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RAPIER GOLD INC.

PEN GOLD PROJECT

PROSPECTING REPORT

PENHORWOOD, REEVES and KENOGAMING TOWNSHIPS, ONTARIO

Report prepared by: Pat Pope, P. Geo.
Timmins, Ontario

Date: January 18, 2017

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1. SUMMARY OF PROGRAM

Between July 30th and November 19th of 2016, Rapier Gold Inc. (Rapier Gold) carried out detailed geological mapping, prospecting, grab sampling and channel sampling over the central part of the Pen Gold Project. This prospecting report presents the results of the prospecting and grab sampling portion of the program and was prepared primarily to fulfill assessment work requirements on the property.

2. PROJECT LOCATION AND ACCESS

The Pen Gold Project is located in Penhorwood, Reeves, Kenogaming, and Keith Townships in northeastern Ontario, approximately 70 km west of the city of Timmins (Figure 1). Access to the project is via Ontario Provincial Highway 101. A number of gravel roads run north and south from this highway and provide good access to most of the property. The Nat River, navigable by small boat during periods of high water, was used to access a portion of the central part of the property.

3. PROJECT DESCRIPTION

The Pen Gold Project consists of 37 patented mining claims (Table 1), 15 leased mining claims (Table 2), 3 mining licences of occupation (Table 3), and 106 unpatented staked mining claims totalling 1157 claim units (Table 4), which together encompass an area of 19393 hectares. All except two of the mining claims (4253023 and 4253030) are contiguous (Figure 1).

Rapier Gold holds the rights to all non-talc minerals on the patented and leased mining claims and mining licenses of occupation held by Imerys Talc Canada Inc. (Imerys) through a sub-lease.

Rapier Gold is the recorded holder of 103 of the 106 unpatented staked mining claims. Frederick John Ross, Garry Frederick Windsor, and Pierre C Robert have a combined 100% interest in two staked mining claims (4248298 and 4248299), referred to in this report as the Pen Gold East claims. Rapier Gold holds an option to acquire the gold rights on these two claims subject to certain terms. Larry Noel Gervais has a 100% interest in one staked mining claim (4240115), referred to in this report as the Reeves property. In August of 2014, Rapier Gold entered into an option agreement with Larry Gervais on this claim.

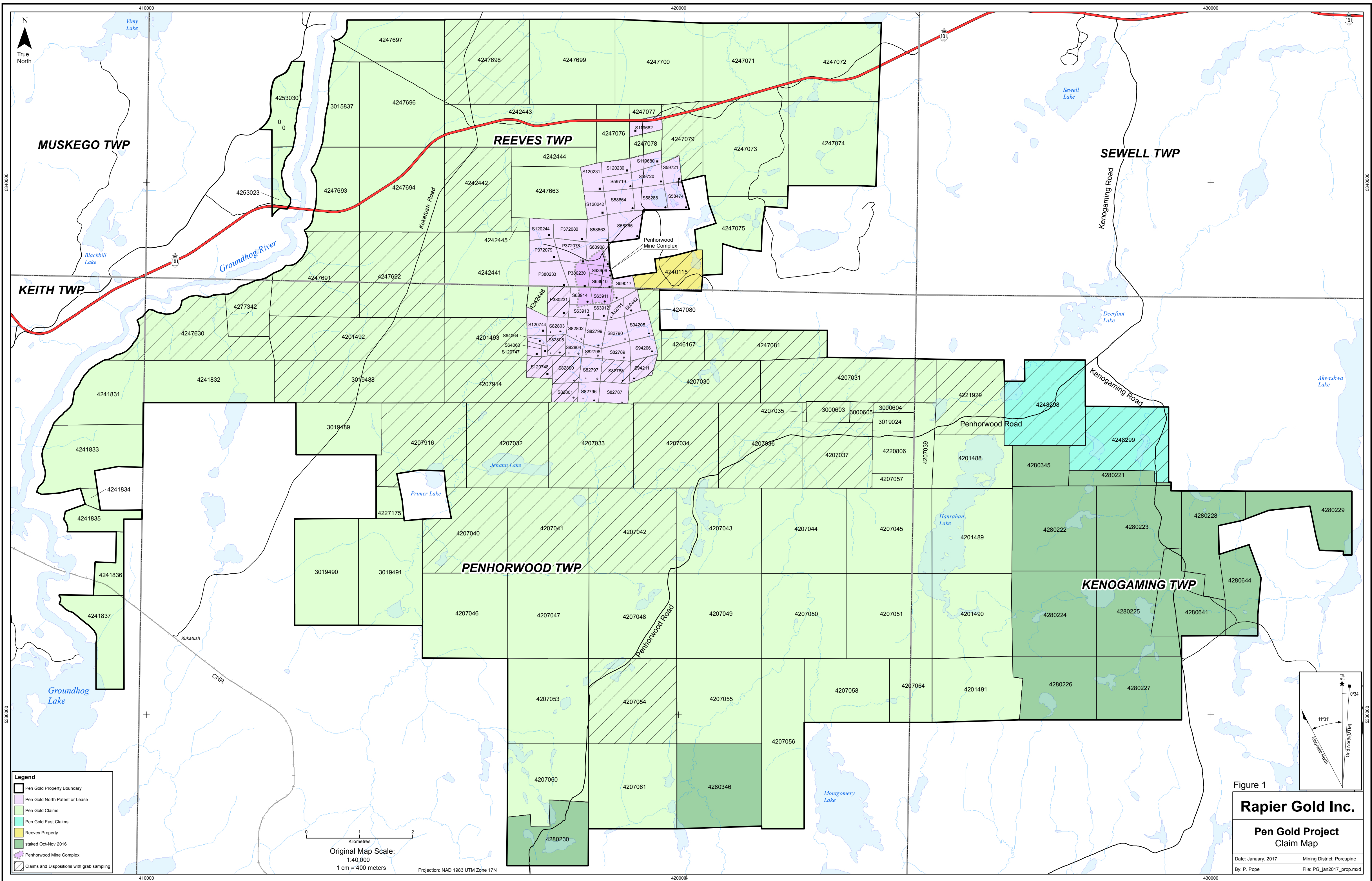


Table 1. List of Patented Mining Claims

Township	Patent	Patentee	Parcel Number	Land Titles PIN	Hectares
Reeves	S.58288	IMERYYS TALC CANADA INC.	15602 SWS	73017-0007	27.587
Reeves	S.58474	IMERYYS TALC CANADA INC.	15589 SWS	73017-0025	20.170
Reeves	S.58863	IMERYYS TALC CANADA INC.	15611 SWS	73017-0033	19.567
Reeves	S.58864	IMERYYS TALC CANADA INC.	15603 SWS	73017-0016	22.278
Reeves	S.58865	IMERYYS TALC CANADA INC.	15591 SWS	73017-0051	32.205
Penhorwood	S.59017	IMERYYS TALC CANADA INC.	15582 SWS	73017-0018	17.458
Reeves	S.59719	IMERYYS TALC CANADA INC.	15631 SWS	73017-0049	15.228
Reeves	S.59720	IMERYYS TALC CANADA INC.	15578 SWS	73017-0014	20.505
Reeves	S.59721	IMERYYS TALC CANADA INC.	15577 SWS	73017-0013	15.273
Penhorwood	S.60442	IMERYYS TALC CANADA INC.	15607 SWS	73042-0025	11.505
Reeves	S.63908	IMERYYS TALC CANADA INC.	15617 SWS	73017-0039	18.308
Reeves	S.63909	IMERYYS TALC CANADA INC.	15618 SWS	73017-0040	8.502
Reeves	S.63910	IMERYYS TALC CANADA INC.	15632 SWS	73017-0050	9.340
Penhorwood	S.63911	IMERYYS TALC CANADA INC.	15608 SWS	73042-0050	13.055
Penhorwood	S.63912	IMERYYS TALC CANADA INC.	15633 SWS	73042-0024	8.668
Penhorwood	S.63913	IMERYYS TALC CANADA INC.	15609 SWS	73042-0051	11.489
Penhorwood	S.63914	IMERYYS TALC CANADA INC.	15653 SWS	73042-0022	14.111
Penhorwood	S.64063	IMERYYS TALC CANADA INC.	15610 SWS	73042-0026	2.282
Penhorwood	S.64064	IMERYYS TALC CANADA INC.	15654 SWS	73042-0023	5.220
Penhorwood	S.82787	IMERYYS TALC CANADA INC.	18626 SWS	73042-0018	20.295
Penhorwood	S.82788	IMERYYS TALC CANADA INC.	18627 SWS	73042-0042	22.310
Penhorwood	S.82789	IMERYYS TALC CANADA INC.	18628 SWS	73042-0043	16.374
Penhorwood	S.82790	IMERYYS TALC CANADA INC.	18629 SWS	73042-0044	20.542
Penhorwood	S.82791	IMERYYS TALC CANADA INC.	18630 SWS	73042-0045	10.028
Penhorwood	S.82796	IMERYYS TALC CANADA INC.	18633 SWS	73042-0046	14.637
Penhorwood	S.82797	IMERYYS TALC CANADA INC.	18634 SWS	73042-0047	17.401
Penhorwood	S.82798	IMERYYS TALC CANADA INC.	18635 SWS	73042-0048	8.086
Penhorwood	S.82799	IMERYYS TALC CANADA INC.	18636 SWS	73042-0049	17.717
Penhorwood	S.82800	IMERYYS TALC CANADA INC.	18645 SWS	73042-0016	27.033
Penhorwood	S.82801	IMERYYS TALC CANADA INC.	18646 SWS	73042-0039	16.548
Penhorwood	S.82802	IMERYYS TALC CANADA INC.	18637 SWS	73042-0019	14.484
Penhorwood	S.82803	IMERYYS TALC CANADA INC.	18647 SWS	73042-0040	12.687
Penhorwood	S.82804	IMERYYS TALC CANADA INC.	18648 SWS	73042-0041	11.060
Penhorwood	S.82805	IMERYYS TALC CANADA INC.	18649 SWS	73042-0017	13.274
Penhorwood	S.94205	IMERYYS TALC CANADA INC.	18655 SWS	73042-0014	21.351
Penhorwood	S.94206	IMERYYS TALC CANADA INC.	18656 SWS	73042-0038	18.126
Penhorwood	S.94211	IMERYYS TALC CANADA INC.	18657 SWS	73042-0015	17.956
TOTAL					592.660

Table 2. List of Leased Mining Claims

Township	Parcel Number	Land Titles PIN	Lease	Lease Number	Lessee	Hectares
Reeves	1509 LSWS	73017-0006	P372078	107432	IMERYS TALC CANADA INC.	22.076
Reeves	1509 LSWS	73017-0006	P372079	107432	IMERYS TALC CANADA INC.	21.525
Reeves	1509 LSWS	73017-0006	P372080	107432	IMERYS TALC CANADA INC.	23.286
Reeves	1509 LSWS	73017-0006	P380230	107432	IMERYS TALC CANADA INC.	20.667
Penhorwood	1509 LSWS	73017-0006	P380231	107432	IMERYS TALC CANADA INC.	23.617
Reeves	1509 LSWS	73017-0006	P380233	107432	IMERYS TALC CANADA INC.	31.549
Penhorwood	1011 LSWS	73042-0001	S120744	106744	IMERYS TALC CANADA INC.	15.969
Penhorwood	1011 LSWS	73042-0001	S120747	106744	IMERYS TALC CANADA INC.	6.503
Penhorwood	1011 LSWS	73042-0001	S120748	106744	IMERYS TALC CANADA INC.	18.652
Reeves	1013 LSWS	73017-0002	S119680	106742	IMERYS TALC CANADA INC.	15.593
Reeves	1013 LSWS	73017-0002	S119682	106742	IMERYS TALC CANADA INC.	17.858
Reeves	1014 LSWS	73017-0003	S120230	106738	IMERYS TALC CANADA INC.	14.617
Reeves	1014 LSWS	73017-0003	S120231	106738	IMERYS TALC CANADA INC.	18.316
Reeves	1014 LSWS	73017-0003	S120242	106738	IMERYS TALC CANADA INC.	19.032
Penhorwood	1029 LSWS	73017-0004	S.120244	106743	IMERYS TALC CANADA INC.	16.596
TOTAL						285.856

Table 3. List of Mining License of Occupation

Township	Mining Licence of Occupation	Licensee	Hectares
Penhorwood	MLO 14919	IMERYS TALC CANADA INC.	0.158
Penhorwood	MLO 14918	IMERYS TALC CANADA INC.	1.744
Penhorwood	MLO 12701	IMERYS TALC CANADA INC.	0.348
TOTAL			2.250

Table 4. List of Unpatented Mining Claims

Claim Number	Recorded Holder	Township	Record Date	Claim Units	Hectares
4247071	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247072	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247693	Rapier Gold Inc.	REEVES	30-Mar-09	9	144
4247694	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247696	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247697	Rapier Gold Inc.	REEVES	30-Mar-09	9	144
4247698	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247699	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247700	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
3015837	Rapier Gold Inc.	REEVES	04-Aug-09	5	80
4242441	Rapier Gold Inc.	REEVES	15-Oct-08	16	256
4242442	Rapier Gold Inc.	REEVES	15-Oct-08	12	192
4242443	Rapier Gold Inc.	REEVES	15-Oct-08	14	224
4242444	Rapier Gold Inc.	REEVES	15-Oct-08	4	64
4242445	Rapier Gold Inc.	REEVES	15-Oct-08	1	16
4242446	Rapier Gold Inc.	PENHORWOOD	15-Oct-08	1	16
4247663	Rapier Gold Inc.	REEVES	03-Mar-09	7	112
4247073	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247075	Rapier Gold Inc.	REEVES	30-Mar-09	10	160
4247076	Rapier Gold Inc.	REEVES	30-Mar-09	5	80
4247077	Rapier Gold Inc.	REEVES	30-Mar-09	1	16
4247078	Rapier Gold Inc.	REEVES	30-Mar-09	2	32
4247079	Rapier Gold Inc.	REEVES	30-Mar-09	6	96
4247080	Rapier Gold Inc.	PENHORWOOD	30-Mar-09	3	48
4247691	Rapier Gold Inc.	REEVES	30-Mar-09	12	192
4247692	Rapier Gold Inc.	REEVES	30-Mar-09	16	256
4247074	Rapier Gold Inc.	REEVES	30-Mar-09	15	240
4253023	Rapier Gold Inc.	REEVES	17-Mar-10	2	32
4253030	Rapier Gold Inc.	REEVES	17-Mar-10	4	64
4247081	Rapier Gold Inc.	PENHORWOOD	30-Mar-09	9	144
3000605	Rapier Gold Inc.	PENHORWOOD	02-Jan-04	1	16
4207046	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207047	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207054	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207055	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207060	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	14	224
4207061	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4201492	Rapier Gold Inc.	PENHORWOOD	23-Mar-06	16	256
4201493	Rapier Gold Inc.	PENHORWOOD	23-Mar-06	8	128
4201488	Rapier Gold Inc.	KENOGAMING	05-Apr-06	9	144
4201489	Rapier Gold Inc.	KENOGAMING	05-Apr-06	16	256
4201490	Rapier Gold Inc.	KENOGAMING	05-Apr-06	16	256
4201491	Rapier Gold Inc.	KENOGAMING	05-Apr-06	12	192
3019024	Rapier Gold Inc.	PENHORWOOD	24-Apr-06	2	32
4220806	Rapier Gold Inc.	PENHORWOOD	30-Apr-07	4	64
4207030	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	12	192
4207031	Rapier Gold Inc.	KENOGAMING	07-Jun-05	16	256
4207032	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207033	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207034	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207035	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	1	16
4207036	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207037	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	10	160
4207039	Rapier Gold Inc.	KENOGAMING	07-Jun-05	4	64
4207040	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	15	240
4207041	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256

