	2.35
NCS DC70009 (GBW07241) Cert	500.00						1.8	1.3	1701.000		41				7.9	32.9	12.5	0.16	14.8	3.3	20.7	4.5	13.4	2.2
SGR-1b Meas																								
SGR-1b Cert																								
OREAS 100a (Fusion) Meas						21							261	473	47.8	154	22.4	3.35	20.9	3.8	21.0	4.5	13.2	2.19
OREAS 100a (Fusion) Cert						24.1							260	463	47.1	152	23.6	3.71	23.6	3.80	23.2	4.81	14.9	2.31
OREAS 101a (Fusion) Meas						19							815	1430	130	393	50.3	7.95		6.1	31.6	6.5	18.8	2.91
OREAS 101a (Fusion) Cert						21.9							816	1396	134	403	48.8	8.06		5.92	33.3	6.46	19.5	2.90
OREAS 101b (Fusion) Meas						19							781	1340	128	386	49.7	7.81		5.4	31.2	6.4	18.6	2.89
OREAS 101b (Fusion) Cert						20.9							789	1331	127	378	48	7.77		5.37	32.1	6.34	18.7	2.66
JR-1 Meas	252				15	3	< 0.5	< 0.2		1.5	21.0		21.3	49.1	5.93	24.3	5.9	0.29		1.1			3.6	0.70
JR-1 Cert	257				15.2	3.25	0.031	0.028		1.19	20.8		19.7	47.2	5.58	23.3	6.03	0.30		1.01			3.61	0.67
SARM 3 Meas				> 10000	972																			
SARM 3 Cert				11119	978																			
USZ 44-2007 Meas				> 10000																				

Quality Control

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	2	2	4	1	2	0.5	0.2	1	0.5	0.5	3	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05
Analysis Method	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
USZ 44-2007 Cert				15800																				
BCR-2 Meas		337	32	165								674												
BCR-2 Cert		346	37	188								683												
10TM-0103A Orig		262	62	639								668												
10TM-0103A Dup		261	62	650								672												
10TM-0244 Orig	46	505	25	140	10	< 2	< 0.5	< 0.2	1	< 0.5	5.6	288	10.3	26.0	3.41	16.4	4.2	1.51	4.6	0.7	4.4	0.8	2.4	0.34
10TM-0244 Split	46	504	25	141	10	< 2	< 0.5	< 0.2	1	< 0.5	5.6	287	10.7	27.0	3.60	17.5	4.5	1.57	4.8	0.8	4.5	0.9	2.5	0.36
Method Blank Method Blank																								
Method Blank Method Blank	< 2				< 1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5		< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05

Quality Control

Analyte Symbol	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
DH-1a Meas									918	
DH-1a Cert									910	
TAN-1 Meas				> 500						
TAN-1 Cert				2360						
NIST 694 Meas										
NIST 694 Cert										
NIST 694 Meas										
NIST 694 Cert										
DNC-1 Meas	2.0									
DNC-1 Cert	2.0									
GBW 07113 Meas										
GBW 07113 Cert										
LKSD-3 Meas	2.7	0.40		0.6					11.3	4.8
LKSD-3 Cert	2.70	0.400		0.700					11.4	4.60
TDB-1 Meas	3.3								2.9	
TDB-1 Cert	3.4								2.7	
DR-N Meas										
DR-N Cert										
UB-N Meas										
UB-N Cert										
W-2a Meas										
W-2a Cert										
W-2a Meas	2.1	0.30	2.6	0.4	< 1	< 0.1	10	< 0.4	2.5	0.6
W-2a Cert	2.10	0.330	2.60	0.500	0.300	0.200	9.30	0.0300	2.40	0.530
SY-4 Meas										
SY-4 Cert										
CTA-AC-1 Meas	10.9	1.10							23.5	4.3
CTA-AC-1 Cert	11.4	1.08							21.8	4.4
BIR-1a Meas	1.7	0.27	0.6				< 5			
BIR-1a Cert	1.7	0.3	0.60				3			
NCS DC86312 Meas	87.7	12.1							23.4	
NCS DC86312 Cert	87.79	11.96							23.6	
NCS DC70014 Meas	3.3	0.47					> 10000	80.3		
NCS DC70014 Cert	3.3	0.50					27200.00	80.3		
NCS DC86316 Meas			712							
NCS DC86316 Cert			712							
NCS DC70009 (GBW07241) Meas	16.0	2.27			2200				30.0	
NCS DC70009 (GBW07241) Cert	14.9	2.4			2200.00				28.3	
SGR-1b Meas										
SGR-1b Cert										
OREAS 100a (Fusion) Meas	13.9	2.16							48.1	132
OREAS 100a (Fusion) Cert	14.9	2.26							51.6	135
OREAS 101a (Fusion) Meas	18.1	2.49							36.3	423
OREAS 101a (Fusion) Cert	17.5	2.66							36.6	422
OREAS 101b (Fusion) Meas	18.0	2.48							38.5	412
OREAS 101b (Fusion) Cert	17.6	2.58							37.1	396
JR-1 Meas	4.8	0.70	4.5	1.9	2	1.6	22	0.7	28.2	9.7
JR-1 Cert	4.55	0.71	4.51	1.86	1.59	1.56	19.3	0.56	26.7	8.88
SARM 3 Meas										
SARM 3 Cert										
USZ 44-2007 Meas										

Quality Control

Analyte Symbol	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
USZ 44-2007 Cert										
BCR-2 Meas										
BCR-2 Cert										
10TM-0103A Orig										
10TM-0103A Dup										
10TM-0244 Orig	2.2	0.35	2.9	0.8	< 1	0.4	< 5	< 0.4	0.8	0.2
10TM-0244 Split	2.3	0.37	3.1	0.8	< 1	0.5	< 5	< 0.4	0.8	0.2
Method Blank Method Blank										
Method Blank Method Blank	< 0.1	< 0.04	< 0.2	< 0.1	< 1	< 0.1	< 5	< 0.4	< 0.1	< 0.1

Quality Analysis ... *Innovative Technologies*

Date Submitted: 04-Nov-11
Invoice No.: A11-13057
Invoice Date: 07-Dec-11
Your Reference: WARWICK MOUNTAIN

Nova Scotia Department of Natural Resources
1701 Hollis Street
P.O. Box 698
Halifax NS B3J 2T9
Canada

ATTN: Trevor MacHattie

CERTIFICATE OF ANALYSIS

11 Crushed Rock samples were submitted for analysis.

The following analytical packages were requested:

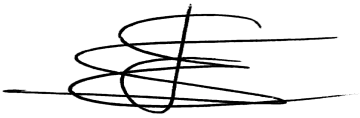
REPORT **A11-13057**

Code 1A2 Au - Fire Assay AA
Code 4F-S Infrared
Code 4LITHO (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)
Code UT-1-0.5g Aqua Regia ICP/MS

Notes:

Assays are recommended for values >10,000 for Cu and Au. Due to matrix change used in AR-MS analysis, the detection limts for Au has been modified to 5ppb. The AU from AR-MS is only semi-quantitative. For accurate Au data,fire assay is recommended.
If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3
We recommend using option 4B1 for accurate levels of the base metals Cu, Pb, Zn, Ni and Ag. Option 4B-INAA for As, Sb, high W >100ppm, Cr >1000ppm and Sn >50ppm by Code 5D. Values for these elements provided by Fusion ICP/MS, are order of magnitude only and are provided for general information. Mineralized samples should have the Quant option selected or request assays for values which exceed the range of option 4B1. Total includes all elements in % oxide to the left of total.

CERTIFIED BY :



Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited
LAB 266
LAB 266
Accrédité CCN

ACTIVATION LABORATORIES LTD.

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Activation Laboratories Ltd. Report: A11-13057

Analyte Symbol	Au	Total S	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni
Unit Symbol	ppb	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	5	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20
Analysis Method	FA-AA	IR	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS
11TM0104A	17	6.84	65.00	8.39	8.78	0.043	1.43	3.80	0.06	1.31	1.006	0.16	9.05	99.03	13	1	110	83	55	17	147	40	24	30
11TM0104B	35	4.49	59.26	11.84	9.17	0.075	2.33	2.43	0.10	1.60	1.836	0.28	9.05	97.97	23	2	197	98	61	25	172	60	31	40
11TM0104C	10	5.11	60.96	11.02	9.64	0.062	1.95	2.22	0.09	1.43	1.772	0.27	9.14	98.55	22	2	199	93	63	22	138	50	30	30
11TM0104D	659	4.21	61.84	10.39	9.85	0.078	2.31	2.49	0.08	1.44	1.722	0.27	8.46	98.93	22	2	200	94	50	22	151	50	31	40
11TM0441A	26	8.34	63.41	8.32	10.79	0.024	0.09	1.48	0.38	6.15	2.080	0.47	6.32	99.51	23	3	67	555	67	30	208	< 20	16	< 20
11TM0441B	39	7.46	62.73	8.35	10.83	0.022	0.35	2.02	0.24	5.66	2.552	0.62	6.03	99.41	23	2	81	655	83	33	251	< 20	16	< 20
11TM0441E	69	7.10	63.14	7.64	11.05	0.068	2.27	2.97	1.44	1.87	2.629	0.53	6.35	99.96	23	2	185	330	81	30	219	20	23	20
11TM0441F	37	4.85	55.66	10.67	11.91	0.124	3.84	3.38	1.60	2.73	3.107	0.62	6.19	99.83	29	3	215	438	87	39	266	< 20	24	20
11TM0233B	7	2.68	68.95	14.01	4.06	0.009	0.07	0.12	3.16	7.36	0.287	0.01	2.25	100.3	3	2	9	719	26	42	686	40	< 1	< 20
11TM0336A	52	8.80	63.75	9.77	10.62	0.012	0.08	0.04	0.15	7.05	0.244	0.04	6.17	97.93	4	2	< 5	600	26	109	522	< 20	1	< 20
11TM0336B	162	19.5	54.17	4.54	24.23	0.017	0.11	0.04	0.08	2.41	0.146	0.02	12.51	98.28	3	4	< 5	200	8	91	316	110	< 1	< 20

Activation Laboratories Ltd. Report: A11-13057

Analyte Symbol	Cu	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
11TM0104A	80	30	12	1	208	74	9	3	1.0	< 0.2	2	15.3	18.5	7.1	18.5	2.55	12.0	3.3	0.87	3.1	0.6	3.4	0.7	2.0
11TM0104B	50	60	18	1	217	88	13	6	1.5	< 0.2	2	21.4	28.6	10.9	28.2	4.07	18.2	4.9	1.38	4.8	0.8	5.0	1.0	2.9
11TM0104C	70	50	17	< 1	239	78	11	11	1.2	< 0.2	2	25.2	27.7	9.8	24.4	3.40	15.7	4.2	1.24	4.2	0.8	4.5	0.9	2.5
11TM0104D	40	60	17	< 1	275	87	12	9	1.2	< 0.2	2	25.4	24.8	10.2	25.5	3.50	15.9	4.2	1.22	4.1	0.7	4.3	0.9	2.5
11TM0441A	20	440	6	< 1	527	322	16	< 2	1.5	< 0.2	1	54.6	6.6	17.4	42.2	5.69	26.3	6.3	2.11	6.4	1.0	5.9	1.2	3.2
11TM0441B	10	50	7	1	212	254	19	< 2	2.0	< 0.2	2	22.0	7.3	21.5	53.8	6.98	31.4	7.5	2.57	7.3	1.2	6.9	1.3	3.6
11TM0441E	30	290	14	5	875	76	16	12	1.6	< 0.2	2	23.0	4.3	16.8	43.2	5.65	25.8	6.4	2.25	6.4	1.1	6.0	1.2	3.3
11TM0441F	20	250	21	5	823	117	20	3	1.9	< 0.2	2	24.1	3.4	21.8	54.0	7.12	32.8	8.0	2.71	7.9	1.3	7.8	1.5	4.2
11TM0233B	< 10	< 30	19	< 1	115	224	49	9	4.8	< 0.2	8	10.4	4.2	35.5	79.9	8.01	30.0	5.5	0.65	4.7	0.9	5.9	1.4	5.0
11TM0336A	< 10	90	18	< 1	99	273	43	4	3.7	< 0.2	5	3.8	7.4	71.7	164	20.2	87.7	20.6	2.73	18.6	3.1	18.0	3.6	10.0
11TM0336B	< 10	< 30	20	< 1	117	122	24	15	2.3	< 0.2	4	6.9	3.5	49.6	129	16.0	69.3	17.0	2.08	14.6	2.7	15.9	3.1	8.7

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Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm
Detection Limit	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	0.5	1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-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
11TM0104A	0.31	2.1	0.34	3.6	0.6	6	0.6	165	< 0.4	3.3	1.0	32.7	0.8	4	0.034	0.69	2.35	0.36	0.14	2.55	6.1	59	25.5	322
11TM0104B	0.41	2.9	0.46	4.4	0.9	16	0.9	312	< 0.4	3.0	1.0	59.3	1.2	4	0.034	1.21	3.67	0.44	0.06	1.55	10.6	105	45.2	599
11TM0104C	0.38	2.5	0.39	3.4	0.8	15	0.9	486	< 0.4	1.9	0.9	47.6	1.0	3	0.032	0.88	2.89	0.38	0.03	1.26	9.5	97	32.0	418
11TM0104D	0.37	2.5	0.40	3.7	0.8	16	1.0	304	< 0.4	2.4	1.0	64.6	1.2	4	0.029	1.09	3.05	0.42	0.03	1.32	10.5	106	34.7	571
11TM0441A	0.47	3.0	0.49	4.5	1.0	4	2.3	50	< 0.4	2.0	1.1	1.2	1.1	2	0.020	0.03	0.25	0.15	< 0.02	0.84	5.9	28	0.8	176
11TM0441B	0.51	3.2	0.51	5.5	1.2	19	1.8	9	< 0.4	2.3	0.4	8.2	1.0	2	0.016	0.18	0.56	0.14	< 0.02	0.85	9.5	48	1.5	146
11TM0441E	0.47	3.0	0.48	4.7	1.0	7	1.5	594	< 0.4	1.7	0.3	46.0	1.9	3	0.041	1.16	1.27	0.06	< 0.02	1.16	18.9	163	18.3	498
11TM0441F	0.58	3.7	0.60	5.6	1.2	11	1.6	338	< 0.4	2.1	0.4	84.7	2.7	4	0.034	2.18	2.29	0.05	< 0.02	1.20	20.4	181	4.0	988
11TM0233B	0.85	6.3	1.21	17.8	3.9	< 1	1.5	45	2.8	18.8	4.3	1.3	0.4	2	0.059	0.03	0.29	0.20	4.25	0.04	1.7	3	29.9	41
11TM0336A	1.41	8.8	1.41	13.2	3.1	1	1.5	53	< 0.4	15.8	3.6	0.8	0.6	2	0.013	0.02	0.28	0.22	0.15	0.01	0.7	< 1	< 0.5	33
11TM0336B	1.19	7.4	1.11	7.8	1.7	1	0.8	40	< 0.4	9.3	2.1	1.2	0.9	1	0.010	0.02	0.30	0.20	0.07	< 0.01	0.6	< 1	90.2	47

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Analyte Symbol	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Rb	Sr	Y	Zr	Nb	Mo	Ag	Cd	In	Sn	Sb	Te	Cs	Ba	La
Unit Symbol	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.01	0.02	0.05	0.02	0.02	0.02	0.5	0.5
Analysis Method	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
11TM0104A	6.84	35.1	41.5	114	41.6	7.83	< 0.1	488	0.6	34.8	48.8	12.9	18.8	< 0.1	3.08	0.685	8.84	0.03	0.98	6.91	0.07	10.9	9.2	5.9
11TM0104B	7.03	41.1	51.3	74.9	66.5	11.5	< 0.1	404	0.7	37.3	49.0	19.0	16.9	< 0.1	5.43	0.661	19.7	0.05	1.13	8.64	< 0.02	15.5	10.2	9.6
11TM0104C	6.13	35.5	43.7	94.2	53.8	10.0	< 0.1	409	0.6	34.3	48.3	16.3	12.2	< 0.1	9.27	0.755	21.4	0.04	0.86	9.51	< 0.02	14.1	6.0	7.8
11TM0104D	7.10	41.7	51.9	53.1	69.1	10.5	< 0.1	506	0.6	39.9	39.0	17.8	13.8	< 0.1	8.40	0.762	26.2	0.05	0.94	13.5	< 0.02	13.2	13.3	9.0
11TM0441A	8.50	22.0	10.5	24.0	542	0.88	< 0.1	1950	1.2	12.8	14.1	25.3	23.5	0.9	0.41	0.862	9.11	0.06	0.52	62.7	< 0.02	1.33	7.3	15.0
11TM0441B	8.02	20.8	11.0	19.4	57.9	2.83	0.2	527	0.7	11.1	9.0	22.8	42.2	2.5	0.34	0.713	0.15	0.06	1.13	19.4	< 0.02	2.99	10.2	17.8
11TM0441E	8.17	30.3	17.6	38.8	361	12.1	0.8	1510	3.5	4.2	14.8	26.4	133	6.0	1.51	0.416	11.8	0.08	1.45	15.2	< 0.02	2.29	20.8	15.8
11TM0441F	8.88	31.5	19.7	31.1	280	19.0	0.8	1030	1.7	3.9	13.1	33.4	124	6.3	0.16	0.252	1.92	0.11	1.67	17.0	< 0.02	1.22	28.1	19.2
11TM0233B	2.94	1.2	2.2	6.54	5.1	1.91	< 0.1	251	0.2	12.8	2.8	19.3	83.0	14.9	6.70	0.510	0.38	0.05	5.34	9.37	< 0.02	0.56	24.1	22.0
11TM0336A	7.90	1.5	0.8	8.52	106	2.95	0.2	387	2.4	25.7	3.1	85.0	49.4	4.1	3.41	0.621	0.63	0.05	1.40	3.20	< 0.02	1.21	8.6	58.2
11TM0336B	16.8	1.0	3.8	13.6	17.0	4.93	0.2	800	5.6	29.0	1.6	66.2	37.6	3.2	15.0	1.37	0.03	0.04	1.41	7.60	< 0.02	1.03	4.3	34.0

Analyte Symbol	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.001	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	5	0.02	0.01	0.1	0.1
Analysis Method	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
11TM0104A	15.9	2.3	10.2	2.6	0.7	2.6	0.4	2.42	0.4	1.1	0.1	0.8	0.1	0.4	< 0.05	0.7	0.016	10	0.59	243	1.4	1.1
11TM0104B	25.0	3.7	16.0	4.0	1.2	4.6	0.7	4.13	0.7	1.8	0.2	1.3	0.2	0.4	< 0.05	0.5	0.018	8	0.79	444	1.5	0.7
11TM0104C	20.9	3.1	13.4	3.3	1.0	3.4	0.5	3.25	0.6	1.6	0.2	1.1	0.2	0.3	< 0.05	0.3	0.041	9	0.93	672	0.8	0.6
11TM0104D	22.4	3.1	13.3	3.3	1.0	3.8	0.6	3.58	0.7	1.7	0.2	1.2	0.2	0.3	< 0.05	0.3	0.034	19	0.89	413	1.2	0.7
11TM0441A	37.4	5.4	23.5	5.8	2.0	6.3	0.9	5.20	0.9	2.3	0.3	1.5	0.2	0.5	< 0.05	1.0	< 0.001	23	2.77	96.7	1.5	0.4
11TM0441B	42.4	5.7	23.9	5.7	1.9	5.9	0.9	5.02	0.9	2.2	0.3	1.5	0.2	0.5	< 0.05	4.6	< 0.001	10	0.88	15.6	1.2	0.2
11TM0441E	38.6	5.2	21.9	5.2	1.9	5.6	0.9	5.39	1.0	2.6	0.4	1.9	0.3	1.9	< 0.05	4.7	< 0.001	73	1.07	810	1.0	0.3
11TM0441F	47.4	6.7	28.8	6.9	2.5	7.6	1.2	6.82	1.2	3.2	0.4	2.5	0.4	1.6	0.08	4.9	< 0.001	32	1.03	487	1.3	0.4
11TM0233B	48.9	5.2	17.7	3.5	0.4	3.2	0.6	3.48	0.7	2.1	0.3	1.9	0.3	3.5	< 0.05	0.2	< 0.001	13	0.47	71.6	11.1	2.2
11TM0336A	121	18.3	73.6	16.6	2.3	15.5	2.4	14.4	2.8	7.4	1.0	5.5	0.8	1.6	< 0.05	< 0.1	< 0.001	39	0.49	105	12.0	2.2
11TM0336B	89.7	11.6	47.0	11.9	1.6	11.5	2.1	12.9	2.5	6.5	0.8	4.6	0.6	1.2	< 0.05	0.3	< 0.001	151	1.03	77.9	6.8	1.2

Quality Control

Analyte Symbol	Au	Total S	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni
Unit Symbol	ppb	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	5	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20
Analysis Method	FA-AA	IR	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS
GXR-1 Meas																								
GXR-1 Cert																								
NIST 694 Meas			11.26	1.91	0.75	0.013	0.35	44.60	0.87	0.55	0.122	30.24					1681							
NIST 694 Cert			11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2					1740							
DNC-1 Meas			47.24	18.68	9.81	0.145	10.06	10.86	1.94	0.23	0.488	0.07			31		155	105	144	16	34	270	59	250
DNC-1 Cert			47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.070			31		148.0	118	144.0	18.0	38	270.000	57.0	247.000
GBW 07113 Meas			72.93	12.93	3.24	0.140	0.14	0.57	2.43	5.34	0.284	0.04			5	4	6	500	41	45	403			
GBW 07113 Cert			72.8	13.0	3.21	0.140	0.160	0.590	2.57	5.43	0.300	0.0500			5.00	4.00	5.00	506	43.0	43.0	403			
GXR-4 Meas																								
GXR-4 Cert																								
GXR-6 Meas																								
GXR-6 Cert																								
LKSD-3 Meas																						70	31	50
LKSD-3 Cert																						87.0	30.0	47.0
LKSD-4 Meas		1.18																						
LKSD-4 Cert		0.990																						
LKSD-4 Meas		1.05																						
LKSD-4 Cert		0.990																						
BaSO4 Meas		15.0																						
BaSO4 Cert		14.0																						
BaSO4 Meas		14.1																						
BaSO4 Cert		14.0																						
W-2a Meas			53.04	15.47	10.75	0.167	6.27	10.71	2.22	0.63	1.077	0.13			36	< 1	275	174	195	20	86	90	47	80
W-2a Cert			52.4	15.4	10.7	0.163	6.37	10.9	2.14	0.626	1.06	0.130			36.0	1.30	262	182	190	24.0	94.0	92.0	43.0	70.0
SY-4 Meas			49.86	20.38	6.36	0.107	0.51	7.84	6.90	1.68	0.290	0.13			1	3	8	345	1202	116	527			
SY-4 Cert			49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66	0.287	0.131			1.1	2.6	8.0	340	1191	119	517			
CTA-AC-1 Meas																								
CTA-AC-1 Cert																								
BIR-1a Meas			47.71	15.51	11.29	0.172	9.56	13.26	1.78	0.02	0.978	0.02			44	< 1	339	7	107	14	14	380	54	160
BIR-1a Cert			47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96	0.021			44	0.58	310	6	110	16	18	370	52	170
NCS DC86312 Meas																								
NCS DC86312 Cert																								
ZW-C Meas																								
ZW-C Cert																								
NCS DC70014 Meas																							24	70
NCS DC70014 Cert																							26.2	70.9
NCS DC86316 Meas																								
NCS DC86316 Cert																								
NCS DC70009 (GBW07241) Meas																						30	3	< 20
NCS DC70009 (GBW07241) Cert																						30	3.7	2.8
OREAS 100a (Fusion) Meas																							17	
OREAS 100a (Fusion) Cert																							18.1	
OREAS 101a (Fusion) Meas																							46	
OREAS 101a (Fusion) Cert																							48.8	
JR-1 Meas																						< 20	< 1	< 20
JR-1 Cert																						2.83	0.83	1.67
USZ 25-2006 Meas																								
USZ 25-2006 Cert																								
OREAS 13b (4-Acid) Meas		1.47																						
OREAS 13b (4-Acid) Cert		1.20																						
OREAS 13b (4-Acid) Meas		1.20																						

Quality Control

Analyte Symbol	Au	Total S	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni
Unit Symbol	ppb	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	5	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20
Analysis Method	FA-AA	IR	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS
OREAS 13b (4-Acid) Cert		1.20																						
OREAS 13b (4-Acid) Meas		1.26																						
OREAS 13b (4-Acid) Cert		1.20																						
OREAS 13b (4-Acid) Meas		1.16																						
OREAS 13b (4-Acid) Cert		1.20																						
DMMAS 111 Meas																								
DMMAS 111 Cert																								
CDN-GS-P2A Meas	254																							
CDN-GS-P2A Cert	229.00																							
11TM0336A Orig	52	8.79																						
11TM0336A Dup	51	8.82																						
11TM0336B Orig																								
11TM0336B Dup			54.17	4.54	24.23	0.017	0.11	0.04	0.08	2.41	0.146	0.02	12.51	98.28	3	4	< 5	200	8	91	316	110	< 1	< 20
Method Blank																						< 20	< 1	< 20
Method Blank		< 0.01																						
Method Blank		< 0.01																						
Method Blank	< 5																							
Method Blank																								

Quality Control

Analyte Symbol	Cu	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
GXR-1 Meas																								
GXR-1 Cert																								
NIST 694 Meas																								
NIST 694 Cert																								
DNC-1 Meas	110	80										1.3					5.0		0.58					
DNC-1 Cert	100.0	70.0										0.96					5.20		0.59					
GBW 07113 Meas																								
GBW 07113 Cert																								
GXR-4 Meas																								
GXR-4 Cert																								
GXR-6 Meas																								
GXR-6 Cert																								
LKSD-3 Meas	30	160			26	74		< 2	2.7			1.4	2.5	49.4	90.2		43.5	7.8	1.45			4.9		
LKSD-3 Cert	35.0	152			27.0	78.0		2.00	2.70			1.30	2.30	52.0	90.0		44.0	8.00	1.50			4.90		
LKSD-4 Meas																								
LKSD-4 Cert																								
LKSD-4 Meas																								
LKSD-4 Cert																								
BaSO4 Meas																								
BaSO4 Cert																								
BaSO4 Meas																								
BaSO4 Cert																								
W-2a Meas	120	70	17			22	8	< 2	0.7				1.0	10.6	22.9		13.9	3.5	1.02		0.6	3.7	0.7	2.6
W-2a Cert	110	80.0	17.0			21.0	7.90	0.600	0.0460				0.990	10.0	23.0		13.0	3.30	1.00		0.630	3.60	0.760	2.50
SY-4 Meas																								
SY-4 Cert																								
CTA-AC-1 Meas	50	30												> 2000	> 3000		1120	162	44.8	125	14.2			
CTA-AC-1 Cert	54.0	38.0												2176	3326		1087	162	46.7	124	13.9			
BIR-1a Meas	130	70	16				< 1					0.5			1.8			1.1	0.53	1.8				
BIR-1a Cert	125	70	16				0.6					0.58			1.9			1.1	0.55	2.0				
NCS DC86312 Meas														> 2000	179		1580			226	34.6	184	35.7	96.4
NCS DC86312 Cert														2360.000	190.000		1600.000			225.0	34.6	183.00	35.70	96.2
ZW-C Meas			99				203																	
ZW-C Cert			99				198																	
NCS DC70014 Meas	2590	7400	24					> 100	16.5			180		41.4	80.7			7.5		7.3	1.1		1.2	3.3
NCS DC70014 Cert	2600.00	7400.00	25.2					270	16.7			180.000		45.3	87.0			8.0		7.4	1.1		1.3	3.5
NCS DC86316 Meas																								
NCS DC86316 Cert																								
NCS DC70009 (GBW07241) Meas	990	110	16	11	71	504				1.3	> 1000	3.6	43.9	22.2	55.6		29.7	11.6		14.0	3.2	20.0	4.2	12.5
NCS DC70009 (GBW07241) Cert	960.000	100.000	16.5	11.2	69.9	500.00				1.3	1701.000	3.1	41	23.7	60.3		32.9	12.5		14.8	3.3	20.7	4.5	13.4
OREAS 100a (Fusion) Meas	170							24						254	463	44.3	143	23.6	3.45		3.6	22.0	4.7	14.2
OREAS 100a (Fusion) Cert	169							24.1						260	463	47.1	152	23.6	3.71		3.80	23.2	4.81	14.9
OREAS 101a (Fusion) Meas	410							20						786	1370	123	376	48.9	7.75			30.5	6.2	18.2
OREAS 101a (Fusion) Cert	434							21.9						816	1396	134	403	48.8	8.06			33.3	6.46	19.5
JR-1 Meas	10	30	16		16	242		3	0.7	< 0.2	4	1.3	20.8	20.7	46.8	5.60	22.4	5.6	0.28	5.3	1.0	6.0		3.8
JR-1 Cert	2.68	30.6	16.1		16.3	257		3.25	0.031	0.028	2.86	1.19	20.8	19.7	47.2	5.58	23.3	6.03	0.30	5.06	1.01	5.69		3.61
USZ 25-2006 Meas																								
USZ 25-2006 Cert																								
OREAS 13b (4-Acid) Meas																								
OREAS 13b (4-Acid) Cert																								
OREAS 13b (4-Acid) Meas																								