Table 4. List of Unpatented Mining Claims

Claim Number	Recorded Holder	Township	Record Date	Claim Units	Hectares
4207042	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207043	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207044	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207045	Rapier Gold Inc.	KENOGAMING	07-Jun-05	16	256
4207048	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207049	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207050	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207051	Rapier Gold Inc.	KENOGAMING	07-Jun-05	16	256
4207053	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207056	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	16	256
4207057	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	1	16
4207058	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	12	192
4207064	Rapier Gold Inc.	KENOGAMING	07-Jun-05	6	96
4207914	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	9	144
4207916	Rapier Gold Inc.	PENHORWOOD	07-Jun-05	15	240
4241831	Rapier Gold Inc.	KEITH	11-Jul-08	11	176
4241832	Rapier Gold Inc.	PENHORWOOD	11-Jul-08	12	192
4241833	Rapier Gold Inc.	KEITH	11-Jul-08	12	192
4241834	Rapier Gold Inc.	KEITH	11-Jul-08	1	16
4241835	Rapier Gold Inc.	KEITH	11-Jul-08	5	80
4241836	Rapier Gold Inc.	KEITH	11-Jul-08	3	48
4241837	Rapier Gold Inc.	KEITH	11-Jul-08	8	128
4221929	Rapier Gold Inc.	KENOGAMING	03-Aug-07	12	192
3000603	Rapier Gold Inc.	PENHORWOOD	15-Oct-03	2	32
3000604	Rapier Gold Inc.	PENHORWOOD	15-Oct-03	2	32
4246167	Rapier Gold Inc.	PENHORWOOD	14-Nov-08	3	48
3019489	Rapier Gold Inc.	PENHORWOOD	19-Nov-07	10	160
3019491	Rapier Gold Inc.	PENHORWOOD	19-Nov-07	15	240
4227175	Rapier Gold Inc.	PENHORWOOD	19-Nov-07	3	48
3019488	Rapier Gold Inc.	PENHORWOOD	18-Dec-07	16	256
3019490	Rapier Gold Inc.	PENHORWOOD	18-Dec-07	15	240
4247630	Rapier Gold Inc.	PENHORWOOD	08-Jul-13	16	256
4277342	Rapier Gold Inc.	REEVES	13-Apr-15	5	80
4280345	Rapier Gold Inc.	KENOGAMING	17-Oct-16	6	96
4280346	Rapier Gold Inc.	PENHORWOOD	04-Nov-16	16	256
4280221	Rapier Gold Inc.	KENOGAMING	04-Nov-16	5	80
4280222	Rapier Gold Inc.	KENOGAMING	04-Nov-16	16	256
4280223	Rapier Gold Inc.	KENOGAMING	04-Nov-16	15	240
4280224	Rapier Gold Inc.	KENOGAMING	04-Nov-16	16	256
4280225	Rapier Gold Inc.	KENOGAMING	04-Nov-16	13	208
4280226	Rapier Gold Inc.	KENOGAMING	04-Nov-16	12	192
4280227	Rapier Gold Inc.	KENOGAMING	04-Nov-16	12	192
4280228	Rapier Gold Inc.	KENOGAMING	04-Nov-16	11	176
4280229	Rapier Gold Inc.	KENOGAMING	04-Nov-16	10	160
4280230	Rapier Gold Inc.	PENHORWOOD	04-Nov-16	10	160
4280641	Rapier Gold Inc.	KENOGAMING	14-Nov-16	12	192
4280644	Rapier Gold Inc.	KENOGAMING	14-Nov-16	8	128
4248298	Ross, Frederick John Windsor Gary Frederick Robert, Pierre C	KENOGAMING	17-Feb-11	15	240
4248299	Ross, Frederick John Windsor Gary Frederick Robert, Pierre C	KENOGAMING	17-Feb-11	14	224
4240115	Gervais, Larry Noel	REEVES	24-Jun-08	5	80

4. PROJECT HISTORY AND PREVIOUS EXPLORATION

Johns-Manville Company Limited (Johns-Manville) identified, developed and operated a chrysotile asbestos mine and plant on what are now the patented and leased mining claims. They first became interested in the serpentinite bodies in 1951. During their term of exploration and development from the 1950's through the 1970's, Johns-Manville evaluated numerous serpentinite bodies in the region to determine their potential for asbestos mineralization. In 1973 the talc carbonate mineralization of the Penhorwood ore body was defined as part of one of their programs.

Johns-Manville operated the Penhorwood Talc Mine and flotation plant from 1974 to 1976. In 1976 Johns-Manville made the decision to cease operations at both the Penhorwood mine and flotation plant operations and the Timmins mill. The operations were inactive until 1978 when Steetley PLC purchased both operations and resumed production. Steetley operated the mine, plant and mill until 1988 when Luzenac Inc., in partnership with its parent RTZ (now Rio Tinto) purchased the operations as part of their North American expansion. The Canadian operations were operated under separate management from the Luzenac operations in the United States until 1988 when the corporate management in Denver became responsible for all North American operations. In 2006 the Luzenac North America operations were merged with the Borax Americas operations to form part of a new global industrial minerals company within Rio Tinto, called Rio Tinto Minerals (RTM). In 2011, Imerys Talc Canada Inc. (Imerys) purchased the Penhorwood mine, plant and mill from RTM.

In 2008 RTM completed 1,305 m of NQ-size diamond drilling in seven holes on the Penhorwood mine property. In addition, ten holes from the 1998 Luzenac BQ-core drill program were re-logged and re-sampled for gold (Pope et al, 2009).

In the winter of 2010, Exsics Exploration Limited carried out 225 km of line-cutting, ground magnetic and VLF-EM geophysical surveys on behalf of RTM over what is now the north central part of the Pen Gold Project (filed as an assessment report in Grant, 2010). In March of 2010, RTM completed 1,256 m of NQ-size diamond drilling in seven holes on the Penhorwood mine property (filed as an assessment report in Pope, 2011a).

A LiDAR survey was flown by Terrapoint Canada (2008) Inc. on May 31, 2010 on behalf of RTM over what is now the northern part of the Pen Gold Project. A high resolution digital satellite image (photo) of the same area was also purchased by RTM from Intrasearch, Inc. in Denver, CO.

Between June and October of 2010, RTM carried out reconnaissance geological mapping, prospecting and grab sampling over selected areas of what is now the northern part of the Pen Gold Project. The LiDAR survey was used to plan traverses and locate areas of outcrop. The cut grid was also used as a guide. A geochemical survey report presenting the gold assays, trace element and litho-geochemistry results from the grab samples was filed as an assessment report in Pope (2015b).

As part of the 2010 program, RTM also carried out detailed geological mapping, prospecting and grab sampling on the western half of unpatented staked mining claim 4247081 (filed as an assessment report in Pope, 2011b).

A total of 328 grab samples were taken from bedrock during the 2010 RTM program. Fifteen samples returned gold values greater than 50 ppb including significant assays of 4.41 g/tonne from

quartz-tourmaline veining in quartz feldspar porphyry at Kukatush Porphyry Hill and 4.83 g/tonne from quartz stringers and pyrite in ankerite and sericite altered mafic volcanic at the Westgate area.

In the late-fall of 2012, Rapier Gold carried out prospecting, grab sampling, overburden stripping and channel sampling at Kukatush Porphyry Hill, on mining claim 4247692 (filed as an assessment report in Pope, 2013a) and in the sediments located south of Kukatush Porphyry Hill, on mining claim 4201492 (filed as an assessment report in Pope, 2013b).

In the spring of 2013, Rapier Gold completed 4,359 m of NQ-size diamond drilling in thirteen holes on the Pen Gold Project. Six of the holes including, drillhole PG13-101 on claim 4247692 (Stalker, 2013a), drillhole PG13-102 on claim S58865 (Stalker, 2013b), drill holes PG13-109 and PG13-110 on claims S63908, S63909 and S63910 (Pope, 2015a) and drill holes PG13-112 and PG13-113 on claims S119680 and S59720 (Pope, 2014a) were submitted as assessment reports. In addition, four holes from the 2000 Luzenac NQ-core drill program were re-logged and re-sampled for gold.

A LiDAR survey was flown by GeoDigital International Inc. on June 14, 2013 on behalf of Rapier Gold over the southern part of the Pen Gold Project. The LiDAR survey was flown to complete coverage of the project area to assist with locating areas of outcrop for geological mapping and prospecting.

Between July and October of 2013, Rapier Gold carried out detailed geological mapping, prospecting and grab sampling on the Pen Gold Project. The work was filed for assessment as a geological survey and prospecting report in Pope (2014b). The 2013 program focussed on the northern part of the Pen Gold Project, with only limited work done on the central or southern portions and the Reeves property.

A total of 744 grab samples were taken from bedrock during the 2013 Rapier Gold program. Selected grab samples were also analyzed for trace elements and lithogeochemistry. Tim Barrett evaluated the geochemical data sets acquired by RTM and Rapier Gold between 2008 and 2013 from drill core, channel and grab samples on the Pen Gold Project (Barrett, 2013 and Barrett, 2014). Barrett classified the chemical group and magmatic affinity (tholeiitic, transitional, calc-alkaline or alkaline) for each rock sample based on the geochemistry. The classification was used to assist in the proper identification of the rock types and has greatly assisted geological interpretation on the project.

The 2013 geological mapping and prospecting program on the Pen Gold Project was successful in outlining a number of areas of encouraging lithology, structure, alteration, quartz veining and sulphide mineralization, considered highly prospective for gold mineralization, including Westgate, Eastgate, Kukatush Porphyry Hill, Nib Yellowknife showing and west of the talc mine. A total of 50 grab samples taken from the program returned anomalous gold assays greater than 50 ppb. The program was also successful in advancing the geological understanding of the project, adding to the already existing government mapping and previous exploration work.

In February 2015, Scott Hogg & Associates completed a helicopter-towed aeromagnetic gradient survey on behalf of Rapier Gold covering the northern portion of the Pen Gold Project. The airborne survey consisted of 923 line kilometers with a traverse line direction of 0 and 180 degrees and a line spacing of 75m over the Reeves Ultramafic Complex and 100m over the remainder of the area. The airborne survey was filed for assessment in Scott Hogg & Associates Ltd. (2015).

In September and October of 2015, Rapier Gold carried out geological mapping and grab sampling over the Fox Outcrop exposed during overburden stripping carried out by Imerys at the north end of the talc pit. A total of 51 grab samples were taken from bedrock with encouraging assay results up to 20.7, 13.6 and 5.95 g/tonne Au from quartz veins occurring close to the vertical projection of the New Vein intercept in hole PG13-108 (13.02 g/tonne Au over a core length of 4.3 m at a vertical depth of 150 m).

Between September and November of 2015, Rapier Gold carried out six days of detailed geological mapping, prospecting and grab sampling on parts of the central section of the Pen Gold Project. The work was filed for assessment as a geological survey and prospecting report in Gliddon (2016). A total of 15 grab samples were taken from bedrock with one anomalous gold assay greater than 50 ppb returned.

In December of 2015, six holes from the 1998 Luzenac BQ-core drill program and two holes from the 2000 Luzenac NQ-core drill program were re-logged and re-sampled for gold by Rapier Gold.

In January of 2016, Rapier Gold Inc. completed 1410 m of NQ-size diamond drilling in seven short holes in the talc mine area (Pope, 2016). The holes were designed to test for a sub-vertical geometry of the New Vein intercept in hole PG13-108 and encouraging grab sample results returned in 2015 from the Fox Outcrop.

A compilation report of the previous work on the southern part of the project area was completed by Gary Lustig for PDM Technical Services Ltd. (Lustig, 2011). Rogue (formerly Golden Chalice Resources Ltd.) completed two property wide airborne magnetic and VTEM surveys (Orta, 2005 and Orta, 2007). In 2007 there were a number of small Mobile Metal Ion (MMI) geochemical surveys completed on various small grids and one hole was drilled. In 2009, more extensive gridding was carried out, with MMI, conventional geochemistry and soil gas hydrocarbon samples analyzed. Numerous holes were drilled in the eastern part of the grid with no significant results.

In 2013, David Gliddon undertook a compilation of the previous work available in the assessment files on behalf of Rapier Gold, focussing on Reeves Township and the west half of Penhorwood Township (Gliddon, 2013). The relevant geophysical, geological, trenching and diamond drillhole plan maps were scanned and registered in ArcGIS. Excel spreadsheet files were created for the diamond drillhole collars, downhole surveys, lithology and assays. Shape files of the drillhole data were created in Target for use in ArcGIS to aid in the geological interpretation. In 2016, David Gliddon continued the compilation of the previous work in Penhorwood and Kenogaming Townships.

5. PERSONNEL

The 2016 geological mapping, prospecting, grab sampling and channel sampling program was supervised by Mary Stalker, P.Geo. of Timmins, Ontario, the Pen Gold Project manager for Rapier Gold.

Geological mapping, prospecting and grab sampling was carried out by Brian Atkinson, P. Geo. of Bright, Ontario, David Gliddon, P. Geo., Peter Harvey, P. Geo., Pat Pope, P.Geo., and Mary Stalker, P.Geo., all of Timmins, Ontario.

Prospecting and grab sampling was carried out by Dave Healey of Brandon, Manitoba, Bob Bailey, Riley Keast and Yvan Veronneau of Timmins, Ontario, and Sara Wigelsworth of Connaught, Ontario.

Geological mapping, prospecting and grab sampling was assisted in the field by Bob Bailey, Riley Keast, Andrea Naveau and Yvan Veronneau of Timmins, Ontario, and Sara Wigelsworth of Connaught, Ontario.

This prospecting report presents the results of the prospecting and grab sampling portion of the program and was prepared by Pat Pope, P.Geo., with postal address at P.O. Box 853, Timmins, Ontario, P4N 7G7.

6. 2016 PROSPECTING AND GRAB SAMPLING PROGRAM

Between July 30th and November 19th of 2016, Rapier Gold carried out prospecting and grab sampling on the Pen Gold Project. Work was focused on the central portion of the project, including the Reeves property and the Pen Gold East claims, continuing a methodical exploration of the property both south and east from the 2010, 2012, 2013 and 2015 field programs (Figure 1). A daily log of the prospecting with total days for each geologist, prospector and field assistant is presented in Appendix I. Prospecting field work was done in crews of two, sometimes three personnel, consisting of a geologist or prospector and a field assistant or second prospector or geologist.

The 2010 and 2013 bare earth LiDAR surveys were used to plan traverses and locate areas of outcrop. Grab samples were located using hand-held GPS units. Where possible, the grab sample locations were adjusted later to correspond more accurately with the outcrop locations based on the LiDAR surveys.

The grab sample descriptions and results are in Appendix II. Each grab sample has a unique point number identifying the geologist or prospector who took the sample, sample number, gold assay in g/tonne, the claim group or property, claim number, date the sample was taken, easting and northing in UTM NAD 83 Zone 17N coordinate system, rock type, comments, occurrence or area (historical showing or previous work area), Actlabs assay code 1 (gold fire assay, described further in Section 7 below) and Actlabs assay code 2 (geochemistry, described further in Section 7 below). A list of the point identifiers for each geologist and prospector are in Appendix III. A list of the rock types are in Appendix IV.

The grab sample map index at a scale of 1:40,000 shows the location of each grab sample map. Grab samples are shown on sample location maps at a scale of 1:5,000, 1:2,500, 1:1,000 or 1:500, depending on the sample density. All maps are in Appendix V. The LiDAR surveys are shown as an underlay on all the maps. Each grab sample is shown on the map with a sample number, lithology or rock type, gold assay in g/tonne, date taken and point number (to identify the sampler).

A total of 1304 grab samples were taken from bedrock during the program.

7. SAMPLE PREPARATION AND ANALYSES

Grab samples were submitted to Activation Laboratories Ltd (Actlabs) in Timmins, Ontario. The samples were crushed in their entirety to better than 90% passing a 2 mm or 10 mesh screen. The crushed material was then mechanically or riffle split to arrive at a sub-sample of 1000 grams, and the sub-sample was pulverized to ensure a minimum of 95% of the material passing through a 0.105 mm or 150 mesh screen (Actlabs Procedure RX1-1000).

All the grab samples were assayed for gold. Fire assaying was performed on a 30 gram sample drawn from the pulp. The gold bead was assayed using either atomic absorption spectrometry (Actlabs Procedure 1A2) or a gravimetric technique for values greater than 5000 ppb (Actlabs Procedure 1A3). Gold values were reported on the certificates in ppb for assays performed by atomic absorption spectrometry and in grams per metric tonne (g/tonne) for assays performed by gravimetric technique. Values below the detection limit of 5 ppb were reported as below detection limit.

A total of 1303 grab samples were analyzed using the ultratrace 6 package (Actlabs procedure UT-6), a trace element geochemistry analysis package using 4-acid digestion and ICP/MS or ICP/OES techniques.