Quality Control

Analyte Symbol	Cu	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
OREAS 13b (4-Acid) Cert																								
OREAS 13b (4-Acid) Meas																								
OREAS 13b (4-Acid) Cert																								
OREAS 13b (4-Acid) Meas																								
OREAS 13b (4-Acid) Cert																								
DMMAS 111 Meas					1510																			
DMMAS 111 Cert					1450																			
CDN-GS-P2A Meas																								
CDN-GS-P2A Cert																								
11TM0336A Orig																								
11TM0336A Dup																								
11TM0336B Orig																								
11TM0336B Dup	< 10	< 30	20	< 1	117	122	24	15	2.3	< 0.2	4	6.9	3.5	49.6	129	16.0	69.3	17.0	2.08	14.6	2.7	15.9	3.1	8.7
Method Blank	< 10	< 30	< 1	< 1	< 5	< 2	< 1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank																								
Method Blank																								
Method Blank																								
Method Blank																								

Quality Control

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm
Detection Limit	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	0.5	1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-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
GXR-1 Meas												7.2	0.8	14	0.055	0.17	0.55	0.03	1330	0.70	1.0	69	5.8	878
GXR-1 Cert												8.20	1.22	15.0	0.0520	0.217	3.52	0.0500	1380	0.960	1.58	80.0	12.0	852
NIST 694 Meas																								
NIST 694 Cert																								
DNC-1 Meas		1.9																						
DNC-1 Cert		2.0																						
GBW 07113 Meas																								
GBW 07113 Cert																								
GXR-4 Meas												10.5	1.6	5	0.125	1.51	2.45	1.60	19.5	0.80	6.5	76	50.4	153
GXR-4 Cert												11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155
GXR-6 Meas												24.8	0.9	6	0.066	0.39	6.78	1.00	0.16	0.13	19.4	154	73.6	1080
GXR-6 Cert												32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010
LKSD-3 Meas		2.7	0.40		0.7	3				11.1	4.5													
LKSD-3 Cert		2.70	0.400		0.700	2.00				11.4	4.60													
LKSD-4 Meas																								
LKSD-4 Cert																								
LKSD-4 Meas																								
LKSD-4 Cert																								
BaSO4 Meas																								
BaSO4 Cert																								
BaSO4 Meas																								
BaSO4 Cert																								
W-2a Meas	0.37	2.3	0.35	2.8	0.5	1		10	< 0.4	2.2	0.6													
W-2a Cert	0.380	2.10	0.330	2.60	0.500	0.300		9.30	0.0300	2.40	0.530													
SY-4 Meas																								
SY-4 Cert																								
CTA-AC-1 Meas		10.7	1.07	1.6	2.7						4.3													
CTA-AC-1 Cert		11.4	1.08	1.13	2.65						4.4													
BIR-1a Meas		1.7		0.6				< 5																
BIR-1a Cert		1.7		0.60				3																
NCS DC86312 Meas	14.3	86.7	12.1							25.6														
NCS DC86312 Cert	15.1	87.79	11.96							23.6														
ZW-C Meas				9.6	84.6	333	34.1	77																
ZW-C Cert				9.7	82	320	34	80																
NCS DC70014 Meas		3.2	0.47					> 10000	80.3															
NCS DC70014 Cert		3.3	0.50					27200.00	80.3															
NCS DC86316 Meas				712																				
NCS DC86316 Cert				712																				
NCS DC70009 (GBW07241) Meas	2.27	15.4	2.23			2200				29.1														
NCS DC70009 (GBW07241) Cert	2.2	14.9	2.4			2200.00				28.3														
OREAS 100a (Fusion) Meas	2.30	14.4	2.11							51.9	136													
OREAS 100a (Fusion) Cert	2.31	14.9	2.26							51.6	135													
OREAS 101a (Fusion) Meas	2.80	17.3								35.6	421													
OREAS 101a (Fusion) Cert	2.90	17.5								36.6	422													
JR-1 Meas	0.65	4.5	0.68	4.5	1.9		1.5	18		26.7	9.0													
JR-1 Cert	0.67	4.55	0.71	4.51	1.86		1.56	19.3		26.7	8.88													
USZ 25-2006 Meas								1090																
USZ 25-2006 Cert								1100																
OREAS 13b (4-Acid) Meas																							384	
OREAS 13b (4-Acid) Cert																							8650	
OREAS 13b (4-Acid) Meas																								

Quality Control

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm
Detection Limit	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	0.5	1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-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
OREAS 13b (4-Acid) Cert																								
OREAS 13b (4-Acid) Meas																								
OREAS 13b (4-Acid) Cert																								
OREAS 13b (4-Acid) Meas																								
OREAS 13b (4-Acid) Cert																								
DMMAS 111 Meas																								
DMMAS 111 Cert																								
CDN-GS-P2A Meas																								
CDN-GS-P2A Cert																								
11TM0336A Orig																								
11TM0336A Dup																								
11TM0336B Orig												1.2	0.8	1	0.010	0.02	0.30	0.21	0.07	< 0.01	0.5	< 1	84.6	47
11TM0336B Dup	1.19	7.4	1.11	7.8	1.7	1	0.8	40	< 0.4	9.3	2.1	1.3	1.0	2	0.011	0.02	0.30	0.20	0.07	< 0.01	0.6	1	95.9	47
Method Blank	< 0.05	< 0.1	< 0.04	< 0.2	< 0.1	< 1	< 0.1	< 5	< 0.4	< 0.1	< 0.1													
Method Blank																								
Method Blank																								
Method Blank																								
Method Blank												< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 0.5	< 1

Quality Control

Analyte Symbol	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Rb	Sr	Y	Zr	Nb	Mo	Ag	Cd	In	Sn	Sb	Te	Cs	Ba	La
Unit Symbol	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.01	0.02	0.05	0.02	0.02	0.02	0.5	0.5
Analysis Method	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
GXR-1 Meas	23.8	7.8	38.2	1080	760	4.80		382	15.1	2.5	202	26.5	12.0	< 0.1	16.3	28.0	2.26	0.68	23.2	50.1	13.4	2.52	146	5.5
GXR-1 Cert	23.6	8.20	41.0	1110	760	13.8		427	16.6	14.0	275	32.0	38.0	0.800	18.0	31.0	3.30	0.770	54.0	122	13.0	3.00	750	7.50
NIST 694 Meas																								
NIST 694 Cert																								
DNC-1 Meas																								
DNC-1 Cert																								
GBW 07113 Meas																								
GBW 07113 Cert																								
GXR-4 Meas	3.10	15.4	43.4	6090	75.4	9.91		102	6.7	105	87.1	12.9	9.0	0.2	291	3.58	0.13	0.20	5.42	1.49	0.87	2.34	178	48.8
GXR-4 Cert	3.09	14.6	42.0	6520	73.0	20.0		98.0	5.60	160	221	14.0	186	10.0	310	4.00	0.860	0.270	5.60	4.80	0.970	2.80	1640	64.5
GXR-6 Meas	5.86	14.5	25.0	68.8	131	14.8		212	< 0.1	66.0	33.5	7.11	5.8	< 0.1	0.40	0.225	0.08	0.06	0.95	0.30	< 0.02	3.30	939	10.8
GXR-6 Cert	5.58	13.8	27.0	66.0	118	35.0		330	0.940	90.0	35.0	14.0	110	7.50	2.40	1.30	1.00	0.260	1.70	3.60	0.0180	4.20	1300	13.9
LKSD-3 Meas																								
LKSD-3 Cert																								
LKSD-4 Meas																								
LKSD-4 Cert																								
LKSD-4 Meas																								
LKSD-4 Cert																								
BaSO4 Meas																								
BaSO4 Cert																								
BaSO4 Meas																								
BaSO4 Cert																								
W-2a Meas																								
W-2a Cert																								
SY-4 Meas																								
SY-4 Cert																								
CTA-AC-1 Meas																								
CTA-AC-1 Cert																								
BIR-1a Meas																								
BIR-1a Cert																								
NCS DC86312 Meas																								
NCS DC86312 Cert																								
ZW-C Meas																								
ZW-C Cert																								
NCS DC70014 Meas																								
NCS DC70014 Cert																								
NCS DC86316 Meas																								
NCS DC86316 Cert																								
NCS DC70009 (GBW07241) Meas																								
NCS DC70009 (GBW07241) Cert																								
OREAS 100a (Fusion) Meas																								
OREAS 100a (Fusion) Cert																								
OREAS 101a (Fusion) Meas																								
OREAS 101a (Fusion) Cert																								
JR-1 Meas																								
JR-1 Cert																								
USZ 25-2006 Meas																								
USZ 25-2006 Cert																								
OREAS 13b (4-Acid) Meas		55.7	2200	2320				55.3							8.39	0.850								
OREAS 13b (4-Acid) Cert		75	2247	2300.000				57							9.0	0.86								
OREAS 13b (4-Acid) Meas																								

Quality Control

Analyte Symbol	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Rb	Sr	Y	Zr	Nb	Mo	Ag	Cd	In	Sn	Sb	Te	Cs	Ba	La
Unit Symbol	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.01	0.02	0.05	0.02	0.02	0.02	0.5	0.5
Analysis Method	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
OREAS 13b (4-Acid) Cert																								
OREAS 13b (4-Acid) Meas																								
OREAS 13b (4-Acid) Cert																								
OREAS 13b (4-Acid) Meas																								
OREAS 13b (4-Acid) Cert																								
DMMAS 111 Meas																								
DMMAS 111 Cert																								
CDN-GS-P2A Meas																								
CDN-GS-P2A Cert																								
11TM0336A Orig																								
11TM0336A Dup																								
11TM0336B Orig	17.1	0.9	3.6	12.8	15.8	4.64	0.2	786	5.4	28.0	1.5	62.5	35.3	3.1	14.8	1.33	0.02	0.03	1.32	7.38	< 0.02	1.04	4.3	32.6
11TM0336B Dup	16.5	1.0	4.0	14.5	18.2	5.22	0.2	814	5.8	29.9	1.7	69.9	39.8	3.2	15.2	1.41	0.04	0.04	1.50	7.82	< 0.02	1.02	4.4	35.4
Method Blank																								
Method Blank																								
Method Blank																								
Method Blank																								
Method Blank	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.01	< 0.002	< 0.01	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5

Quality Control

Analyte Symbol	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.001	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	5	0.02	0.01	0.1	0.1
Analysis Method	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
GXR-1 Meas	10.8		6.19	2.1	0.5	3.3	0.6	4.18			0.3	1.9	0.3	0.3	< 0.05	133		3260	0.36	677	1.9	33.9
GXR-1 Cert	17.0		18.0	2.70	0.690	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9
NIST 694 Meas																						
NIST 694 Cert																						
DNC-1 Meas																						
DNC-1 Cert																						
GBW 07113 Meas																						
GBW 07113 Cert																						
GXR-4 Meas	93.2		34.3	5.1	1.2	4.0	0.5	2.64			0.1	0.8	0.1	0.2	< 0.05	11.6		339	2.99	46.6	22.3	5.4
GXR-4 Cert	102		45.0	6.60	1.63	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20
GXR-6 Meas	31.0		10.7	2.2	0.6	1.9	0.3	1.57			0.1	0.7	0.1	< 0.1	< 0.05	< 0.1			1.94	111	4.2	0.9
GXR-6 Cert	36.0		13.0	2.67	0.760	2.97	0.415	2.80			0.0320	2.40	0.330	4.30	0.485	1.90			2.20	101	5.30	1.54
LKSD-3 Meas																						
LKSD-3 Cert																						
LKSD-4 Meas																						
LKSD-4 Cert																						
LKSD-4 Meas																						
LKSD-4 Cert																						
BaSO4 Meas																						
BaSO4 Cert																						
BaSO4 Meas																						
BaSO4 Cert																						
W-2a Meas																						
W-2a Cert																						
SY-4 Meas																						
SY-4 Cert																						
CTA-AC-1 Meas																						
CTA-AC-1 Cert																						
BIR-1a Meas																						
BIR-1a Cert																						
NCS DC86312 Meas																						
NCS DC86312 Cert																						
ZW-C Meas																						
ZW-C Cert																						
NCS DC70014 Meas																						
NCS DC70014 Cert																						
NCS DC86316 Meas																						
NCS DC86316 Cert																						
NCS DC70009 (GBW07241) Meas																						
NCS DC70009 (GBW07241) Cert																						
OREAS 100a (Fusion) Meas																						
OREAS 100a (Fusion) Cert																						
OREAS 101a (Fusion) Meas																						
OREAS 101a (Fusion) Cert																						
JR-1 Meas																						
JR-1 Cert																						
USZ 25-2006 Meas																						
USZ 25-2006 Cert																						
OREAS 13b (4-Acid) Meas																						
OREAS 13b (4-Acid) Cert																						
OREAS 13b (4-Acid) Meas																						

Quality Control

Analyte Symbol	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.001	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	5	0.02	0.01	0.1	0.1
Analysis Method	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
OREAS 13b (4-Acid) Cert																						
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OREAS 13b (4-Acid) Meas																						
OREAS 13b (4-Acid) Cert																						
DMMAS 111 Meas																						
DMMAS 111 Cert																						
CDN-GS-P2A Meas																						
CDN-GS-P2A Cert																						
11TM0336A Orig																						
11TM0336A Dup																						
11TM0336B Orig	85.3	10.9	44.2	11.3	1.5	11.8	2.1	12.8	2.4	6.2	0.8	4.3	0.6	1.2	< 0.05	0.3	< 0.001	148	0.96	74.4	6.8	1.2
11TM0336B Dup	94.1	12.4	49.7	12.4	1.6	11.3	2.1	13.1	2.6	6.8	0.9	4.8	0.6	1.3	< 0.05	0.2	< 0.001	153	1.10	81.4	6.8	1.3
Method Blank																						
Method Blank																						
Method Blank																						
Method Blank																						
Method Blank	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 5	< 0.02	< 0.01	< 0.1	< 0.1

Quality Analysis ... *Innovative Technologies*

Date Submitted: 17-Feb-12
Invoice No.: A12-01452
Invoice Date: 07-Mar-12
Your Reference: Cobegaids 2011

Nova Scotia Department of Natural Resources
1701 Hollis Street
P.O. Box 698
Halifax NS B3J 2T9
Canada

ATTN: Trevor MacHattie

CERTIFICATE OF ANALYSIS

25 Rock samples were submitted for analysis.

The following analytical packages were requested:

Code 4F-F Fusion Specific Ion Electrode-ISE
Code 4LITHO (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)
Code 4LITHORES (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

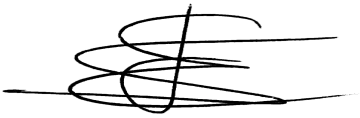
REPORT **A12-01452**

Notes:

We recommend using option 4B1 for accurate levels of the base metals Cu, Pb, Zn, Ni and Ag. Option 4B-INAA for As, Sb, high W >100ppm, Cr >1000ppm and Sn >50ppm by Code 5D. Values for these elements provided by Fusion ICP/MS, are order of magnitude only and are provided for general information. Mineralized samples should have the Quant option selected or request assays for values which exceed the range of option 4B1. Total includes all elements in % oxide to the left of total.

Footnote: Zr interference on Ag .

CERTIFIED BY :



Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited
LAB 266
LAB 266
Accrédité CCN

ACTIVATION LABORATORIES LTD.

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

Activation Laboratories Ltd. Report: A12-01452

Analyte Symbol	F	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20	10
Analysis Method	FUS-ISE	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS
08TM095		73.37	12.74	1.61	0.061	0.23	0.61	4.01	5.01	0.189	0.04	0.43	98.31	1	3	13	389	124	27	135	< 20	1	< 20	< 10
09TM002		63.91	16.99	3.34	0.081	1.42	2.31	4.72	2.95	0.430	0.16	1.67	97.99	5	2	56	1953	626	9	118	< 20	6	< 20	< 10
09TM006		67.01	17.00	2.21	0.053	0.76	3.11	5.09	2.23	0.242	0.09	0.91	98.71	2	1	31	1551	864	5	106	< 20	3	< 20	< 10
09TM007		76.41	12.62	1.67	0.041	0.18	0.50	4.07	4.66	0.185	0.03	0.37	100.7	2	3	12	265	90	26	148	< 20	1	< 20	< 10
09TM009		52.21	14.12	10.32	0.298	5.81	6.47	2.96	1.86	2.544	0.27	1.69	98.53	24	2	246	538	589	18	167	70	41	80	110
10TM0245	< 0.01	76.32	11.99	1.87	0.031	0.47	0.20	3.62	4.70	0.066	0.02	0.70	99.99	< 1	8	11	94	28	39	218	< 20	< 1	< 20	10
11TM0083	0.02	44.74	15.40	15.80	0.249	5.35	10.14	2.84	0.45	3.020	0.40	2.50	100.9	38	< 1	379	199	317			90	38	80	40
11TM0087	0.02	44.99	14.79	16.99	0.292	5.10	9.37	2.62	0.68	3.742	0.62	1.76	101.0	41	2	462	229	290			80	54	80	90
11TM0138	< 0.01	79.16	9.12	2.16	0.031	0.15	0.21	1.30	5.53	0.148	0.02	0.80	98.63	< 1	4	13	75	40	96	433	< 20	1	< 20	< 10
11TM0213	0.01	46.26	16.37	12.84	0.228	6.62	9.86	2.83	0.49	2.564	0.44	2.39	100.9	35	< 1	323	190	300			130	43	90	60
11TM0229	0.01	46.00	16.91	12.53	0.220	6.00	9.85	2.91	0.58	2.545	0.46	2.04	100.1	35	< 1	322	223	312			130	46	100	60
11TM0241	< 0.01	72.65	12.16	3.55	0.063	0.11	0.36	3.83	4.49	0.290	0.04	0.29	97.84	4	5	7	612	50	81	650	< 20	< 1	< 20	< 10
11TM0271	0.04	47.00	12.68	16.93	0.286	4.24	8.85	2.45	2.07	3.777	0.70	1.53	100.5	40	2	411	614	288			< 20	36	50	40
11TM0306	< 0.01	76.94	10.26	3.59	0.065	0.21	0.29	2.03	4.88	0.277	0.01	0.75	99.31	< 1	3	9	49	21	111	1219	< 20	< 1	< 20	< 10
11TM0332	< 0.01	73.06	12.15	3.66	0.053	0.17	0.18	1.97	5.89	0.293	0.01	0.87	98.31	4	7	6	644	59	76	617	< 20	< 1	< 20	< 10
11TM0387	< 0.01	77.06	11.64	1.68	0.031	0.18	0.16	3.10	4.53	0.094	0.01	0.81	99.28	1	3	10	117	40	63	205	< 20	< 1	< 20	< 10
11TM0400	< 0.01	75.06	10.59	3.55	0.061	0.26	0.25	3.05	4.19	0.223	0.01	0.66	97.91	< 1	5	10	52	27	150	1287	< 20	< 1	< 20	< 10
11TM0420A	< 0.01	77.36	9.15	3.37	0.047	0.20	0.13	0.12	6.13	0.224	0.01	1.10	97.84	< 1	6	10	106	47	137	1107	< 20	< 1	< 20	< 10
11TM0425	0.01	45.85	15.77	12.57	0.194	5.96	7.12	1.98	1.06	2.158	0.33	6.42	99.41	24	1	221	316	281			30	42	80	40
11TM0499	0.02	68.42	12.63	6.01	0.129	0.49	2.19	3.29	3.95	0.736	0.15	0.95	98.96	14	3	12	790	159	62	497	< 20	3	< 20	< 10
11TM0524	< 0.01	72.19	12.03	4.36	0.085	0.38	1.18	3.10	4.41	0.459	0.07	0.72	98.99	11	3	10	784	93	64	503	< 20	2	< 20	< 10
11TM0530	< 0.01	71.85	11.81	4.60	0.090	0.37	1.62	3.76	2.93	0.518	0.06	0.62	98.24	13	4	10	600	137	72	605	< 20	2	< 20	< 10
11TM0542	0.01	44.64	15.60	14.20	0.225	5.62	9.72	2.61	0.50	3.147	0.46	2.93	99.64	38	1	399	208	293			90	69	60	100
11TM0557	0.01	47.52	15.90	14.61	0.140	3.99	9.94	2.88	0.63	2.515	0.40	1.12	99.65	32	1	314	224	312			80	44	80	50
11TM0572	< 0.01	74.20	14.09	2.44	0.020	0.19	0.25	3.35	3.05	0.281	0.07	1.35	99.30	11	3	18	480	71	48	299	< 20	2	< 20	< 10

Activation Laboratories Ltd. Report: A12-01452

Analyte Symbol	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
08TM095	< 30	17	2	< 5	143	26	< 2	0.9	< 0.2	2	< 0.5	1.6	27.3	58.5	7.32	26.3	5.7	0.49	4.5	0.8	4.7	0.9	2.8	0.43
09TM002	70	18	1	< 5	78	6	< 2	0.8	< 0.2	< 1	< 0.5	1.0	22.6	44.2	4.88	18.6	3.5	0.96	2.5	0.3	1.8	0.3	0.9	0.14
09TM006	40	19	1	< 5	50	4	< 2	0.7	< 0.2	< 1	< 0.5	1.6	17.7	32.1	3.37	11.7	1.9	0.57	1.3	0.2	0.9	0.2	0.5	0.08
09TM007	< 30	16	2	< 5	139	33	< 2	0.8	< 0.2	2	< 0.5	0.7	28.6	65.7	6.95	24.6	5.4	0.41	4.4	0.7	4.6	0.9	2.7	0.43
09TM009	130	18	2	< 5	52	14	< 2	0.9	< 0.2	1	< 0.5	1.3	25.5	54.3	6.85	28.7	6.2	1.49	4.9	0.7	4.0	0.7	2.1	0.30
10TM0245	160	31	2	19	394	108	< 2	1.0	< 0.2	12	0.7	3.8	20.5	37.5	3.94	12.8	3.7	< 0.05	3.6	1.0	7.4	1.7	6.2	1.21
11TM0083	130	21		< 5			< 2	0.9		1														
11TM0087	150	24		< 5			< 2	1.3		2														
11TM0138	160	12	< 1	72	236	70	< 2	2.1	< 0.2	6	1.3	1.8	36.0	81.8	10.5	42.3	12.8	0.13	12.9	2.6	17.2	3.6	11.2	1.80
11TM0213	150	21		< 5			< 2	0.9		1														
11TM0229	100	21		< 5			< 2	1.0		1														
11TM0241	60	22	2	8	157	53	< 2	3.3	< 0.2	7	1.6	2.8	66.7	127	16.8	66.3	15.2	1.83	13.0	2.4	15.0	3.1	9.9	1.58
11TM0271	150	20		11			< 2	1.5		2														
11TM0306	70	26	2	< 5	176	59	< 2	< 0.5	< 0.2	7	< 0.5	1.0	115	238	28.6	116	23.7	1.01	20.5	3.4	21.9	4.3	13.6	2.10
11TM0332	50	29	1	< 5	246	52	3	3.3	< 0.2	7	0.9	10.3	95.1	170	22.6	85.2	16.8	2.15	13.3	2.3	14.8	3.0	9.5	1.55
11TM0387	40	21	< 1	18	219	57	5	1.0	< 0.2	9	1.2	1.8	23.5	48.2	5.29	20.8	6.4	0.45	6.9	1.6	11.3	2.5	7.9	1.30
11TM0400	60	33	2	< 5	156	79	4		< 0.2	12	< 0.5	0.8	119	243	30.0	120	26.7	0.90	24.0	4.3	27.8	5.7	17.9	2.79
11TM0420A	270	25	2	13	282	68	< 2		< 0.2	8	< 0.5	4.1	131	248	31.8	127	27.9	1.42	25.0	4.2	24.8	4.8	13.2	1.90
11TM0425	140	19		< 5			< 2	1.1		1														
11TM0499	90	21	2	< 5	124	34	< 2	2.7	< 0.2	3	< 0.5	1.8	62.0	126	15.7	63.9	13.9	2.88	12.3	2.0	11.8	2.3	6.8	1.03
11TM0524	60	19	2	< 5	146	37	< 2	2.7	< 0.2	3	< 0.5	1.9	66.4	133	16.3	65.4	14.2	2.43	12.4	2.0	12.1	2.4	7.1	1.09
11TM0530	40	21	3	< 5	92	43	< 2	3.3	< 0.2	5	< 0.5	1.1	73.1	148	18.5	74.5	16.2	2.79	13.6	2.3	13.6	2.7	8.3	1.30
11TM0542	130	22		< 5			< 2	< 0.5		1														
11TM0557	100	21		< 5			< 2	1.0		2														
11TM0572	70	18	2	< 5	105	14	< 2	1.5	< 0.2	2	< 0.5	5.9	45.2	93.1	11.1	45.1	10.0	1.75	8.4	1.4	8.6	1.7	5.3	0.81

Analyte Symbol	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U	Ge	Rb	Y	Zr	Nb	In	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1	0.5	1	0.5	1	0.2	0.1	0.2	0.1	0.05	0.05	0.01	0.05	0.01	0.005
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
08TM095	2.7	0.39	4.2	2.3	< 1	0.7	16	< 0.4	9.5	2.1														
09TM002	0.9	0.15	2.9	0.6	< 1	0.4	11	< 0.4	3.8	0.7														
09TM006	0.5	0.09	2.6	0.3	< 1	0.3	27	< 0.4	2.8	0.7														
09TM007	2.7	0.41	4.7	2.6	< 1	0.6	15	< 0.4	15.8	2.9														
09TM009	1.8	0.29	4.1	1.1	< 1	0.3	16	0.6	3.5	0.7														
10TM0245	8.7	1.37	11.6	8.9	2	0.5	85	< 0.4	31.4	9.1														
11TM0083							< 5				2.0	7	35.4	188	15.9	< 0.1	1.3	1.6	18.7	42.5	5.92	27.8	7.21	2.53
11TM0087							< 5				2.0	18	44.4	262	22.9	< 0.1	0.2	1.1	26.2	59.3	8.04	37.4	9.50	2.83
11TM0138	11.3	1.69	13.9	5.0	1	1.2	27	< 0.4	22.4	6.3														
11TM0213							13				1.8	9	32.8	196	14.1	< 0.1	< 0.2	2.3	18.7	42.6	5.87	27.3	7.01	2.25
11TM0229							< 5				1.8	8	34.6	210	14.9	< 0.1	< 0.2	3.6	19.2	43.9	6.02	28.0	7.18	2.28
11TM0241	10.3	1.63	16.0	3.9	1	0.9	18	1.1	18.6	3.9														
11TM0271							< 5				2.5	122	55.0	296	22.0	< 0.1	1.3	5.0	27.6	63.7	8.78	40.7	11.0	3.45
11TM0306	14.0	2.19	25.6	4.9	< 1	0.6	34	< 0.4	23.8	2.4														
11TM0332	10.3	1.67	15.3	4.1	< 1	1.3	10	0.6	20.1	5.2														
11TM0387	8.8	1.34	8.4	4.5	1	1.7	44	< 0.4	27.0	7.1														
11TM0400	18.6	2.90	29.5	6.2	< 1	0.7	45	< 0.4	25.2	6.9														
11TM0420A	11.7	1.86	25.3	5.0	< 1	1.2	179	< 0.4	26.0	3.4														
11TM0425							< 5				1.7	40	32.1	221	17.6	< 0.1	0.5	9.7	24.4	52.1	6.73	29.7	6.92	2.17
11TM0499	6.6	1.04	11.7	2.5	1	0.6	12	< 0.4	12.7	3.4														
11TM0524	7.1	1.12	12.2	2.5	< 1	1.1	16	0.8	14.5	3.8														
11TM0530	8.3	1.38	14.6	3.1	1	0.5	8	< 0.4	17.2	4.2														
11TM0542							< 5				2.1	8	40.9	236	17.9	< 0.1	< 0.2	0.5	22.3	48.4	6.76	31.6	7.69	2.50
11TM0557							8				2.0	12	33.2	214	17.0	< 0.1	< 0.2	0.7	23.6	50.6	6.57	29.8	7.23	2.30
11TM0572	5.3	0.89	7.2	1.1	3	0.4	< 5	< 0.4	9.7	2.9														

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	0.01	0.005	0.01	0.002	0.1	0.01	0.5	0.05	0.1	0.05	0.01
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
08TM095															
09TM002															
09TM006															
09TM007															
09TM009															
10TM0245															
11TM0083	7.18	1.16	7.02	1.36	3.85	0.563	3.51	0.559	4.7	1.02	1.3	< 0.05	< 0.1	1.01	0.30
11TM0087	9.03	1.43	8.48	1.66	4.77	0.697	4.42	0.700	6.1	1.41	0.7	0.11	< 0.1	1.73	0.71
11TM0138															
11TM0213	6.70	1.06	6.54	1.26	3.62	0.530	3.31	0.527	4.5	0.86	< 0.5	< 0.05	< 0.1	0.90	0.30
11TM0229	7.02	1.12	6.65	1.29	3.67	0.529	3.34	0.556	4.8	0.90	0.6	< 0.05	< 0.1	0.91	0.31
11TM0241															
11TM0271	10.8	1.74	10.4	2.07	5.99	0.870	5.65	0.883	7.2	1.50	0.9	1.04	< 0.1	2.65	0.79
11TM0306															
11TM0332															
11TM0387															
11TM0400															
11TM0420A															
11TM0425	6.40	1.02	6.11	1.21	3.46	0.517	3.22	0.529	5.1	1.10	0.7	0.50	< 0.1	2.41	0.63
11TM0499															
11TM0524															
11TM0530															
11TM0542	7.74	1.23	7.45	1.46	4.29	0.615	3.99	0.646	4.7	1.16	< 0.5	< 0.05	< 0.1	1.51	0.42
11TM0557	6.86	1.09	6.53	1.26	3.64	0.530	3.30	0.523	5.0	1.07	< 0.5	0.07	< 0.1	1.66	0.47
11TM0572															

Quality Control

Analyte Symbol	F	SiO2	Al2O3	P2O5	V	Y	Zr	Co	Ni	Ge	Rb	Nb	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb
Unit Symbol	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	5	2	4	1	20	1	2	1	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1
Analysis Method	FUS-ISE	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas		11.16	1.87	30.21	1664																			
NIST 694 Cert		11.2	1.80	30.2	1740																			
DNC-1 Meas						15	35													5.1		0.59		
DNC-1 Cert						18.0	38													5.20		0.59		
DNC-1 Meas		47.02	18.20	0.09	159			58	250															
DNC-1 Cert		47.15	18.34	0.070	148.0			57.0	247.000															
GBW 07113 Meas	0.13					43	386																	
GBW 07113 Cert	0.130					43.0	403																	
GBW 07113 Meas		72.58	12.81	0.05	9																			
GBW 07113 Cert		72.8	13.0	0.0500	5.00																			
SCO-1 Meas	0.08																							
SCO-1 Cert	0.08																							
LKSD-3 Meas																								
LKSD-3 Cert																								
LKSD-3 Meas								29	40															
LKSD-3 Cert								30.0	47.0															
DR-N Meas	0.05																							
DR-N Cert	0.0500																							
UB-N Meas	< 0.01																							
UB-N Cert	0.00950																							
W-2a Meas	0.02					18	83				20						10.8	24.0		13.2	3.4	1.10		0.7
W-2a Cert	0.0205					24.0	94.0				21.0						10.0	23.0		13.0	3.30	1.00		0.630
W-2a Meas		51.70	15.48	0.14	278			44	70															
W-2a Cert		52.4	15.4	0.130	262			43.0	70.0															
SY-4 Meas						112	546																	
SY-4 Cert						119	517																	
SY-4 Meas		50.94	20.48	0.12	12																			
SY-4 Cert		49.9	20.69	0.131	8.0																			
CTA-AC-1 Meas																	> 2000	> 3000		1150	170	46.6		
CTA-AC-1 Cert																	2176	3326		1087	162	46.7		
CTA-AC-1 Meas																								
CTA-AC-1 Cert																								
BIR-1a Meas						12	15					< 1			0.6			2.0		2.4	1.1	0.52	1.9	
BIR-1a Cert						16	18					0.6			0.58			1.9		2.5	1.1	0.55	2.0	
BIR-1a Meas		48.34	15.62	0.01	343			54	170															
BIR-1a Cert		47.96	15.50	0.021	310			52	170															
NCS DC86312 Meas																	> 2000	177		1550			224	34.4
NCS DC86312 Cert																	2360.000	190.000		1600.000			225.0	34.6
ZW-C Meas																								
ZW-C Cert																								
NCS DC70014 Meas															180		43.8	84.2	9.97	37.7	7.7	1.64	7.3	1.1
NCS DC70014 Cert															180.000		45.3	87.0	10.8	39.9	8.0	1.8	7.4	1.1
NCS DC70014 Meas								25	70															
NCS DC70014 Cert								26.2	70.9															
NCS DC70009 (GBW07241) Meas										11	509		1.3		3.2		25.1	62.3	8.45	33.8	13.0		15.1	3.4
NCS DC70009 (GBW07241) Cert										11.2	500.00		1.3		3.1		23.7	60.3	7.9	32.9	12.5		14.8	3.3
NCS DC70009 (GBW07241) Meas									< 20					> 1000										
NCS DC70009 (GBW07241) Cert									2.8					1701.000										
SGR-1b Meas	0.20																							
SGR-1b Cert	0.1960																							
OREAS 100a (Fusion) Meas																	261	467	47.4	151	24.3	3.64	21.6	3.8
OREAS 100a (Fusion) Cert																	260	463	47.1	152	23.6	3.71	23.6	3.80

Quality Control

Analyte Symbol	F	SiO2	Al2O3	P2O5	V	Y	Zr	Co	Ni	Ge	Rb	Nb	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb
Unit Symbol	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	5	2	4	1	20	1	2	1	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1
Analysis Method	FUS-ISE	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
OREAS 100a (Fusion) Meas								18																
OREAS 100a (Fusion) Cert								18.1																
OREAS 101a (Fusion) Meas																	780	1340	128	386	49.4	7.78		5.5
OREAS 101a (Fusion) Cert																	816	1396	134	403	48.8	8.06		5.92
OREAS 101a (Fusion) Meas								47																
OREAS 101a (Fusion) Cert								48.8																
JR-1 Meas											244	15	< 0.2			21.0	20.7	48.0	6.06	23.6	5.7	0.27		1.1
JR-1 Cert											257	15.2	0.028			20.8	19.7	47.2	5.58	23.3	6.03	0.30		1.01
JR-1 Meas									< 20															
JR-1 Cert									1.67															
SARM 3 Meas												979												
SARM 3 Cert												978												
11TM0524 Orig	< 0.01	71.32	12.00	0.07	10	63	500	2	< 20	2	148	37	< 0.2	3	< 0.5	1.9	66.9	133	16.3	65.2	14.0	2.44	12.2	2.0
11TM0524 Dup	< 0.01	73.07	12.05	0.07	9	66	505	2	< 20	2	144	37	< 0.2	3	< 0.5	2.0	65.9	133	16.3	65.6	14.3	2.42	12.5	2.0
11TM0557 Orig	0.01	47.37	15.91	0.41	315			44	80					2										
11TM0557 Dup	0.01	47.67	15.90	0.39	313			44	80					1										
Method Blank										< 1	< 2	< 1	< 0.2		< 0.5	< 0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1
Method Blank								< 1	< 20					< 1										
Method Blank	< 0.01																							
Method Blank	< 0.01																							

Quality Control

Analyte Symbol	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Bi	Th	U	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	LOI	Total	Sc	Be
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%	%	%	%	ppm	ppm
Detection Limit	0.1	0.1	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	0.4	0.1	0.1	0.01	0.001	0.01	0.01	0.01	0.01	0.001		0.01	1	1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
NIST 694 Meas														0.74	0.013	0.33	43.23	0.87	0.54	0.116				
NIST 694 Cert														0.790	0.0116	0.330	43.6	0.860	0.510	0.110				
DNC-1 Meas					2.0																			
DNC-1 Cert					2.0																			
DNC-1 Meas														9.91	0.145	9.87	11.43	1.85	0.23	0.473			31	
DNC-1 Cert														9.97	0.150	10.13	11.49	1.890	0.234	0.480			31	
GBW 07113 Meas																								
GBW 07113 Cert																								
GBW 07113 Meas														3.21	0.141	0.14	0.57	2.46	5.37	0.282			5	4
GBW 07113 Cert														3.21	0.140	0.160	0.590	2.57	5.43	0.300			5.00	4.00
SCO-1 Meas																								
SCO-1 Cert																								
LKSD-3 Meas													4.2											
LKSD-3 Cert													4.60											
LKSD-3 Meas																								
LKSD-3 Cert																								
DR-N Meas																								
DR-N Cert																								
UB-N Meas																								
UB-N Cert																								
W-2a Meas	3.9	0.8			2.1	0.30			< 1		< 0.4	2.3	0.5											
W-2a Cert	3.60	0.760			2.10	0.330			0.300		0.0300	2.40	0.530											
W-2a Meas														10.74	0.164	6.12	10.89	2.14	0.62	1.089			35	< 1
W-2a Cert														10.7	0.163	6.37	10.9	2.14	0.626	1.06			36.0	1.30
SY-4 Meas																								
SY-4 Cert																								
SY-4 Meas														6.18	0.108	0.50	8.08	7.16	1.70	0.285			< 1	3
SY-4 Cert														6.21	0.108	0.54	8.05	7.10	1.66	0.287			1.1	2.6
CTA-AC-1 Meas					11.1	1.12							4.4											
CTA-AC-1 Cert					11.4	1.08							4.4											
CTA-AC-1 Meas																								
CTA-AC-1 Cert																								
BIR-1a Meas					1.7		0.5																	
BIR-1a Cert					1.7		0.60																	
BIR-1a Meas														11.52	0.174	9.41	13.62	1.74	0.02	0.982			43	< 1
BIR-1a Cert														11.30	0.175	9.700	13.30	1.82	0.030	0.96			44	0.58
NCS DC86312 Meas	183	35.6	96.2	14.3	87.2	12.0																		
NCS DC86312 Cert	183.00	35.70	96.2	15.1	87.79	11.96																		
ZW-C Meas																								
ZW-C Cert																								
NCS DC70014 Meas	6.4	1.3	3.4	0.54	3.3	0.49					80.3													
NCS DC70014 Cert	6.7	1.3	3.5	0.57	3.3	0.50					80.3													
NCS DC70014 Meas																								
NCS DC70014 Cert																								
NCS DC70009 (GBW07241) Meas	21.5	4.5	13.2	2.41		2.33			2200			31.1												
NCS DC70009 (GBW07241) Cert	20.7	4.5	13.4	2.2		2.4			2200.00			28.3												
NCS DC70009 (GBW07241) Meas																								
NCS DC70009 (GBW07241) Cert																								
SGR-1b Meas																								
SGR-1b Cert																								
OREAS 100a (Fusion) Meas	23.0	5.0	14.5	2.40	15.4	2.17						53.7	144											
OREAS 100a (Fusion) Cert	23.2	4.81	14.9	2.31	14.9	2.26						51.6	135											

Quality Control

Analyte Symbol	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Bi	Th	U	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	LOI	Total	Sc	Be
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%	%	%	%	ppm	ppm
Detection Limit	0.1	0.1	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	0.4	0.1	0.1	0.01	0.001	0.01	0.01	0.01	0.01	0.001		0.01	1	1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
OREAS 100a (Fusion) Meas																								
OREAS 100a (Fusion) Cert																								
OREAS 101a (Fusion) Meas	31.3	6.4	18.6	2.96	18.0	2.48						36.4	419											
OREAS 101a (Fusion) Cert	33.3	6.46	19.5	2.90	17.5	2.66						36.6	422											
OREAS 101a (Fusion) Meas																								
OREAS 101a (Fusion) Cert																								
JR-1 Meas				0.70	4.8	0.70	4.7	1.8	2	1.6		28.1	9.6											
JR-1 Cert				0.67	4.55	0.71	4.51	1.86	1.59	1.56		26.7	8.88											
JR-1 Meas																								
JR-1 Cert																								
SARM 3 Meas																								
SARM 3 Cert																								
11TM0524 Orig	12.1	2.4	7.2	1.08	7.2	1.13	12.5	2.5	< 1	1.1	0.8	14.5	3.8	4.37	0.085	0.38	1.18	3.03	4.32	0.458	0.72	97.93	11	3
11TM0524 Dup	12.1	2.4	7.1	1.10	6.9	1.12	12.0	2.5	< 1	1.1	0.9	14.5	3.8	4.34	0.085	0.39	1.18	3.18	4.51	0.460	0.72	100.1	11	4
11TM0557 Orig														14.75	0.141	4.00	10.02	2.86	0.63	2.528	1.12	99.73	33	1
11TM0557 Dup														14.48	0.139	3.97	9.87	2.90	0.63	2.502	1.12	99.57	32	1
Method Blank	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.04	< 0.2	< 0.1	< 1	< 0.1	< 0.4	< 0.1	< 0.1											
Method Blank																								
Method Blank																								
Method Blank																								

Quality Control

Analyte Symbol	Cr	Cu	Zn	Ga	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	20	10	30	1	0.5	5	1	2	0.5	1	0.2	2	0.5	0.1	0.2	0.1	3	0.05	0.05	0.01	0.05	0.01	0.005	0.01
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas																								
NIST 694 Cert																								
DNC-1 Meas									16.7	36											5.08		0.594	
DNC-1 Cert									18.0	38											5.20		0.59	
DNC-1 Meas	270	100	70					140									106							
DNC-1 Cert	270.000	100.0	70.0					144.0									118							
GBW 07113 Meas																								
GBW 07113 Cert																								
GBW 07113 Meas								40									501							
GBW 07113 Cert								43.0									506							
SCO-1 Meas																								
SCO-1 Cert																								
LKSD-3 Meas																								
LKSD-3 Cert																								
LKSD-3 Meas		40	150			28																		
LKSD-3 Cert		35.0	152			27.0																		
DR-N Meas																								
DR-N Cert																								
UB-N Meas																								
UB-N Cert																								
W-2a Meas							20		21.0	91								10.8	24.0		13.2	3.38	1.10	
W-2a Cert							21.0		24.0	94.0								10.0	23.0		13.0	3.30	1.00	
W-2a Meas		110	80	17				195				< 2	< 0.5				175							
W-2a Cert		110	80.0	17.0				190				0.600	0.0460				182							
SY-4 Meas																								
SY-4 Cert																								
SY-4 Meas								1203									350							
SY-4 Cert								1191									340							
CTA-AC-1 Meas																		> 2000	> 3000		1150	170	46.6	
CTA-AC-1 Cert																		2176	3326		1087	162	46.7	
CTA-AC-1 Meas		60																						
CTA-AC-1 Cert		54.0																						
BIR-1a Meas									15.4		0.6				0.6				1.99		2.37	1.12	0.521	1.87
BIR-1a Cert									16		0.6				0.58				1.9		2.5	1.1	0.55	2.0
BIR-1a Meas	380	130	70	15				107									12							
BIR-1a Cert	370	125	70	16				110									6							
NCS DC86312 Meas									966									> 2000	177		1550			224
NCS DC86312 Cert									976.00									2360.000	190.000		1600.000			225.0
ZW-C Meas			1040	99																				
ZW-C Cert			1050	99																				
NCS DC70014 Meas									32.3						180			43.8	84.2	9.97	37.7	7.75	1.64	7.28
NCS DC70014 Cert									32.1						180.000			45.3	87.0	10.8	39.9	8.0	1.8	7.4
NCS DC70014 Meas		2580	7400	25								> 100	16.7											
NCS DC70014 Cert		2600.00	7400.00	25.2								270	16.7											
NCS DC70009 (GBW07241) Meas					11.2		509							1.3	3.2			25.1	62.3	8.45	33.8	13.0		15.1
NCS DC70009 (GBW07241) Cert					11.2		500.00							1.3	3.1			23.7	60.3	7.9	32.9	12.5		14.8
NCS DC70009 (GBW07241) Meas	30	1000	100	17		70							1.7											
NCS DC70009 (GBW07241) Cert	30	960.000	100.000	16.5		69.9							1.8											
SGR-1b Meas																								
SGR-1b Cert																								
OREAS 100a (Fusion) Meas									140									261	467	47.4	151	24.3	3.64	21.6
OREAS 100a (Fusion) Cert									142									260	463	47.1	152	23.6	3.71	23.6

Quality Control

Analyte Symbol	Cr	Cu	Zn	Ga	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sb	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	20	10	30	1	0.5	5	1	2	0.5	1	0.2	2	0.5	0.1	0.2	0.1	3	0.05	0.05	0.01	0.05	0.01	0.005	0.01
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
OREAS 100a (Fusion) Meas		170										22												
OREAS 100a (Fusion) Cert		169										24.1												
OREAS 101a (Fusion) Meas									172									780	1340	128	386	49.4	7.78	
OREAS 101a (Fusion) Cert									183									816	1396	134	403	48.8	8.06	
OREAS 101a (Fusion) Meas		430										20												
OREAS 101a (Fusion) Cert		434										21.9												
JR-1 Meas							244		41.0	100	15.0			< 0.1		21.0		20.7	48.0	6.06	23.6	5.74	0.274	
JR-1 Cert							257		45.1	99.9	15.2			0.028		20.8		19.7	47.2	5.58	23.3	6.03	0.30	
JR-1 Meas			< 30	16		16							< 0.5											
JR-1 Cert			30.6	16.1		16.3							0.031											
SARM 3 Meas										> 10000	979													
SARM 3 Cert										11119	978													
11TM0524 Orig	< 20	< 10	60	20		< 5		92				< 2	2.7				771							
11TM0524 Dup	< 20	< 10	60	19		< 5		93				< 2	2.8				798							
11TM0557 Orig	80	50	100	21	2.0	< 5	12	311	33.5	214	17.1	< 2	1.0	< 0.1	< 0.2	0.7	225	23.6	50.5	6.53	29.6	7.20	2.28	6.82
11TM0557 Dup	80	50	100	21	2.0	< 5	12	313	32.8	214	16.9	< 2	1.1	< 0.1	< 0.2	0.7	222	23.5	50.7	6.62	29.9	7.26	2.33	6.89
Method Blank					< 0.5		< 1		< 0.5	< 1	< 0.2			< 0.1	< 0.2	< 0.1		< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	< 0.005	< 0.01
Method Blank	< 20	< 10	< 30	< 1		< 5						< 2	< 0.5											
Method Blank																								
Method Blank																								

Quality Control

Analyte Symbol	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	0.005	0.01	0.002	0.1	0.01	0.5	0.05	5	0.1	0.05	0.01
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas															
NIST 694 Cert															
DNC-1 Meas						2.01									
DNC-1 Cert						2.0									
DNC-1 Meas															
DNC-1 Cert															
GBW 07113 Meas															
GBW 07113 Cert															
GBW 07113 Meas															
GBW 07113 Cert															
SCO-1 Meas															
SCO-1 Cert															
LKSD-3 Meas															4.21
LKSD-3 Cert															4.60
LKSD-3 Meas															
LKSD-3 Cert															
DR-N Meas															
DR-N Cert															
UB-N Meas															
UB-N Cert															
W-2a Meas	0.66	3.88	0.81			2.08	0.298			< 0.5			< 0.1	2.34	0.55
W-2a Cert	0.630	3.60	0.760			2.10	0.330			0.300			0.0300	2.40	0.530
W-2a Meas												9			
W-2a Cert												9.30			
SY-4 Meas															
SY-4 Cert															
SY-4 Meas															
SY-4 Cert															
CTA-AC-1 Meas						11.1	1.12								4.43
CTA-AC-1 Cert						11.4	1.08								4.4
CTA-AC-1 Meas															
CTA-AC-1 Cert															
BIR-1a Meas						1.68		0.5							
BIR-1a Cert						1.7		0.60							
BIR-1a Meas															
BIR-1a Cert															
NCS DC86312 Meas	34.4	183	35.6	96.2	14.3	87.2	12.0								
NCS DC86312 Cert	34.6	183.00	35.70	96.2	15.1	87.79	11.96								
ZW-C Meas															
ZW-C Cert															
NCS DC70014 Meas	1.15	6.44	1.25	3.38	0.537	3.31	0.493						80.3		
NCS DC70014 Cert	1.1	6.7	1.3	3.5	0.57	3.3	0.50						80.3		
NCS DC70014 Meas												> 10000			
NCS DC70014 Cert												27200.00			
NCS DC70009 (GBW07241) Meas	3.42	21.5	4.48	13.2	2.41		2.33			2200				31.1	
NCS DC70009 (GBW07241) Cert	3.3	20.7	4.5	13.4	2.2		2.4			2200.00				28.3	
NCS DC70009 (GBW07241) Meas															
NCS DC70009 (GBW07241) Cert															
SGR-1b Meas															
SGR-1b Cert															
OREAS 100a (Fusion) Meas	3.76	23.0	4.99	14.5	2.40	15.4	2.17							53.7	144
OREAS 100a (Fusion) Cert	3.80	23.2	4.81	14.9	2.31	14.9	2.26							51.6	135

Quality Control

Analyte Symbol	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.01	0.005	0.01	0.002	0.1	0.01	0.5	0.05	5	0.1	0.05	0.01
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
OREAS 100a (Fusion) Meas															
OREAS 100a (Fusion) Cert															
OREAS 101a (Fusion) Meas	5.47	31.3	6.43	18.6	2.96	18.0	2.48							36.4	419
OREAS 101a (Fusion) Cert	5.92	33.3	6.46	19.5	2.90	17.5	2.66							36.6	422
OREAS 101a (Fusion) Meas															
OREAS 101a (Fusion) Cert															
JR-1 Meas	1.05				0.705	4.79	0.697	4.7	1.84	1.7	1.59			28.1	9.61
JR-1 Cert	1.01				0.67	4.55	0.71	4.51	1.86	1.59	1.56			26.7	8.88
JR-1 Meas															
JR-1 Cert															
SARM 3 Meas															
SARM 3 Cert															
11TM0524 Orig												15			
11TM0524 Dup												16			
11TM0557 Orig	1.08	6.39	1.24	3.61	0.521	3.25	0.523	5.0	1.07	< 0.5	0.07	8	< 0.1	1.63	0.45
11TM0557 Dup	1.11	6.66	1.28	3.67	0.538	3.34	0.523	5.0	1.07	0.5	0.06	8	< 0.1	1.69	0.48
Method Blank	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.002	< 0.1	< 0.01	< 0.5	< 0.05		< 0.1	< 0.05	< 0.01
Method Blank												< 5			
Method Blank															
Method Blank															

Quality Analysis ... *Innovative Technologies*

Date Submitted: 22-Apr-13
Invoice No.: A13-04457
Invoice Date: 03-May-13
Your Reference: PF 5310

Nova Scotia Department of Natural Resources
1701 Hollis Street
P.O. Box 698
Halifax NS B3J 2T9
Canada

ATTN: Trevor MacHattie

CERTIFICATE OF ANALYSIS

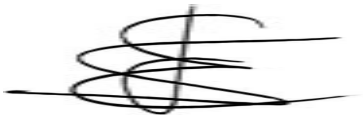
50 Rock samples were submitted for analysis.

The following analytical package was requested: Code 4LITHO (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

REPORT **A13-04457**

Notes:
We recommend using option 4B1 for accurate levels of the base metals Cu, Pb, Zn, Ni and Ag. Option 4B-INAA for As, Sb, high W >100ppm, Cr >1000ppm and Sn >50ppm by Code 5D. Values for these elements provided by Fusion ICP/MS, are order of magnitude only and are provided for general information. Mineralized samples should have the Quant option selected or request assays for values which exceed the range of option 4B1. Total includes all elements in % oxide to the left of total.

CERTIFIED BY :



Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited
LAB 266
LAB 266
Accrédité CCN

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Activation Laboratories Ltd. Report: A13-04457

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu	Zn
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	3	2	2	4	20	1	20	10	30
Analysis Method	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
08TM063D	47.63	15.59	12.60	0.219	3.55	7.13	4.18	1.70	3.143	0.59	2.40	98.73	18	2	179	461	611	23	336	< 20	30	20	20	400
11TM0031	66.77	14.01	5.39	0.113	2.04	1.16	3.53	2.55	0.857	0.20	2.01	98.64	13	2	89	697	220	33	228	70	16	40	20	90
11TM0036A	68.65	14.06	5.01	0.167	1.84	1.14	4.45	1.81	0.839	0.18	1.64	99.79	12	3	85	749	196	29	223	70	14	40	40	140
11TM0588	48.10	13.33	15.11	0.285	5.70	9.82	2.89	0.74	2.851	0.43	1.09	100.3	43	1	372	295	301	39	219	180	49	70	160	350
11TM0601	73.03	12.93	1.69	0.063	0.23	0.45	3.92	5.05	0.261	0.05	0.59	98.26	4	4	17	297	81	46	164	< 20	1	< 20	< 10	< 30
11TM0605	46.66	14.73	12.97	0.202	6.84	10.66	2.51	0.48	2.002	0.23	1.24	98.52	36	< 1	300	138	293	25	124	250	54	110	140	150
11TM0614	48.19	12.71	16.18	0.332	4.62	8.95	3.15	0.86	3.316	0.47	0.93	99.71	38	1	419	226	269	43	229	70	46	50	80	230
11TM0620	47.62	13.09	15.24	0.268	5.50	10.31	2.91	0.65	2.983	0.39	0.92	99.88	45	1	397	210	259	38	189	150	49	60	150	180
11TM0646	51.33	18.29	7.57	0.224	3.68	9.74	3.36	1.58	1.644	0.28	1.21	98.91	34	1	206	666	417	27	107	90	23	50	70	700
12TM0502	47.26	14.83	13.33	0.255	7.91	7.36	3.82	0.38	1.758	0.18	1.88	98.96	48	< 1	276	108	143	22	88	180	59	90	50	100
12TM0526	49.79	13.92	13.63	0.229	7.08	7.34	3.82	0.10	1.833	0.16	1.81	99.72	52	< 1	401	31	66	38	103	90	55	60	70	110
12TM0552A	54.07	8.84	24.30	0.117	1.40	9.98	0.06	0.03	0.554	0.11	0.88	100.3	9	3	101	14	261	41	87	50	12	50	120	80
12TM0556	66.82	14.99	4.16	0.091	0.91	2.62	3.71	3.04	0.561	0.14	1.25	98.30	9	2	41	1075	296	34	278	< 20	6	< 20	< 10	40
12TM0566B	51.11	15.04	12.62	0.673	6.12	5.93	4.18	1.74	1.939	0.16	1.20	100.7	53	< 1	349	320	278	31	102	170	50	80	< 10	120
12TM0571	48.20	14.25	11.56	0.182	7.08	11.55	2.69	0.10	1.796	0.14	2.15	99.71	47	< 1	347	34	217	28	95	270	45	90	90	380
12TM0573	45.53	13.66	16.49	0.280	7.04	9.43	2.75	0.12	2.500	0.25	2.61	100.7	53	< 1	462	30	121	44	159	100	50	60	50	530
12TM0599	48.51	14.39	12.00	0.220	8.34	9.94	3.22	0.11	1.828	0.14	2.18	100.9	49	< 1	359	27	139	29	100	310	48	90	90	110
12TM0604	48.52	13.02	15.41	0.235	6.32	9.64	2.88	0.39	2.316	0.24	1.95	100.9	48	< 1	442	71	172	49	180	90	51	60	90	120
12TM0608	50.85	12.45	14.62	0.251	4.88	7.55	3.57	0.29	3.222	0.38	0.69	98.76	36	2	452	72	173	44	224	70	51	50	40	120
12TM0610A	47.88	12.40	17.50	0.264	6.00	6.52	1.99	1.30	4.087	0.46	2.04	100.4	38	2	550	135	208	52	301	20	48	50	50	160
12TM0613	52.38	13.28	9.62	0.146	6.31	9.70	3.33	0.56	2.525	0.61	1.04	99.48	23	2	206	187	587	21	174	250	41	140	80	90
12TM0626A	56.58	13.29	10.20	0.331	5.50	6.41	3.44	1.68	0.965	0.14	0.93	99.46	28	< 1	185	163	319	26	123	480	53	240	90	100
12TM0634	45.81	10.12	13.46	0.296	13.09	9.00	1.78	0.16	2.715	0.42	1.97	98.82	26	1	283	113	135	20	186	2690	74	540	60	210
12TM0638	66.30	14.91	4.99	0.104	1.14	3.16	3.54	2.57	0.700	0.19	1.53	99.14	9	2	53	757	252	38	307	< 20	9	< 20	< 10	60
12TM0652	68.01	14.57	4.46	0.078	0.88	3.00	3.75	1.99	0.566	0.14	0.86	98.30	8	2	50	795	278	15	304	20	7	< 20	20	60
12TM0666	66.77	14.81	4.63	0.118	1.26	3.23	3.66	2.17	0.683	0.16	0.65	98.15	10	2	61	561	292	26	272	30	8	< 20	180	180
12TM0686A	44.25	16.65	14.08	0.383	5.52	7.98	2.67	1.12	3.348	0.18	2.11	98.30	29	1	353	490	413	10	62	< 20	54	< 20	50	140
12TM0693	44.68	16.65	15.56	0.226	4.48	9.63	2.97	0.88	3.282	1.02	1.48	100.9	30	< 1	388	250	491	21	103	< 20	47	20	40	110
12TM0701	73.20	12.75	1.97	0.050	0.35	0.68	3.76	4.37	0.300	0.06	0.65	98.14	4	4	19	382	86	41	161	< 20	2	< 20	< 10	30
12TM0751	76.46	12.18	1.04	0.014	0.13	0.38	3.89	4.41	0.170	0.03	0.51	99.22	2	3	13	241	81	24	121	< 20	< 1	< 20	< 10	< 30
12TM0763	73.81	12.13	2.44	0.024	0.14	0.14	3.00	5.14	0.259	0.03	0.90	98.00	4	4	9	699	41	64	508	20	1	< 20	< 10	140
12TM0777	71.82	14.00	3.07	0.065	0.66	1.70	3.54	3.57	0.392	0.10	0.74	99.65	6	2	31	1050	192	22	229	< 20	5	< 20	< 10	50
E10-W12-051	63.67	14.91	8.47	0.096	0.36	0.32	4.83	5.27	0.511	0.07	0.91	99.43	2	4	6	249	35	45	443	< 20	1	< 20	< 10	330
E10-W12-071	48.09	14.45	7.91	0.124	6.89	7.32	2.54	1.47	0.899	0.29	8.93	98.90	23	1	201	626	424	11	73	420	37	150	100	100
E10-W12-078	53.72	18.28	9.85	0.172	2.91	5.98	2.65	1.93	0.895	0.12	3.81	100.3	31	1	283	843	305	18	63	20	25	< 20	120	170
E10-W12-082	70.87	14.73	2.46	0.038	0.93	1.90	3.31	2.84	0.207	0.04	3.09	100.4	8	3	34	620	111	29	109	20	3	< 20	< 10	50
E10-W12-083	70.08	15.88	1.59	0.043	0.59	1.88	4.85	2.60	0.203	0.06	1.70	99.48	2	2	25	1296	607	5	90	20	3	< 20	< 10	50
E10-W12-089A	67.67	15.60	2.51	0.089	0.66	1.98	5.46	2.41	0.493	0.09	1.25	98.21	4	4	30	861	308	19	398	< 20	2	< 20	< 10	50
E10-W12-089B	74.78	12.51	1.03	0.028	0.14	0.70	3.52	4.70	0.126	0.01	0.71	98.26	1	2	10	488	90	6	79	< 20	< 1	< 20	10	< 30
E10-W12-109	65.68	15.93	4.59	0.054	0.88	1.55	4.93	3.84	0.571	0.17	1.39	99.58	8	3	25	1927	289	31	194	< 20	5	< 20	60	40
E10-W12-110	59.15	17.43	5.38	0.152	2.19	3.78	4.35	2.49	0.514	0.18	4.95	100.6	10	2	91	1054	348	16	107	< 20	12	< 20	30	120
E10-W12-125	62.77	16.50	5.34	0.125	0.63	1.17	5.08	5.58	0.531	0.08	1.34	99.16	5	3	12	1713	199	40	604	< 20	2	< 20	< 10	190
E10-W12-143A	59.79	16.59	7.99	0.135	2.97	4.27	3.38	1.37	0.643	0.13	3.50	100.8	23	1	177	411	339	17	80	< 20	20	< 20	40	90
E10-W12-145	71.96	13.04	2.37	0.043	0.73	2.45	4.02	1.25	0.229	0.05	2.06	98.20	6	2	40	325	183	12	83	20	4	< 20	< 10	< 30
E11-W12-098	61.60	17.76	3.87	0.088	1.20	2.30	4.56	4.36	0.570	0.19	1.43	97.94	6	3	57	1830	562	22	334	< 20	5	< 20	30	60
E11-W12-104A	70.08	16.16	1.57	0.050	0.51	1.79	4.88	2.77	0.186	0.05	1.09	99.14	2	1	23	1696	668	4	88	< 20	2	< 20	< 10	50
E11-W12-129	71.78	13.43	3.82	0.060	1.40	0.55	3.16	2.47	0.487	0.07	2.17	99.40	10	2	76	561	90	17	129	40	8	< 20	20	280
E11-W12-179	52.30	16.81	8.57	0.152	4.83	7.69	3.26	0.65	0.923	0.18	4.83	100.2	24	1	207	280	599	16	82	70	27	30	80	90
E11-W12-183A	68.59	16.30	1.73	0.078	0.58	1.02	5.04	4.32	0.211	0.06	1.00	98.92	2	1	26	2707	483	4	93	< 20	3	< 20	< 10	70
E11-W12-185	74.59	12.36	2.24	0.070	0.15	0.16	2.55	6.23	0.220	0.01	0.81	99.38	3	4	8	1935	267	52	416	< 20	< 1	< 20	< 10	160