8. QUALITY CONTROL AND ANALYTICAL RESULTS

External Quality Assurance / Quality Control (QA/QC) was provided by standards and blanks inserted into the sample stream prior to shipment to the laboratory. Standards and blanks were inserted into the sample stream by a geologist during sample packing at the rate of one standard and one blank for every twenty-five grab samples.

Three external standards were used with gold values of 0.571 g/tonne, 1.21 g/tonne, and 6.09 g/tonne. The gold standards were supplied by CDN Resources Laboratories Ltd. of Langley, BC. Two field blanks, diabase and silica quartz, were used in the grab sample program. Diabase blank material consisted of barren diabase NQ core. The silica blank material was prepared by hand sorting barren quartz rock samples. The diabase and silica quartz samples were check analyzed for gold at ALS Chemex Laboratories in Timmins, Ontario in 2008. All the samples returned values less than the detection limit of 0.01 g/t Au.

Internal quality control procedures at Actlabs consisted of standards, blanks and duplicate samples. Actlabs reported the results of the internal quality control data with each electronic batch sent and on the final certificates.

All standard, blank, and duplicate assays were reviewed before the assays were accepted for entry into the grab sample database by Gary Lustig, P. Geo.

Results of the gold assays in grams per metric tonne (g/tonne) analyzed by fire assay are presented in the grab sample table in Appendix II and are shown on the grab sample maps in Appendix V. Assay certificates with the gold fire assays and trace element geochemistry results are presented in Appendix VI.

9. TRACE ELEMENT GEOCHEMISTRY

Correct identification of the rock types for each grab sample taken in the 2016 program is presently ongoing using the classification scheme developed by Barrett (2013 and 2014). In cases where the rock type has been changed from the field name based on geochemistry it is noted in the comments in the grab sample table in Appendix II. The trace element geochemical data will also be evaluated to quantify alteration and look for pathfinder patterns.

10. INTERPRETATION AND CONCLUSIONS

The 2016 prospecting program on the Pen Gold Project was successful in finding numerous areas of encouraging lithology, structure, alteration, quartz veining and sulphide mineralization, considered highly prospective for gold mineralization. A total of 75 grab samples taken from the program returned anomalous gold assays greater than 50 ppb. The program was also successful in advancing the geological understanding of the project, adding to the already existing government mapping and previous exploration work.

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12. STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS –

I, Brian Atkinson, P.Geo., with postal address at Bright, Ontario, do hereby certify that:

1. I am a consulting/contract geologist.
2. I graduated with an Hon.Bachelor (Geology/Phys. Geography), from McMaster University.
3. I am a Professional Geoscientist Registered with the Association of Professional Geoscientists of Ontario.
4. I have worked as a geologist for 40 years.
5. I completed 24 days of geological mapping, prospecting and grab sampling on the Pen Gold Project between October and November of 2016.

Dated this January 9th, 2017.



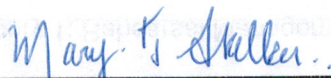
BRIAN ATKINSON - P.Ge.

STATEMENT OF QUALIFICATIONS – MARY STALKER

I, **Mary Stalker**, P.Geo., with postal address at P.O. Box 472, Timmins, Ontario, P4N 7E3, do hereby certify that:

1. I am a consulting/contract geologist.
2. I graduated with a Bachelor of Science (Earth Science), from the University of Waterloo in 1986 and a Master of Science – Applied (Mineral Exploration), from McGill University in 1992.
3. I am a Professional Geoscientist Registered with the Association of Professional Geoscientists of Ontario.
4. I am a Professional Geologist Registered with the Association of Professional Engineers and Geoscientists of Saskatchewan.
5. I have worked as a geologist for a total of 31 years since my graduation from university.
6. I completed 28 days of geological mapping, prospecting and grab sampling on the Pen Gold Project between July and November of 2016.

Dated this January 7th, 2017.



Mary Stalker - P.Geo.

STATEMENT OF QUALIFICATIONS – PETER HARVEY

I, Peter G. Harvey, residing at 525 Spooner Dr., Timmins, Ont., P4N 4R6, do hereby certify that:

I am a consulting/contract geologist,

I attended Lakehead University in Thunder Bay, Ontario and graduated with an Honours Bachelor of Science degree in Geology in 1985,

I have worked continuously as a geologist in mining and exploration since 1985,

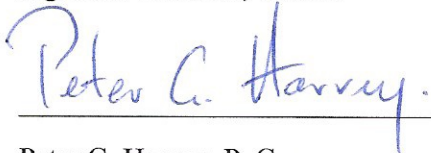
I am a Practicing Member (0588) of the Association of Professional Geoscientists of Ontario,

I completed 33 days of geological mapping, prospecting and grab sampling on the Pen Gold Property between July and October 2016,

I have no direct or indirect interest in the mining claims comprising the Pen Gold Property described in this report.

Dated this 7th day of January, 2017.

Signed at Timmins, Ontario



Peter G. Harvey, P. Geo

STATEMENT OF QUALIFICATIONS – DAVID GLIDDON

I, David J. Gliddon, residing at 145 Malette Crescent, Timmins, ON, P4P 1C4, do hereby certify that:

I am currently President and Director of Glider Geoservices Inc., an independent geological consulting firm,

I attended Lakehead University in Thunder Bay, Ontario and graduated with an Honours Bachelor of Science Degree, Geology (1985),

I have worked continuously as a geologist in mining and exploration since 1985,

I am a Practicing Member (0719) of the Association of Professional Geoscientists of Ontario since 2002,

I completed 11 days of geological mapping, prospecting and grab sampling on the Pen Gold Project between September and October of 2016.

I have no direct or indirect interest in the mining claims comprising the Pen Gold Property described in this report nor do I expect to receive any.

Dated this January 10th, 2017

Signed at Timmins, Ontario,



David J. Gliddon, PGeo. (ON)

President & Director

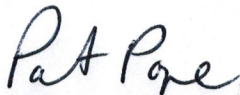
Glider Geoservices Inc.

STATEMENT OF QUALIFICATIONS – PAT POPE

I, **Pat Pope**, P.Geo., with postal address at P.O. Box 853, Timmins, Ontario, P4N 7G7, do hereby certify that:

1. I am a consulting/contract geologist.
2. I graduated with a Bachelor of Science (Geology), from Queen's University in 1982 and a Master of Science – Applied (Mineral Exploration), from McGill University in 1985.
3. I am a Professional Geoscientist Registered with the Association of Professional Geoscientists of Ontario.
4. I am a Professional Geologist Registered with the Association of Professional Engineers and Geoscientists of Alberta.
5. I have worked as a geologist for a total of 31 years since my graduation from university.
6. I completed 68 days of geological mapping, prospecting and grab sampling on the Pen Gold Project between July and November of 2016.
7. I am responsible for the preparation of this prospecting report.

Dated this January 18th, 2017.



PAT POPE - P.Geo.

Appendix I: Pen Gold 2016 Daily Mapping and Prospecting Log

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Geologists																
		Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
Date	Day	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
July 30, 2016	Saturday							0.5	0.5	Porphyry Hill	0.5	0.5	East of Conglomerates to Nat River	0.5	0.5	East of Conglomerates to Nat River
July 31, 2016	Sunday							0.5	0.5	Porphyry Hill	0.5	0.5	West of Talc Pit	0.5	0.5	West of Talc Pit
August 1, 2016	Monday										0.5	0.5	Along Nat River, North of Nib Yellowknife			
August 2, 2016	Tuesday										0.5	0.5	North of Nib Yellowknife			
August 3, 2016	Wednesday										0.5	0.5	North of Nib Yellowknife			
August 4, 2016	Thursday										0.5	0.5	North of Nib Yellowknife			
August 5, 2016	Friday										0.5	0.5	North of Nib Yellowknife			
August 6, 2016	Saturday							0.5	0.5	West end Porphyry Hill						
August 7, 2016	Sunday							0.5	0.5	West end Porphyry Hill	0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife
August 8, 2016	Monday							0.5	0.5	South side of Porphyry Hill	0.5	0.5	West of Nib Yellowknife			
August 9, 2016	Tuesday							0.5	0.5	South side of Porphyry Hill	0.5	0.5	West of Nib Yellowknife			
August 10, 2016	Wednesday							0.5	0.5	Groundhog River Porphyry Hill	0.5	0.5	West of Nib Yellowknife			
August 11, 2016	Thursday										0.5	0.5	West of Nib Yellowknife			
August 12, 2016	Friday															
August 13, 2016	Saturday				0.5	0.5	Mafics - South of Conglomerates				0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Geologists																
		Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
Date	Day	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
August 14, 2016	Sunday				0.5	0.5	Mafics - South of Conglomerates		1	South of Westgate and West Westgate	0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife
August 15, 2016	Monday				0.5	0.5	Mafics - South of Conglomerates	0.5	0.5	Groundhog River Porphyry Hill	0.5	0.5	Mafics - South of Conglomerates			
August 16, 2016	Tuesday				0.5	0.5	Mafics - South of Conglomerates	0.5	0.5	Groundhog River Porphyry Hill	0.5	0.5	West of Nib Yellowknife			
August 17, 2016	Wednesday				0.5	0.5	Mafics - South of Conglomerates	0.5	0.5	Groundhog River Porphyry Hill	0.5	0.5	West of Nib Yellowknife			
August 18, 2016	Thursday															
August 19, 2016	Friday				0.5	0.5	Mafics - South of Conglomerates									
August 20, 2016	Saturday															
August 21, 2016	Sunday															
August 22, 2016	Monday							0.5	0.5	Graben in Porphyry Hill						
August 23, 2016	Tuesday							0.5	0.5	Graben in Porphyry Hill						
August 24, 2016	Wednesday							0.5	0.5	Graben in Porphyry Hill						
August 25, 2016	Thursday								1	Porphyry North of Hwy 101						
August 26, 2016	Friday															
August 27, 2016	Saturday															
August 28, 2016	Sunday															

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Geologists																
		Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
Date	Day	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
August 29, 2016	Monday								1	Pen Gold East						
August 30, 2016	Tuesday															
August 31, 2016	Wednesday								1	Pen Gold East	0.5	0.5	West of Nib Yellowknife			
September 1, 2016	Thursday							0.5	0.5	Broadsword	0.5	0.5	West of Nib Yellowknife		1	Eastgate
September 2, 2016	Friday							0.5	0.5	Porphyry Hill Gap Claim 4277342	0.5	0.5	West of Nib Yellowknife		1	Way West of Pen Gold East
September 3, 2016	Saturday							0.5	0.5	Porphyry Hill Gap Claim 4277342	0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife
September 4, 2016	Sunday										0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife
September 5, 2016	Monday							0.5	0.5	Broadsword	0.5	0.5	West of Nib Yellowknife		1	CL4207031 Area
September 6, 2016	Tuesday															
September 7, 2016	Wednesday								1	West of Pen Gold East					1	CL4207031 Area
September 8, 2016	Thursday															
September 9, 2016	Friday								1	West of Pen Gold East	0.5	0.5	West of Nib Yellowknife		1	CL4207031 Area
September 10, 2016	Saturday															
September 11, 2016	Sunday								1	West of Pen Gold East	0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife
September 12, 2016	Monday								1	West of Pen Gold East	0.5	0.5	West of Nib Yellowknife		1	CL4207031 Area

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Geologists																
Date	Day	Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
		Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
September 13, 2016	Tuesday															
September 14, 2016	Wednesday										0.5	0.5	South of Nib Yellowknife			
September 15, 2016	Thursday										0.5	0.5	South of Nib Yellowknife		1	Between Kukatush Road and Nat River
September 16, 2016	Friday				0.5	0.5	South of Conglomerates - West of Nat River				0.5	0.5	South of Nib Yellowknife		1	CL4207031 Area
September 17, 2016	Saturday															
September 18, 2016	Sunday															
September 19, 2016	Monday															
September 20, 2016	Tuesday				0.5	0.5	South of Conglomerates - West of Nat River	0.5	0.5	Broadsword	0.5	0.5	South of Nib Yellowknife	0.5	0.5	South of Conglomerates - West of Nat River
September 21, 2016	Wednesday				0.5	0.5	South of Conglomerates - West of Nat River				0.5	0.5	South of Nib Yellowknife			
September 22, 2016	Thursday				0.5	0.5	South of Conglomerates - West of Nat River				0.5	0.5	South of Nib Yellowknife			
September 23, 2016	Friday										0.5	0.5	South of Nib Yellowknife	0.5	0.5	South of Nib Yellowknife
September 24, 2016	Saturday				0.5	0.5	Mafics - South of Conglomerates									
September 25, 2016	Sunday								1	West of Pen Gold East						
September 26, 2016	Monday															
September 27, 2016	Tuesday															
September 28, 2016	Wednesday							0.5	0.5	Broadsword						

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Geologists														
		Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
Date	Day	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
September 29, 2016	Thursday															
September 30, 2016	Friday								1	West of Pen Gold East	0.5	0.5	South of Nib Yellowknife		1	Southwest of Jehann Lake
October 1, 2016	Saturday								1	West of Pen Gold East		1	Southwest of Jehann Lake			
October 2, 2016	Sunday															
October 3, 2016	Monday							0.5	0.5	Broadsword	0.5	0.5	Southeast of Nib Yellowknife			
October 4, 2016	Tuesday								1	Karvinen	0.5	0.5	Southeast of Nib Yellowknife			
October 5, 2016	Wednesday										0.5	0.5	Southeast of Nib Yellowknife	0.5	0.5	Southeast of Nib Yellowknife
October 6, 2016	Thursday								1	West of Pen Gold East	0.5	0.5	Southeast of Nib Yellowknife			
October 7, 2016	Friday															
October 8, 2016	Saturday															
October 9, 2016	Sunday															
October 10, 2016	Monday										0.5	0.5	Southeast of Nib Yellowknife			
October 11, 2016	Tuesday										0.5	0.5	Northeast of Nib Yellowknife		1	CL4207031 Area
October 12, 2016	Wednesday															
October 13, 2016	Thursday										0.5	0.5	Northeast of Nib Yellowknife			
October 14, 2016	Friday										0.5	0.5	Northeast of Nib Yellowknife		1	Pen Gold East
October 15, 2016	Saturday										0.5	0.5	East of Nib Yellowknife			

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Geologists																
		Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
Date	Day	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
October 16, 2016	Sunday										0.5	0.5	East of Nib Yellowknife			
October 17, 2016	Monday															
October 18, 2016	Tuesday											1	Between Karvinen and Sabre			
October 19, 2016	Wednesday											1	Between Karvinen and Sabre			
October 20, 2016	Thursday										0.5	0.5	East of Nib Yellowknife			
October 21, 2016	Friday										0.5	0.5	East of Nib Yellowknife			
October 22, 2016	Saturday	0.5	0.5	South of Conglomerates - West of Nat River							0.5	0.5	East of Nib Yellowknife			
October 23, 2016	Sunday	0.5	0.5	South of Conglomerates - West of Nat River							0.5	0.5	South of Conglomerates - West of Nat River			
October 24, 2016	Monday	0.5	0.5	South of Conglomerates - West of Nat River							0.5	0.5	East of Nib Yellowknife		1	West of Esker
October 25, 2016	Tuesday	0.5	0.5	South of Conglomerates - West of Nat River							0.5	0.5	East of Nib Yellowknife			
October 26, 2016	Wednesday	0.5	0.5	South of Conglomerates - Kukatush Road							0.5	0.5	South of Nib Yellowknife			

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Geologists																
		Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
Date	Day	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
October 27, 2016	Thursday	0.5	0.5	South of Conglomerates - Kukatush Road												
October 28, 2016	Friday	0.5	0.5	South of Conglomerates - Kukatush Road												
October 29, 2016	Saturday															
October 30, 2016	Sunday	0.5	0.5	South of Conglomerates - Kukatush Road								1	Claim 4246167 - west of Esker			
October 31, 2016	Monday	0.5	0.5	South of Conglomerates - Kukatush Road						0.5	0.5		South of Nib Yellowknife			
November 1, 2016	Tuesday															
November 2, 2016	Wednesday	0.5	0.5	Nib Yellowknife						0.5	0.5		Nib Yellowknife			
November 3, 2016	Thursday	0.5	0.5	Northwest of Primer Lake						0.5	0.5		South of Nib Yellowknife		1	CL4207031 Area
November 4, 2016	Friday	0.5	0.5	Northwest of Primer Lake						0.5	0.5		South of Nib Yellowknife			
November 5, 2016	Saturday	0.5	0.5	Between Kukatush Road and Nat River												
November 6, 2016	Sunday	0.5	0.5	Between Kukatush Road and Nat River						0.5	0.5		West of Nib Yellowknife			
November 7, 2016	Monday	0.5	0.5	Between Kukatush Road and Nat River						0.5	0.5		West of Nib Yellowknife			
November 8, 2016	Tuesday															
November 9, 2016	Wednesday	0.5	0.5	Northeast of Jehann Lake												

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Geologists																
		Brian Atkinson			David Gliddon			Peter Harvey			Pat Pope			Mary Stalker		
Date	Day	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where	Mapping Days	Prospecting Days	Where
November 10, 2016	Thursday															
November 11, 2016	Friday	0.5	0.5	Northeast of Jehann Lake							0.5	0.5	West of Nib Yellowknife			
November 12, 2016	Saturday															
November 13, 2016	Sunday	0.5	0.5	Northwest of Jehann Lake							0.5	0.5	Northwest of Jehann Lake			
November 14, 2016	Monday	0.5	0.5	Northwest of Jehann Lake												
November 15, 2016	Tuesday	0.5	0.5	North of Jehann Lake								1	Syenite Target - CL4207036 Area		1	Syenite Target - CL4207036 Area
November 16, 2016	Wednesday	0.5	0.5	Northeast of Jehann Lake							0.5	0.5	Northwest of Nib Yellowknife			
November 17, 2016	Thursday	0.5	0.5	Northeast of Jehann Lake							0.5	0.5	Broadsword	1		Broadsword
November 18, 2016	Friday	0.5	0.5	Northeast of Jehann Lake							0.5	0.5	Broadsword	1		Broadsword
November 19, 2016	Saturday										0.5	0.5	Nib Yellowknife	0.5	0.5	Nib Yellowknife
Totals		11.5	11.5		5.5	5.5		10	23		31.5	36.5		8	20	

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Prospectors				Field Assistants												
		Bob Bailey		Dave Healey		Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau			
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where
July 30, 2016	Saturday															0.5	0.5	Porphyry Hill
July 31, 2016	Sunday															0.5	0.5	Porphyry Hill
August 1, 2016	Monday															0.5	0.5	Along Nat River, North of Nib Yellowknife
August 2, 2016	Tuesday															0.5	0.5	North of Nib Yellowknife
August 3, 2016	Wednesday								0.5	0.5	North of Nib Yellowknife							
August 4, 2016	Thursday								0.5	0.5	North of Nib Yellowknife							
August 5, 2016	Friday								0.5	0.5	North of Nib Yellowknife							
August 6, 2016	Saturday			1	West end Porphyry Hill													
August 7, 2016	Sunday			1	West end Porphyry Hill													
August 8, 2016	Monday	1	Reeves	1	Reeves				0.5	0.5	West of Nib Yellowknife					0.5	0.5	South side of Porphyry Hill
August 9, 2016	Tuesday	1	Reeves	1	Reeves				0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife		0.5	0.5	South side of Porphyry Hill
August 10, 2016	Wednesday	1	Reeves	1	Reeves				0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife		0.5	0.5	Groundhog River - Porphyry Hill
August 11, 2016	Thursday	1	Reeves	1	Reeves				0.5	0.5	West of Nib Yellowknife							
August 12, 2016	Friday																	
August 13, 2016	Saturday	1	Reeves	1	Reeves											0.5	0.5	Mafics - South of Conglomerates

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Prospectors				Field Assistants												
		Bob Bailey		Dave Healey		Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau			
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where
August 14, 2016	Sunday	1	Reeves	1	Reeves							0.5	0.5	Mafics - South of Conglomerates			1	South of Westgate and West Westgate
August 15, 2016	Monday	1	Reeves	1	Reeves											0.5	0.5	Groundhog River - Porphyry Hill
August 16, 2016	Tuesday	1	Mafics - South of Conglomerates	1	Groundhog River - Porphyry Hill				0.5	0.5	West of Nib Yellowknife							
August 17, 2016	Wednesday	1	Mafics - South of Conglomerates	1	Groundhog River - Porphyry Hill				0.5	0.5	West of Nib Yellowknife							
August 18, 2016	Thursday			1	Pen Gold East					1	Pen Gold East							
August 19, 2016	Friday			1	Broadsword					1	Broadsword	0.5	0.5	Mafics - South of Conglomerates				
August 20, 2016	Saturday																	
August 21, 2016	Sunday																	
August 22, 2016	Monday			1	Pen Gold East				0.5	0.5	Graben in Porphyry Hill	0.5	0.5	Graben in Porphyry Hill			1	Pen Gold East
August 23, 2016	Tuesday	1	Pen Gold East	1	Broadsword				0.5	0.5	Graben in Porphyry Hill		1	Pen Gold East			1	Broadsword
August 24, 2016	Wednesday	1	Pen Gold East	1	Pen Gold East				0.5	0.5	Graben in Porphyry Hill	0.5	0.5	Graben in Porphyry Hill				
August 25, 2016	Thursday	1	West of Pen Gold East	1	Southeast of Jehann Lake					1	Porphyry North of Hwy 101		1	West of Pen Gold East			1	Southeast of Jehann Lake
August 26, 2016	Friday	1	West of Pen Gold East	1	CL4207036 Area					1	CL4207036 Area		1	West of Pen Gold East				
August 27, 2016	Saturday	1	CL4207031 Area	1	CL4207031 Area								1	CL4207031 Area				
August 28, 2016	Sunday																	

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Prospectors				Field Assistants												
		Bob Bailey		Dave Healey		Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau			
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where
August 29, 2016	Monday	1	Pen Gold East	1	CL3000605 Area					1	CL3000605 Area		1	CL4207031 Area	1			CL4207031 Area
August 30, 2016	Tuesday																	
August 31, 2016	Wednesday	1	Pen Gold East	1	Porphyry Hill Gap Claim 4277342				0.5	0.5	West of Nib Yellowknife						1	Porphyry Hill Gap Claim 4277342
September 1, 2016	Thursday	1	Broadsword	1	Porphyry Hill Gap Claim 4277342				0.5	0.5	West of Nib Yellowknife		1	Eastgate			1	Porphyry Hill Gap Claim 4277342
September 2, 2016	Friday	1	West of Pen Gold East	1	Way West of Pen Gold East				0.5	0.5	West of Nib Yellowknife		1	West of Pen Gold East		0.5	0.5	Porphyry Hill Gap Claim 4277342
September 3, 2016	Saturday	1	West of Pen Gold East	1	West of Pen Gold East											0.5	0.5	Porphyry Hill Gap Claim 4277342
September 4, 2016	Sunday	1	West of Pen Gold East	1	CL4207031 Area								1	CL4207031 Area			1	West of Pen Gold East
September 5, 2016	Monday	1	CL4207031 Area	1	CL4207031 Area				0.5	0.5	West of Nib Yellowknife		1	CL4207031 Area		0.5	0.5	Broadsword
September 6, 2016	Tuesday																	
September 7, 2016	Wednesday	1	CL4207031 Area	1	Between Kukatush Road and Nat River								1	Between Kukatush Road and Nat River			1	West of Pen Gold East
September 8, 2016	Thursday																	
September 9, 2016	Friday	1	CL4207031 Area	1	Between Kukatush Road and Nat River				0.5	0.5	West of Nib Yellowknife		1	Between Kukatush Road and Nat River			1	West of Pen Gold East
September 10, 2016	Saturday																	
September 11, 2016	Sunday			1	Between Kukatush Road and Nat River								1	Between Kukatush Road and Nat River			1	West of Pen Gold East
September 12, 2016	Monday	1	CL4207031 Area	1	Between Kukatush Road and Nat River				0.5	0.5	West of Nib Yellowknife		1	Between Kukatush Road and Nat River			1	West of Pen Gold East

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Prospectors				Field Assistants													
		Bob Bailey		Dave Healey		Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau				
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where	
September 13, 2016	Tuesday																		
September 14, 2016	Wednesday	1	South of Nib Yellowknife	1	Between Kukatush Road and Nat River												1	Between Kukatush Road and Nat River	
September 15, 2016	Thursday	1	CL4207031 Area	1	Between Kukatush Road and Nat River				0.5	0.5	South of Nib Yellowknife						1	CL4207031 Area	
September 16, 2016	Friday	1	CL4207031 Area	1	Between Kukatush Road and Nat River				0.5	0.5	South of Nib Yellowknife		1	Between Kukatush Road and Nat River			0.5	0.5	South of Conglomerates - West of Nat River
September 17, 2016	Saturday																		
September 18, 2016	Sunday																		
September 19, 2016	Monday																		
September 20, 2016	Tuesday	1	Broadsword	1	North of Jehann Lake				0.5	0.5	South of Nib Yellowknife		1	North of Jehann Lake					
September 21, 2016	Wednesday	1	North of Jehann Lake	1	North of Jehann Lake				0.5	0.5	South of Nib Yellowknife	0.5	0.5	South of Conglomerates - West of Nat River					
September 22, 2016	Thursday	1	North of Jehann Lake	1	North of Jehann Lake				0.5	0.5	South of Nib Yellowknife	0.5	0.5	South of Conglomerates - West of Nat River					
September 23, 2016	Friday	1	North of Jehann Lake	1	North of Jehann Lake							0.5	0.5	South of Nib Yellowknife			0.5	0.5	South of Nib Yellowknife
September 24, 2016	Saturday	1	North of Jehann Lake	1	North of Jehann Lake							0.5	0.5	Mafics - South of Conglomerates					
September 25, 2016	Sunday	1	North of Jehann Lake	1	North of Jehann Lake								1	West of Pen Gold East					
September 26, 2016	Monday																		
September 27, 2016	Tuesday	1	Broadsword	1	Broadsword					1	Broadsword						1	Broadsword	
September 28, 2016	Wednesday	1	Broadsword	1	South of Jehann Lake					1	Broadsword		1	South of Jehann Lake			0.5	0.5	Broadsword

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Prospectors				Field Assistants												
		Bob Bailey		Dave Healey		Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau			
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where
September 29, 2016	Thursday	1	Broadsword	1	South of Jehann Lake								1	South of Jehann Lake			1	Broadsword
September 30, 2016	Friday	1	CL4207031 Area	1	Southwest of Jehann Lake				0.5	0.5	South of Nib Yellowknife		1	CL4207031 Area			1	West of Pen Gold East
October 1, 2016	Saturday			1	Southwest of Jehann Lake								1	West of Pen Gold East				
October 2, 2016	Sunday																	
October 3, 2016	Monday			1	South of Jehann Lake				0.5	0.5	Southeast of Nib Yellowknife		1	South of Jehann Lake		0.5	0.5	Broadsword
October 4, 2016	Tuesday			1	South of Jehann Lake				0.5	0.5	Southeast of Nib Yellowknife		1	South of Jehann Lake			1	Karvinen
October 5, 2016	Wednesday	1	Southwest of Jehann Lake	1	Southwest of Jehann Lake													
October 6, 2016	Thursday	1	South of Jehann Lake	1	South of Jehann Lake							0.5	0.5	Southeast of Nib Yellowknife			1	West of Pen Gold East
October 7, 2016	Friday																	
October 8, 2016	Saturday																	
October 9, 2016	Sunday																	
October 10, 2016	Monday											0.5	0.5	Southeast of Nib Yellowknife				
October 11, 2016	Tuesday					0.5	0.5	Northeast of Nib Yellowknife	0.5	0.5	Northeast of Nib Yellowknife	0.5	0.5	Northeast of Nib Yellowknife			1	CL4207031 Area
October 12, 2016	Wednesday																	
October 13, 2016	Thursday						1	Green Carb west of Pen Gold East	0.5	0.5	Northeast of Nib Yellowknife				1			Green Carb west of Pen Gold East
October 14, 2016	Friday	1	CL4207031 Area	1	Claim 4207030 - west of Esker		1	CL4207031 Area	0.5	0.5	Northeast of Nib Yellowknife		1	Claim 4207030 - west of Esker			1	Pen Gold East
October 15, 2016	Saturday	1	CL4207031 Area	1	Claim 4207030 - west of Esker		1	CL4207031 Area					1	Claim 4207030 - west of Esker		0.5	0.5	East of Nib Yellowknife

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Prospectors				Field Assistants												
		Bob Bailey		Dave Healey		Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau			
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where
October 16, 2016	Sunday	1	CL4207031 Area	1	Claim 4207030 - west of Esker		1	CL4207031 Area					1	Claim 4207030 - west of Esker		0.5	0.5	East of Nib Yellowknife
October 17, 2016	Monday																	
October 18, 2016	Tuesday	1	Burtho	1	Burtho		1	Burtho		1	Between Karvinen and Sabre							
October 19, 2016	Wednesday	1	Claim 4207030 - west of Esker	1	Claim 4207030 - west of Esker					1	Between Karvinen and Sabre							
October 20, 2016	Thursday	1	CL4207031 Area	1	CL4207031 Area	0.5	0.5	East of Nib Yellowknife	0.5	0.5	East of Nib Yellowknife							
October 21, 2016	Friday	1	Claim 4207030 - west of Esker	1	Claim 4207030 - west of Esker	0.5	0.5	East of Nib Yellowknife	0.5	0.5	East of Nib Yellowknife							
October 22, 2016	Saturday			1	South of Conglomerates - West of Nat River	0.5	0.5	East of Nib Yellowknife										
October 23, 2016	Sunday			1	Claim 4207030 and 4207034 - west of Esker		1	Claim 4207030 and 4207034 - west of Esker										
October 24, 2016	Monday			1	West of Esker	0.5	0.5	South of Conglomerates - West of Nat River	0.5	0.5	East of Nib Yellowknife							
October 25, 2016	Tuesday	1	CL4207031 and 4247081 Area	1	CL4207031 and 4247081 Area	0.5	0.5	South of Conglomerates - West of Nat River	0.5	0.5	East of Nib Yellowknife							
October 26, 2016	Wednesday	1	South of Conglomerates - Kukatush Road	1	Claim 4246167 - west of Esker		1	Claim 4246167 - west of Esker	0.5	0.5	South of Nib Yellowknife							

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

Prospectors						Field Assistants												
Bob Bailey			Dave Healey			Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau			
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where
October 27, 2016	Thursday	1	South of Conglomerate s - Kukatush Road	1	Claim 4207030 - west of Esker					1	Claim 4207030 - west of Esker							
October 28, 2016	Friday	1	South of Conglomerate s - Kukatush Road	1	Claim 4207034 - west of Esker		1	Claim 4207034 - west of Esker										
October 29, 2016	Saturday																	
October 30, 2016	Sunday	1	South of Conglomerate s - Kukatush Road	1	Claim 4246167 - west of Esker													
October 31, 2016	Monday	1	CL4207031 Area	1	CL4207031 Area	0.5	0.5	South of Conglomerate s - Kukatush Road	0.5	0.5	South of Nib Yellowknife							
November 1, 2016	Tuesday			1	South of Jehann Lake							1	South of Jehann Lake					
November 2, 2016	Wednesday	1	CL4207031 Area	1	CL4207031 Area													
November 3, 2016	Thursday	1	CL4207031 Area	1	South of Jehann Lake				0.5	0.5	South of Nib Yellowknife	1		South of Jehann Lake		0.5	0.5	Northwest of Primer Lake
November 4, 2016	Friday	1	CL4207031 Area	1	CL4207031 Area				0.5	0.5	South of Nib Yellowknife					0.5	0.5	Northwest of Primer Lake
November 5, 2016	Saturday	1	CL4207031 Area	1	CL4207031 Area											0.5	0.5	Between Kukatush Road and Nat River
November 6, 2016	Sunday			1	Southeast of Jehann Lake	0.5	0.5	West of Nib Yellowknife				1	Southeast of Jehann Lake			0.5	0.5	Between Kukatush Road and Nat River
November 7, 2016	Monday	1	Southeast of Jehann Lake	1	Southeast of Jehann Lake	0.5	0.5	West of Nib Yellowknife	0.5	0.5	West of Nib Yellowknife					0.5	0.5	Between Kukatush Road and Nat River
November 8, 2016	Tuesday																	
November 9, 2016	Wednesday			1	Northeast of Jehann Lake													