Analyte Symbol	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
08TM063D	24	2	< 5	49	36	3	3.7	< 0.2	2	< 0.5	1.0	26.2	57.1	7.95	35.0	7.8	3.13	7.2	1.1	5.7	1.0	2.6	0.35	2.2
11TM0031	20	2	< 5	102	15	< 2	2.4	< 0.2	2	0.7	3.0	40.1	81.5	10.3	41.6	8.5	1.96	7.0	1.2	6.6	1.3	3.6	0.51	3.3
11TM0036A	19	2	< 5	56	15	< 2	2.4	< 0.2	2	< 0.5	2.0	32.4	66.5	8.35	34.1	7.2	1.36	5.9	1.0	5.9	1.1	3.2	0.46	3.0
11TM0588	23	2	< 5	37	16	< 2	2.1	< 0.2	1	< 0.5	1.3	20.1	46.2	6.61	31.3	8.3	2.59	8.3	1.4	8.6	1.7	4.5	0.66	4.2
11TM0601	18	2	< 5	177	24	< 2	0.7	< 0.2	4	< 0.5	2.3	38.3	79.2	8.41	34.0	7.5	0.55	6.0	1.1	6.9	1.4	4.2	0.63	4.1
11TM0605	21	2	< 5	22	10	< 2	1.2	< 0.2	< 1	< 0.5	2.1	11.8	27.3	4.06	19.3	5.2	1.70	5.4	0.9	5.7	1.1	3.3	0.47	3.0
11TM0614	24	2	< 5	33	19	2	2.1	< 0.2	2	< 0.5	2.8	22.2	49.7	7.29	33.7	8.6	2.68	8.8	1.5	9.0	1.8	4.9	0.70	4.5
11TM0620	22	2	< 5	41	14	< 2	1.6	< 0.2	2	< 0.5	3.7	18.6	42.2	6.20	29.3	7.9	2.41	7.9	1.4	8.1	1.6	4.5	0.64	4.2
11TM0646	21	2	< 5	77	16	< 2	1.0	< 0.2	1	< 0.5	4.0	15.9	35.9	5.00	23.2	6.1	2.37	6.2	1.1	6.1	1.2	3.4	0.48	3.1
12TM0502	13	1	< 5	9	7	< 2	0.7	< 0.2	< 1	< 0.5	1.3	7.9	18.8	3.04	14.4	4.5	1.54	4.7	0.8	4.9	1.0	2.8	0.40	2.6
12TM0526	15	1	< 5	< 2	3	< 2	1.0	< 0.2	< 1	< 0.5	< 0.5	3.3	11.2	2.11	11.9	4.4	1.41	5.6	1.2	7.7	1.6	4.6	0.67	4.3
12TM0552A	26	8	< 5	< 2	9	< 2	1.5	< 0.2	2	0.8	< 0.5	29.4	72.9	8.24	35.5	7.6	1.64	7.5	1.2	7.0	1.4	4.1	0.59	3.8
12TM0556	19	2	< 5	65	14	< 2	2.5	< 0.2	2	< 0.5	1.0	41.2	69.5	9.96	38.9	8.5	2.07	6.9	1.2	6.9	1.4	3.9	0.54	3.6
12TM0566B	18	2	< 5	64	5	< 2	0.9	< 0.2	< 1	1.1	4.6	5.4	14.9	2.54	14.1	4.9	1.68	5.7	1.1	6.9	1.4	4.0	0.57	3.7
12TM0571	19	2	< 5	< 2	3	< 2	0.9	< 0.2	< 1	< 0.5	< 0.5	4.1	12.6	2.24	12.4	4.1	1.46	5.1	0.9	5.8	1.2	3.4	0.49	3.2
12TM0573	19	2	5	< 2	7	< 2	1.3	< 0.2	1	< 0.5	< 0.5	7.3	20.7	3.54	18.5	6.0	1.96	7.5	1.4	9.1	1.9	5.7	0.86	5.4
12TM0599	16	2	< 5	< 2	3	< 2	0.7	< 0.2	< 1	< 0.5	< 0.5	4.5	14.3	2.57	13.7	4.7	1.60	5.2	1.0	6.6	1.3	3.8	0.54	3.4
12TM0604	21	2	< 5	6	8	< 2	1.4	< 0.2	2	< 0.5	< 0.5	9.5	24.9	4.05	21.2	6.9	2.10	8.3	1.5	10.3	2.2	6.8	1.03	6.6
12TM0608	22	2	< 5	6	16	< 2	1.7	< 0.2	2	< 0.5	0.6	18.0	50.0	7.22	33.9	9.4	2.58	9.1	1.5	8.9	1.8	5.0	0.70	4.5
12TM0610A	29	2	< 5	20	22	< 2	2.3	< 0.2	3	< 0.5	2.3	23.8	60.2	8.56	41.2	10.8	3.12	10.5	1.8	10.7	2.1	6.0	0.85	5.3
12TM0613	20	2	< 5	10	24	< 2	1.4	< 0.2	1	< 0.5	0.8	29.5	60.6	8.28	37.7	8.1	2.42	6.7	1.0	5.0	0.9	2.4	0.31	1.9
12TM0626A	22	3	< 5	24	12	< 2	0.9	< 0.2	2	< 0.5	1.0	20.1	62.7	5.55	23.1	5.4	1.42	5.2	0.9	5.4	1.1	3.1	0.45	2.9
12TM0634	19	3	< 5	4	17	< 2	1.2	< 0.2	1	0.9	1.6	16.3	39.2	5.88	27.5	6.7	1.93	5.5	0.8	4.5	0.8	2.0	0.26	1.5
12TM0638	20	2	< 5	65	18	< 2	2.5	< 0.2	1	< 0.5	2.0	27.6	60.2	8.24	36.1	9.2	2.26	8.8	1.5	8.7	1.6	4.4	0.61	3.8
12TM0652	21	2	< 5	56	12	< 2	2.4	< 0.2	1	< 0.5	2.5	27.5	53.2	5.80	22.1	4.1	1.79	3.2	0.5	3.0	0.6	1.6	0.24	1.6
12TM0666	20	2	< 5	79	10	< 2	2.1	< 0.2	2	< 0.5	4.9	18.6	28.8	4.51	19.0	4.4	1.83	4.3	0.7	4.7	1.0	3.1	0.45	3.0
12TM0686A	21	2	< 5	68	9	< 2	< 0.5	< 0.2	< 1	0.5	11.4	6.3	13.7	1.87	9.3	2.1	1.32	2.3	0.4	2.1	0.4	1.2	0.17	1.1
12TM0693	23	2	< 5	43	9	< 2	1.0	< 0.2	< 1	< 0.5	7.0	15.6	35.7	5.29	25.3	6.2	2.40	5.9	0.9	5.0	0.9	2.5	0.33	2.1
12TM0701	20	2	< 5	166	21	< 2	1.1	< 0.2	3	< 0.5	3.2	40.2	82.6	9.74	36.4	7.4	0.85	6.6	1.2	8.0	1.7	5.1	0.78	5.3
12TM0751	17	2	< 5	138	30	< 2	0.6	< 0.2	2	< 0.5	1.7	18.6	55.9	4.29	16.2	3.4	0.28	3.2	0.7	4.2	0.9	2.7	0.40	2.6
12TM0763	20	2	17	191	48	3	4.0	< 0.2	9	3.0	6.6	63.3	135	16.1	63.6	12.7	1.31	10.7	2.0	12.7	2.7	8.1	1.23	8.2
12TM0777	18	2	< 5	89	13	< 2	1.6	< 0.2	1	< 0.5	2.4	41.4	78.6	8.96	33.7	6.2	1.61	5.2	0.8	4.6	0.9	2.7	0.39	2.5
E10-W12-051	34	2	< 5	102	52	3	3.3	< 0.2	5	< 0.5	0.9	50.2	109	15.0	66.0	14.4	2.98	11.6	1.9	10.3	1.9	5.2	0.73	4.8
E10-W12-071	18	2	< 5	63	6	< 2	0.6	< 0.2	< 1	< 0.5	1.6	20.4	42.1	5.25	21.4	4.2	1.18	3.1	0.5	2.6	0.5	1.4	0.20	1.3
E10-W12-078	19	1	< 5	55	4	< 2	< 0.5	< 0.2	< 1	0.6	3.5	9.8	21.5	2.96	13.0	3.5	0.99	3.3	0.6	3.6	0.8	2.2	0.34	2.2
E10-W12-082	17	1	< 5	120	11	6	0.6	< 0.2	3	< 0.5	3.6	30.2	61.5	6.89	28.4	6.1	1.19	5.0	0.8	5.0	1.0	2.9	0.43	2.8
E10-W12-083	19	1	< 5	66	4	< 2	0.5	< 0.2	< 1	< 0.5	3.0	9.1	16.7	2.11	8.1	1.4	0.49	1.2	0.2	0.9	0.2	0.5	0.07	0.5
E10-W12-089A	19	2	< 5	75	22	4	3.4	< 0.2	2	< 0.5	1.1	47.8	83.0	8.63	29.2	4.6	1.28	3.4	0.5	3.1	0.7	2.1	0.32	2.5
E10-W12-089B	14	2	< 5	146	7	5	0.6	< 0.2	10	< 0.5	2.3	21.3	37.5	3.76	11.9	1.8	0.39	1.3	0.2	1.1	0.2	0.7	0.12	0.9
E10-W12-109	20	2	< 5	82	11	2	1.5	< 0.2	2	0.5	1.1	34.8	70.5	8.66	34.6	7.4	1.77	6.2	1.1	6.5	1.3	3.9	0.57	3.9
E10-W12-110	19	2	< 5	83	5	< 2	0.6	< 0.2	< 1	0.5	3.1	14.9	31.6	4.18	17.8	3.7	1.09	3.3	0.5	3.0	0.6	1.8	0.27	1.9
E10-W12-125	32	2	< 5	103	50	5	4.8	< 0.2	3	< 0.5	1.7	61.5	117	15.6	64.2	12.7	5.34	11.1	1.6	9.3	1.7	4.6	0.64	4.1
E10-W12-143A	17	2	< 5	49	5	< 2	< 0.5	< 0.2	< 1	0.5	2.2	11.3	24.1	3.12	14.6	3.4	0.92	3.2	0.5	3.3	0.7	1.9	0.29	2.0
E10-W12-145	15	2	< 5	67	6	< 2	17.9	< 0.2	1	1.4	2.1	29.4	54.6	6.05	21.3	3.7	0.91	2.8	0.4	2.6	0.5	1.5	0.22	1.5
E11-W12-098	21	2	< 5	104	15	< 2	10.3	< 0.2	2	< 0.5	2.0	72.9	127	14.6	51.3	8.0	1.71	5.4	0.8	4.5	0.9	2.5	0.38	2.7
E11-W12-104A	19	1	< 5	54	4	< 2	4.0	< 0.2	< 1	< 0.5	2.1	8.7	15.4	1.95	7.2	1.3	0.60	0.9	0.1	0.7	0.1	0.4	0.06	0.4
E11-W12-129	16	2	10	94	7	< 2	2.5	< 0.2	2	1.3	4.6	21.8	43.2	5.29	18.9	4.2	0.95	3.0	0.5	3.2	0.7	2.0	0.30	2.1
E11-W12-179	19	2	< 5	19	10	< 2	< 0.5	< 0.2	< 1	0.9	< 0.5	12.1	26.3	3.33	14.9	3.6	1.21	3.7	0.6	3.2	0.6	1.8	0.25	1.8
E11-W12-183A	17	1	< 5	198	6	< 2	0.6	< 0.2	< 1	< 0.5	1.4	6.2	13.5	1.27	5.0	1.0	0.42	0.7	0.1	0.6	0.1	0.3	0.05	0.4
E11-W12-185	17	2	< 5	140	37	< 2	2.0	< 0.2	5	< 0.5	1.2	54.1	109	13.3	52.9	11.6	1.39	9.9	1.8	10.3	2.0	6.0	0.95	7.0

Analyte Symbol	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
08TM063D	0.34	7.8	2.3	< 1	0.4	39	< 0.4	2.6	0.8
11TM0031	0.53	6.1	1.3	2	0.7	9	< 0.4	10.5	2.5
11TM0036A	0.48	5.7	1.2	1	0.4	23	< 0.4	9.6	2.2
11TM0588	0.65	5.8	1.0	< 1	0.2	113	< 0.4	1.8	0.5
11TM0601	0.67	4.5	2.2	1	0.9	21	< 0.4	19.0	4.6
11TM0605	0.48	3.5	1.0	< 1	0.3	12	< 0.4	1.1	0.3
11TM0614	0.70	5.9	1.2	< 1	0.3	12	< 0.4	2.1	0.6
11TM0620	0.64	5.2	1.0	< 1	0.3	11	< 0.4	1.8	0.5
11TM0646	0.49	3.1	1.1	< 1	0.9	316	< 0.4	2.9	0.8
12TM0502	0.41	2.7	0.8	< 1	0.3	< 5	< 0.4	0.7	0.1
12TM0526	0.67	3.1	0.2	< 1	< 0.1	< 5	< 0.4	0.2	< 0.1
12TM0552A	0.60	2.5	0.7	< 1	< 0.1	29	< 0.4	7.8	0.9
12TM0556	0.56	7.0	1.1	< 1	0.3	10	< 0.4	7.2	1.7
12TM0566B	0.58	3.1	0.4	< 1	0.4	8	< 0.4	0.3	0.2
12TM0571	0.50	2.8	0.3	< 1	< 0.1	92	< 0.4	0.2	< 0.1
12TM0573	0.82	4.3	0.5	< 1	< 0.1	< 5	< 0.4	0.6	0.2
12TM0599	0.53	3.0	0.3	< 1	< 0.1	< 5	< 0.4	0.2	0.1
12TM0604	1.02	5.5	0.6	< 1	< 0.1	< 5	< 0.4	0.8	0.3
12TM0608	0.71	6.2	1.2	3	< 0.1	< 5	< 0.4	1.7	0.3
12TM0610A	0.81	8.0	1.5	< 1	< 0.1	< 5	< 0.4	2.1	0.5
12TM0613	0.29	4.7	1.5	< 1	< 0.1	7	< 0.4	2.5	0.7
12TM0626A	0.46	3.6	1.0	< 1	0.1	6	< 0.4	8.0	1.1
12TM0634	0.22	4.5	1.2	< 1	0.2	< 5	< 0.4	1.2	0.5
12TM0638	0.59	7.7	1.3	< 1	0.3	10	< 0.4	4.9	1.8
12TM0652	0.27	7.7	0.7	< 1	0.3	11	< 0.4	5.0	1.3
12TM0666	0.47	6.9	0.9	< 1	0.8	13	< 0.4	2.1	1.3
12TM0686A	0.19	1.6	0.7	< 1	1.2	46	< 0.4	0.6	0.2
12TM0693	0.32	2.7	0.7	< 1	1.4	< 5	< 0.4	1.1	0.3
12TM0701	0.86	5.0	2.2	< 1	0.9	14	< 0.4	19.1	3.7
12TM0751	0.41	4.0	2.7	< 1	0.4	9	< 0.4	13.0	2.1
12TM0763	1.35	15.1	3.7	< 1	1.3	32	< 0.4	21.4	3.8
12TM0777	0.40	6.0	0.8	< 1	0.5	13	< 0.4	7.8	1.3
E10-W12-051	0.79	11.1	3.4	< 1	0.5	24	< 0.4	8.1	2.0
E10-W12-071	0.21	2.2	0.3	< 1	0.3	7	< 0.4	5.0	0.8
E10-W12-078	0.36	1.9	0.3	< 1	0.3	10	< 0.4	1.8	0.5
E10-W12-082	0.45	3.6	1.6	< 1	0.7	13	< 0.4	13.8	3.4
E10-W12-083	0.08	2.4	0.3	< 1	0.4	10	< 0.4	2.1	0.8
E10-W12-089A	0.45	9.5	2.5	< 1	0.4	21	< 0.4	15.5	2.7
E10-W12-089B	0.17	2.6	0.5	< 1	0.8	18	< 0.4	14.0	1.9
E10-W12-109	0.66	5.4	0.7	< 1	0.5	32	< 0.4	12.5	3.0
E10-W12-110	0.33	3.1	0.4	< 1	0.5	14	< 0.4	2.0	0.7
E10-W12-125	0.66	13.9	2.9	< 1	0.4	25	< 0.4	7.1	1.6
E10-W12-143A	0.34	2.4	0.3	< 1	0.3	9	< 0.4	3.3	0.9
E10-W12-145	0.25	2.5	0.6	< 1	0.3	14	< 0.4	11.5	2.6
E11-W12-098	0.48	8.5	1.1	< 1	0.6	17	< 0.4	13.1	2.0
E11-W12-104A	0.08	2.7	0.3	< 1	0.4	24	< 0.4	1.5	0.5
E11-W12-129	0.36	3.3	0.7	< 1	0.5	90	< 0.4	8.0	1.8
E11-W12-179	0.30	2.4	0.4	< 1	< 0.1	12	< 0.4	2.1	0.5
E11-W12-183A	0.08	2.5	0.2	< 1	1.3	21	< 0.4	1.7	0.8
E11-W12-185	1.28	11.1	3.1	< 1	1.2	9	< 0.4	17.3	5.1

Quality Control

Analyte Symbol	In	Sb	Pr	Gd	Tb	Hf	Fe2O3(T)	MgO	P2O5	Sr	Cr	Cu	Ce	Nd	Sm	Er	W	U	SiO2	Al2O3	MnO	CaO	Na2O	K2O
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%
Detection Limit	0.2	0.5	0.05	0.1	0.1	0.2	0.01	0.01	0.01	2	20	10	0.1	0.1	0.1	0.1	1	0.1	0.01	0.01	0.001	0.01	0.01	0.01
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
NIST 694 Meas							0.75	0.35	30.20										12.09	1.90	0.013	43.56	0.88	0.55
NIST 694 Cert							0.790	0.330	30.2										11.2	1.80	0.0116	43.6	0.860	0.510
DNC-1 Meas							9.93	10.03	0.07	143	270	100		4.9					47.02	18.72	0.147	11.33	1.89	0.22
DNC-1 Cert							9.97	10.13	0.070	144.0	270	100		5.20					47.15	18.34	0.150	11.49	1.890	0.234
GBW 07113 Meas							3.16	0.14	0.04	41									71.91	12.92	0.140	0.57	2.48	5.41
GBW 07113 Cert							3.21	0.160	0.0500	43.0									72.8	13.0	0.140	0.590	2.57	5.43
LKSD-3 Meas						4.5						30	94.8	43.6	7.9			4.5						
LKSD-3 Cert						4.80						35.0	90.0	44.0	8.00			4.60						
W-2a Meas							10.62	6.19	0.12	196									52.44	15.43	0.165	10.90	2.21	0.62
W-2a Cert							10.7	6.37	0.130	190									52.4	15.4	0.163	10.9	2.14	0.626
DTS-2b Meas											> 10000													
DTS-2b Cert											15500													
SY-4 Meas							6.21	0.50	0.13	1206									49.90	20.42	0.107	8.02	6.96	1.67
SY-4 Cert							6.21	0.54	0.131	1191									49.9	20.69	0.108	8.05	7.10	1.66
CTA-AC-1 Meas				133	14.9								> 3000	1160	169			4.3						
CTA-AC-1 Cert				124	13.9								3326	1087	162			4.4						
BIR-1a Meas				1.9		0.6	11.39	9.63	0.02	108	370	130		2.7	1.1				48.08	15.68	0.173	13.31	1.80	0.02
BIR-1a Cert				2.0		0.60	11.30	9.700	0.021	110	370	125		2.5	1.1				47.96	15.50	0.175	13.30	1.82	0.030
NCS DC86312 Meas				222	34.1									1590		96.5								
NCS DC86312 Cert				225.0	34.6									1600		96.2								
ZW-C Meas						9.5																		
ZW-C Cert						9.7																		
NCS DC70014 Meas		178		7.5	1.1							2600	84.7	37.4	7.6	3.6								
NCS DC70014 Cert		180		7.4	1.1							2600	87.0	39.9	8.0	3.5								
NCS DC70009 (GBW07241) Meas	1.3		7.60	14.7	3.2						30	970	60.3	31.0	12.1	12.4	2200							
NCS DC70009 (GBW07241) Cert	1.3		7.9	14.8	3.3						30	960	60.3	32.9	12.5	13.4	2200							
OREAS 100a (Fusion) Meas			45.0	21.3	3.7							180	484	147	23.6	14.1		142						
OREAS 100a (Fusion) Cert			47.1	23.6	3.80							169	463	152	23.6	14.9		135						
OREAS 101a (Fusion) Meas			123		5.4							420	1390	377	48.0	18.0		420						
OREAS 101a (Fusion) Cert			134		5.92							434	1396	403	48.8	19.5		422						
JR-1 Meas	< 0.2		5.99		1.0	4.4							51.0	23.9	6.0	3.8		9.6						
JR-1 Cert	0.028		5.58		1.01	4.51							47.2	23.3	6.03	3.61		8.88						
12TM0571 Orig	< 0.2	< 0.5	2.22	5.1	0.9	2.7	11.65	7.12	0.14	216	280	90	12.6	12.2	4.1	3.4	< 1	< 0.1	48.52	14.31	0.183	11.60	2.71	0.10
12TM0571 Dup	< 0.2	< 0.5	2.25	5.1	0.9	2.8	11.47	7.05	0.13	217	260	80	12.6	12.5	4.2	3.4	< 1	< 0.1	47.88	14.19	0.182	11.51	2.68	0.10
E11-W12-129 Orig	< 0.2	1.4	5.39	3.0	0.5	3.3	3.83	1.41	0.07	90	40	20	44.4	19.0	4.3	2.0	< 1	1.8	72.26	13.45	0.060	0.55	3.16	2.47
E11-W12-129 Dup	< 0.2	1.3	5.18	3.0	0.5	3.3	3.82	1.40	0.07	89	40	20	41.9	18.8	4.1	2.0	< 1	1.8	71.31	13.41	0.060	0.55	3.15	2.47
E11-W12-183A Orig	< 0.2	< 0.5	1.27	0.7	0.1	2.5	1.73	0.58	0.06	483	< 20	< 10	13.5	5.0	1.0	0.3	< 1	0.8	68.59	16.30	0.078	1.02	5.04	4.32
E11-W12-183A Split	< 0.2	< 0.5	1.20	0.7	0.1	2.5	1.78	0.62	0.08	486	< 20	< 10	12.9	4.8	0.9	0.3	< 1	0.8	68.09	16.64	0.078	1.05	5.07	4.33
Method Blank	< 0.2	< 0.5	< 0.05	< 0.1	< 0.1	< 0.2					< 20	< 10	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1						

Quality Control

Analyte Symbol	TiO2	LOI	Total	Sc	Be	V	Ba	Y	Zr	Co	Ni	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	Sn	Cs	La	Eu	Dy
Unit Symbol	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.001		0.01	1	1	5	3	2	4	1	20	30	1	1	5	2	1	2	0.5	1	0.5	0.1	0.05	0.1
Analysis Method	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas	0.120					1658																		
NIST 694 Cert	0.110					1740																		
DNC-1 Meas	0.486			31		160	105	15	33	59	260											3.9	0.62	
DNC-1 Cert	0.480			31		148	118	18.0	38	57	247											3.6	0.59	
GBW 07113 Meas	0.280			5	4	9	502	44	405															
GBW 07113 Cert	0.300			5.00	4.00	5.00	506	43.0	403															
LKSD-3 Meas										31	50					72		< 2			2.3	50.8	1.38	4.9
LKSD-3 Cert										30.0	47.0					78.0		2.00			2.30	52.0	1.50	4.90
W-2a Meas	1.056			35	< 1	277	173	19	84															
W-2a Cert	1.06			36.0	1.30	262	182	24.0	94.0															
DTS-2b Meas										126	3680													
DTS-2b Cert										120	3780													
SY-4 Meas	0.288			< 1	3	13	344	117	527															
SY-4 Cert	0.287			1.1	2.6	8.0	340	119	517															
CTA-AC-1 Meas																						> 2000	45.5	
CTA-AC-1 Cert																						2176	46.7	
BIR-1a Meas	0.978			44	< 1	340	8	13	15	54	170	70	15				< 1						0.51	
BIR-1a Cert	0.96			44	0.58	310	6	16	18	52	170	70	16				0.6						0.55	
NCS DC86312 Meas																						> 2000		184
NCS DC86312 Cert																						2360		183
ZW-C Meas												1060	96				194							
ZW-C Cert												1050	99				198							
NCS DC70014 Meas										25	70	7400	25					> 100	16.2			43.8	1.64	6.5
NCS DC70014 Cert										26	70	7400	25.2					270	16.7			45.3	1.8	6.7
NCS DC70009 (GBW07241) Meas											< 20	90	17	11	68	505				> 1000	43.2	24.4		20.1
NCS DC70009 (GBW07241) Cert											2.8	100	16.5	11.2	69.9	500				1701	41	23.7		20.7
OREAS 100a (Fusion) Meas										17								23				273	3.60	22.2
OREAS 100a (Fusion) Cert										18.1								24.1				260	3.71	23.2
OREAS 101a (Fusion) Meas										45												812	7.62	30.0
OREAS 101a (Fusion) Cert										48.8												816	8.06	33.3
JR-1 Meas											< 20	< 30	17			252	16	3	1.0	3	21.0	21.4	0.28	6.2
JR-1 Cert											1.67	30.6	16.1			257	15.2	3.25	0.031	2.86	20.8	19.7	0.30	5.69
12TM0571 Orig	1.809	2.15	100.3	47	< 1	349	35	28	96	46	90	400	19	2	< 5	< 2	4	< 2	1.1	1	< 0.5	4.0	1.44	5.8
12TM0571 Dup	1.782	2.15	99.13	46	< 1	346	34	28	94	43	80	370	18	2	< 5	< 2	3	< 2	0.8	< 1	< 0.5	4.1	1.48	5.8
E11-W12-129 Orig	0.487	2.17	99.92	10	2	76	562	17	129	8	< 20	290	17	2	10	95	8	< 2	3.0	2	4.6	22.0	0.96	3.2
E11-W12-129 Dup	0.487	2.17	98.88	10	2	76	559	17	128	8	< 20	270	16	2	10	92	7	< 2	2.1	2	4.6	21.6	0.94	3.2
E11-W12-183A Orig	0.211	1.00	98.92	2	1	26	2707	4	93	3	< 20	70	17	1	< 5	198	6	< 2	0.6	< 1	1.4	6.2	0.42	0.6
E11-W12-183A Split	0.211	1.06	99.00	3	1	27	2685	4	94	3	< 20	70	17	1	< 5	194	6	< 2	0.6	< 1	1.4	5.9	0.41	0.6
Method Blank										< 1	< 20	< 30	< 1	< 1	< 5	< 2	< 1	< 2	< 0.5	< 1	< 0.5	< 0.1	< 0.05	< 0.1