Appendix I - Pen Gold 2016 Daily Mapping and Prospecting Log

		Prospectors				Field Assistants													
		Bob Bailey		Dave Healey		Riley Keast			Andrea Naveau			Sara Wigelsworth			Yvan Veronneau				
Date	Day	Prospecting Days	Where	Prospecting Days	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Assistant Days - Mapping	Assistant Days - Prospecting	Where	Prospecting Days	Assistant Days - Mapping	Assistant Days - Prospecting	Where	
November 10, 2016	Thursday			1	Southeast of Jehann Lake		1	Southeast of Jehann Lake											
November 11, 2016	Friday	1	CL4207031-4207030 Area	1	CL4207031-4207030 Area				0.5	0.5	West of Nib Yellowknife					0.5	0.5	Northeast of Jehann Lake	
November 12, 2016	Saturday			1	Southeast of Jehann Lake												1	Southeast of Jehann Lake	
November 13, 2016	Sunday	1	CL4207031 Area	1	Southeast of Jehann Lake		1	CL4207031 Area					1	Southeast of Jehann Lake					
November 14, 2016	Monday	1	Pen Gold East -east of Broadsword	1	Southeast of Jehann Lake	0.5	0.5	Northwest of Jehann Lake		1	Pen Gold East -east of Broadsword		1	Southeast of Jehann Lake					
November 15, 2016	Tuesday	1	Pen Gold East -east of Broadsword	1	Southeast of Jehann Lake		1	Pen Gold East -east of Broadsword		1	Syenite Target - CL4207036 Area		1	Southeast of Jehann Lake		0.5	0.5	North of Jehann Lake	
November 16, 2016	Wednesday			1	Southeast of Jehann Lake	0.5	0.5	Northwest of Nib Yellowknife	0.5	0.5	Northwest of Nib Yellowknife		1	Southeast of Jehann Lake		0.5	0.5	Northeast of Jehann Lake	
November 17, 2016	Thursday			1	Southeast of Jehann Lake	1		Broadsword	0.5	0.5	Broadsword		1	Southeast of Jehann Lake		0.5	0.5	Northeast of Jehann Lake	
November 18, 2016	Friday			1	West of Broadsword	1		Broadsword	0.5	0.5	Broadsword		1	West of Broadsword		0.5	0.5	Northeast of Jehann Lake	
November 19, 2016	Saturday																		
Totals		61		81		7.5	16.5		21	33		7.5	39.5		2	14	35		

Total Prospecting Days - Geologists 96.5
Total Prospecting Days - Prospectors 144
Total Prospecting Days Geologists + Prospectors 240.5
Total Field Assistant Days for Prospecting 124
Total Mapping Days - Geologists 66.5
Total Field Assistant Days for Mapping 50

Appendix II: Pen Gold 2016 Grab Sample Descriptions and Results

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BB14221	1027234	< 0.005	Reeves	4240115	09/08/2016	419718	5338590	BGBR	medium-grained gabbro; trace pyrite	Reeves	1A2	ultratrace 6
BB14222	1027235	< 0.005	Reeves	4240115	09/08/2016	419871	5338545	BGBR	medium-grained gabbro; 1-2% pyrite	Reeves	1A2	ultratrace 6
BB14223	1027236	< 0.005	Reeves	4240115	09/08/2016	420177	5338609	USRP	sheared serpentinite; strongly magnetic	Reeves	1A2	ultratrace 6
BB14224	1027237	< 0.005	Reeves	4240115	10/08/2016	420164	5338673	UPYX	sheared pyroxenite; strongly magnetic	Reeves	1A2	ultratrace 6
BB14225	1027238	< 0.005	Reeves	4240115	10/08/2016	419989	5338562	BGBR	gabbro; trace-minor pyrrhotite	Reeves	1A2	ultratrace 6
BB14226	1027239	< 0.005	Reeves	4240115	11/08/2016	419886	5337976	PPQP	sheared quartz porphyry; vuggy, rusty and weathered; abundant black tourmaline; trace pyrite	Reeves	1A2	ultratrace 6
BB14227	1027240	< 0.005	Reeves	4240115	11/08/2016	419886	5337977	PPQP	sheared quartz porphyry; vuggy and rusty; abundant black tourmaline	Reeves	1A2	ultratrace 6
BB14229	1027242	< 0.005	Reeves	4240115	11/08/2016	419741	5338014	VVQV	4 inch quartz vein in gabbro; 100% quartz	Reeves	1A2	ultratrace 6
BB14230	1027243	0.009	Reeves	4240115	13/08/2016	419987	5338191	VVQV	5cm smokey grey granular quartz vein; moderate ankerite; 90% quartz	Reeves	1A2	ultratrace 6
BB14231	1027245	0.013	Reeves	4240115	13/08/2016	419978	5338187	VVQV	smokey grey granular stockwork quartz vein; rusty bands; 90% quartz	Reeves	1A2	ultratrace 6
BB14232	1027246	0.005	Reeves	4240115	13/08/2016	419864	5338199	MUND	strongly silicified and ankerite-altered mafic volcanic; 10% grey quartz veining; trace chalcopyrite	Reeves	1A2	ultratrace 6
BB14233	1027248	< 0.005	Reeves	4240115	13/08/2016	419958	5338174	VVQV	6cm smokey grey stockwork veins; minor ankerite; 95% quartz	Reeves	1A2	ultratrace 6
BB14234	1027249	< 0.005	Reeves	4240115	13/08/2016	419919	5338145	MUND	sheared mafic volcanic; strong ankerite+sericite	Reeves	1A2	ultratrace 6
BB14235	1027250	< 0.005	Reeves	4240115	14/08/2016	420010	5338206	VVQV	grey quartz vein; rusty fractures; 100% quartz	Reeves	1A2	ultratrace 6
BB14236	1027251	0.005	Reeves	4240115	14/08/2016	420002	5338210	VVQV	3cm smokey grey quartz vein; rusty oxidized ankerite bands with trace chalcopyrite; 95% quartz	Reeves	1A2	ultratrace 6
BB14237	1027252	< 0.005	Reeves	4240115	14/08/2016	420005	5338252	VVQV	smokey grey quartz vein stockwork in silicified+ankerite+sericite altered mafic volcanic; 60% quartz	Reeves	1A2	ultratrace 6
BB14238	1027254	0.009	Reeves	4240115	15/08/2016	420091	5338255	KKCB	carb rock; trace chalcopyrite	Reeves	1A2	ultratrace 6
BB14239	1027255	< 0.005	Pen Gold East	4248299	23/08/2016	429087	5334542	BGBR	white quartz vein in gabbro; trace pyrite; 40% quartz	Pen Gold East	1A2	ultratrace 6
BB14240	1027256	< 0.005	Pen Gold East	4248299	23/08/2016	429099	5334538	DDDB	diabase; moderately magnetic; trace pyrite	Pen Gold East	1A2	ultratrace 6
BB14241	1027257	< 0.005	Pen Gold East	4248299	23/08/2016	429095	5334789	DDDB	diabase; strongly magnetic; 1% pyrite	Pen Gold East	1A2	ultratrace 6
BB14242	1027258	< 0.005	Pen Gold East	4248299	23/08/2016	429114	5334890	DDDB	diabase; strongly magnetic; trace to 1% pyrite	Pen Gold East	1A2	ultratrace 6
BB14243	1027259	0.011	Pen Gold East	4248299	23/08/2016	429107	5334948	MUND	white to grey quartz veining at contact between diabase and silicified mafic volcanic; minor to 1% pyrite; 30% quartz	Pen Gold East	1A2	ultratrace 6
BB14244	1027260	< 0.005	Pen Gold East	4248299	23/08/2016	429120	5334967	MUND	white quartz veining at azimuth 240 with epidote and kspars in mafic volcanic; 40% quartz	Pen Gold East	1A2	ultratrace 6
BB14245	1027261	< 0.005	Pen Gold East	4248299	23/08/2016	429122	5334968	VVQV	white quartz veining with epidote and kspars in mafic volcanic; trace pyrite; 60% quartz	Pen Gold East	1A2	ultratrace 6
BB14246	1027263	0.008	Pen Gold East	4248299	24/08/2016	427839	5334595	MUND	bleached mafic volcanic; 5% white to grey siliceous quartz veining and flooding; 1% pyrite+chalcopyrite	Pen Gold East	1A2	ultratrace 6
BB14247	1027264	0.034	Pen Gold	4221929	25/08/2016	425731	5335960	CMIF	iron formation; 30% pyrite as semi-massive, bands and stringers	West of Pen Gold East	1A2	ultratrace 6
BB14248	1027265	< 0.005	Pen Gold	4221929	25/08/2016	425934	5335997	FUND	felsic volcanic; 30% white quartz veining; trace pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14249	1027266	< 0.005	Pen Gold	4221929	25/08/2016	425949	5336054	VVQV	white quartz veining in felsic volcanic; trace pyrite; 80% quartz; stripped area	West of Pen Gold East	1A2	ultratrace 6
BB14250	1027267	0.005	Pen Gold	4221929	25/08/2016	425949	5336054	FUND	silicified felsic volcanic; 2% white quartz-chlorite veinlets; minor fine to coarse-grained pyrite as blebs and stringers; stripped area	West of Pen Gold East	1A2	ultratrace 6
BB14251	1027268	0.046	Pen Gold	4221929	25/08/2016	425610	5336104	CMIF	friable iron formation; 30% pyrrhotite+pyrite as semi-massive bands and stringers; strong gossan; pit area	West of Pen Gold East	1A2	ultratrace 6
BB14252	1027269	0.048	Pen Gold	4221929	26/08/2016	425050	5336564	BGBR	gabbro; chloritic; 1% grey siliceous quartz veins; trace pyrite+pyrrhotite	West of Pen Gold East	1A2	ultratrace 6
BB14253	1027270	0.012	Pen Gold	4207031	29/08/2016	423438	5335878	MUND	mafic volcanic; trace pyrite+pyrrhotite	West of Pen Gold East	1A2	ultratrace 6
BB14254	1027271	< 0.005	Pen Gold	4207031	29/08/2016	423434	5335945	VVQV	large grey quartz veins; rusty with chlorite and ankerite; trace chalcopyrite; 95% quartz	West of Pen Gold East	1A2	ultratrace 6
BB14255	1027272	0.008	Pen Gold	4207031	29/08/2016	423330	5335922	MUND	mafic volcanic; trace pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14256	1027273	< 0.005	Pen Gold	3000605	29/08/2016	423298	5335834	CMIF	iron formation; 1% streaky pyrrhotite+pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14257	1027274	0.025	Pen Gold	4207031	29/08/2016	423349	5336067	CMIF	iron formation; siliceous; 10-20% pyrrhotite+pyrite as bands and stringers; old trench	West of Pen Gold East	1A2	ultratrace 6
BB14258	1027275	< 0.005	Pen Gold	4221929	02/09/2016	425877	5335690	MUND	mafic volcanic; local rust; 3-5% fine-grained disseminated arsenopyrite+pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14259	1027276	< 0.005	Pen Gold	4221929	02/09/2016	425862	5335711	CMIF	magnetite iron formation; minor pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14260	1027277	< 0.005	Pen Gold	4221929	02/09/2016	425844	5335670	FUND	sheared felsic volcanic; strong sericite; 1% fine-grained disseminated pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14261	1027278	0.005	Pen Gold	3000604	03/09/2016	423663	5335685	MUND	changed from talc-chlorite ultramafic volcanic or intrusive to mafic volcanic based on geochemistry; trace pyrite	West of Pen Gold East	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BB14262	1027279	< 0.005	Pen Gold	3000603	04/09/2016	422871	5335687	MUND	changed from fuchsitic carb rock to mafic volcanic based on geochemistry; 10% white to light grey quartz-carbonate veining	West of Pen Gold East	1A2	ultratrace 6
BB14263	1027281	0.006	Pen Gold	3000603	04/09/2016	422871	5335686	MUND	well foliated bleached mafic volcanic; strong ankerite; minor fine-grained disseminated pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14264	1027282	0.049	Pen Gold	3000603	04/09/2016	422868	5335683	MUND	sericite-ankerite schist; mafic volcanic?	West of Pen Gold East	1A2	ultratrace 6
BB14265	1027283	< 0.005	Pen Gold	3000603	04/09/2016	422686	5335682	MUND	intense grey quartz-carbonate in mafic volcanic?; 1% pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14266	1027284	0.051	Pen Gold	3000603	04/09/2016	422868	5335678	MUND	mafic volcanic; strong ankerite+sericite; 1% pyrite; 2% quartz	West of Pen Gold East	1A2	ultratrace 6
BB14267	1027285	0.013	Pen Gold	3000603	04/09/2016	422869	5335678	MUND	mafic volcanic; strong ankerite+sericite; 1% pyrite+arsenopyrite	West of Pen Gold East	1A2	ultratrace 6
BB14268	1027286	0.011	Pen Gold	3000603	04/09/2016	422878	5335946	MUND	mafic volcanic; 1% pyrite+calcite fractures	West of Pen Gold East	1A2	ultratrace 6
BB14269	1027287	< 0.005	Pen Gold	3000603	05/09/2016	422903	5335742	BUND	changed from ultramafic cumulate to mafic intrusive based on geochemistry; trace pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14270	1027288	< 0.005	Pen Gold	3000603	05/09/2016	422900	5335727	BDIO	1-4cm quartz stringer trending at 125/80 in carbonate altered beige green ultramafic cumulate or diorite; nonmagnetic; 40% quartz; changed from ultramafic to diorite based on geochemistry	West of Pen Gold East	1A2	ultratrace 6