Quality Control

Analyte Symbol	Ho	Tm	Yb	Lu	Ta	Tl	Pb	Bi	Th
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.05	0.1	0.04	0.1	0.1	5	0.4	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas									
NIST 694 Cert									
DNC-1 Meas			2.0						
DNC-1 Cert			2.0						
GBW 07113 Meas									
GBW 07113 Cert									
LKSD-3 Meas			2.8	0.40	0.7				11.1
LKSD-3 Cert			2.70	0.400	0.700				11.4
W-2a Meas									
W-2a Cert									
DTS-2b Meas									
DTS-2b Cert									
SY-4 Meas									
SY-4 Cert									
CTA-AC-1 Meas			11.1	1.15					23.8
CTA-AC-1 Cert			11.4	1.08					21.8
BIR-1a Meas			1.6						
BIR-1a Cert			1.7						
NCS DC86312 Meas	35.7	14.2	86.6	12.0					
NCS DC86312 Cert	36	15.1	87.79	11.96					
ZW-C Meas							78		
ZW-C Cert							80		
NCS DC70014 Meas	1.3		3.6	0.54			> 10000	80.3	
NCS DC70014 Cert	1.3		3.3	0.50			27200	80.3	
NCS DC70009 (GBW07241) Meas	4.2	2.17	15.2	2.23					29.6
NCS DC70009 (GBW07241) Cert	4.5	2.2	14.9	2.4					28.3
OREAS 100a (Fusion) Meas	4.8	2.22	14.9	2.17					53.1
OREAS 100a (Fusion) Cert	4.81	2.31	14.9	2.26					51.6
OREAS 101a (Fusion) Meas	6.2	2.67	17.2	2.41					35.6
OREAS 101a (Fusion) Cert	6.46	2.90	17.5	2.66					36.6
JR-1 Meas		0.62	4.8	0.71	1.7	1.6	20	0.5	28.6
JR-1 Cert		0.67	4.55	0.71	1.86	1.56	19.3	0.56	26.7
12TM0571 Orig	1.2	0.49	3.2	0.50	0.3	< 0.1	91	< 0.4	0.2
12TM0571 Dup	1.2	0.49	3.2	0.50	0.3	< 0.1	93	< 0.4	0.2
E11-W12-129 Orig	0.7	0.30	2.1	0.36	0.8	0.6	92	< 0.4	8.1
E11-W12-129 Dup	0.7	0.30	2.1	0.36	0.7	0.5	89	< 0.4	8.0
E11-W12-183A Orig	0.1	0.05	0.4	0.08	0.2	1.3	21	< 0.4	1.7
E11-W12-183A Split	0.1	0.05	0.4	0.08	0.2	1.4	21	< 0.4	1.6
Method Blank	< 0.1	< 0.05	< 0.1	< 0.04	< 0.1	< 0.1	< 5	< 0.4	< 0.1

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 18-Nov-15
Invoice No.: A15-10068
Invoice Date: 02-Dec-15
Your Reference:

Nova Scotia Department of Natural Resources
1701 Hollis St
Halifax Nova Scotia B3J 2T9
Canada

ATTN: Geof Baldwin

CERTIFICATE OF ANALYSIS

55 Rock samples were submitted for analysis.

The following analytical package was requested: Code 4C (11+) Whole Rock Analysis-XRF
Code UT-2-0.5g Aqua Regia ICP-ICP/MS

REPORT **A15-10068**

Notes:

Assays are recommended for values >10,000 for Cu and Au. The Au from AR-MS is only semi-quantitative. For accurate Au data,fire assay is recommended.

XRF is not able to report Na2O for some samples due to ZnO interference.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

SCC Accredited LAB
LAB Accrédité CCN

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Results

Analyte Symbol	Co3O4	CuO	NiO	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	Cr2O3	V2O5	LOI	Total	Li	Be	B	Na	Mg	Al
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	%
Lower Limit	0.005	0.005	0.003	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.003		0.01	0.1	1	0.001	0.01	0.01	0.01
Method Code	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
15GB0005	< 0.005	< 0.005	< 0.003	76.27	12.12	2.26	0.024	0.33	0.17	1.96	4.67	0.19	0.01	< 0.01	0.003	1.51	99.52	6.2	1.2	3	0.039	0.06	0.74
15GB0007	< 0.005	< 0.005	< 0.003	78.22	10.04	2.57	0.024	0.15	0.04	1.70	5.64	0.21	0.01	< 0.01	0.005	0.83	99.45	7.7	0.6	3	0.059	0.06	0.54
15GB0065	< 0.005	< 0.005	0.005	74.85	9.91	6.62	0.139	0.18	0.09	0.23	4.42	0.23	0.01	< 0.01	0.003	3.14	99.83	11.8	2.4	2	0.024	0.04	1.19
15GB0087	< 0.005	0.008	0.007	48.77	17.03	10.85	0.190	3.61	8.54	2.46	3.85	1.92	0.24	0.01	0.047	2.58	100.1	56.6	2.4	16	0.074	1.29	3.08
15GB0094A	0.006	0.008	0.012	42.76	14.63	13.94	0.153	5.63	7.69	2.47	1.50	2.96	0.41	0.02	0.065	7.67	99.92	78.3	0.9	4	0.246	2.56	3.46
15GB0096	0.007	0.008	0.006	44.95	14.61	15.05	0.200	5.90	7.52	2.05	0.42	3.04	0.42	0.01	0.068	5.24	99.49	52.8	1.0	4	0.627	2.69	4.85
15GB0097A	0.008	0.009	0.009	51.23	14.33	14.31	0.113	5.20	0.80	2.07	1.97	3.02	0.41	0.01	0.067	5.89	99.45	110	0.9	2	0.050	2.48	3.30
15GB0099	< 0.005	0.007	0.005	44.27	13.28	13.56	0.183	4.09	8.55	3.93	0.08	2.37	0.24	0.01	0.047	9.62	100.3	75.8	0.4	2	0.060	1.90	2.84
15GB0101A	0.005	0.008	0.011	37.97	14.73	15.01	0.145	5.61	7.19	3.63	1.31	2.89	0.41	0.01	0.065	10.66	99.67	94.5	0.6	2	0.054	2.78	2.89
15GB0101D	0.007	< 0.005	0.015	38.62	14.70	17.80	0.144	5.78	4.72	3.69	1.04	3.15	0.45	0.02	0.062	9.07	99.27	104	0.7	3	0.051	2.55	2.75
15GB0101E	0.007	0.008	0.008	37.29	15.14	14.99	0.189	6.86	6.04	3.67	1.00	2.90	0.41	0.01	0.062	9.93	98.53	117	0.7	3	0.056	3.22	3.15
15GB0102	< 0.005	< 0.005	< 0.003	82.29	8.15	1.93	0.001	0.11	0.04	0.16	6.18	0.10	0.01	< 0.01	0.004	0.95	99.94	3.1	0.3	2	0.022	0.04	0.30
15GB0103A	< 0.005	0.005	0.005	56.02	9.86	14.07	0.003	0.21	1.67	0.37	7.03	2.69	0.70	0.01	0.031	7.56	100.2	2.2	0.8	2	0.028	0.05	0.60
15GB0103B	0.005	< 0.005	0.007	46.66	15.53	10.98	0.101	3.08	2.57	1.10	7.45	4.37	1.12	0.01	0.078	6.24	99.29	103	2.3	4	0.035	1.43	2.31
15GB0152	< 0.005	< 0.005	0.003	81.54	7.43	3.94	0.014	0.08	0.07	0.12	4.49	0.21	0.02	0.01	0.003	1.73	99.67	1.5	0.9	2	0.020	0.01	0.38
15GB0157	< 0.005	< 0.005	< 0.003	76.52	10.81	3.27	0.056	0.29	0.28	0.90	5.66	0.37	0.05	0.02	0.005	1.35	99.57	15.0	1.3	2	0.036	0.09	0.82
15GB0158	< 0.005	< 0.005	< 0.003	75.83	7.89	5.59	0.011	0.39	1.18	0.24	3.05	1.50	0.05	0.02	0.024	3.39	99.18	9.2	2.6	2	0.019	0.09	0.94
15GB0159A	< 0.005	< 0.005	0.003	83.38	7.71	2.60	0.004	0.11	< 0.01	0.18	5.57	0.19	0.01	0.01	0.004	0.83	100.6	5.1	0.7	1	0.015	0.03	0.31
15GB0173	< 0.005	< 0.005	< 0.003	80.74	9.51	3.26	0.011	0.22	0.01	0.11	4.76	0.22	0.01	0.01	< 0.003	1.58	100.4	1.5	0.8	2	0.017	0.02	0.47
15GB0174A	< 0.005	< 0.005	< 0.003	85.65	6.47	2.88	0.008	0.17	0.01	0.08	3.14	0.14	0.01	< 0.01	0.004	1.38	99.93	2.2	0.7	2	0.017	0.02	0.39
15GB0174B	< 0.005	< 0.005	0.004	79.64	9.85	3.10	0.036	0.40	0.02	0.10	4.84	0.21	0.01	0.01	0.004	1.71	99.93	10.2	1.1	2	0.017	0.10	0.91
15GB0175	< 0.005	< 0.005	< 0.003	90.93	4.39	1.54	0.003	0.13	< 0.01	0.04	1.35	0.12	0.01	< 0.01	< 0.003	1.16	99.67	1.0	0.2	2	0.015	0.01	0.26
15GB0176	< 0.005	< 0.005	< 0.003	78.08	9.94	3.69	0.016	0.20	0.03	0.10	5.20	0.21	0.01	0.01	0.003	2.04	99.52	2.6	1.5	2	0.020	0.02	0.62
15GB0177	< 0.005	< 0.005	< 0.003	79.63	9.93	2.79	0.017	0.24	0.11	0.09	4.32	0.21	0.02	0.02	0.006	2.02	99.40	3.5	1.9	2	0.017	0.03	0.71
15GB0180	0.005	< 0.005	0.004	70.56	9.07	7.77	0.059	3.69	0.48	0.05	1.02	0.99	0.38	0.02	0.018	6.05	100.2	121	3.3	6	0.027	1.78	3.19
15GB0295	< 0.005	< 0.005	< 0.003	64.24	16.85	4.53	0.212	0.71	0.36	2.05	8.54	0.35	0.04	0.01	0.003	1.78	99.66	38.4	3.7	2	0.039	0.27	1.18
15GB0301	< 0.005	< 0.005	< 0.003	78.99	10.64	3.31	0.026	0.23	0.08	0.07	4.42	0.26	0.01	< 0.01	0.003	2.23	100.3	4.6	1.8	2	0.017	0.03	0.68
15GB0302	< 0.005	< 0.005	< 0.003	77.61	9.97	3.79	0.073	0.21	0.21	1.29	5.62	0.24	0.01	< 0.01	0.005	0.69	99.72	37.5	2.6	1	0.056	0.07	0.77
15GB0316	< 0.005	< 0.005	< 0.003	75.40	11.94	2.98	0.016	0.12	0.07	2.60	5.67	0.28	0.02	< 0.01	0.006	0.99	100.1	12.9	2.5	1	0.055	0.03	0.56
15GB0317	< 0.005	< 0.005	< 0.003	75.46	12.09	2.73	0.026	0.16	0.20	1.11	6.89	0.25	0.03	0.01	0.004	0.91	99.88	6.3	3.5	2	0.041	0.03	0.71
15GB0318	< 0.005	< 0.005	< 0.003	72.92	11.76	4.48	0.061	0.45	0.29	1.69	5.99	0.28	0.04	< 0.01	0.007	0.99	98.97	20.4	3.0	2	0.046	0.14	0.88
15GB0319A	< 0.005	< 0.005	< 0.003	74.62	9.73	6.07	0.046	0.75	1.08	0.42	2.58	1.93	0.01	0.02	0.047	3.09	100.4	23.6	2.6	3	0.022	0.21	1.43
15GB0319B	< 0.005	< 0.005	0.006	67.80	7.12	17.10	0.196	1.49	0.97	0.04	0.09	1.08	0.27	0.01	0.024	3.41	99.60	70.7	3.9	1	0.013	0.71	2.83
15GB0320	< 0.005	< 0.005	0.006	85.18	7.64	2.11	0.015	0.27	0.08	0.08	2.22	0.17	0.04	0.02	0.005	1.90	99.72	1.3	0.9	2	0.016	0.02	0.51
15GB0321	< 0.005	< 0.005	< 0.003	78.57	11.16	2.09	0.029	0.55	0.93	1.02	2.71	0.17	0.02	0.01	0.003	2.42	99.68	8.3	1.6	3	0.045	0.11	1.14
15GB0348	< 0.005	< 0.005	0.004	76.21	11.20	2.66	0.009	0.17	0.08	1.05	5.92	0.25	0.02	0.01	0.004	1.52	99.10	3.2	0.8	2	0.037	0.02	0.57
15GB0349	< 0.005	< 0.005	< 0.003	76.81	10.92	3.35	0.028	0.19	0.38	1.17	5.33	0.24	0.03	0.01	0.004	1.19	99.64	9.0	3.4	2	0.039	0.04	0.77
15GB0351	< 0.005	< 0.005	0.003	72.80	12.98	3.03	0.023	0.14	0.07	2.65	6.33	0.28	0.03	0.01	0.005	0.87	99.22	9.0	1.6	1	0.051	0.04	0.57
15GB0354	< 0.005	< 0.005	0.006	77.02	10.56	3.26	0.012	0.15	0.51	1.25	5.45	0.28	0.01	0.01	< 0.003	1.67	100.2	11.8	1.9	3	0.039	0.04	0.62
15GB0355	< 0.005	< 0.005	< 0.003	75.61	10.57	4.13	0.029	0.24	0.74	1.31	4.98	0.27	0.01	0.01	0.004	1.73	99.63	20.3	2.1	2	0.048	0.07	0.97
15GB0356	< 0.005	0.008	< 0.003	73.01	11.73	3.91	0.042	0.24	0.17	1.68	7.13	0.40	0.05	< 0.01	0.004	1.57	99.94	6.6	0.8	1	0.047	0.07	0.44
15GB0368	< 0.005	< 0.005	< 0.003	74.78	12.55	2.85	0.005	0.10	0.12	2.85	5.51	0.26	0.03	< 0.01	0.005	0.74	99.80	7.8	1.1	1	0.059	0.01	0.61
15GB0369A	< 0.005	< 0.005	0.004	58.78	15.24	9.45	0.146	2.03	4.25	5.30	0.29	1.57	0.74	0.01	0.022	2.18	100.0	58.8	1.6	3	0.098	0.88	2.43
15GB0369B	< 0.005	< 0.005	< 0.003	86.08	7.70	1.76	0.014	0.22	0.43	0.09	2.18	0.20	0.05	0.01	0.004	1.47	100.2	3.3	3.2	2	0.024	0.03	0.74
15GB0371	< 0.005	< 0.005	< 0.003	77.67	10.00	3.23	0.042	0.18	0.11	0.88	5.89	0.23	0.01	0.01	0.005	0.83	99.09	10.5	4.3	2	0.037	0.05	0.74
15GB0372	< 0.005	< 0.005	< 0.003	80.78	8.71	3.18	0.020	0.16	0.15	0.11	5.31	0.21	0.01	< 0.01	0.005	1.70	100.4	2.5	2.0	1	0.018	0.02	0.35
15GB0373	< 0.005	< 0.005	< 0.003	77.67	9.96	3.69	0.053	0.16	0.27	1.70	5.45	0.24	0.02	< 0.01	0.005	0.76	99.97	14.0	2.2	1	0.043	0.06	0.57

Analyte Symbol	Co3O4	CuO	NiO	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	Cr2O3	V2O5	LOI	Total	Li	Be	B	Na	Mg	Al
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	%
Lower Limit	0.005	0.005	0.003	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.003		0.01	0.1	0.1	1	0.001	0.01	0.01
Method Code	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
[redacted]																							

Results

Analyte Symbol	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr
Unit Symbol	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.001	0.001	0.01	0.01	1	1	0.01	1	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1
Method Code	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	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
15GB0005	0.005	0.187	0.35	0.08	< 1	4	0.08	161	1.15	1.2	2.2	4.70	62.8	4.94	< 0.1	20.6	< 0.1	30.6	5.3	29.7	34.7	1.8	12.2
15GB0007	0.002	0.032	0.17	0.01	3	6	< 0.01	223	1.74	0.3	1.1	12.5	53.6	10.7	< 0.1	28.9	< 0.1	11.9	2.3	24.7	46.1	0.1	4.9
15GB0065	0.002	1.779	0.49	0.06	< 1	5	0.08	859	3.88	0.5	1.2	11.5	413	16.6	< 0.1	163	< 0.1	81.9	6.3	63.1	89.0	0.2	37.6
15GB0087	0.091	0.009	0.12	4.31	198	75	0.70	992	6.05	28.1	37.7	65.8	91.1	15.0	0.1	49.0	< 0.1	14.3	87.7	19.9	27.5	19.3	3.8
15GB0094A	0.162	0.746	0.07	4.73	295	75	0.92	648	9.13	45.9	58.4	57.5	121	15.3	< 0.1	24.8	< 0.1	8.4	81.6	28.2	23.5	28.7	5.9
15GB0096	0.157	0.882	0.07	4.28	317	73	1.11	1080	10.5	48.9	57.9	63.6	132	18.2	< 0.1	13.4	< 0.1	4.1	172	29.5	32.2	27.1	6.0
15GB0097A	0.174	2.824	0.28	0.50	242	55	0.08	885	10.2	42.9	62.4	78.5	159	21.5	< 0.1	141	< 0.1	27.2	10.0	25.3	8.3	11.1	5.6
15GB0099	0.097	1.585	< 0.01	5.86	212	86	0.63	1280	9.24	34.1	52.8	51.0	147	18.3	< 0.1	26.7	< 0.1	0.7	61.9	18.0	27.5	19.8	4.3
15GB0101A	0.165	5.180	0.09	4.48	283	75	0.79	1140	11.0	42.8	63.6	38.4	138	17.8	< 0.1	81.3	< 0.1	9.6	76.4	24.4	35.9	19.4	5.8
15GB0101D	0.178	5.951	0.03	2.73	252	73	0.49	996	11.3	41.4	59.6	19.9	124	18.3	< 0.1	123	< 0.1	2.9	44.9	23.2	22.2	16.4	5.4
15GB0101E	0.169	4.470	0.04	3.85	284	78	0.26	1380	10.8	44.3	68.1	84.7	154	20.3	< 0.1	88.9	< 0.1	4.2	75.5	25.9	15.6	14.2	5.9
15GB0102	0.004	0.448	0.26	0.03	3	17	0.02	61	1.27	0.7	1.9	14.9	24.5	2.02	< 0.1	289	< 0.1	23.4	3.1	25.7	42.6	0.2	3.0
15GB0103A	0.275	10.18	0.35	0.97	51	11	0.31	95	8.96	21.0	15.4	28.3	291	2.92	< 0.1	624	< 0.1	33.3	14.6	25.1	32.4	10.0	7.3
15GB0103B	0.225	2.936	0.34	1.74	297	7	0.46	770	7.97	23.3	13.7	25.0	211	21.5	< 0.1	496	< 0.1	37.3	17.2	44.1	3.6	22.5	12.5
15GB0152	0.010	1.830	0.28	0.05	< 1	14	0.05	103	2.51	0.5	2.2	6.09	430	3.06	< 0.1	27.5	< 0.1	22.7	3.5	15.9	34.2	0.1	14.4
15GB0157	0.021	0.254	0.26	0.19	5	17	0.14	420	2.16	1.5	1.5	13.6	94.5	8.06	< 0.1	18.0	< 0.1	22.2	5.0	29.5	50.9	4.1	11.8
15GB0158	0.018	2.494	0.46	0.78	42	47	0.69	126	3.73	9.5	11.4	27.5	160	7.84	< 0.1	45.4	< 0.1	51.6	4.1	68.4	56.4	14.3	8.9
15GB0159A	0.005	0.308	0.14	< 0.01	< 1	32	0.03	83	1.74	0.2	1.7	39.2	43.3	4.37	< 0.1	34.6	< 0.1	11.6	1.6	10.9	22.9	< 0.1	7.4
15GB0173	0.003	0.229	0.36	0.02	< 1	10	0.06	77	1.88	0.2	1.0	4.82	23.1	6.44	< 0.1	12.6	< 0.1	33.6	2.7	6.80	27.4	0.1	1.7
15GB0174A	0.003	0.910	0.27	0.01	< 1	36	0.03	73	1.80	0.4	2.1	9.67	103	3.71	< 0.1	15.5	< 0.1	30.1	2.0	7.81	31.0	< 0.1	3.4
15GB0174B	0.002	0.088	0.39	0.02	1	15	0.05	256	1.89	0.3	1.8	5.89	53.6	7.69	< 0.1	5.5	< 0.1	42.8	2.4	11.8	37.8	0.2	9.2
15GB0175	0.002	0.270	0.17	< 0.01	< 1	24	0.03	34	0.91	0.1	1.3	2.67	9.8	2.43	< 0.1	11.2	< 0.1	18.3	1.2	3.64	15.0	0.2	0.9
15GB0176	0.002	1.423	0.35	0.03	< 1	8	0.06	116	2.30	0.3	2.2	7.05	189	5.72	< 0.1	22.8	< 0.1	35.5	4.0	26.1	42.7	0.2	12.5
15GB0177	0.007	0.923	0.38	0.07	< 1	18	0.05	120	1.58	0.3	2.1	6.22	135	6.47	< 0.1	12.5	< 0.1	36.0	7.2	39.8	29.9	0.3	18.0
15GB0180	0.155	0.082	0.37	0.36	53	44	< 0.01	507	6.08	29.9	79.5	23.4	153	12.2	< 0.1	27.6	< 0.1	45.0	24.0	12.7	7.0	11.9	3.7
15GB0295	0.015	0.273	0.27	0.21	< 1	8	0.16	1390	2.95	0.6	0.9	4.47	183	18.5	< 0.1	6.7	< 0.1	24.0	6.7	48.2	70.8	1.6	19.5
15GB0301	0.006	1.169	0.36	0.07	< 1	5	0.09	182	2.11	0.3	1.3	4.94	143	5.43	< 0.1	38.6	< 0.1	34.5	6.2	15.1	41.9	0.2	20.7
15GB0302	0.002	0.011	0.23	0.14	3	19	0.11	596	2.79	0.3	1.4	9.00	158	13.4	< 0.1	1.4	< 0.1	16.1	10.6	34.2	50.6	0.3	24.5
15GB0316	0.010	0.125	0.17	0.04	9	8	0.03	151	2.05	1.9	1.9	4.22	43.1	8.95	< 0.1	44.3	< 0.1	14.4	3.2	33.1	44.2	2.3	15.1
15GB0317	0.011	0.075	0.43	0.14	2	15	0.08	206	1.58	1.7	2.1	5.28	57.1	10.7	< 0.1	14.6	< 0.1	42.4	5.9	53.8	53.7	1.6	15.5
15GB0318	0.014	0.229	0.25	0.18	6	15	0.12	476	2.96	1.5	2.2	7.78	64.8	11.7	< 0.1	52.9	< 0.1	24.7	5.6	47.0	81.7	2.6	17.2
15GB0319A	0.003	1.381	0.46	0.71	80	66	0.68	339	3.83	4.1	10.5	30.9	67.4	15.3	< 0.1	92.4	< 0.1	58.3	4.2	14.0	52.3	14.8	2.8
15GB0319B	0.110	1.011	< 0.01	0.75	124	80	0.42	1540	12.7	3.9	13.6	36.1	186	64.2	0.3	74.1	< 0.1	1.2	2.9	36.6	25.5	15.8	6.0
15GB0320	0.019	0.361	0.30	0.05	< 1	20	0.02	63	1.23	0.2	1.2	2.55	9.8	3.70	< 0.1	18.0	< 0.1	27.2	8.6	16.9	23.8	0.6	5.5
15GB0321	0.008	0.008	0.50	0.60	< 1	11	0.05	230	1.15	0.6	1.9	4.47	104	5.28	< 0.1	1.6	< 0.1	36.8	11.7	37.3	28.1	1.7	14.4
15GB0348	0.008	0.686	0.37	0.03	< 1	25	0.08	92	1.60	0.4	1.4	5.78	112	5.49	< 0.1	56.9	< 0.1	29.0	3.8	18.0	64.2	1.1	8.8
15GB0349	0.010	0.206	0.33	0.24	< 1	10	0.11	223	2.03	0.4	5.4	6.10	78.8	10.9	< 0.1	6.1	< 0.1	28.8	5.7	52.9	69.6	1.6	15.3
15GB0351	0.008	0.207	0.24	0.03	< 1	20	< 0.01	215	1.99	0.5	1.5	4.96	75.8	9.09	< 0.1	3.9	< 0.1	21.4	2.3	33.8	59.9	1.0	16.3
15GB0354	0.003	0.719	0.28	0.36	< 1	11	< 0.01	157	2.16	0.2	1.6	8.08	314	6.48	< 0.1	26.9	< 0.1	21.5	4.9	25.2	43.4	0.2	26.7
15GB0355	0.002	0.261	0.37	0.53	< 1	18	< 0.01	284	2.87	0.3	1.5	5.47	99.9	10.9	< 0.1	9.2	< 0.1	29.3	7.8	27.3	47.4	0.3	26.9
15GB0356	0.022	1.347	0.18	0.09	3	9	0.05	340	2.86	1.0	1.0	71.2	706	5.62	< 0.1	101	< 0.1	10.7	6.4	17.9	47.3	4.0	12.3
15GB0368	0.009	0.054	0.18	0.04	< 1	11	0.04	87	1.98	0.7	1.4	6.11	46.4	7.45	< 0.1	1.5	< 0.1	12.8	2.8	26.5	37.2	1.3	7.4
15GB0369A	0.294	0.072	0.04	2.33	61	4	0.46	1060	6.58	12.5	0.9	7.06	153	21.3	< 0.1	5.0	< 0.1	5.8	62.2	37.4	19.4	10.8	15.5
15GB0369B	0.019	0.003	0.39	0.31	< 1	32	< 0.01	137	0.96	0.4	1.9	5.04	46.4	4.24	< 0.1	< 0.1	< 0.1	35.8	6.2	32.5	9.2	0.8	17.4
15GB0371	0.004	0.308	0.27	0.08	< 1	17	0.07	396	2.42	0.4	1.4	9.10	125	10.8	< 0.1	5.3	< 0.1	26.2	4.2	49.9	50.9	0.3	25.4
15GB0372	0.002	1.551	0.23	0.09	< 1	20	0.07	128	2.00	0.3	1.5	5.02	252	3.55	< 0.1	26.1	< 0.1	23.2	4.3	24.6	31.3	0.1	16.6
15GB0373	0.005	0.423	0.13	0.18	1	20	0.08	432	2.78	0.3	1.8	10.7	268	13.3	< 0.1	13.6	< 0.1	8.9	4.4	27.1	50.8	0.3	26.5

Analyte Symbol	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr
Unit Symbol	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.001	0.001	0.01	0.01	1	1	0.01	1	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1
Method Code	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	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
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Results