BB14271	1027289	< 0.005	Pen Gold	3000603	05/09/2016	422898	5335736	MUND	rusty shear trending at 270 in ankerite-sericite schist; mafic volcanic; trace to 1% pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14272	1027290	< 0.005	Pen Gold	3000603	05/09/2016	422898	5335736	MUND	changed from ultramafic volcanic to mafic volcanic based on geochemistry; minor pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14273	1027291	0.006	Pen Gold	3000603	05/09/2016	422903	5335733	VVQV	rusty shear in mafic intrusive with 60% white sugary quartz veining; trace pyrite	West of Pen Gold East	1A2	ultratrace 6
BB14274	1027292	< 0.005	Pen Gold	4207031	05/09/2016	422950	5335899	MUND	1cm quartz vein in ultramafic intrusive or volcanic; 20% quartz; changed to mafic volcanic based on geochemistry	Claim 4207031	1A2	ultratrace 6
BB14275	1027293	0.027	Pen Gold	4207031	05/09/2016	422950	5335899	MUND	1-2cm quartz stringer trending at 45/80 in rusty carbonate rich green soft ultramafic volcanic, changed to mafic volcanic based on geochemistry	Claim 4207031	1A2	ultratrace 6
BB14276	1027294	< 0.005	Pen Gold	4207031	05/09/2016	423089	5335883	VVQV	white to smokey grey quartz vein; 95% quartz	Claim 4207031	1A2	ultratrace 6
BB14277	1027295	< 0.005	Pen Gold	4207031	05/09/2016	423089	5335883	VVQV	white glassy quartz vein or pod with minor rust in mafic volcanic; minor bleaching and silica in wallrock; 90% quartz	Claim 4207031	1A2	ultratrace 6
BB14278	1027296	0.006	Pen Gold	4207031	07/09/2016	422966	5336229	MUND	mafic volcanic; strong ankerite+chlorite; 5% hairline quartz stringers and blebs; 0.5% pyrite; trace chalcopyrite	Claim 4207031	1A2	ultratrace 6
BB14279	1027297	0.006	Pen Gold	4207031	07/09/2016	422953	5336214	MUND	mafic volcanic; moderate ankerite+sericite; minor pyrite+arsenopyrite	Claim 4207031	1A2	ultratrace 6
BB14280	1027298	0.119	Pen Gold	4207031	07/09/2016	422977	5336233	MUND	mafic volcanic; moderate ankerite+sericite; 3cm white quartz vein trending at 253/85; trace chalcopyrite in vein; 5% cubic pyrite in wallrock	Claim 4207031	1A2	ultratrace 6
BB14282	1027300	< 0.005	Pen Gold	4207031	09/09/2016	422978	5336209	VVQV	5cm rusty sugary quartz vein trending at 244/85 in mafic volcanic; 1% pyrite in wallrock; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14283	1477901	< 0.005	Pen Gold	4207031	09/09/2016	422716	5336252	MUND	sheared mafic volcanic; 2 quartz stringers trending at 234/85; trace pyrite in wallrock	Claim 4207031	1A2	ultratrace 6
BB14284	1477902	< 0.005	Pen Gold	4207031	09/09/2016	422425	5336351	MUND	changed from serpentinite to mafic volcanic based on geochemistry; weak ankerite; strongly magnetic	Claim 4207031	1A2	ultratrace 6
BB14285	1477903	< 0.005	Pen Gold	4207031	09/09/2016	422352	5336435	VVQV	white quartz vein trending at 290/85 in strongly magnetic serpentinite; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14286	1477904	0.044	Pen Gold	4207031	09/09/2016	422386	5336440	MUND	5cm rusty shear trending at 55/85 in strongly magnetic chloritic mafic volcanic	Claim 4207031	1A2	ultratrace 6
BB14287	1477905	< 0.005	Pen Gold	4207031	12/09/2016	422955	5336471	VVQV	5cm wide X 0.5m long white sugary quartz vein in dark green chloritic mafic volcanic; possibly tourmaline in wallrock; 70% quartz	Claim 4207031	1A2	ultratrace 6
BB14288	1477906	0.005	Pen Gold	4207031	15/09/2016	422953	5336419	MUND	sheared mafic volcanic in contact with iron formation; 1-2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14289	1477907	< 0.005	Pen Gold	4207031	15/09/2016	422951	5336418	VVQV	rusty white to grey quartz vein in sheared chloritic mafic volcanic; close to iron formation; 95% quartz	Claim 4207031	1A2	ultratrace 6
BB14290	1477908	0.006	Pen Gold	4207031	15/09/2016	422949	5336420	MUND	rusty sheared chloritic mafic volcanic; 1-2% pyrite as bands and veinlets; local magnetite	Claim 4207031	1A2	ultratrace 6
BB14292	1477910	0.005	Pen Gold	4207031	15/09/2016	422953	5336419	MUND	rusty sheared chloritic mafic volcanic; 1-2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14293	1477911	0.007	Pen Gold	4207031	15/09/2016	422910	5336439	CMIF	rusty chloritic iron formation; 20% rusty white to grey sugary quartz; 1-2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14294	1477912	0.006	Pen Gold	4207031	15/09/2016	422893	5336357	MUND	mafic volcanic; strong sericite; 3-5% fine to coarse-grained pyrite+arsenopyrite as disseminated and on fractures	Claim 4207031	1A2	ultratrace 6
BB14295	1477913	< 0.005	Pen Gold	4207031	16/09/2016	422910	5336439	VVQV	rusty sugary quartz vein in sheared and folded mafic volcanic and iron formation; minor black tourmaline; 95% quartz	Claim 4207031	1A2	ultratrace 6
BB14296	1477914	< 0.005	Pen Gold	4207031	16/09/2016	422846	5336380	VVQV	rusty sugary quartz vein trending at 205/80 in mafic volcanic; local black tourmaline; 95% quartz	Claim 4207031	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BB14297	1477915	0.007	Pen Gold	4207031	16/09/2016	422857	5336372	MUND	strongly magnetic chloritic mafic volcanic; rusty white sugary quartz stringers at 335/40, 335/60, 165/80; trace chalcopyrite in veins; 40% quartz	Claim 4207031	1A2	ultratrace 6
BB14299	1477917	< 0.005	Pen Gold	4207031	16/09/2016	422619	5336370	VVQV	rusty white to grey quartz vein trending at 025/70; moderate green and black tourmaline; minor tremolite; trace pyrite n chloritic wallrock; 80% quartz	Claim 4207031	1A2	ultratrace 6
BB14300	1477918	< 0.005	Pen Gold	4207032	21/09/2016	416829	5335274	MUND	rusty angular boulder in place in shear; intense quartz-ankerite replacement of mafic volcanic?	North of Jehann Lake	1A2	ultratrace 6
BB14301	1477919	0.005	Pen Gold	4207032	21/09/2016	416829	5335274	MUND	rusty intense quartz-ankerite alteration of sheared mafic volcanic; 10% white siliceous quartz stringers; 1% arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
BB14302	1477920	0.005	Pen Gold	4207032	21/09/2016	416829	5335274	MUND	rusty intense quartz-ankerite alteration of sheared mafic volcanic; 1-2% arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
BB14303	1477921	0.007	Pen Gold	4207032	21/09/2016	416794	5335263	MUND	old pit; white to grey quartz-ankerite vein stockwork in mafic volcanic; 2-3% fine to medium-grained pyrrhotite+arsenopyrite in quartz and wallrock; 20% quartz	North of Jehann Lake	1A2	ultratrace 6
BB14304	1477922	0.009	Pen Gold	4207032	21/09/2016	416794	5335263	MUND	old pit; white to grey quartz-ankerite vein stockwork in mafic volcanic; 2-3% fine to medium-grained pyrrhotite+arsenopyrite in quartz and wallrock; 10% quartz	North of Jehann Lake	1A2	ultratrace 6
BB14305	1477923	0.021	Pen Gold	4207032	21/09/2016	416794	5335263	MUND	old pit; white to grey quartz-ankerite vein stockwork in mafic volcanic; 1-2% fine to medium-grained pyrrhotite+arsenopyrite in quartz and wallrock; 10% quartz	North of Jehann Lake	1A2	ultratrace 6
BB14306	1477924	0.010	Pen Gold	4207032	22/09/2016	416785	5335279	SUND	rusty dark grey fine-grained banded sediment; crenulated; 1% pyrite	North of Jehann Lake	1A2	ultratrace 6
BB14307	1477926	0.007	Pen Gold	4207032	22/09/2016	416785	5335279	SUND	rusty dark grey fine-grained banded sediment; crenulated; trace pyrite	North of Jehann Lake	1A2	ultratrace 6
BB14308	1477927	0.006	Pen Gold	4207032	22/09/2016	416732	5335271	SGWK	rusty lithic wacke; 1-2cm dark grey lithic clasts; abundant quartz grains; trace to minor fine-grained pyrrhotite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
BB14309	1477928	0.013	Pen Gold	4207032	22/09/2016	416533	5335294	SUND	rusty fine-grained banded sediment; crenulated	North of Jehann Lake	1A2	ultratrace 6
BB14310	1477929	0.005	Pen Gold	4207032	23/09/2016	416550	5334920	PQFP	rusty sheared quartz feldspar porphyry; strong ankerite and sericite; 1% pyrrhotite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
BB14311	1477930	0.005	Pen Gold	4207032	23/09/2016	416562	5334942	PQFP	rusty sheared quartz feldspar porphyry; strong ankerite and sericite; 1% pyrrhotite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
BB14312	1477931	< 0.005	Pen Gold	4207032	23/09/2016	416951	5334943	PQFP	white to grey quartz veining in rusty sheared quartz feldspar porphyry; strong ankerite and sericite; trace pyrite in wallrock; 30% quartz	North of Jehann Lake	1A2	ultratrace 6
BB14313	1477932	0.005	Pen Gold	4207032	23/09/2016	416625	5335048	PQFP	rusty sheared quartz feldspar porphyry; strong ankerite and sericite; minor to 1% medium-grained pyrite	North of Jehann Lake	1A2	ultratrace 6
BB14314	1477933	< 0.005	Pen Gold	4207032	23/09/2016	416641	5335093	MCLC	chlorite clot mafic volcanic; strong pervasive ankerite; minor to 1% pyrite	North of Jehann Lake	1A2	ultratrace 6
BB14315	1477934	0.006	Pen Gold	4207032	23/09/2016	416662	5335078	PQFP	rusty sheared quartz feldspar porphyry; strong ankerite and sericite; trace pyrite	North of Jehann Lake	1A2	ultratrace 6
BB14316	1477935	0.006	Pen Gold	4207032	24/09/2016	416338	5334888	VVQV	1-1.5cm grey quartz vein in argillite; rusty along contact; 95% quartz	North of Jehann Lake	1A2	ultratrace 6
BB14317	1477937	0.006	Pen Gold	4207032	24/09/2016	416225	5334933	MUND	sheared mafic volcanic; moderate ankerite+silica; trace pyrite	North of Jehann Lake	1A2	ultratrace 6
BB14318	1477938	0.022	Pen Gold East	4248298	27/09/2016	426525	5335439	BUND	2cm white quartz vein trending at 290/90 in mafic volcanic or intrusive; 1-2% pyrite; 10% quartz	Broadsword	1A2	ultratrace 6
BB14319	1477939	0.006	Pen Gold East	4248298	27/09/2016	426239	5335400	BUND	silicified mafic volcanic or intrusive; strong epidote; 10-15% disseminated pyrite	Broadsword	1A2	ultratrace 6
BB14320	1477940	0.006	Pen Gold East	4248298	27/09/2016	426239	5335400	BUND	silicified mafic volcanic or intrusive; strong epidote; 10-15% disseminated pyrite	Broadsword	1A2	ultratrace 6
BB14321	1477941	0.008	Pen Gold East	4248298	27/09/2016	426239	5335398	BUND	silicified rusty mafic volcanic or intrusive; strong epidote; rusty quartz veins; 10-15% pyrite; 5% quartz	Broadsword	1A2	ultratrace 6
BB14322	1477942	0.011	Pen Gold East	4248298	27/09/2016	426434	5335418	BUND	mafic volcanic or intrusive; rusty white quartz veins; 5-10% pyrite+pyrrhotite; locally strongly magnetic; 20% quartz	Broadsword	1A2	ultratrace 6
BB14323	1477943	< 0.005	Pen Gold East	4248298	29/09/2016	426478	5335474	FUND	silicified quartz porphyry intrusive or volcanic; minor to 1% pyrite	Broadsword	1A2	ultratrace 6
BB14324	1477944	0.055	Pen Gold East	4248298	29/09/2016	426485	5335474	FUND	sheared quartz feldspar porphyry; 1-2% pyrite+arsenopyrite	Broadsword	1A2	ultratrace 6
BB14325	1477945	< 0.005	Pen Gold East	4248298	29/09/2016	426509	5335466	BUND	changed from quartz feldspar porphyry to mafic intrusive based on geochemistry; contact with shear; 1-2% pyrite+pyrrhotite	Broadsword	1A2	ultratrace 6
BB14326	1477946	< 0.005	Pen Gold East	4248298	29/09/2016	426490	5335456	BUND	white quartz-chlorite veining in silicified mafic intrusive; 3-5% pyrite in wallrock; magnetic; 40% quartz; changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
BB14327	1477947	0.006	Pen Gold East	4248298	29/09/2016	426496	5335453	BUND	rusty sheared silicified mafic intrusive; strongly magnetic; 1-2% pyrite; changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
BB14328	1477948	0.031	Pen Gold East	4248298	29/09/2016	426456	5335449	BUND	rusty white quartz vein in silicified mafic intrusive; 5-10% pyrite in wallrock; 10% quartz	Broadsword	1A2	ultratrace 6