Analyte Symbol	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In	Sn	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1
Method Code	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
15GB0005	8.1	7.4	1.3	3.4	0.4	6.5	3.20	0.257	0.24	0.30	38.2	0.49	0.08	0.86	115	47.3	109	46.6	9.9	0.9	1.3	2.7	0.4
15GB0007	6.2	8.1	1.3	3.0	0.3	5.9	2.35	0.227	0.14	0.11	5.33	0.61	0.06	0.12	25.9	17.8	40.6	18.5	5.3	0.3	1.4	1.8	0.2
15GB0065	26.3	19.7	2.9	6.4	0.7	23.9	9.82	0.781	0.96	0.14	11.2	4.57	0.03	2.22	18.3	126	306	136	36.0	1.3	4.0	3.8	0.5
15GB0087	4.4	4.1	0.8	2.0	0.2	1.3	1.03	0.155	0.21	0.06	1.96	1.01	< 0.02	2.79	42.8	11.0	26.7	16.4	4.1	1.3	0.7	1.6	0.2
15GB0094A	6.6	6.0	1.1	2.9	0.4	1.9	0.76	0.152	0.04	0.09	1.60	1.23	< 0.02	4.13	86.2	17.6	42.1	26.1	6.6	1.8	1.0	2.1	0.3
15GB0096	6.8	6.3	1.2	3.1	0.4	3.6	1.39	0.186	0.14	0.10	1.93	0.79	< 0.02	6.60	55.1	18.4	43.6	26.8	6.8	1.8	1.1	2.3	0.3
15GB0097A	6.3	5.6	1.0	2.7	0.3	0.2	2.49	0.179	0.44	0.08	0.89	1.15	0.04	8.41	27.0	17.1	40.4	24.5	6.3	1.3	1.0	1.9	0.3
15GB0099	4.8	4.1	0.7	1.8	0.2	0.9	0.43	0.100	0.21	0.07	1.01	0.23	< 0.02	0.23	10.5	12.1	29.2	18.9	4.7	1.2	0.7	1.2	0.1
15GB0101A	6.3	5.6	1.0	2.5	0.3	1.9	1.07	0.101	0.13	0.09	1.25	1.33	< 0.02	3.76	24.8	17.4	41.4	25.8	6.4	1.6	1.0	1.8	0.2
15GB0101D	5.8	5.0	0.9	2.3	0.3	0.8	6.28	0.147	0.17	0.08	1.19	1.27	0.06	2.76	19.0	15.8	37.9	23.8	5.9	1.1	0.9	1.5	0.2
15GB0101E	6.6	5.8	1.1	2.7	0.3	0.4	1.04	0.090	0.14	0.10	1.18	1.17	< 0.02	3.51	19.1	16.9	40.5	26.2	6.6	1.8	1.0	1.8	0.2
15GB0102	6.2	7.2	1.2	3.0	0.4	7.1	14.3	0.584	0.39	0.02	2.39	6.75	< 0.02	0.53	47.8	4.3	17.2	13.1	5.3	< 0.1	1.3	2.1	0.3
15GB0103A	7.1	5.8	1.0	2.7	0.3	1.6	1.17	0.952	5.40	0.06	1.25	28.3	< 0.02	6.48	18.5	20.5	52.5	32.1	7.5	2.3	1.1	1.9	0.3
15GB0103B	12.1	10.1	1.8	4.8	0.6	0.6	0.49	0.553	0.68	0.11	2.36	29.6	< 0.02	6.87	56.2	39.4	93.7	55.1	12.9	3.6	1.8	3.5	0.5
15GB0152	7.1	4.8	0.8	1.7	0.2	9.2	3.83	0.401	1.59	0.08	2.41	1.48	< 0.02	1.84	32.0	54.3	115	54.4	10.9	0.4	1.0	1.2	0.2
15GB0157	8.3	7.2	1.2	3.1	0.4	3.2	5.84	0.194	0.34	0.06	2.59	0.67	0.06	1.32	46.4	44.6	96.8	46.8	10.6	1.6	1.3	2.3	0.3
15GB0158	10.5	11.3	2.2	6.3	0.8	2.0	9.87	0.308	0.85	0.07	3.99	1.05	0.07	3.94	59.7	26.4	90.1	37.7	10.0	0.9	1.8	4.8	0.6
15GB0159A	3.6	3.0	0.5	1.2	0.1	4.6	126	0.399	0.06	0.08	1.50	1.36	0.20	0.29	16.1	27.8	57.8	26.9	5.2	0.2	0.6	0.8	< 0.1
15GB0173	1.3	1.4	0.3	0.8	0.1	9.0	2.71	0.304	0.03	0.10	4.65	0.50	< 0.02	2.04	33.5	6.7	12.9	6.10	1.4	< 0.1	0.2	0.7	< 0.1
15GB0174A	1.8	1.7	0.3	0.8	0.1	7.4	18.2	0.374	0.54	0.05	3.05	1.18	0.03	2.57	20.6	12.8	26.2	12.4	2.5	< 0.1	0.3	0.7	< 0.1
15GB0174B	4.4	3.1	0.5	1.2	0.2	4.0	6.74	0.234	0.04	0.10	3.71	0.51	< 0.02	1.80	23.8	36.2	76.2	34.8	6.3	0.2	0.6	1.1	0.1
15GB0175	0.6	0.7	0.1	0.4	< 0.1	8.7	9.06	0.295	0.03	0.04	2.30	0.51	0.05	0.76	91.8	3.4	7.65	3.33	0.7	< 0.1	0.1	0.4	< 0.1
15GB0176	8.9	6.9	1.1	2.5	0.3	10.2	1.20	0.328	0.30	0.12	4.44	0.51	< 0.02	3.82	16.9	48.7	102	48.6	10.9	0.4	1.3	1.6	0.2
15GB0177	10.7	9.0	1.4	3.3	0.4	8.1	2.03	0.241	0.55	0.10	4.32	0.46	< 0.02	4.23	38.6	67.8	123	67.5	14.3	0.5	1.7	2.0	0.2
15GB0180	2.9	2.5	0.5	1.3	0.2	0.2	0.80	0.063	0.15	0.06	2.03	0.93	< 0.02	7.98	112	11.9	27.1	15.5	3.5	0.7	0.4	1.1	0.2
15GB0295	13.5	11.6	1.9	4.7	0.6	9.3	2.91	0.242	0.63	0.08	3.32	0.59	< 0.02	1.46	57.0	67.6	157	74.3	17.1	1.8	2.1	3.6	0.4
15GB0301	7.6	4.6	0.6	1.5	0.2	8.9	3.34	0.255	0.31	0.07	2.74	0.92	< 0.02	3.90	20.5	85.3	176	74.2	13.5	0.5	1.0	1.1	0.2
15GB0302	14.5	9.1	1.3	2.7	0.3	6.2	1.59	0.156	0.54	0.14	7.19	0.20	< 0.02	0.41	31.6	97.2	205	92.1	20.5	0.8	2.0	1.7	0.2
15GB0316	9.7	8.1	1.4	3.6	0.4	1.7	1.77	0.174	0.05	0.04	3.90	1.06	< 0.02	0.83	82.6	52.4	165	57.9	12.7	0.9	1.5	2.6	0.3
15GB0317	11.9	10.9	2.0	5.3	0.7	4.9	2.12	0.194	0.25	0.05	3.10	0.59	< 0.02	3.28	62.1	56.3	125	57.8	13.2	1.0	2.0	4.2	0.5
15GB0318	12.3	10.9	2.0	5.2	0.7	5.8	1.92	0.276	0.06	0.09	5.47	1.09	< 0.02	1.76	90.0	65.1	140	65.7	14.4	1.3	2.0	4.1	0.5
15GB0319A	2.7	3.0	0.6	1.5	0.2	0.4	1.13	0.248	0.27	0.03	1.12	2.32	< 0.02	7.65	89.2	6.8	17.7	11.4	2.6	0.8	0.5	1.3	0.2
15GB0319B	7.2	7.1	1.3	3.4	0.4	0.9	0.98	0.153	0.09	0.07	5.11	1.19	< 0.02	0.52	13.0	20.8	45.7	25.8	6.5	1.5	1.2	2.4	0.3
15GB0320	3.4	3.5	0.6	1.8	0.2	2.7	10.3	0.280	< 0.01	0.03	1.83	1.26	< 0.02	4.64	204	22.8	51.9	20.0	3.9	0.4	0.6	1.6	0.2
15GB0321	9.6	8.3	1.4	3.6	0.5	3.3	1.10	0.164	0.24	0.06	2.69	0.21	< 0.02	5.05	112	55.8	131	54.3	11.5	1.2	1.5	2.9	0.4
15GB0348	4.7	3.9	0.7	2.0	0.3	6.0	9.25	0.305	0.32	0.04	2.79	2.54	< 0.02	2.13	87.2	33.2	73.4	32.5	6.6	0.6	0.7	1.9	0.3
15GB0349	11.6	10.8	2.0	5.3	0.7	6.7	4.34	0.233	0.17	0.05	2.61	0.32	< 0.02	1.09	79.2	57.3	116	57.4	13.5	1.3	1.9	4.2	0.5
15GB0351	9.5	7.0	1.3	3.7	0.5	0.7	2.23	0.102	0.13	0.05	2.24	0.34	< 0.02	0.61	51.9	63.0	137	61.5	12.4	1.1	1.3	3.4	0.5
15GB0354	14.6	6.7	0.9	1.8	0.2	0.5	1.06	0.152	1.15	0.14	1.90	0.72	< 0.02	1.93	55.8	105	217	97.5	20.7	0.8	1.7	1.2	0.2
15GB0355	14.9	7.5	1.0	2.2	0.3	0.4	1.34	0.098	0.38	0.10	2.93	0.37	< 0.02	2.19	93.2	109	221	97.4	20.7	0.8	1.9	1.5	0.2
15GB0356	6.5	4.7	0.7	1.7	0.2	3.0	25.1	0.692	3.52	0.07	2.53	2.12	0.04	0.27	68.4	49.7	106	46.1	9.2	1.3	0.9	1.2	0.2
15GB0368	5.8	5.8	1.0	2.7	0.3	2.6	1.27	0.153	0.02	0.05	2.26	0.14	< 0.02	0.21	75.7	26.8	60.9	28.5	7.0	0.5	1.0	2.1	0.3
15GB0369A	11.1	8.5	1.4	3.4	0.4	6.0	0.61	0.188	0.12	0.09	3.44	0.54	< 0.02	0.65	27.4	57.1	126	60.9	13.6	2.4	1.6	2.3	0.3
15GB0369B	8.9	7.0	1.2	2.7	0.3	0.3	3.70	0.078	0.08	0.03	1.88	0.35	< 0.02	5.42	85.4	61.2	126	68.0	13.7	0.9	1.3	1.6	0.2
15GB0371	15.3	12.4	1.9	4.2	0.5	9.3	3.67	0.274	0.55	0.12	5.88	0.70	< 0.02	1.21	31.7	97.9	195	92.7	20.5	0.7	2.4	2.6	0.3
15GB0372	10.2	7.6	1.1	2.2	0.3	11.6	4.64	0.384	0.67	0.06	1.89	1.05	< 0.02	1.41	22.6	64.1	144	61.0	13.3	0.5	1.5	1.4	0.2
15GB0373	12.8	8.3	1.1	2.4	0.3	8.6	2.76	0.327	0.70	0.16	7.98	0.77	< 0.02	0.13	32.7	107	213	94.2	18.3	0.7	1.8	1.4	0.2

Analyte Symbol	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In	Sn	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1
Method Code	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
[redacted]																							

Results

Analyte Symbol	Hf	Ta	W	Re	Au	Tl	Pb	Bi	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.02	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
15GB0005	1.5	< 0.05	0.6	< 0.001	6.3	0.18	24.9	1.14	10.2	2.5	< 10
15GB0007	1.1	< 0.05	0.3	< 0.001	2.4	0.11	55.6	0.05	6.7	0.5	20
15GB0065	2.1	0.06	0.6	< 0.001	11.1	0.65	73.8	0.12	5.9	3.0	20
15GB0087	0.8	< 0.05	1.3	< 0.001	< 0.5	0.18	10.1	0.56	1.1	0.3	< 10
15GB0094A	0.2	< 0.05	0.3	< 0.001	< 0.5	0.82	6.25	< 0.02	0.8	0.3	< 10
15GB0096	0.5	< 0.05	0.2	< 0.001	< 0.5	0.11	4.22	< 0.02	0.8	0.3	< 10
15GB0097A	0.2	< 0.05	0.4	< 0.001	< 0.5	0.64	10.9	< 0.02	0.6	0.1	< 10
15GB0099	1.0	< 0.05	0.9	< 0.001	< 0.5	0.20	59.4	< 0.02	0.4	0.1	< 10
15GB0101A	1.3	< 0.05	0.8	< 0.001	< 0.5	0.16	2.14	< 0.02	0.4	0.1	< 10
15GB0101D	0.7	< 0.05	3.8	< 0.001	< 0.5	0.23	3.73	< 0.02	0.4	0.1	< 10
15GB0101E	0.5	< 0.05	0.4	< 0.001	< 0.5	0.17	3.93	< 0.02	0.5	0.1	< 10
15GB0102	1.6	< 0.05	1.3	< 0.001	9.4	0.58	494	0.03	8.1	1.6	110
15GB0103A	0.5	< 0.05	1.9	< 0.001	6.3	2.02	88.0	< 0.02	1.5	0.5	1380
15GB0103B	< 0.1	< 0.05	4.7	< 0.001	1.6	1.13	50.9	< 0.02	2.2	0.6	380
15GB0152	0.8	< 0.05	0.3	< 0.001	< 0.5	0.22	102	0.36	2.8	0.6	< 10
15GB0157	1.4	< 0.05	0.6	< 0.001	< 0.5	0.20	47.2	0.10	6.8	1.2	< 10
15GB0158	1.6	< 0.05	0.6	< 0.001	< 0.5	0.53	534	0.03	2.4	2.0	60
15GB0159A	0.6	< 0.05	0.2	< 0.001	< 0.5	0.31	38.0	0.64	2.9	0.5	< 10
15GB0173	0.7	< 0.05	0.1	< 0.001	< 0.5	0.32	130	0.33	2.8	0.4	< 10
15GB0174A	0.7	< 0.05	0.1	< 0.001	< 0.5	0.28	111	0.34	2.4	0.4	< 10
15GB0174B	0.9	< 0.05	< 0.1	< 0.001	< 0.5	0.30	64.8	0.23	4.1	0.9	< 10
15GB0175	0.4	< 0.05	0.1	< 0.001	< 0.5	0.09	31.5	0.47	1.9	0.1	20
15GB0176	1.0	< 0.05	0.2	< 0.001	< 0.5	0.20	60.2	0.07	4.3	0.3	< 10
15GB0177	0.8	< 0.05	0.2	< 0.001	< 0.5	0.20	48.1	0.17	5.2	0.2	< 10
15GB0180	0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.65	8.17	0.13	3.8	0.9	60
15GB0295	2.2	< 0.05	0.7	< 0.001	< 0.5	0.14	175	0.09	4.9	1.3	< 10
15GB0301	0.9	< 0.05	0.2	< 0.001	< 0.5	0.37	51.4	0.04	2.9	0.3	30
15GB0302	1.1	< 0.05	0.2	< 0.001	< 0.5	0.19	14.9	0.03	3.4	0.4	< 10
15GB0316	1.3	< 0.05	0.2	< 0.001	< 0.5	0.17	6.97	0.18	8.9	1.7	< 10
15GB0317	1.6	< 0.05	0.4	< 0.001	< 0.5	0.22	6.45	0.07	8.0	2.4	< 10
15GB0318	2.3	< 0.05	1.0	< 0.001	< 0.5	0.11	21.3	0.20	9.4	1.9	< 10
15GB0319A	1.3	< 0.05	0.3	< 0.001	< 0.5	0.33	11.1	0.02	0.6	6.2	< 10
15GB0319B	0.7	< 0.05	1.2	< 0.001	< 0.5	0.13	5.62	0.03	2.0	1.9	< 10
15GB0320	0.6	< 0.05	0.2	< 0.001	< 0.5	0.20	16.2	0.02	5.3	1.1	< 10
15GB0321	0.9	< 0.05	0.2	< 0.001	< 0.5	0.21	19.0	0.14	6.6	1.2	< 10
15GB0348	1.8	< 0.05	0.4	< 0.001	< 0.5	0.26	43.3	0.12	8.3	1.3	< 10
15GB0349	2.0	< 0.05	0.7	< 0.001	< 0.5	0.13	19.8	0.11	7.7	1.5	< 10
15GB0351	2.0	< 0.05	0.1	< 0.001	< 0.5	0.09	34.3	0.09	15.5	1.9	< 10
15GB0354	0.8	< 0.05	< 0.1	< 0.001	< 0.5	0.15	32.2	0.14	5.1	0.6	20
15GB0355	1.0	< 0.05	< 0.1	< 0.001	< 0.5	0.14	8.92	0.05	5.9	0.6	< 10
15GB0356	1.2	< 0.05	0.2	< 0.001	< 0.5	0.22	557	0.09	4.4	0.6	190
15GB0368	1.1	< 0.05	0.2	< 0.001	< 0.5	0.08	21.0	0.03	6.8	1.3	< 10
15GB0369A	0.3	< 0.05	2.2	< 0.001	< 0.5	0.04	8.74	0.17	6.3	1.1	< 10
15GB0369B	0.2	< 0.05	0.2	< 0.001	< 0.5	0.22	19.6	0.12	4.0	0.3	< 10
15GB0371	1.3	0.05	0.1	< 0.001	< 0.5	0.20	134	0.06	6.3	0.5	< 10
15GB0372	0.8	< 0.05	0.1	< 0.001	< 0.5	0.19	46.0	0.25	3.4	0.3	< 10
15GB0373	1.2	< 0.05	0.2	< 0.001	< 0.5	0.10	126	0.16	4.4	0.4	< 10
[redacted]											

Analyte Symbol	Hf	Ta	W	Re	Au	Tl	Pb	Bi	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.02	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
[redacted]											

QC

Analyte Symbol	Co3O4	CuO	NiO	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	Cr2O3	V2O5	LOI	Total	Li	Be	B	Na	Mg	Al
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	%
Lower Limit	0.005	0.005	0.003	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.003		0.01	0.1	0.1	1	0.001	0.01	0.01
Method Code	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	FUS-XRF	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas																		9.3	0.6	12	0.056	0.10	0.47
GXR-1 Cert																		8.20	1.22	15.0	0.0520	0.217	3.52
DH-1a Meas																							
DH-1a Cert																							
MICA-FE Meas	< 0.005	< 0.005	0.005	34.31	19.31	25.43	0.336	4.67	0.44	0.34	8.68	2.46	0.41	0.01									
MICA-FE Cert	0.003	0.001	0.004	34.4	19.5	25.6	0.350	4.55	0.430	0.300	8.75	2.50	0.450	0.01									
GXR-4 Meas																		11.4	1.3	3	0.126	1.36	2.48
GXR-4 Cert																		11.1	1.90	4.50	0.564	1.66	7.20
GXR-6 Meas																		30.4	0.7	5	0.061	0.35	> 10.0
GXR-6 Cert																		32.0	1.40	9.80	0.104	0.609	17.7
BE-N Meas	0.010	0.010	0.052	38.27	10.36	12.98	0.191	12.77	13.94	3.06	1.37	2.69	1.07	0.06									
BE-N Cert	0.008	0.009	0.034	38.2	10.1	12.8	0.200	13.1	13.9	3.18	1.39	2.61	1.05	0.0500									
AC-E Meas				70.06	14.85	2.51	0.051	0.06	0.35	6.73	4.51	0.11											
AC-E Cert				70.35	14.70	2.56	0.058	0.03	0.34	6.54	4.49	0.11											
BIR-1a Meas				48.50	15.98	11.61	0.170	9.85	13.33	1.84	0.04	0.98											
BIR-1a Cert				47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96											
NCS DC73304 (GBW 07106) Meas				89.72	3.66	3.23		0.10	0.28	0.09	0.65		0.23										
NCS DC73304 (GBW 07106) Cert				90.36	3.52	3.22		0.082	0.30	0.061	0.65		0.222										
OREAS 45d (4-Acid) Meas																		20.2	0.4		0.036	0.11	4.82
OREAS 45d (4-Acid) Cert																		21.50	0.79		0.101	0.245	8.150
SdAR-M2 (U.S.G.S.) Meas																		16.5	4.5				
SdAR-M2 (U.S.G.S.) Cert																		17.9	6.6				
15GB0176 Orig																		2.5	1.5	2	0.019	0.02	0.61
15GB0176 Dup																		2.6	1.5	2	0.020	0.02	0.63
15GB0177 Orig																		3.6	2.0	2	0.016	0.03	0.73
15GB0177 Dup																		3.4	1.9	2	0.017	0.03	0.68
15GB0317 Orig	< 0.005	< 0.005	< 0.003	75.58	12.16	2.74	0.026	0.15	0.20	1.12	6.89	0.24	0.03	0.01	0.004	0.95	100.1						
15GB0317 Dup	< 0.005	< 0.005	< 0.003	75.35	12.02	2.72	0.026	0.17	0.21	1.10	6.89	0.25	0.03	0.01	0.005	0.87	99.64						
15GB0372 Orig																		2.5	2.0	1	0.017	0.02	0.35
15GB0372 Dup																		2.5	2.1	1	0.019	0.02	0.35
[redacted]																							
Method Blank																		< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01
Method Blank																							
Method Blank	< 0.005	< 0.005	< 0.003	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.003								

QC

Analyte Symbol	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr
Unit Symbol	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.001	0.001	0.01	0.01	1	1	0.01	1	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1
Method Code	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	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
GXR-1 Meas	0.039	0.181	0.03	0.81	58	7	< 0.01	774	23.2	6.1	34.5	1030	694	2.64		337	9.1	2.5	177	23.8	14.7	1.2	
GXR-1 Cert	0.0650	0.257	0.050	0.960	80.0	12.0	0.036	852	23.6	8.20	41.0	1110	760	13.8		427	16.6	14.0	275	32.0	38.0	1.58	
DH-1a Meas																							
DH-1a Cert																							
MICA-FE Meas																							
MICA-FE Cert																							
GXR-4 Meas	0.126	1.663	1.71	0.87	84	59	0.14	142	3.38	12.5	40.4	6550	74.9	10.9		110	4.8	113	78.5	12.0	10.0	7.6	
GXR-4 Cert	0.120	1.77	4.01	1.01	87.0	64.0	0.29	155	3.09	14.6	42.0	6520	73.0	20.0		98.0	5.60	160	221	14.0	186	7.70	
GXR-6 Meas	0.034	0.017	1.14	0.16	183	81		1050	6.30	12.6	24.3	74.4	133	14.5		260	< 0.1	77.8	31.2	6.91	14.9	24.1	
GXR-6 Cert	0.0350	0.0160	1.87	0.180	186	96.0		1010	5.58	13.8	27.0	66.0	118	35.0		330	0.940	90.0	35.0	14.0	110	27.6	
BE-N Meas																							
BE-N Cert																							
AC-E Meas																							
AC-E Cert																							
BIR-1a Meas																							
BIR-1a Cert																							
NCS DC73304 (GBW 07106) Meas																							
NCS DC73304 (GBW 07106) Cert																							
OREAS 45d (4-Acid) Meas	0.036	0.043	0.11	0.10	193	467	0.15	388	14.2	23.1	195	316	36.9	17.5		6.0		28.0	13.9	4.80	25.9	42.0	2.8
OREAS 45d (4-Acid) Cert	0.042	0.049	0.412	0.185	235.0	549.0	0.773	490.000	14.520	29.50	231.0	371.0	45.7	21.20		13.80		42.1	31.30	9.53	141	49.30	3.70
SdAR-M2 (U.S.G.S.) Meas					16	11				11.7	50.1	243	819	3.61				24.3	23.6	17.9	8.4	2.5	9.6
SdAR-M2 (U.S.G.S.) Cert					25.2	49.6				12.4	48.8	236.0000	760	17.6				149	144	32.7	259	4.1	11.0
15GB0176 Orig	0.002	1.434	0.34	0.03	< 1	8	0.06	119	2.35	0.3	2.1	7.43	195	5.92	< 0.1	22.8	< 0.1	35.3	3.9	25.7	43.4	0.2	12.5
15GB0176 Dup	0.002	1.412	0.36	0.03	< 1	8	0.06	113	2.26	0.3	2.2	6.67	184	5.52	< 0.1	22.7	< 0.1	35.7	4.2	26.6	42.0	0.2	12.5
15GB0177 Orig	0.008	0.935	0.37	0.07	< 1	19	0.05	122	1.63	0.3	2.2	6.15	136	6.27	< 0.1	12.5	< 0.1	36.3	7.3	40.5	29.6	0.3	18.4
15GB0177 Dup	0.007	0.912	0.38	0.07	< 1	18	0.05	118	1.53	0.3	2.0	6.28	134	6.68	< 0.1	12.4	< 0.1	35.7	7.1	39.2	30.1	0.3	17.5
15GB0317 Orig																							
15GB0317 Dup																							
15GB0372 Orig	0.002	1.540	0.22	0.09	< 1	20	0.07	130	2.01	0.3	1.5	5.59	248	3.50	< 0.1	26.0	< 0.1	22.9	4.3	24.5	31.0	0.1	16.4
15GB0372 Dup	0.002	1.562	0.23	0.09	< 1	20	0.07	126	1.99	0.3	1.5	4.46	256	3.60	< 0.1	26.2	< 0.1	23.5	4.3	24.7	31.6	0.1	16.9
[redacted]																							
Method Blank	< 0.001	< 0.001	< 0.01	< 0.01	< 1	< 1	< 0.01	< 1	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.1
Method Blank	< 0.001	< 0.001					< 0.01																
Method Blank																							

QC

Analyte Symbol	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In	Sn	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1
Method Code	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
GXR-1 Meas	3.0	3.9			0.3	0.1	17.5	33.7	2.23	0.65	24.1	61.1	12.2	2.54	499	5.2	11.1	5.96	2.0	0.4	0.6	1.9	0.3
GXR-1 Cert	4.20	4.30			0.430	0.800	18.0	31.0	3.30	0.770	54.0	122	13.0	3.00	750	7.50	17.0	18.0	2.70	0.690	0.830	1.90	0.280
DH-1a Meas																							
DH-1a Cert																							
MICA-FE Meas																							
MICA-FE Cert																							
GXR-4 Meas	3.5	2.4			0.1	0.3	341	4.34	0.38	0.21	6.29	3.36	0.85	2.32	59.6	48.4	93.4	35.4	5.8	1.2	0.5	0.8	0.1
GXR-4 Cert	5.25	2.60			0.210	10.0	310	4.00	0.860	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	45.0	6.60	1.63	0.360	1.60	0.170
GXR-6 Meas	1.7	1.4				0.1	2.09	0.469	0.09	0.06	1.25	1.81	0.03	3.56	904	10.6	30.5	11.0	2.2	0.5	0.2	0.8	0.1
GXR-6 Cert	2.97	2.80				7.50	2.40	1.30	1.00	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	13.0	2.67	0.760	0.415	2.40	0.330
BE-N Meas																							
BE-N Cert																							
AC-E Meas																							
AC-E Cert																							
BIR-1a Meas																							
BIR-1a Cert																							
NCS DC73304 (GBW 07106) Meas																							
NCS DC73304 (GBW 07106) Cert																							
OREAS 45d (4-Acid) Meas	1.5	1.2	0.2	0.6		0.5	2.14			0.08	2.21	0.48		2.80	91.9	11.6	26.0	10.3	2.0	0.4	0.2	0.5	< 0.1
OREAS 45d (4-Acid) Cert	2.42	2.26	0.46	1.38		14.50	2.500			0.096	2.78	0.82		3.910	183.0	16.9	37.20	13.4	2.80	0.57	0.400	1.33	0.18
SdAR-M2 (U.S.G.S.) Meas	4.2	3.6	0.7	1.9	0.2	4.1	14.0		4.86					0.89	135	41.9	92.7	34.8	6.6	0.6	0.6	1.7	0.2
SdAR-M2 (U.S.G.S) Cert	6.28	5.88	1.21	3.58	0.54	26.2	13.3		5.1					1.82	990	46.6	98.8	39.4	7.18	1.44	0.97	3.63	0.54
15GB0176 Orig	8.7	6.8	1.1	2.5	0.3	10.1	1.24	0.326	0.29	0.12	4.47	0.50	< 0.02	3.78	16.1	47.9	100	48.4	10.5	0.4	1.3	1.7	0.2
15GB0176 Dup	9.1	6.9	1.1	2.5	0.3	10.3	1.17	0.329	0.30	0.12	4.41	0.51	< 0.02	3.86	17.6	49.4	103	48.9	11.3	0.4	1.4	1.6	0.2
15GB0177 Orig	10.9	9.2	1.4	3.4	0.4	8.1	2.07	0.250	0.53	0.11	4.44	0.47	< 0.02	4.26	39.1	69.4	127	68.8	14.7	0.5	1.7	2.0	0.2
15GB0177 Dup	10.5	8.8	1.4	3.2	0.4	8.2	1.99	0.233	0.56	0.10	4.20	0.45	< 0.02	4.21	38.1	66.2	120	66.3	13.9	0.5	1.6	1.9	0.2
15GB0317 Orig																							
15GB0317 Dup																							
15GB0372 Orig	10.1	7.5	1.1	2.2	0.2	11.5	4.68	0.369	0.67	0.06	1.85	1.05	< 0.02	1.39	22.4	63.3	142	60.5	13.3	0.5	1.5	1.4	0.2
15GB0372 Dup	10.3	7.6	1.1	2.2	0.3	11.6	4.61	0.398	0.67	0.06	1.93	1.06	< 0.02	1.42	22.8	64.9	146	61.6	13.3	0.6	1.5	1.4	0.2
[redacted]																							
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.002	< 0.01	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5	< 0.01	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank																							
Method Blank																							

QC

Analyte Symbol	Hf	Ta	W	Re	Au	Tl	Pb	Bi	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.02	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	0.3	< 0.05	140		3060	0.36	677	1560	1.7	30.8	4070
GXR-1 Cert	0.960	0.175	164		3300	0.390	730	1380	2.44	34.9	3900
DH-1a Meas									> 200	2540	
DH-1a Cert									910	2629	
MICA-FE Meas											
MICA-FE Cert											
GXR-4 Meas	0.3	< 0.05	11.1		471	2.97	45.0	20.9	18.6	5.2	80
GXR-4 Cert	6.30	0.790	30.8		470	3.20	52.0	19.0	22.5	6.20	110
GXR-6 Meas	0.4	< 0.05	< 0.1		78.2	1.98	97.9	0.20	4.3	0.9	40
GXR-6 Cert	4.30	0.485	1.90		95.0	2.20	101	0.290	5.30	1.54	68.0
BE-N Meas											
BE-N Cert											
AC-E Meas											
AC-E Cert											
BIR-1a Meas											
BIR-1a Cert											
NCS DC73304 (GBW 07106) Meas											
NCS DC73304 (GBW 07106) Cert											
OREAS 45d (4-Acid) Meas	0.6	< 0.05	0.4			0.16	17.4	0.31	11.1	1.7	
OREAS 45d (4-Acid) Cert	3.830	1.02	1.62			0.27	21.8	0.31	14.5	2.63	
SdAR-M2 (U.S.G.S.) Meas	0.2	< 0.05	1.6				786	1.24	13.0	1.8	1260
SdAR-M2 (U.S.G.S.) Cert	7.29	1.8	2.8				808	1.05	14.2	2.53	1440.00
15GB0176 Orig	1.0	< 0.05	0.2	< 0.001	< 0.5	0.19	59.3	0.07	4.2	0.3	< 10
15GB0176 Dup	1.0	< 0.05	0.2	< 0.001	< 0.5	0.20	61.1	0.07	4.3	0.3	< 10
15GB0177 Orig	0.8	< 0.05	0.1	< 0.001	< 0.5	0.20	49.5	0.17	5.2	0.2	< 10
15GB0177 Dup	0.8	< 0.05	0.2	< 0.001	< 0.5	0.19	46.7	0.16	5.1	0.2	< 10
15GB0317 Orig											
15GB0317 Dup											
15GB0372 Orig	0.8	< 0.05	0.1	< 0.001	< 0.5	0.19	45.7	0.25	3.4	0.3	< 10
15GB0372 Dup	0.8	< 0.05	0.1	< 0.001	< 0.5	0.19	46.3	0.26	3.4	0.3	10
[redacted]											
Method Blank	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.02	< 0.1	< 0.1	< 10
Method Blank											
Method Blank											

Quality Analysis ... *Innovative Technologies*

Date Submitted: 28-Jan-16
Invoice No.: A16-00701
Invoice Date: 23-Jan-17
Your Reference:

Nova Scotia Department of Natural Resources
1701 Hollis Street
P.O. Box 698
Halifax NS B3J 2T9
Canada

ATTN: Trevor MacHattie

CERTIFICATE OF ANALYSIS

50 Crushed Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 4LITHO (11+) Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

REPORT **A16-00701**

Notes:

We recommend using option 4B1 for accurate levels of the base metals Cu, Pb, Zn, Ni and Ag. Option 4B-INAA for As, Sb, high W >100ppm, Cr >1000ppm and Sn >50ppm by Code 5D. Values for these elements provided by Fusion ICP/MS, are order of magnitude only and are provided for general information. Mineralized samples should have the Quant option selected or request assays for values which exceed the range of option 4B1. Total includes all elements in % oxide to the left of total.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

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Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	2	2	1	2	20	1	20	10
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS
09TM046	78.79	9.67	3.55	0.191	0.11	0.30	1.51	4.94	0.272	< 0.01	0.63	99.97	1	5	12	58	13	134	936	20	1	< 20	< 10
09TM051	74.13	12.25	3.43	0.136	0.11	0.22	2.96	5.18	0.270	0.03	0.65	99.35	4	9	8	545	46	93	556	< 20	< 1	< 20	10
09TM054	48.99	13.78	14.17	0.281	4.18	7.26	2.66	2.18	3.050	0.75	2.24	99.55	35	2	275	787	240	52	574	30	32	< 20	30
10TM0117	79.62	9.16	2.87	0.044	0.14	0.21	0.65	6.75	0.246	0.04	0.34	100.1	2	1	17	105	40	54	442	30	1	< 20	< 10
10TM0250	76.45	12.26	1.55	0.032	0.08	0.31	3.74	4.28	0.068	< 0.01	0.43	99.21	< 1	9	6	30	7	65	156	< 20	< 1	< 20	< 10
11TM0005	76.74	11.58	2.35	0.022	0.01	0.13	3.67	4.53	0.109	< 0.01	0.16	99.29	< 1	7	< 5	31	12	90	423	< 20	< 1	< 20	< 10
12TM0370	84.45	5.36	2.95	0.067	0.81	1.48	1.17	0.89	0.484	0.07	1.84	99.57	4	< 1	43	368	95	16	196	30	5	< 20	< 10
16TM0027	76.53	10.96	2.52	0.037	0.02	0.14	3.13	5.23	0.108	< 0.01	0.32	99.00	< 1	6	5	84	16	95	295	< 20	1	< 20	< 10
16TM0066	73.57	12.92	3.61	0.084	0.20	0.28	2.89	5.12	0.432	0.06	1.06	100.2	7	5	12	658	64	84	684	< 20	< 1	< 20	< 10
16TM0133	77.47	7.92	3.11	0.069	1.13	2.32	1.03	1.79	0.609	0.09	3.45	98.98	6	1	43	294	101	28	283	40	8	< 20	< 10
16TM0195	76.61	10.27	3.63	0.070	0.20	0.09	3.15	4.39	0.213	0.01	0.50	99.13	< 1	5	8	72	14	169	1253	< 20	< 1	< 20	< 10
16TM0196	82.29	8.08	1.31	0.010	0.11	0.05	0.16	6.24	0.080	< 0.01	0.78	99.10	< 1	2	48	89	34	47	249	< 20	< 1	< 20	< 10
16TM0232B	73.43	10.79	5.22	0.117	1.78	1.01	1.47	2.64	0.456	0.04	1.97	98.92	10	2	65	848	92	22	145	30	11	< 20	< 10
16TM0233	73.71	13.03	3.83	0.091	1.27	2.60	0.68	3.23	0.332	0.06	1.94	100.8	8	2	44	1037	127	22	136	< 20	6	< 20	30
16TM0235	75.04	13.31	1.54	0.027	0.28	0.70	4.12	3.65	0.132	0.03	0.41	99.25	3	2	14	945	120	22	78	30	2	< 20	< 10
16TM0269	71.03	13.10	3.95	0.091	1.11	2.39	2.88	2.56	0.468	0.09	0.87	98.54	9	2	71	824	295	24	152	60	8	< 20	< 10
16TM0333	75.87	10.65	3.23	0.062	0.13	0.12	3.82	4.34	0.118	< 0.01	0.26	98.59	< 1	13	< 5	13	9	104	1078	< 20	< 1	< 20	10
16TM0334	75.48	10.92	2.23	0.046	0.05	0.07	0.38	9.00	0.229	0.05	0.31	98.77	4	< 1	13	663	42	30	322	< 20	1	< 20	< 10
16TM0335	76.14	10.30	4.27	0.030	0.02	0.64	3.58	4.03	0.135	< 0.01	0.42	99.56	< 1	20	< 5	37	8	151	1364	< 20	2	< 20	< 10
16TM0336	76.86	11.57	1.87	0.046	0.26	0.07	0.55	7.88	0.145	0.01	0.86	100.1	3	3	9	177	32	44	212	< 20	< 1	< 20	< 10
16TM0430A	66.17	16.14	5.14	0.141	1.20	0.35	5.60	2.36	0.440	0.12	1.55	99.21	11	2	33	1660	149	19	202	< 20	6	< 20	20
16TM0436	69.76	12.68	5.86	0.056	2.00	0.55	2.23	2.40	0.784	0.14	2.45	98.91	10	2	72	392	87	33	205	60	15	30	< 10
16TM0543	53.87	16.30	9.36	0.194	4.99	5.63	2.48	2.06	0.929	0.20	3.27	99.29	27	1	215	1415	357	24	100	60	24	< 20	60
16TM0549	58.98	18.93	4.66	0.215	0.86	2.90	3.98	4.39	0.543	0.13	3.80	99.38	10	3	16	909	111	45	278	< 20	2	< 20	< 10
16TM0577	65.29	15.89	5.02	0.123	1.31	3.34	4.81	1.65	0.414	0.12	1.53	99.49	11	1	61	924	269	17	116	< 20	9	< 20	20
16TM0585	72.63	13.20	4.32	0.081	1.13	1.62	3.39	2.45	0.454	0.03	1.02	100.3	11	1	58	956	128	27	167	20	7	< 20	50
16TM0598	84.15	6.72	2.63	0.048	0.49	0.43	1.91	0.70	0.335	0.04	1.14	98.59	5	1	31	116	62	20	126	30	7	< 20	< 10
16TM0654	87.48	4.79	1.72	0.040	0.22	1.26	2.03	0.18	0.247	0.04	0.90	98.91	3	< 1	33	60	101	12	128	30	2	< 20	< 10
16TM0727	75.31	13.14	2.03	0.061	0.26	0.91	4.39	2.72	0.164	0.03	0.60	99.61	3	2	8	857	133	21	132	20	1	< 20	< 10
16TM0734A	73.67	10.51	4.84	0.062	1.25	1.30	3.16	0.62	0.897	0.13	3.12	99.56	10	2	66	119	150	48	258	40	11	< 20	< 10
12TM0763B	67.48	14.22	4.56	0.097	1.11	3.51	4.62	1.57	0.559	0.09	1.19	99.02	7	5	49	101	457	81	431	30	8	< 20	< 10
16TM0793A	68.31	15.81	3.17	0.051	0.40	0.20	4.16	5.17	0.266	0.02	1.40	98.96	4	6	6	855	49	63	547	< 20	1	< 20	< 10
16TM0793B	68.73	13.03	5.86	0.067	0.75	1.27	5.03	2.21	0.753	0.06	0.86	98.62	11	4	52	234	268	70	340	50	14	20	20
16TM0799B	69.03	13.19	4.64	0.064	1.48	0.75	0.23	7.83	0.374	0.01	1.48	99.08	< 1	5	9	1363	148	155	1524	< 20	2	< 20	20
16TM0800A	72.17	10.47	4.48	0.094	2.57	2.76	0.60	2.61	0.784	0.09	2.17	98.81	9	4	62	249	99	45	437	70	10	< 20	< 10
16TM0800B	60.86	12.67	8.04	0.153	6.61	4.16	2.78	0.41	1.203	0.14	3.53	100.6	21	2	200	164	152	44	389	110	27	50	70
16TM0801A	47.76	14.77	12.45	0.247	6.68	7.66	2.94	1.25	1.867	0.24	3.76	99.63	36	2	277	717	425	29	134	190	44	80	90
16TM0813	79.15	9.33	3.21	0.047	0.20	0.19	0.82	4.77	0.252	0.01	0.74	98.72	< 1	4	8	47	37	142	1102	30	< 1	< 20	< 10
16TM0815A	63.59	15.70	6.65	0.127	2.54	1.67	1.48	2.74	0.905	0.07	3.23	98.70	15	4	103	636	186	58	499	80	17	30	30
16TM0815B	64.29	15.89	6.61	0.143	2.39	2.81	1.95	2.04	0.877	0.07	2.92	99.99	14	4	100	503	322	87	648	70	16	30	30
16TM0817	74.29	12.68	2.94	0.064	0.08	0.48	3.45	5.16	0.265	0.02	0.07	99.49	5	4	6	551	30	87	497	< 20	< 1	< 20	< 10

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	2	2	1	2	20	1	20	10
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS
16TM0818	72.77	13.04	2.94	0.063	0.19	0.71	3.31	5.25	0.309	0.02	0.32	98.92	4	4	10	500	42	64	484	< 20	1	< 20	< 10
16TM0823	76.85	9.95	3.87	0.049	0.18	0.27	2.41	4.41	0.258	< 0.01	0.50	98.75	< 1	6	8	31	30	116	994	20	< 1	< 20	< 10
16TM0855	70.12	13.78	3.61	0.064	0.52	1.38	4.36	3.91	0.402	0.08	0.87	99.12	8	2	8	2548	150	33	227	< 20	2	< 20	10
16TM0857A	74.78	13.16	2.17	0.026	0.18	0.80	4.78	2.38	0.159	< 0.01	0.45	98.90	3	1	< 5	1043	127	13	141	< 20	< 1	< 20	< 10
16TM0858	76.37	12.19	1.74	0.033	0.47	0.16	3.26	5.09	0.055	< 0.01	0.67	100.0	< 1	12	10	98	27	49	211	< 20	< 1	< 20	< 10
16TM0859	75.77	11.19	2.81	0.033	0.05	0.08	1.68	5.97	0.237	0.02	0.81	98.65	5	3	5	708	31	50	481	< 20	2	< 20	< 10
16TM0860	76.38	10.74	3.37	0.044	0.08	0.06	3.67	3.52	0.198	< 0.01	0.51	98.55	< 1	4	6	114	13	137	1336	< 20	< 1	< 20	< 10
16TM0861	71.94	12.63	5.82	0.083	0.34	0.37	2.57	3.32	0.372	< 0.01	1.46	98.90	2	11	18	129	72	330	2511	< 20	3	< 20	< 10
16TM0862	72.90	12.70	4.13	0.086	0.11	0.92	4.30	3.89	0.311	0.03	0.19	99.58	4	5	8	562	51	99	747	30	1	< 20	< 10

Analyte Symbol	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
09TM046	110	18	< 1	< 5	177	40	3	2.7	< 0.2	7	< 0.5	1.4	98.8	195	23.7	90.3	19.7	1.10	20.2	3.6	22.7	4.9	14.7
09TM051	70	25	2	6	202	36	3	1.3	< 0.2	6	1.6	4.2	66.6	148	18.2	71.3	15.8	1.90	15.8	2.8	17.8	3.6	11.0
09TM054	120	24	2	11	62	28	3	1.6	< 0.2	2	0.8	2.4	38.2	89.0	11.2	48.3	11.7	4.22	11.8	1.8	10.8	2.1	6.1
10TM0117	40	14	1	< 5	268	26	< 2	1.3	< 0.2	5	0.8	2.7	54.9	118	13.8	52.3	11.4	0.57	10.7	1.7	10.9	2.2	6.7
10TM0250	< 30	29	2	< 5	365	67	3	< 0.5	< 0.2	15	0.8	10.2	27.0	54.6	6.46	21.8	6.4	0.09	6.7	1.4	10.2	2.2	7.4
11TM0005	30	32	2	< 5	206	73	< 2	1.0	< 0.2	16	< 0.5	1.5	39.4	99.5	10.8	38.4	11.0	0.05	11.3	2.3	15.6	3.3	10.6
12TM0370	< 30	7	1	< 5	37	6	< 2	< 0.5	< 0.2	< 1	< 0.5	1.1	15.9	31.1	4.05	15.8	3.5	0.83	3.1	0.5	2.9	0.6	1.7
16TM0027	< 30	26	< 1	10	243	55	< 2	< 0.5	< 0.2	9	1.7	8.0	36.0	79.0	9.98	37.3	10.8	0.07	12.6	2.8	18.0	3.8	11.4
16TM0066	80	17	1	< 5	190	40	2	1.8	< 0.2	8	0.7	3.7	38.4	79.9	10.1	40.8	10.5	1.60	12.5	2.4	15.0	3.1	9.2
16TM0133	50	11	1	13	73	9	< 2	< 0.5	< 0.2	1	0.6	5.1	33.1	55.0	8.05	31.3	6.2	1.28	5.6	0.8	4.8	0.9	2.7
16TM0195	230	41	3	41	192	86	< 2	3.2	0.2	13	0.8	2.4	120	233	30.5	116	26.2	1.46	27.9	5.0	30.7	6.4	18.7
16TM0196	< 30	16	1	147	352	49	8	< 0.5	< 0.2	6	5.8	4.6	5.3	15.0	1.74	7.6	3.1	0.06	4.1	1.1	8.7	2.0	6.8
16TM0232B	70	13	1	< 5	116	6	< 2	< 0.5	< 0.2	1	0.5	2.3	21.7	43.6	5.24	20.1	4.3	0.93	4.0	0.7	3.9	0.8	2.4
16TM0233	190	14	2	< 5	110	5	< 2	< 0.5	< 0.2	3	< 0.5	1.9	22.4	44.2	4.89	18.0	3.9	0.84	3.6	0.6	3.7	0.8	2.3
16TM0235	< 30	13	2	< 5	95	7	3	< 0.5	< 0.2	< 1	< 0.5	0.7	27.7	56.5	6.43	23.3	4.6	0.59	4.1	0.7	4.1	0.8	2.5
16TM0269	50	15	2	< 5	76	9	< 2	< 0.5	< 0.2	2	< 0.5	2.2	27.5	56.7	6.77	26.3	5.6	1.31	5.2	0.8	4.8	1.0	2.8
16TM0333	290	42	3	< 5	354	137	< 2	2.5	0.2	30	< 0.5	1.8	45.4	113	14.4	53.6	15.2	0.70	16.1	3.3	20.8	4.2	12.9
16TM0334	40	13	< 1	< 5	350	14	12	< 0.5	< 0.2	2	< 0.5	2.6	36.4	71.2	8.43	30.9	5.9	0.95	4.9	0.8	5.2	1.0	3.3
16TM0335	120	43	3	8	379	170	3	3.0	< 0.2	39	0.6	2.9	63.3	124	17.5	62.5	18.7	0.82	20.5	4.1	27.1	5.5	16.6
16TM0336	40	23	1	< 5	417	34	2	< 0.5	< 0.2	5	< 0.5	4.9	47.4	99.1	10.1	35.9	7.9	0.14	6.3	1.2	7.5	1.6	5.3
16TM0430A	90	17	1	< 5	67	6	< 2	< 0.5	< 0.2	1	< 0.5	1.0	21.8	48.4	5.58	21.7	4.7	1.72	4.1	0.6	3.8	0.8	2.5
16TM0436	80	17	2	< 5	91	11	< 2	< 0.5	< 0.2	2	< 0.5	3.5	38.8	90.6	10.7	40.9	9.3	2.02	8.4	1.3	7.2	1.3	3.5
16TM0543	110	18	1	< 5	45	5	< 2	< 0.5	< 0.2	< 1	0.9	0.8	18.0	38.6	4.87	20.6	4.8	1.37	4.8	0.8	4.7	0.9	2.7
16TM0549	120	18	1	< 5	167	14	< 2	0.9	< 0.2	3	< 0.5	4.3	43.7	90.6	10.3	38.7	8.1	1.62	7.4	1.2	7.6	1.6	4.9
16TM0577	70	16	1	< 5	61	3	< 2	< 0.5	< 0.2	< 1	< 0.5	2.2	16.7	33.6	3.78	14.2	3.2	0.94	3.0	0.5	3.0	0.6	1.9
16TM0585	90	14	1	< 5	114	7	< 2	< 0.5	< 0.2	2	< 0.5	5.9	23.3	49.8	5.66	20.4	4.6	0.99	4.5	0.8	4.5	0.9	3.0
16TM0598	50	10	2	< 5	38	6	< 2	< 0.5	< 0.2	< 1	< 0.5	2.6	25.1	50.5	6.06	23.9	4.6	1.02	4.6	0.7	3.9	0.8	2.2
16TM0654	< 30	4	1	< 5	8	4	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	14.0	23.8	3.68	14.2	2.8	0.57	2.3	0.4	2.3	0.5	1.3
16TM0727	< 30	15	2	< 5	81	7	< 2	< 0.5	< 0.2	< 1	< 0.5	1.0	32.5	63.4	6.78	24.4	4.2	0.86	3.6	0.6	3.7	0.8	2.4
16TM0734A	70	16	2	12	29	19	< 2	< 0.5	< 0.2	4	0.6	1.5	39.3	82.6	10.7	42.3	9.1	1.63	9.2	1.5	8.9	1.8	5.2
12TM0763B	180	28	2	< 5	37	58	< 2	< 0.5	< 0.2	8	< 0.5	< 0.5	55.1	126	15.3	59.6	15.4	0.72	15.5	2.9	17.0	3.3	9.7
16TM0793A	120	27	2	12	195	47	< 2	1.0	< 0.2	7	1.3	8.3	67.0	143	16.2	61.0	12.8	1.25	11.2	2.0	11.9	2.4	7.4
16TM0793B	140	17	2	6	56	30	< 2	< 0.5	< 0.2	5	< 0.5	0.7	52.6	117	13.9	53.6	12.7	1.20	12.5	2.3	13.1	2.6	7.6
16TM0799B	170	32	3	< 5	321	68	3	3.3	0.3	10	0.7	5.4	135	284	33.7	132	27.9	1.53	26.0	4.7	28.3	5.7	17.2
16TM0800A	80	16	2	5	155	18	< 2	0.6	< 0.2	3	0.8	5.9	44.3	80.3	11.3	43.4	9.3	1.39	8.5	1.5	8.3	1.6	4.8
16TM0800B	170	16	2	< 5	16	21	< 2	< 0.5	< 0.2	3	< 0.5	4.9	30.3	68.3	8.58	33.8	7.9	1.39	8.2	1.4	8.3	1.6	4.8
16TM0801A	150	18	1	9	41	10	< 2	< 0.5	< 0.2	< 1	1.5	5.5	15.5	30.5	4.62	19.9	5.1	1.75	5.7	0.9	5.5	1.1	3.1
16TM0813	100	27	1	6	208	66	2	2.2	< 0.2	10	< 0.5	3.7	102	223	27.0	104	22.9	1.06	23.1	4.2	26.7	5.3	16.5
16TM0815A	130	23	2	< 5	143	30	3	0.6	< 0.2	4	< 0.5	10.3	50.7	108	13.4	51.9	11.2	1.37	10.4	1.8	10.6	2.1	6.4
16TM0815B	120	24	2	< 5	110	37	5	1.0	< 0.2	6	0.7	7.6	55.3	121	14.6	56.2	12.9	1.66	12.9	2.4	14.9	3.0	9.2
16TM0817	70	24	2	< 5	207	44	< 2	0.7	< 0.2	7	< 0.5	1.7	75.4	152	18.9	70.5	15.1	1.37	14.6	2.6	15.6	3.1	9.6

Analyte Symbol	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
16TM0818	60	25	2	< 5	212	40	< 2	0.7	< 0.2	6	< 0.5	2.5	57.1	129	14.3	53.4	11.3	1.12	10.5	1.9	11.8	2.4	7.3
16TM0823	110	28	2	< 5	166	49	< 2	1.9	< 0.2	8	< 0.5	2.2	100	201	26.1	100	22.1	1.22	20.8	3.5	22.0	4.3	12.7
16TM0855	70	17	1	< 5	66	10	< 2	< 0.5	< 0.2	2	< 0.5	0.5	34.7	72.2	8.26	31.7	6.8	1.40	6.0	0.9	6.0	1.2	3.7
16TM0857A	< 30	15	1	< 5	50	6	< 2	< 0.5	< 0.2	< 1	< 0.5	0.8	70.6	137	14.1	49.1	6.7	1.51	4.3	0.5	2.7	0.5	1.5
16TM0858	110	34	2	22	526	88	< 2	< 0.5	< 0.2	11	0.8	6.0	24.1	50.7	5.65	17.7	5.1	< 0.05	5.0	1.3	9.8	2.2	7.4
16TM0859	160	22	2	7	248	40	2	< 0.5	< 0.2	6	2.5	5.4	77.8	166	18.4	67.1	12.1	0.88	9.9	1.5	9.0	1.9	6.1
16TM0860	100	36	2	7	147	70	< 2	2.6	0.2	12	0.8	0.9	99.4	239	25.7	102	28.6	1.19	28.9	4.9	27.5	5.4	15.7
16TM0861	150	43	2	< 5	285	119	< 2	6.5	0.3	22	< 0.5	7.7	144	328	42.2	170	44.3	1.82	49.3	9.2	59.3	12.5	38.6
16TM0862	70	24	2	< 5	141	47	3	2.0	< 0.2	9	< 0.5	1.5	75.0	161	19.8	76.2	17.1	2.49	17.1	3.1	19.0	4.0	12.0

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.1	0.01	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
09TM046	2.16	13.8	2.05	18.8	3.7	< 1	0.7	12	< 0.4	18.7	1.8
09TM051	1.71	11.5	1.71	13.4	3.9	1	1.6	10	< 0.4	19.2	5.3
09TM054	0.87	5.5	0.88	12.1	1.9	< 1	0.4	11	< 0.4	4.3	1.3
10TM0117	1.04	7.2	1.16	10.3	2.4	2	1.3	24	< 0.4	17.2	3.1
10TM0250	1.26	8.9	1.37	8.0	7.0	29	1.5	23	< 0.4	34.2	9.4
11TM0005	1.68	11.3	1.74	15.3	7.0	< 1	0.9	55	< 0.4	26.9	6.7
12TM0370	0.25	1.7	0.27	4.6	0.7	< 1	0.2	7	< 0.4	5.2	2.2
16TM0027	1.80	11.5	1.74	10.4	5.3	2	0.9	7	< 0.4	19.9	3.7
16TM0066	1.36	9.0	1.41	16.0	3.2	1	1.0	5	< 0.4	18.2	5.0
16TM0133	0.40	2.6	0.42	6.9	0.9	< 1	0.5	14	< 0.4	7.8	1.6
16TM0195	2.82	17.9	2.75	29.5	6.9	4	1.0	26	< 0.4	24.3	4.0
16TM0196	1.15	7.7	1.20	8.8	5.1	< 1	1.6	29	< 0.4	18.4	15.6
16TM0232B	0.35	2.4	0.41	3.4	0.6	< 1	0.6	30	< 0.4	6.4	1.7
16TM0233	0.34	2.5	0.40	3.1	0.5	< 1	0.6	107	0.4	9.2	2.2
16TM0235	0.40	2.8	0.46	2.5	0.9	< 1	0.5	8	< 0.4	9.1	2.5
16TM0269	0.40	2.7	0.41	3.9	0.9	< 1	0.4	22	< 0.4	8.9	2.0
16TM0333	2.05	14.2	2.23	35.3	14.0	1	1.2	12	0.5	28.4	11.6
16TM0334	0.50	3.5	0.54	7.4	1.6	2	3.2	34	< 0.4	14.5	5.0
16TM0335	2.65	19.4	3.23	44.6	17.7	4	2.0	26	0.7	32.4	16.4
16TM0336	0.89	6.3	0.98	7.5	2.8	1	2.3	20	< 0.4	54.5	5.0
16TM0430A	0.37	2.7	0.42	4.7	0.4	< 1	0.5	12	< 0.4	7.3	1.8
16TM0436	0.47	3.0	0.49	4.9	1.0	< 1	0.4	8	< 0.4	11.9	2.0
16TM0543	0.41	2.7	0.42	2.7	0.3	< 1	0.3	17	< 0.4	5.2	1.1
16TM0549	0.71	5.1	0.84	6.9	0.9	< 1	0.9	47	< 0.4	14.0	3.6
16TM0577	0.30	2.2	0.34	2.7	0.2	< 1	0.4	14	< 0.4	6.3	1.6
16TM0585	0.45	3.2	0.49	4.1	0.8	< 1	0.8	228	< 0.4	7.6	2.0
16TM0598	0.32	2.2	0.35	3.1	0.6	< 1	0.2	10	< 0.4	5.7	2.8
16TM0654	0.18	1.3	0.19	3.1	0.5	< 1	< 0.1	5	< 0.4	4.3	0.8
16TM0727	0.36	2.5	0.40	3.3	0.8	< 1	0.3	11	< 0.4	8.7	2.0
16TM0734A	0.80	5.1	0.79	6.3	1.8	< 1	0.1	15	0.5	11.6	3.1
12TM0763B	1.48	9.7	1.46	13.4	4.8	< 1	0.2	32	< 0.4	17.3	3.1
16TM0793A	1.11	7.5	1.13	14.2	3.9	< 1	1.1	42	0.6	20.8	3.5
16TM0793B	1.07	6.8	1.03	9.6	2.9	< 1	0.6	19	< 0.4	15.3	2.2
16TM0799B	2.55	17.1	2.65	31.1	5.4	< 1	1.6	35	0.4	27.9	7.7
16TM0800A	0.71	4.7	0.74	10.1	1.5	1	0.7	18	< 0.4	10.7	2.3
16TM0800B	0.67	4.3	0.63	8.8	1.7	5	< 0.1	19	< 0.4	6.3	2.3
16TM0801A	0.43	2.8	0.40	3.3	0.6	< 1	0.2	54	< 0.4	1.0	0.5
16TM0813	2.50	16.1	2.57	25.0	5.4	1	1.0	24	< 0.4	22.9	4.4
16TM0815A	0.93	6.5	0.99	11.1	2.3	< 1	0.6	19	< 0.4	14.2	3.2
16TM0815B	1.35	8.6	1.34	14.7	3.0	< 1	0.4	25	< 0.4	15.6	3.7
16TM0817	1.43	9.6	1.54	13.3	4.0	< 1	0.9	18	< 0.4	22.2	5.7