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BB14329	1477949	0.010	Pen Gold East	4248298	29/09/2016	426457	5335449	BUND	rusty white quartz vein in silicified mafic intrusive; 5-10% pyrite in wallrock; 20% quartz	Broadsword	1A2	ultratrace 6
BB14330	1477950	0.029	Pen Gold East	4248298	29/09/2016	426461	5335446	BUND	rusty white quartz vein in silicified mafic intrusive; 10-15% pyrite	Broadsword	1A2	ultratrace 6
BB14331	1470601	0.194	Pen Gold East	4248298	29/09/2016	426457	5335447	BUND	rusty quartz vein in rusty silicified mafic intrusive; 5% pyrite	Broadsword	1A2	ultratrace 6
BB14332	1470602	0.026	Pen Gold	4207031	30/09/2016	423072	5336481	VVQV	silicified cherty quartz in well foliated chloritic mafic volcanic; 1% pyrite; 70% quartz	Claim 4207031	1A2	ultratrace 6
BB14333	1470603	0.006	Pen Gold	4207031	30/09/2016	423063	5336486	VVQV	rusty vuggy quartz vein in chloritic mafic volcanic; black tourmaline; trace to 1% pyrite; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14334	1470604	0.006	Pen Gold	4207031	30/09/2016	423039	5336544	MUND	white quartz veins in chloritic silicified mafic volcanic; trace chalcopyrite; magnetic; 30% quartz	Claim 4207031	1A2	ultratrace 6
BB14335	1470606	0.017	Pen Gold	4207031	30/09/2016	422911	5336592	KUND	white quartz-ankerite vein stockwork in well foliated to sheared chloritic ultramafic volcanic; trace pyrite+chalcopyrite in vein; 40% quartz; changed from mafic volcanic to ultramafic volcanic based on geochemistry	Claim 4207031	1A2	ultratrace 6
BB14336	1470607	0.008	Pen Gold	4207031	30/09/2016	422877	5336600	KCCB	sheared chloritic carb rock; minor white quartz-ankerite veins; trace pyrite; 5% quartz; changed from sheared chloritic mafic volcanic with strong ankerite to chloritic carb rock based on geochemistry	Claim 4207031	1A2	ultratrace 6
BB14337	1470608	< 0.005	Pen Gold	4207040	05/10/2016	415926	5333945	MUND	intense carbonate replacement of sheared rusty chloritic mafic volcanic	Southwest of Jehann Lake	1A2	ultratrace 6
BB14338	1470609	0.006	Pen Gold	4207040	05/10/2016	415878	5334017	PQFP	quartz feldspar porphyry; weak to moderate ankerite+sericite; orange tinge may be kspars or hematite?; 1% pyrite; possibly very large glacial erratic	Southwest of Jehann Lake	1A2	ultratrace 6
BB14339	1470610	0.008	Pen Gold	4207040	05/10/2016	415876	5334017	PQFP	quartz feldspar porphyry; weak to moderate ankerite+sericite; orange tinge may be kspars or hematite?; white quartz veins; 1% pyrite; 10% quartz; possibly very large glacial erratic	Southwest of Jehann Lake	1A2	ultratrace 6
BB14340	1470611	0.005	Pen Gold	4207040	05/10/2016	416093	5334108	MUND	rusty sheared mafic volcanic; moderate to strong ankerite+sericite	Southwest of Jehann Lake	1A2	ultratrace 6
BB14341	1470612	0.005	Pen Gold	4207032	06/10/2016	417275	5334421	MUND	mafic volcanic; moderate to strong ankerite breccia	South of Jehann Lake	1A2	ultratrace 6
BB14342	1470613	0.005	Pen Gold	4207032	06/10/2016	417340	5334406	MUND	mafic volcanic; moderately bleached-ankerite; 5% quartz veinlets; 1% pyrite	South of Jehann Lake	1A2	ultratrace 6
BB14343	1470614	0.016	Pen Gold	4207032	06/10/2016	417366	5334451	MUND	mafic volcanic; moderate to strong bleaching-ankerite; grey quartz-ankerite stringers; 1-2% very fine-grained pyrite +/- arsenopyrite	South of Jehann Lake	1A2	ultratrace 6
BB14344	1470615	0.008	Pen Gold	4207032	06/10/2016	417464	5334474	MUND	mafic volcanic; weak to moderate ankerite; 5% quartz veinlets with 1-2% pyrite+arsenopyrite; frost heave on hillside	South of Jehann Lake	1A2	ultratrace 6
BB14345	1470616	< 0.005	Pen Gold	4207031	14/10/2016	422630	5336535	BGBR	chloritic gabbro to diorite; 1-2% medium to coarse-grained pyrrhotite	Claim 4207031	1A2	ultratrace 6
BB14346	1470618	< 0.005	Pen Gold	4207031	14/10/2016	422628	5336520	VVQV	15-20cm rusty vuggy quartz-carbonate-chlorite vein trending at azimuth 240 in strongly magnetic chloritic mafic volcanic or intrusive; trace pyrrhotite; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14347	1470619	0.019	Pen Gold	4207031	14/10/2016	422694	5336606	MUND	chloritic mafic volcanic; trace pyrite; nonmagnetic	Claim 4207031	1A2	ultratrace 6
BB14348	1470620	< 0.005	Pen Gold	4207031	14/10/2016	422733	5336693	IUND	rusty well foliated intermediate volcanic; carbonate weathering rhind; 1% pyrite	Claim 4207031	1A2	ultratrace 6
BB14349	1470621	< 0.005	Pen Gold	4207031	15/10/2016	422655	5336316	IUND	rusty well foliated intermediate to felsic volcanic; strong carbonate; moderate sericite; trace to minor pyrite	Claim 4207031	1A2	ultratrace 6
BB14350	1470622	< 0.005	Pen Gold	4207031	15/10/2016	422644	5336094	IUND	intermediate volcanic; moderate carbonate; 1% pyrite	Claim 4207031	1A2	ultratrace 6
BB14351	1470623	0.012	Pen Gold	4207031	15/10/2016	422647	5335973	MUND	mafic volcanic; moderate carbonate; 1% pyrite	Claim 4207031	1A2	ultratrace 6
BB14352	1470624	0.113	Pen Gold	3000603	15/10/2016	422586	5335868	VVQV	rusty grey quartz vein stockwork in boulder; 5-10% fine to coarse-grained pyrite; 70% quartz; unknown host rock		1A2	ultratrace 6
BB14353	1470625	< 0.005	Pen Gold	4207031	16/10/2016	422597	5336020	MPLW	chloritic pillowed mafic volcanic; slightly rusty weathering rhind; trace to minor pyrite+arsenopyrite	Claim 4207031	1A2	ultratrace 6
BB14354	1470626	< 0.005	Pen Gold	4207031	16/10/2016	422442	5335982	MUND	chloritic mafic volcanic; 1% pyrite+arsenopyrite	Claim 4207031	1A2	ultratrace 6
BB14355	1470627	0.018	Pen Gold	4207031	16/10/2016	422327	5335930	VVQV	rusty quartz-ankerite veins in chloritic mafic volcanic; 90% quartz	Claim 4207031	1A2	ultratrace 6
BB14356	1470628	< 0.005	Pen Gold	4207035	16/10/2016	422354	5335840	MUND	slightly bleached mafic volcanic; trace pyrite+pyrrhotite as stringers and along fractures		1A2	ultratrace 6
BB14357	1470629	< 0.005	Pen Gold	3000603	16/10/2016	422503	5335859	MUND	slightly bleached mafic volcanic; rusty carbonate weathering rhind; carbonate veins and pods; 1% pyrite+arsenopyrite in wallrock and carbonate veins		1A2	ultratrace 6
BB14358	1470630	0.013	Pen Gold	4207054	18/10/2016	418722	5330677	DDDB	fine-grained diabase; minor pyrite on fractures; strongly magnetic	Burtho Showing West	1A2	ultratrace 6
BB14359	1470631	< 0.005	Pen Gold	4207054	18/10/2016	418829	5330598	PUND	siliceous felsic volcanic or intrusive; white sugary quartz veins or pods; trace pyrite; 20% quartz	Burtho Showing West	1A2	ultratrace 6
BB14360	1470632	< 0.005	Pen Gold	4207054	18/10/2016	418876	5330509	PQFP	1-2cm vuggy slightly rusty white quartz vein in slightly reddish quartz feldspar porphyry; 20% quartz	Burtho Showing West	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BB14361	1470634	< 0.005	Pen Gold	4207054	18/10/2016	418876	5330509	PQFP	slightly reddish quartz feldspar porphyry; 1-2% fine to coarse-grained disseminated pyrite	Burtho Showing West	1A2	ultratrace 6
BB14362	1470635	< 0.005	Pen Gold	4207054	18/10/2016	418880	5330511	PQFP	slightly reddish quartz feldspar porphyry; 1-2% fine to coarse-grained disseminated pyrite	Burtho Showing West	1A2	ultratrace 6
BB14363	1470636	< 0.005	Pen Gold	4207054	18/10/2016	418871	5330499	PPQP	sericite schist with quartz eyes, quartz porphyry or felsic volcanic; trace pyrite; from old trench	Burtho Showing West	1A2	ultratrace 6
BB14364	1470637	< 0.005	Pen Gold	4207030	19/10/2016	420331	5336515	MUND	bleached mafic volcanic; 1-2% disseminated pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
BB14365	1470638	< 0.005	Pen Gold	4207030	19/10/2016	420249	5336475	MUND	white to light grey quartz-epidote veining in mafic volcanic; trace pyrite; 30% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
BB14366	1470639	0.011	Pen Gold	4207031	20/10/2016	422249	5336338	MUND	rusty mafic volcanic in contact with iron formation; rusty weathering rhind; minor carbonate veining	Claim 4207031	1A2	ultratrace 6
BB14367	1470640	< 0.005	Pen Gold	4207031	20/10/2016	422303	5336648	MCLC	chlorite clot mafic volcanic or intrusive; trace pyrite	Claim 4207031	1A2	ultratrace 6
BB14368	1470641	< 0.005	Pen Gold	4207030	21/10/2016	419148	5335884	MUND	rusty fine-grained mafic volcanic; minor quartz-carbonate-pyrrhotite veinlets; 2-3% pyrrhotite; 5% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
BB14369	1470642	< 0.005	Pen Gold	4207030	21/10/2016	419130	5335851	MUND	rusty fine-grained mafic volcanic; minor quartz-carbonate veinlets; 3-5% pyrrhotite and trace chalcopyrite as streaks and with veinlets; 10% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
BB14370	1470644	< 0.005	Pen Gold	4207031	25/10/2016	422084	5336675	KKCB	rusty sheared carb rock; abundant white carbonate flooding/veining; trace pyrite; changed from rusty sheared mafic volcanic to carb rock based on geochemistry	Claim 4207031	1A2	ultratrace 6
BB14371	1470645	0.006	Pen Gold	4207031	25/10/2016	421945	5336510	MUND	abundant white carbonate flooding/veining in mafic volcanic; 1-2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14372	1470646	0.041	Pen Gold	4207031	31/10/2016	422042	5336501	VVQV	rusty white sugary quartz veins in sheared chloritic mafic volcanic; 1% pyrite; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14373	1470647	< 0.005	Pen Gold	4207031	31/10/2016	422042	5336501	MUND	rusty sheared chloritic-carbonate mafic volcanic beside sample 1470646; 1-2% pyrite+arsenopyrite	Claim 4207031	1A2	ultratrace 6
BB14374	1470648	0.014	Pen Gold	4207031	31/10/2016	422043	5336501	MUND	rusty sheared sericitic mafic volcanic; 1% pyrite	Claim 4207031	1A2	ultratrace 6
BB14375	1470649	0.016	Pen Gold	4207031	31/10/2016	422044	5336501	MUND	rusty sheared sericitic mafic volcanic; 1-2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14376	1470650	0.018	Pen Gold	4207031	31/10/2016	421981	5336504	MUND	rusty vuggy white quartz vein in sheared chloritic mafic volcanic; 1-2% pyrite+chalcopyrite; 40% quartz	Claim 4207031	1A2	ultratrace 6
BB14377	1470651	0.019	Pen Gold	4207031	31/10/2016	421981	5336504	MUND	rusty white quartz vein in chloritic mafic volcanic; minor pyrite	Claim 4207031	1A2	ultratrace 6
BB14378	1470652	0.005	Pen Gold	4207031	31/10/2016	421980	5336504	MUND	2cm rusty grey quartz vein in rusty sericite-carbonate schist; 1% pyrite; 20% quartz	Claim 4207031	1A2	ultratrace 6
BB14379	1470653	0.022	Pen Gold	4207031	02/11/2016	422096	5336499	MUND	ankerite-sericite-chlorite schist; mafic volcanic?; minor pyrite	Claim 4207031	1A2	ultratrace 6
BB14380	1470654	0.034	Pen Gold	4207031	02/11/2016	422094	5336500	MUND	rusty chloritic mafic volcanic; 2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14381	1470655	0.027	Pen Gold	4207031	02/11/2016	422096	5336499	MUND	rusty chloritic mafic volcanic; contorted and folded; local bleaching; 2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14382	1470657	< 0.005	Pen Gold	4207031	02/11/2016	421844	5336482	MUND	rusty siliceous mafic volcanic or fine-grained sediment; 3-5% arsenopyrite+pyrrhotite	Claim 4207031	1A2	ultratrace 6
BB14383	1470658	< 0.005	Pen Gold	4207031	02/11/2016	421864	5336478	MUND	rusty sheared mafic volcanic with moderate carbonate-ankerite; 1-2% pyrite+arsenopyrite	Claim 4207031	1A2	ultratrace 6
BB14384	1470660	0.016	Pen Gold	4207031	02/11/2016	421868	5336478	MUND	rusty sericite-carbonate shear in mafic volcanic; 1-2% pyrite+arsenopyrite	Claim 4207031	1A2	ultratrace 6
BB14385	1470661	0.007	Pen Gold	4207031	03/11/2016	422087	5336514	VQCV	rusty grey to white, locally sugary quartz-ankerite veining in chloritic mafic volcanic; 0.5% medium to coarse-grained pyrite; minor to 0.5% chalcopyrite; possibly black tourmaline; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14386	1470662	< 0.005	Pen Gold	4207031	03/11/2016	422082	5336511	VQCV	30cm rusty grey to white, locally sugary quartz-ankerite vein trending at 075/50 in chloritic mafic volcanic; 80% quartz	Claim 4207031	1A2	ultratrace 6
BB14387	1470663	< 0.005	Pen Gold	4207031	03/11/2016	422080	5336511	VQCV	rusty grey to white, locally sugary quartz-ankerite veining in chloritic mafic volcanic; chloritic bands and ribbons; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14388	1470664	0.008	Pen Gold	4207031	03/11/2016	421891	5336509	MUND	rusty sheared chloritic mafic volcanic; weak bleaching; 1-2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14389	1470665	0.012	Pen Gold	4207031	03/11/2016	421890	5336509	MUND	rusty white quartz-ankerite veining/veinlets in sheared chloritic mafic volcanic; minor pyrite +/- arsenopyrite; 10% quartz	Claim 4207031	1A2	ultratrace 6
BB14390	1470666	< 0.005	Pen Gold	4207031	03/11/2016	421804	5336491	MUND	rusty mafic volcanic; 5% coarse-grained pyrite	Claim 4207031	1A2	ultratrace 6
BB14391	1470667	0.005	Pen Gold	4207031	03/11/2016	421789	5336483	MUND	rusty banded mafic volcanic or sediment; 2-3% pyrite as fine-grained disseminated and stringers	Claim 4207031	1A2	ultratrace 6
BB14392	1470668	< 0.005	Pen Gold	4207031	03/11/2016	421785	5336466	MUND	rusty sheared mafic volcanic trending at 240/82; 2-3% fine to coarse-grained pyrite	Claim 4207031	1A2	ultratrace 6
BB14393	1470669	0.010	Pen Gold	4207031	04/11/2016	421713	5336275	MUND	sheared chloritic mafic volcanic; abundant magnetite; 1-2% pyrite	Claim 4207031	1A2	ultratrace 6
BB14394	1470670	0.005	Pen Gold	4207031	04/11/2016	421795	5336389	MUND	sheared chloritic mafic volcanic; strongly magnetic; 2-3% pyrite+pyrrhotite	Claim 4207031	1A2	ultratrace 6
BB14395	1470671	< 0.005	Pen Gold	4207031	04/11/2016	421797	5336415	PPFP	feldspar porphyry; minor white quartz veins; 10% quartz	Claim 4207031	1A2	ultratrace 6
BB14396	1470672	< 0.005	Pen Gold	4207031	04/11/2016	421738	5336623	VVQV	rusty white quartz vein in chloritic mafic volcanic; 90% quartz	Claim 4207031	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BB14397	1470673	< 0.005	Pen Gold	4207030	05/11/2016	421503	5336637	MUND	rusty sheared mafic volcanic; 2-3% pyrite as fine-grained in stringers		1A2	ultratrace 6
BB14398	1470674	< 0.005	Pen Gold	4207031	05/11/2016	421599	5336643	VVQV	rusty white quartz vein in massive mafic volcanic; chloritic wallrock; 90% quartz	Claim 4207031	1A2	ultratrace 6
BB14399	1470675	< 0.005	Pen Gold	4207031	05/11/2016	421600	5336644	VVQV	rusty white quartz vein in chloritic mafic volcanic; 90% quartz	Claim 4207031	1A2	ultratrace 6
BB14400	1470676	< 0.005	Pen Gold	4207031	05/11/2016	421599	5336269	KCCB	rusty sheared chloritic carb rock; rusty clots may be oxidized sulphides; changed from rusty sheared chloritic mafic volcanic to chloritic carb rock based on geochemistry	Claim 4207031	1A2	ultratrace 6
BB14401	1470677	< 0.005	Pen Gold	4207041	07/11/2016	417853	5333713	KCCB	carb rock; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
BB14402	1470678	< 0.005	Pen Gold	4207041	07/11/2016	417831	5333778	MUND	bleached mafic volcanic; moderate to strong carbonate; minor carbonate stringers	Southeast of Jehann Lake	1A2	ultratrace 6
BB14403	1470680	0.008	Pen Gold	4207041	07/11/2016	417821	5333804	MUND	bleached mafic volcanic; intense carbonate; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
BB14404	1470681	< 0.005	Pen Gold	4207041	07/11/2016	417844	5333799	MUND	mafic volcanic; strong to intense carbonate	Southeast of Jehann Lake	1A2	ultratrace 6