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.1	0.01	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
16TM0818	1.14	7.9	1.24	12.9	3.9	2	1.0	18	< 0.4	22.4	5.3
16TM0823	1.89	13.0	1.97	22.0	3.7	< 1	0.6	14	< 0.4	19.7	3.4
16TM0855	0.56	4.1	0.62	5.6	0.7	< 1	0.3	21	< 0.4	11.9	2.6
16TM0857A	0.24	1.6	0.29	4.2	0.6	< 1	0.2	8	< 0.4	15.0	0.8
16TM0858	1.37	10.4	1.56	10.8	8.9	< 1	0.6	33	< 0.4	33.6	8.8
16TM0859	0.97	6.9	1.16	12.5	3.7	< 1	1.6	18	< 0.4	20.3	5.6
16TM0860	2.35	15.2	2.35	29.7	6.3	< 1	0.7	36	< 0.4	24.6	1.8
16TM0861	5.88	37.7	5.73	56.8	11.9	1	1.2	48	0.5	39.5	7.9
16TM0862	1.80	11.9	1.82	18.0	4.1	1	0.8	20	< 0.4	18.4	5.1

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	2	2	1	2	20	1	20	10
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas	11.31	2.00	0.77	0.013	0.35	42.86	0.90	0.55	0.122	30.24					1607								
NIST 694 Cert	11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2					1740								
DNC-1 Meas	47.05	18.45	9.77	0.144	10.04	11.42	1.89	0.22	0.480	0.06			31		148	104	142	14	36	280	58	250	100
DNC-1 Cert	47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.070			31		148	118	144.0	18.0	38	270	57	247	100
GBW 07113 Meas	71.11	13.45	3.24	0.148	0.14	0.60	2.53	5.33	0.289	0.03			5	4	6	502	40	43	390				
GBW 07113 Cert	72.8	13.0	3.21	0.140	0.160	0.590	2.57	5.43	0.300	0.0500			5.00	4.00	5.00	506	43.0	43.0	403				
LKSD-3 Meas																				90	31	50	30
LKSD-3 Cert																				87.0	30.0	47.0	35.0
TDB-1 Meas																				240		80	340
TDB-1 Cert																				251		92	323
TDB-1 Meas																				240		80	340
TDB-1 Cert																				251		92	323
W-2a Meas	52.66	14.89	10.52	0.163	6.25	11.11	2.22	0.61	1.070	0.13			35	< 1	269	173	193	18	88	100	43	70	110
W-2a Cert	52.4	15.4	10.7	0.163	6.37	10.9	2.14	0.626	1.06	0.130			36.0	1.30	262	182	190	24.0	94.0	92.0	43.0	70.0	110
SY-4 Meas	49.90	21.02	6.33	0.107	0.51	8.14	6.84	1.76	0.293	0.14			1	3	8	341	1215	112	536				
SY-4 Cert	49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66	0.287	0.131			1.1	2.6	8.0	340	1191	119	517				
CTA-AC-1 Meas																							60
CTA-AC-1 Cert																							54.0
BIR-1a Meas	48.19	15.01	11.01	0.170	9.53	13.42	1.84	0.02	0.949	0.02			43	< 1	324	8	108	13	16	380	53	180	130
BIR-1a Cert	47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96	0.021			44	0.58	310	6	110	16	18	370	52	170	125
NCS DC86312 Meas																							
NCS DC86312 Cert																							
NCS DC70009 (GBW07241) Meas																							990
NCS DC70009 (GBW07241) Cert																							960
OREAS 100a (Fusion) Meas																					17		180
OREAS 100a (Fusion) Cert																					18.1		169
OREAS 101a (Fusion) Meas																					48		440
OREAS 101a (Fusion) Cert																					48.8		434
OREAS 101b (Fusion) Meas																					45		420
OREAS 101b (Fusion) Cert																					47		416
OREAS 101b (Fusion) Meas																					45		420

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	2	2	1	2	20	1	20	10
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS
OREAS 101b (Fusion) Cert																					47		416
JR-1 Meas																						< 20	
JR-1 Cert																						1.67	
16TM0235 Orig	75.30	13.38	1.57	0.026	0.28	0.69	4.09	3.60	0.133	0.03	0.41	99.52	3	2	16	934	120	23	80	30	2	< 20	< 10
16TM0235 Dup	74.79	13.25	1.51	0.027	0.28	0.71	4.15	3.69	0.132	0.04	0.41	98.98	3	2	12	956	119	22	76	30	2	< 20	< 10
16TM0793A Orig	68.18	15.71	3.11	0.050	0.41	0.20	4.14	5.16	0.262	0.02	1.40	98.63	4	6	7	851	49	62	544	< 20	1	< 20	< 10
16TM0793A Dup	68.44	15.90	3.23	0.052	0.40	0.20	4.19	5.19	0.269	0.01	1.40	99.29	5	6	6	858	50	64	549	< 20	1	< 20	< 10
16TM0862 Orig	73.18	12.76	4.15	0.086	0.12	0.93	4.34	3.92	0.308	0.03	0.19	100.0	4	5	7	564	51	99	747	20	1	< 20	< 10
16TM0862 Dup	72.62	12.63	4.12	0.086	0.11	0.91	4.27	3.87	0.314	0.03	0.19	99.16	4	5	8	560	51	100	747	30	1	< 20	< 10
Method Blank																				< 20	< 1	< 20	< 10
Method Blank																				< 20	< 1	< 20	< 10

Analyte Symbol	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas																							
NIST 694 Cert																							
DNC-1 Meas	70	15									0.9		3.9			4.9		0.60					
DNC-1 Cert	70	15									0.96		3.6			5.20		0.59					
GBW 07113 Meas																							
GBW 07113 Cert																							
LKSD-3 Meas	150			26	75		< 2	2.0		2		2.4	48.9	94.2		44.6	8.0	1.50			5.0		
LKSD-3 Cert	152			27.0	78.0		2.00	2.70		3.00		2.30	52.0	90.0		44.0	8.00	1.50			4.90		
TDB-1 Meas	160				21								18.1	41.3		25.2		2.20					
TDB-1 Cert	155				23								17	41		23		2.1					
TDB-1 Meas	160				21								18.1	41.3		25.2		2.20					
TDB-1 Cert	155				23								17	41		23		2.1					
W-2a Meas	80	18	1		20	7	< 2					0.9	10.6	25.0		13.6	3.4	1.10		0.6	3.9	0.8	2.3
W-2a Cert	80.0	17.0	1.00		21.0	7.90	0.600					0.990	10.0	23.0		13.0	3.30	1.00		0.630	3.60	0.760	2.50
SY-4 Meas																							
SY-4 Cert																							
CTA-AC-1 Meas	40												> 2000	> 3000		1170	166	46.9	133	14.6			
CTA-AC-1 Cert	38.0												2176	3326		1087	162	46.7	124	13.9			
BIR-1a Meas	80	16											0.7	2.0		2.6	1.1	0.53	1.9				
BIR-1a Cert	70	16											0.63	1.9		2.5	1.1	0.55	2.0				
NCS DC86312 Meas													> 2000	177		1600			240	31.3	185	35.1	101
NCS DC86312 Cert													2360	190		1600			225.0	34.6	183	36	96.2
NCS DC70009 (GBW07241) Meas	100	17	11	63	502			1.6	1.0	> 1000	3.4	42.0	23.9	61.1	8.00	32.4	12.7		16.1	3.1	22.0	4.3	14.3
NCS DC70009 (GBW07241) Cert	100	16.5	11.2	69.9	500			1.8	1.3	1701	3.1	41	23.7	60.3	7.9	32.9	12.5		14.8	3.3	20.7	4.5	13.4
OREAS 100a (Fusion) Meas							25						271	495	48.3	159	25.2	3.82	22.4	3.7	24.2	5.0	16.0
OREAS 100a (Fusion) Cert							24.1						260	463	47.1	152	23.6	3.71	23.6	3.80	23.2	4.81	14.9
OREAS 101a (Fusion) Meas							21						815	1380	130	402	49.6	8.37			32.3	6.5	20.1
OREAS 101a (Fusion) Cert							21.9						816	1396	134	403	48.8	8.06			33.3	6.46	19.5
OREAS 101b (Fusion) Meas							20						811	1370	129	389	50.0	8.12		5.2	31.7	6.3	19.2
OREAS 101b (Fusion) Cert							20.9						789	1331	127	378	48	7.77		5.37	32.1	6.34	18.7
OREAS 101b (Fusion) Meas							20						811	1370	129	389	50.0	8.12		5.2	31.7	6.3	19.2
OREAS 101b							20.9						789	1331	127	378	48	7.77		5.37	32.1	6.34	18.7

Analyte Symbol	Zn	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	30	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
(Fusion) Cert																							
JR-1 Meas	30	17	2	17	253	14	3		< 0.2	3		20.8	19.9	48.1	5.90	23.8	5.7	0.31		1.0	6.2		
JR-1 Cert	30.6	16.1	1.88	16.3	257	15.2	3.25		0.028	2.86		20.8	19.7	47.2	5.58	23.3	6.03	0.30		1.01	5.69		
16TM0235 Orig	< 30	13	2	< 5	95	7	3	< 0.5	< 0.2	< 1	< 0.5	0.7	28.5	57.9	6.52	23.9	4.7	0.60	4.1	0.7	4.2	0.8	2.6
16TM0235 Dup	< 30	13	2	< 5	95	7	2	< 0.5	< 0.2	< 1	< 0.5	0.7	26.9	55.1	6.35	22.6	4.4	0.57	4.1	0.7	4.1	0.8	2.4
16TM0793A Orig	120	27	2	12	198	47	< 2	1.1	< 0.2	7	1.3	8.4	68.0	143	16.3	62.3	12.7	1.27	11.2	2.0	11.9	2.4	7.4
16TM0793A Dup	120	26	2	12	192	46	< 2	1.0	< 0.2	7	1.3	8.2	66.0	142	16.2	59.8	12.8	1.22	11.2	1.9	11.8	2.4	7.4
16TM0862 Orig	70	23	2	< 5	139	44	2	1.9	< 0.2	9	< 0.5	1.4	74.9	160	19.8	75.4	16.9	2.43	17.0	3.0	18.9	3.9	11.9
16TM0862 Dup	70	24	2	< 5	143	49	3	2.0	< 0.2	9	< 0.5	1.5	75.1	162	19.8	77.0	17.4	2.56	17.2	3.2	19.2	4.0	12.2
Method Blank	< 30	< 1	< 1	< 5	< 2	< 1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	< 30	< 1	< 1	< 5	< 2	< 1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.1	0.01	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas											
NIST 694 Cert											
DNC-1 Meas		2.0						7			
DNC-1 Cert		2.0						6.3			
GBW 07113 Meas											
GBW 07113 Cert											
LKSD-3 Meas		2.9	0.43	4.5	0.7	< 1				10.7	4.6
LKSD-3 Cert		2.70	0.400	4.80	0.700	2.00				11.4	4.60
TDB-1 Meas		3.4									
TDB-1 Cert		3.4									
TDB-1 Meas		3.4									
TDB-1 Cert		3.4									
W-2a Meas		2.1	0.33	2.3	0.5	< 1	< 0.1		< 0.4	2.3	0.5
W-2a Cert		2.10	0.330	2.60	0.500	0.300	0.200		0.0300	2.40	0.530
SY-4 Meas											
SY-4 Cert											
CTA-AC-1 Meas		10.9	1.13		2.5					23.3	4.2
CTA-AC-1 Cert		11.4	1.08		2.65					21.8	4.4
BIR-1a Meas		1.6	0.23	0.6							
BIR-1a Cert		1.7	0.3	0.60							
NCS DC86312 Meas	13.6	84.9	12.3							24.6	
NCS DC86312 Cert	15.1	87.79	11.96							23.6	
NCS DC70009 (GBW07241) Meas	2.30	16.0	2.42			2040	2.0			28.8	
NCS DC70009 (GBW07241) Cert	2.2	14.9	2.4			2200	1.8			28.3	
OREAS 100a (Fusion) Meas	2.42	15.9	2.37							53.0	143
OREAS 100a (Fusion) Cert	2.31	14.9	2.26							51.6	135
OREAS 101a (Fusion) Meas	2.90	18.1	2.55							35.4	424
OREAS 101a (Fusion) Cert	2.90	17.5	2.66							36.6	422
OREAS 101b (Fusion) Meas	2.80	18.1	2.70							37.3	400
OREAS 101b (Fusion) Cert	2.66	17.6	2.58							37.1	396
OREAS 101b (Fusion) Meas	2.80	18.1	2.70							37.3	400
OREAS 101b	2.66	17.6	2.58							37.1	396

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.1	0.01	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
(Fusion) Cert											
JR-1 Meas	0.67	4.8	0.71	4.1	1.8	2	1.5	19	0.6	25.9	9.2
JR-1 Cert	0.67	4.55	0.71	4.51	1.86	1.59	1.56	19.3	0.56	26.7	8.88
16TM0235 Orig	0.41	2.9	0.47	2.5	1.0	< 1	0.5	8	< 0.4	9.1	2.5
16TM0235 Dup	0.39	2.7	0.45	2.4	0.9	< 1	0.5	8	< 0.4	9.0	2.5
16TM0793A Orig	1.13	7.7	1.15	14.4	3.9	< 1	1.0	41	0.6	20.7	3.5
16TM0793A Dup	1.09	7.3	1.12	14.0	3.9	< 1	1.2	42	0.6	20.8	3.5
16TM0862 Orig	1.81	12.0	1.78	17.5	4.1	1	0.8	19	< 0.4	18.1	5.0
16TM0862 Dup	1.79	11.7	1.86	18.5	4.2	1	0.7	20	< 0.4	18.6	5.1
Method Blank	< 0.05	< 0.1	< 0.01	< 0.2	< 0.1	< 1	< 0.1	< 5	< 0.4	< 0.1	< 0.1
Method Blank	< 0.05	< 0.1	< 0.01	< 0.2	< 0.1	< 1	< 0.1	< 5	< 0.4	< 0.1	< 0.1

Quality Analysis ... *Innovative Technologies*

Date Submitted: 09-Aug-17
Invoice No.: A17-08387
Invoice Date: 01-Sep-17
Your Reference: 4104280775

Nova Scotia Department of Natural Resources
1701 Hollis Street
P.O. Box 698
Halifax NS B3J 2T9
Canada

ATTN: Trevor MacHattie

CERTIFICATE OF ANALYSIS

15 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A1 Au - Fire Assay INAA

Code 1EPI/MS INAA(INAAGEO)/Aqua Regia ICP(AQUAGEO)/Aqua Regia Digestion ICP/MS

Code 1G-Hg CV Hg-Cold Vapour (Hg Analyzer)

REPORT **A17-08387**

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:

Elitsa Hrischeva, Ph.D.
Quality Control

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

Analyte Symbol	Au	Mass	Au	Ag	As	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Ba	Bi	Ca	Cs	Fe	Ga	Ge	Hg	K	Na	Sb
Unit Symbol	ppb	g	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	%	ppm	ppm	ppm	%	%	ppm
Lower Limit	1		5	0.2	2	0.5	1	2	2	1	2	1	100	0.10	0.01	0.05	0.02	1	0.1	1	0.01	0.01	0.2
Method Code	FA-INAA	FA-INAA	INAA	MULT INAA / AR-ICP	INAA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	MULT INAA / AR-ICP	AR-ICP	MULT INAA / AR-ICP	MULT INAA / AR-ICP	AR-MS	AR-ICP	MULT INAA / AR-ICP-MS	INAA	AR-MS	AR-MS	INAA	AR-ICP	INAA	INAA
16TM0095B	52	5	45	1.6	3310	6.0	24	228	< 2	10	14	31	< 100	0.35	0.47	2.97	8.45	9	< 0.1	1	0.32	0.10	80.5
16TM0096A	109	30	163	0.7	4010	< 0.5	19	338	< 2	22	< 2	59	< 100	0.22	0.77	2.80	8.24	10	< 0.1	< 1	0.19	0.07	51.4
16TM0096B	107	5	154	1.2	4720	< 0.5	24	134	< 2	22	< 2	26	< 100	< 0.10	0.82	1.16	7.91	5	< 0.1	< 1	0.16	0.07	49.8
16TM0096C	55	5	55	0.6	4560	< 0.5	21	510	< 2	30	< 2	60	< 100	< 0.10	0.64	0.94	7.48	13	< 0.1	< 1	0.15	0.07	57.2
16TM0098B	6	5	10	0.5	889	< 0.5	27	554	< 2	30	< 2	74	< 100	0.16	0.74	3.38	7.60	17	< 0.1	< 1	0.39	0.06	57.6
[redacted]																							
17TM0255A	< 1	5	< 5	0.3	38	< 0.5	10	610	59	2	52	47	< 100	0.56	0.02	1.11	5.46	23	< 0.1	< 1	0.16	0.20	4.4
17TM0255B	< 1	5	7	< 0.2	158	< 0.5	1	600	2	< 1	16	70	< 100	< 0.10	< 0.01	1.05	5.20	13	< 0.1	< 1	0.19	0.18	5.1
17TM0256	< 1	5	< 5	< 0.2	23	< 0.5	2	52	< 2	< 1	3	4	< 100	0.14	< 0.01	1.41	0.77	3	< 0.1	< 1	0.28	0.08	3.4
17TM0260A	< 1	6	10	< 0.2	100	1.1	24	344	8	< 1	73	261	< 100	< 0.10	0.56	3.69	3.63	1	< 0.1	< 1	0.21	1.43	2.5
17TM0260B	23	5	13	< 0.2	94	1.0	26	305	7	1	79	214	< 100	< 0.10	0.56	3.66	3.38	2	< 0.1	< 1	0.21	1.28	2.6
17TM0272A	7	5	< 5	0.4	127	1.7	6	65	11	4	51	187	< 100	< 0.10	0.07	0.26	1.25	2	< 0.1	< 1	0.17	0.80	4.4
17TM0272B	< 1	5	< 5	0.3	44	< 0.5	13	262	2	7	52	51	< 100	0.11	0.03	2.68	3.73	4	< 0.1	< 1	0.32	0.21	2.3

Analyte Symbol	S	Se	Te	Tl	W	Mass	Hg
Unit Symbol	%	ppm	ppm	ppm	ppm	g	ppb
Lower Limit	0.001	0.1	0.1	0.1	4		5
Method Code	AR-ICP	MULT INAA / AR-ICP-MS	AR-MS	AR-MS	INAA	INAA	1G
16TM0095B	3.763	1.6	< 0.1	0.9	91	31.6	666
16TM0096A	4.664	2.1	< 0.1	0.7	42	30.4	53
16TM0096B	5.130	2.5	< 0.1	0.8	34	30.2	69
16TM0096C	4.683	1.8	< 0.1	0.9	37	29.2	59
16TM0098B	3.219	0.2	< 0.1	1.1	23	32.8	261
[redacted]							
17TM0255A	0.420	< 0.1	0.1	0.1	< 4	29.3	6
17TM0255B	0.269	< 0.1	< 0.1	0.1	< 4	29.4	10
17TM0256	0.002	< 0.1	< 0.1	< 0.1	< 4	29.2	< 5
17TM0260A	3.791	0.1	< 0.1	0.3	< 4	27.8	8
17TM0260B	3.474	< 0.1	< 0.1	0.3	< 4	29.6	7
17TM0272A	0.704	< 0.1	< 0.1	0.5	< 4	30.5	542
17TM0272B	2.434	< 0.1	< 0.1	0.3	< 4	24.9	44

Analyte Symbol	Au	Mass	Au	Ag	Ag	As	Cd	Cu	Mn	Mo	Ni	Ni	Pb	Zn	Zn	Ba	Ba	Bi	Ca	Cs	Cs	Fe	Ga
Unit Symbol	ppb	g	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
Lower Limit	1		5	0.2	5	2	0.5	1	2	2	1	50	2	1	50	1	100	0.10	0.01	0.05	2	0.02	1
Method Code	FA-INAA	FA-INAA	INAA	AR-ICP	INAA	INAA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	INAA	AR-ICP	AR-ICP	INAA	AR-ICP	INAA	AR-MS	AR-ICP	AR-MS	INAA	INAA	AR-MS
GXR-1 Meas				28.0			1.9	1140	795	14	29		630	721		187		> 1000	0.76	2.55			3
GXR-1 Cert				31.0			3.30	1110	852	18.0	41.0		730	760		750		1380	0.960	3.00			13.8
GXR-1 Meas				27.3			1.9	1120	795	14	30		621	709		207			0.75				
GXR-1 Cert				31.0			3.30	1110	852	18.0	41.0		730	760		750			0.960				
GXR-4 Meas				3.4			< 0.5	6430	140	304	38		41	70		23			0.86				
GXR-4 Cert				4.0			0.860	6520	155	310	42.0		52.0	73.0		1640			1.01				
GXR-4 Meas				3.3			< 0.5	6410	140	300	36		40	68		22			0.85				
GXR-4 Cert				4.0			0.860	6520	155	310	42.0		52.0	73.0		1640			1.01				
GXR-6 Meas				0.3			< 0.5	69	1080	< 2	21		94	128		> 500		0.16	0.14	3.01			8
GXR-6 Cert				1.30			1.00	66.0	1010	2.40	27.0		101	118		1300		0.290	0.180	4.20			35.0
GXR-6 Meas				0.3			< 0.5	68	1050	< 2	21		92	124		> 500			0.14				
GXR-6 Cert				1.30			1.00	66.0	1010	2.40	27.0		101	118		1300			0.180				
OREAS 45d (Aqua Regia) Meas																		0.25					16
OREAS 45d (Aqua Regia) Cert																		0.30					17.9
SdAR-M2 (U.S.G.S.) Meas																		1.05		0.74			3
SdAR-M2 (U.S.G.S.) Cert																		1.05		1.82			17.6
DMMAS 120 Meas			719			1790											1200					3.65	
DMMAS 120 Cert			727			1790											1270					3.54	
OREAS 223 (Fire Assay) Meas	1760																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 218 Meas	510																						
OREAS 218 Cert	525																						
17TM0255B Orig	< 1	5																					
17TM0255B Dup	< 1	5																					
17TM0272B Orig				0.3			< 0.5	12	260	2	7		52	51		13		0.10	0.03	2.59			4
17TM0272B Dup				0.3			< 0.5	13	263	2	7		52	51		14		0.11	0.03	2.78			4
Method Blank	< 1	30																					
Method Blank				< 0.2			< 0.5	< 1	< 2	< 2	< 1		< 2	< 1		9			< 0.01				
Method Blank				< 0.2			< 0.5	< 1	< 2	< 2	< 1		< 2	< 1		8			< 0.01				
Method Blank				< 0.2			< 0.5	4	< 2	< 2	< 1		< 2	< 1		8		< 0.10	< 0.01	< 0.05			< 1
Method Blank	< 1	30																					
Method Blank			< 5		< 5	< 2						< 50			< 50		< 100				< 2	< 0.02	
Method Blank																							

Analyte Symbol	Ge	Hg	K	Na	Sb	S	Se	Se	Te	Tl	W	Mass	Hg
Unit Symbol	ppm	ppm	%	%	ppm	%	ppm	ppm	ppm	ppm	ppm	g	ppb
Lower Limit	0.1	1	0.01	0.01	0.2	0.001	0.1	3	0.1	0.1	4		5
Method Code	AR-MS	INAA	AR-ICP	INAA	INAA	AR-ICP	AR-MS	INAA	AR-MS	AR-MS	INAA	INAA	1G
GXR-1 Meas			0.03			0.187	14.6		14.2	0.4			3980
GXR-1 Cert			0.050			0.257	16.6		13.0	0.390			3900
GXR-1 Meas			0.03			0.183							
GXR-1 Cert			0.050			0.257							
GXR-4 Meas			1.72			1.660							109
GXR-4 Cert			4.01			1.77							110
GXR-4 Meas			1.72			1.628							
GXR-4 Cert			4.01			1.77							
GXR-6 Meas			1.17			0.014	< 0.1		< 0.1	1.9			68
GXR-6 Cert			1.87			0.0160	0.940		0.0180	2.20			68.0
GXR-6 Meas			1.16			0.013							
GXR-6 Cert			1.87			0.0160							
OREAS 45d (Aqua Regia) Meas													
OREAS 45d (Aqua Regia) Cert													
SdAR-M2 (U.S.G.S.) Meas													1350
SdAR-M2 (U.S.G.S.) Cert													1440.00
DMMAS 120 Meas				2.02	6.1								
DMMAS 120 Cert				2.16	7.30								
OREAS 223 (Fire Assay) Meas													
OREAS 223 (Fire Assay) Cert													
OREAS 218 Meas													
OREAS 218 Cert													
17TM0255B Orig													
17TM0255B Dup													
17TM0272B Orig	< 0.1		0.32			2.406	< 0.1		< 0.1	0.2			43
17TM0272B Dup	< 0.1		0.32			2.462	< 0.1		< 0.1	0.3			44
Method Blank													
Method Blank			< 0.01			< 0.001							
Method Blank			< 0.01			< 0.001							
Method Blank	< 0.1		< 0.01			< 0.001	< 0.1		< 0.1	< 0.1			
Method Blank													
Method Blank		< 1		< 0.01	< 0.2			< 3			< 4	30.0	
Method Blank													< 5

Quality Analysis ... *Innovative Technologies*

Date Submitted: 12-Oct-17
Invoice No.: A17-11275
Invoice Date: 30-Oct-17
Your Reference:

Nova Scotia Department of Natural Resources
1701 Hollis St
Halifax Nova Scotia B3J 2T9
Canada

ATTN: Geoff Baldwin

CERTIFICATE OF ANALYSIS

58 Pulp samples were submitted for analysis.

The following analytical package(s) were requested: Code 1A1 Au - Fire Assay INAA

Code 1G-Hg CV Hg-Cold Vapour (Hg Analyzer)

REPORT **A17-11275**

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 Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Mass	Hg
Unit Symbol	ppb	g	ppb
Lower Limit	1		5
Method Code	FA-INAA	FA-INAA	1G
15GB0005	2	30	18
15GB0007	1	30	37
15GB0065	13	30	40
15GB0087	1	30	< 5
15GB0094A	< 1	30	15
15GB0096	4	20	11
15GB0097A	< 1	31	< 5
15GB0099	< 1	31	< 5
15GB0101A	2	30	8
15GB0101D	2	31	6
15GB0101E	< 1	30	6
15GB0102	20	30	144
15GB0103A	30	11	1600
15GB0103B	7	30	389
15GB0152	3	30	25
15GB0157	2	30	11
15GB0158	< 1	30	90
15GB0159A	2	31	11
15GB0173	< 1	31	23
15GB0174A	< 1	30	23
15GB0174B	< 1	31	7
15GB0175	2	30	35
15GB0176	< 1	31	7
15GB0177	< 1	30	11
15GB0180	< 1	31	98
15GB0295	1	31	24
15GB0301	< 1	31	58
15GB0302	2	31	11
15GB0316	1	30	12
15GB0317	< 1	30	5
15GB0318	< 1	30	< 5
15GB0319A	5	31	11
15GB0319B	5	31	6
15GB0320	8	30	12
15GB0321	< 1	30	9
15GB0348	7	30	18
15GB0349	< 1	30	< 5
15GB0351	< 1	30	7
15GB0354	3	30	46
15GB0355	< 1	30	13
15GB0356	2	30	227

Analyte Symbol	Au	Mass	Hg
Unit Symbol	ppb	g	ppb
Lower Limit	1		5
Method Code	FA-INAA	FA-INAA	1G
15GB0368	4	31	< 5
15GB0369A	< 1	30	12
15GB0369B	< 1	30	< 5
15GB0371	< 1	31	26
15GB0372	< 1	30	29
15GB0373	< 1	30	15
11TM0104A			721
11TM0104B			1040
11TM0104C			1180
11TM0104D			1170
11TM0233B			41
11TM0336A			73
11TM0336B			30
11TM0441A			1810
11TM0441B			687
11TM0441E			541
11TM0441F			370

Analyte Symbol	Au	Mass	Hg
Unit Symbol	ppb	g	ppb
Lower Limit	1		5
Method Code	FA-INAA	FA-INAA	1G
GXR-1 Meas			3880
GXR-1 Cert			3900
GXR-4 Meas			101
GXR-4 Cert			110
GXR-6 Meas			67
GXR-6 Cert			68.0
OXN117 Meas	7310		
OXN117 Cert	7679.000		
SdAR-M2 (U.S.G.S.) Meas			1360
SdAR-M2 (U.S.G.S.) Cert			1440.00
OREAS 214 Meas	2880		
OREAS 214 Cert	3030		
OREAS 218 Meas	506		
OREAS 218 Cert	531		
15GB0087 Orig			< 5
15GB0087 Dup			< 5
15GB0094A Orig	< 1	30	
15GB0094A Dup	4	31	
15GB0159A Orig			11
15GB0159A Dup			11
15GB0317 Orig	< 1	30	
15GB0317 Dup	< 1	30	
15GB0318 Orig			< 5
15GB0318 Dup			< 5
15GB0320 Orig	7	30	
15GB0320 Dup	8	30	
15GB0356 Orig	3	30	
15GB0356 Dup	1	31	
15GB0371 Orig			25
15GB0371 Dup			26
15GB0373 Orig	< 1	30	
15GB0373 Dup	< 1	30	
11TM0441F Orig			374
11TM0441F Dup			366
Method Blank			< 5
Method Blank			< 5
Method Blank	< 1	30	
Method Blank	< 1	30	
Method Blank	< 1	30	

Analyte Symbol	Au	Mass	Hg
Unit Symbol	ppb	g	ppb
Lower Limit	1		5
Method Code	FA-INAA	FA-INAA	1G
Method Blank	< 1	30	

Appendix B. Portable X-ray Fluorescence Evaluation

Refer to the accompanying Microsoft Excel file “OFR_ME_2018-004_Appendix_B.xlsx”.