BB14405	1470682	0.010	Pen Gold	4207041	07/11/2016	417871	5333801	MUND	mafic volcanic; moderate to strong bleaching and carbonate; minor pyrite in carbonate veinlets	Southeast of Jehann Lake	1A2	ultratrace 6
BB14406	1470683	0.037	Pen Gold	4207041	07/11/2016	417910	5333822	MUND	massive mafic volcanic; moderate quartz-epidote-carbonate veinlets; 1-2% pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
BB14407	1470684	< 0.005	Pen Gold	4207031	13/11/2016	421952	5336285	MUND	sheared mafic volcanic trending at 220/85 with rusty white sugary quartz veining/flooding; minor pyrite; 10% quartz	Claim 4207031	1A2	ultratrace 6
BB14408	1470685	< 0.005	Pen Gold	4207031	13/11/2016	421914	5336314	VVQV	rusty quartz vein stockwork in bleached mafic volcanic; 60% quartz	Claim 4207031	1A2	ultratrace 6
BB14409	1470686	< 0.005	Pen Gold	4207031	13/11/2016	421864	5336375	MUND	mafic volcanic; 2-3% pyrite as fine to coarse-grained blebs	Claim 4207031	1A2	ultratrace 6
BB14410	1470687	< 0.005	Pen Gold	4207031	13/11/2016	422061	5336581	MUND	rusty quartz veining in rusty sheared chloritic mafic volcanic trending at azimuth 254; 2-3% pyrite; 10% quartz	Claim 4207031	1A2	ultratrace 6
BB14411	1470688	< 0.005	Pen Gold East	4248299	14/11/2016	429237	5335567	BDIO	medium-grained diorite; 2-3% disseminated pyrrhotite	Pen Gold East	1A2	ultratrace 6
BB14412	1470689	0.006	Pen Gold East	4248299	14/11/2016	429234	5335684	MUND	10cm white quartz-epidote vein trending at azimuth 276 in mafic volcanic; minor pyrite+chalcopyrite in bleached wallrock near vein; 20% quartz	Pen Gold East	1A2	ultratrace 6
BB14413	1470690	< 0.005	Pen Gold East	4248299	14/11/2016	429226	5335682	MUND	white sugary quartz veining in chloritic mafic volcanic; 2-3% pyrite in wallrock and veining; 30% quartz	Pen Gold East	1A2	ultratrace 6
BB14414	1470691	< 0.005	Pen Gold East	4248299	14/11/2016	429234	5335682	MUND	irregular white quartz vein in well foliated chloritic mafic volcanic; 2-3% pyrite; 10% quartz	Pen Gold East	1A2	ultratrace 6
BB14415	1470692	< 0.005	Pen Gold East	4248299	14/11/2016	429205	5335740	FUND	vaguely banded felsic volcanic; trace pyrite; previous sample taken SWL 2165	Pen Gold East	1A2	ultratrace 6
BB14416	1470693	< 0.005	Pen Gold East	4248299	14/11/2016	429198	5335746	MUND	massive rusty mafic volcanic or intrusive; 2-3% pyrite	Pen Gold East	1A2	ultratrace 6
BB14417	1470695	< 0.005	Pen Gold East	4248299	14/11/2016	429246	5335747	BDIO	rusty medium-grained massive diorite; 1-2% very fine-grained disseminated pyrrhotite; strongly magnetic	Pen Gold East	1A2	ultratrace 6
BB14418	1470696	< 0.005	Pen Gold East	4248299	14/11/2016	429224	5335778	BDIO	rusty medium-grained massive diorite; 1-2% very fine-grained disseminated pyrrhotite; strongly magnetic	Pen Gold East	1A2	ultratrace 6
BB14419	1470697	< 0.005	Pen Gold East	4248299	14/11/2016	429229	5335778	BDIO	rusty medium-grained massive diorite; minor to 1% pyrrhotite; moderately magnetic	Pen Gold East	1A2	ultratrace 6
BB14420	1470698	< 0.005	Pen Gold East	4248299	15/11/2016	429223	5335720	BUND	2cm rusty white quartz vein in fine-grained mafic intrusive or volcanic; slight orange tinge; trace to minor pyrite; 30% quartz	Pen Gold East	1A2	ultratrace 6
BB14421	1470699	0.005	Pen Gold East	4248299	15/11/2016	429034	5335686	BUND	2cm rusty quartz vein in fine-grained mafic intrusive or volcanic; 10% quartz	Pen Gold East	1A2	ultratrace 6
BB14422	1470700	< 0.005	Pen Gold East	4248299	15/11/2016	428995	5335705	MUND	mafic volcanic; 5% grey quartz veins; minor pyrite on fractures	Pen Gold East	1A2	ultratrace 6
BB14423	1274151	< 0.005	Pen Gold East	4248299	15/11/2016	428910	5335555	BGBR	rusty medium-grained gabbro; 1-2% pyrrhotite+pyrite	Pen Gold East	1A2	ultratrace 6
BB14424	1274152	< 0.005	Pen Gold East	4248299	15/11/2016	428923	5335539	VVQV	white quartz vein in rusty mafic volcanic; 80% quartz	Pen Gold East	1A2	ultratrace 6
BB14425	1274153	< 0.005	Pen Gold East	4248299	15/11/2016	428871	5335772	BGBR	rusty strongly magnetic gabbro or diabase; minor pyrite	Pen Gold East	1A2	ultratrace 6
BB14426	1274155	< 0.005	Pen Gold East	4248299	15/11/2016	428857	5335739	VVQV	siliceous to sugary to cherty grey quartz veining in gossan outcrop; 3-5% pyrite as fine-grained streaks; 95% quartz	Pen Gold East	1A2	ultratrace 6
DH15677	1477602	< 0.005	Reeves	4240115	09/08/2016	419887	5338560	USRP	serpentinite, trace to 1% pyrite+chalcopyrite+arsenopyrite	Reeves	1A2	ultratrace 6
DH15678	1477604	< 0.005	Reeves	4240115	09/08/2016	419879	5338565	BUND	changed from serpentinite to mafic intrusive based on geochemistry; trace to 1% pyrite+chalcopyrite+arsenopyrite	Reeves	1A2	ultratrace 6
DH15679	1477605	0.009	Reeves	4240115	10/08/2016	420126	5338665	BUND	changed from pyroxenite to mafic intrusive based on geochemistry; trace pyrite	Reeves	1A2	ultratrace 6
DH15680	1477606	0.017	Reeves	4240115	11/08/2016	419985	5337975	PPQP	sheared quartz porphyry; rotted to siliceous; abundant black tourmaline, trace pyrite	Reeves	1A2	ultratrace 6
DH15681	1477608	0.006	Reeves	4240115	11/08/2016	419981	5337975	PUND	changed from silicified mafic volcanic to felsic intrusive based on geochemistry; trace to 1% pyrrhotite+arsenopyrite+chalcopyrite	Reeves	1A2	ultratrace 6
DH15683	1477610	< 0.005	Reeves	4240115	11/08/2016	419740	5338017	VVQV	massive unaltered gabbro, 1-3 cm disjointed quartz vein, white to light grey; 100% quartz, well fractured	Reeves	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15684	1477611	< 0.005	Reeves	4240115	13/08/2016	420011	5338150	VVQV	95% smokey grey quartz with moderite ankerite in gabbro-diorite	Reeves	1A2	ultratrace 6
DH15685	1477612	< 0.005	Reeves	4240115	13/08/2016	420003	5338156	VVQV	95% smokey grey quartz with moderite ankerite in gabbro-diorite	Reeves	1A2	ultratrace 6
DH15686	1477613	< 0.005	Reeves	4240115	13/08/2016	420004	5338153	MUND	mafic volcanic; moderate to strong ankerite+sericite	Reeves	1A2	ultratrace 6
DH15687	1477614	< 0.005	Reeves	4240115	13/08/2016	419964	5338185	VVQV	3-5cm smokey grey quartz veins in 40cm stockwork with moderate ankerite in mafic volcanic; 95% quartz	Reeves	1A2	ultratrace 6
DH15688	1477615	< 0.005	Reeves	4240115	13/08/2016	419965	5338185	VVQV	3-5cm smokey grey quartz vein with moderate ankerite bands in mafic volcanic; 90% quartz	Reeves	1A2	ultratrace 6
DH15689	1477616	< 0.005	Reeves	4240115	13/08/2016	419955	5338182	MUND	strongly ankerite altered mafic volcanic; abundant fine black tourmaline	Reeves	1A2	ultratrace 6
DH15690	1477617	< 0.005	Reeves	4240115	14/08/2016	419998	5338205	BDIO	siliceous diorite; 20% dark grey quartz veining with abundant ankerite	Reeves	1A2	ultratrace 6
DH15691	1477618	< 0.005	Reeves	4240115	14/08/2016	420004	5338219	MUND	folded 2-4cm smokey grey quartz veins with weak ankerite in silicified mafic volcanic; 20% quartz	Reeves	1A2	ultratrace 6
DH15692	1477619	< 0.005	Reeves	4240115	14/08/2016	420005	5338254	MUND	smokey grey quartz stockwork with moderate to strong ankerite in mafic volcanic; trace chalcopyrite; 30% quartz	Reeves	1A2	ultratrace 6
DH15693	1477620	< 0.005	Reeves	4240115	14/08/2016	420013	5338229	VVQV	3 parallel 3cm smokey grey quartz veins with moderate ankerite in silicified diorite or mafic volcanic; 60% quartz	Reeves	1A2	ultratrace 6
DH15694	1477621	< 0.005	Reeves	4240115	14/08/2016	420114	5338263	KFCB	green carbonate zone with massive diorite on both sides	Reeves	1A2	ultratrace 6
DH15695	1477622	< 0.005	Reeves	4240115	14/08/2016	420098	5338253	KKCB	changed from silicified and sheared mafic volcanic with strong ankerite to carb rock based on geochemistry; trace pyrite	Reeves	1A2	ultratrace 6
DH15696	1477623	< 0.005	Reeves	4240115	15/08/2016	419803	5338100	BGBR	white to light grey quartz veins in gabbro; approximate trend 055; pinch and swell 3-50cm wide; weak ankerite; 50% quartz	Reeves	1A2	ultratrace 6
DH15697	1477624	< 0.005	Reeves	4240115	15/08/2016	419807	5338100	VVQV	small white quartz pod in gabbro, slight rust; 99% quartz	Reeves	1A2	ultratrace 6
DH15698	1477625	< 0.005	Pen Gold East	4248298	18/08/2016	426664	5336255	FUND	silicified felsic volcanic; disjointed 1 cm white quartz veins; 10% quartz	Pen Gold East	1A2	ultratrace 6
DH15699	1477627	0.022	Pen Gold East	4248298	19/08/2016	426658	5335435	VVQV	50cm white quartz vein with minor rust in mafic intrusive; trace pyrite; 99% quartz	Broadsword	1A2	ultratrace 6
DH15700	1477628	0.331	Pen Gold East	4248298	19/08/2016	426661	5335435	VVQV	5-50cm white quartz vein in mafic intrusive; sample of 6cm wide rusty section; minor pyrite; 99% quartz	Broadsword	1A2	ultratrace 6
DH15701	1477629	0.024	Pen Gold East	4248298	19/08/2016	426664	5335434	VVQV	5-50cm white quartz vein in mafic intrusive, sample of 15 cm rusty section with chlorite bands/stylolites and 1% medium-grained pyrite; trace sphalerite?; 95% quartz	Broadsword	1A2	ultratrace 6
DH15702	1477630	< 0.005	Pen Gold East	4248298	19/08/2016	426652	5335422	VVQV	rusty quartz fracture fill in mafic intrusive; 1% pyrite+pyrrhotite; 95% quartz	Broadsword	1A2	ultratrace 6
DH15703	1477631	0.206	Pen Gold East	4248298	19/08/2016	426486	5335424	BUND	slab off mafic intrusive outcrop, strongly silicified; 10-20% pyrite, 5% white quartz veins; moderately to strongly magnetic; changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
DH15704	1477632	< 0.005	Pen Gold East	4248298	19/08/2016	426715	5335789	CMIF	magnetite iron formation; 2m exposed; 5-10% magnetite and chert	Pen Gold East	1A2	ultratrace 6
DH15705	1477633	1.09	Pen Gold East	4248298	22/08/2016	426522	5335750	VVQV	4 and 8cm white quartz veins in light grey silicified felsic volcanic; 99% quartz	Pen Gold East	1A2	ultratrace 6
DH15706	1477634	0.005	Pen Gold East	4248298	22/08/2016	426522	5335755	VVQV	white quartz veins trending N-S and E-W; 1% pyrite in silicified wallrock; 99% quartz	Pen Gold East	1A2	ultratrace 6
DH15707	1477636	< 0.005	Pen Gold East	4248298	22/08/2016	426510	5335748	FUND	grey quartz veins in silicified felsic volcanic; minor pyrite+chalcopyrite; 25% quartz	Pen Gold East	1A2	ultratrace 6
DH15708	1477637	< 0.005	Pen Gold East	4248298	22/08/2016	426480	5335713	FUND	light grey silicified sericitic felsic volcanic; 2-3% disseminated pyrite+arsenopyrite	Pen Gold East	1A2	ultratrace 6
DH15709	1477638	< 0.005	Pen Gold East	4248298	22/08/2016	426455	5335770	VVQV	1-4cm rusty pinch and swell quartz vein; 1-2% pyrite+arsenopyrite; 90% quartz	Pen Gold East	1A2	ultratrace 6
DH15710	1477639	< 0.005	Pen Gold East	4248298	22/08/2016	426427	5335780	FUND	silicified felsic volcanic with siliceous quartz+epidote+chlorite veining/flooding; 1-2% pyrite+chalcopyrite+arsenopyrite; 10% quartz	Pen Gold East	1A2	ultratrace 6
DH15711	1477640	< 0.005	Pen Gold East	4248298	22/08/2016	426370	5335820	VVQV	6-9cm white quartz veining at contact between porphyry and silicified felsic volcanic; 99% quartz	Pen Gold East	1A2	ultratrace 6
DH15712	1477641	< 0.005	Pen Gold East	4248298	22/08/2016	426367	5335820	PUND	felsic porphyry or granodiorite; minor pyrite+chalcopyrite+arsenopyrite; 10% white quartz veining	Pen Gold East	1A2	ultratrace 6
DH15713	1477642	< 0.005	Pen Gold East	4248298	22/08/2016	426354	5335762	MUND	2-6cm white quartz veining at contact between silicified mafic and felsic volcanics; 1% pyrite; 20% quartz	Pen Gold East	1A2	ultratrace 6
DH15714	1477643	< 0.005	Pen Gold East	4248298	22/08/2016	426346	5335766	FUND	silicified sericitic felsic volcanic; 3-5% very fine-grained to fine-grained disseminated pyrite	Pen Gold East	1A2	ultratrace 6
DH15715	1477644	< 0.005	Pen Gold East	4248298	22/08/2016	426340	5335774	FUND	silicified sericitic felsic volcanic; 3-5% very fine-grained to fine-grained disseminated pyrite	Pen Gold East	1A2	ultratrace 6
DH15716	1477645	< 0.005	Pen Gold East	4248298	22/08/2016	426404	5335639	VVQV	white quartz-epidote-kspars veining at contact between mafic volcanic and diabase; 60% quartz	Pen Gold East	1A2	ultratrace 6
DH15717	1477646	0.005	Pen Gold East	4248298	22/08/2016	426407	5335635	VVQV	1-8cm irregular disjointed white quartz+epidote+kspars+chlorite veining in silicified mafic volcanic; 85% quartz	Pen Gold East	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15718	1477647	0.048	Pen Gold East	4248298	23/08/2016	426389	5335468	FUND	silicified felsic volcanic, 10% white quartz veining; bleached, silicified and kspar alteration and 2-3% pyrite in wallrock adjacent to veining	Broadsword	1A2	ultratrace 6
DH15719	1477648	1.44	Pen Gold East	4248298	23/08/2016	426373	5335455	VVQV	angular slabs of rusty quartz float from old pit; trace pyrite; 98% quartz	Broadsword	1A2	ultratrace 6
DH15720	1477649	0.06	Pen Gold East	4248298	23/08/2016	426247	5335363	BUND	white to grey quartz fracture fill veins in mafic intrusive; trend E-W; local minor to 2% pyrite in wallrock near veins; 10% quartz; changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
DH15721	1477650	0.07	Pen Gold East	4248298	23/08/2016	426223	5335395	BUND	rusty and siliceous mafic intrusive, 15% white to light grey quartz-epidote-kspar veining; 1-2% pyrite; changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
DH15722	1477651	0.015	Pen Gold East	4248298	23/08/2016	426238	5335405	PUND	rusty siliceous felsic intrusive or granodiorite, 3-5% fine to coarse-grained disseminated pyrite	Broadsword	1A2	ultratrace 6
DH15723	1477652	< 0.005	Pen Gold East	4248298	23/08/2016	426293	5335765	CMIF	cherty magnetite iron formation; angular slab off outcrop; 10% magnetite	Pen Gold East	1A2	ultratrace 6
DH15724	1477653	0.005	Pen Gold East	4248298	23/08/2016	426313	5335777	FUND	pink siliceous felsic volcanic north of magnetite iron formation, 2-3% pyrite+arsenopyrite	Pen Gold East	1A2	ultratrace 6
DH15725	1477654	0.014	Pen Gold East	4248298	23/08/2016	426299	5335808	VVQV	4cm white to grey quartz vein in felsic volcanic; trace pyrite; 60% quartz	Pen Gold East	1A2	ultratrace 6
DH15726	1477655	0.005	Pen Gold East	4248298	23/08/2016	426304	5335808	VVQV	rusty 6cm white quartz vein in felsic volcanic or intrusive; minor pyrite; 70% quartz	Pen Gold East	1A2	ultratrace 6
DH15727	1477656	< 0.005	Pen Gold	4207041	25/08/2016	418294	5334037	MUND	2cm glassy white quartz vein in mafic volcanic; 25% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH15728	1477658	< 0.005	Pen Gold	4207041	25/08/2016	418198	5334199	VVQV	2cm glassy white quartz vein in light grey mafic volcanic or intrusive; 60% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH15729	1477659	< 0.005	Pen Gold	4207041	25/08/2016	418198	5334199	MUND	1-4cm disjointed white quartz vein in mafic volcanic or intrusive; minor rust; 30% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH15730	1477660	0.009	Pen Gold	4207041	26/08/2016	418214	5334188	VVQV	4-10cm white quartz veining in felsic intrusive porphyry; trends at azimuth 320; 99% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH15731	1477661	0.06	Pen Gold	4207036	26/08/2016	421836	5335428	VVQV	30 cm rusty milky white quartz vein in felsic intrusive; trace ankerite and pyrite; 99% quartz; old pit	Claim 4207036; Syenite Target	1A2	ultratrace 6
DH15732	1477662	0.149	Pen Gold	4207036	26/08/2016	421841	5335419	VVQV	angular rusty quartz muck from old pit; trace pyrite+chalcopyrite; 99% quartz	Claim 4207036; Syenite Target	1A2	ultratrace 6
DH15733	1477663	0.011	Pen Gold	4207036	26/08/2016	421802	5335436	VVQV	pink felsic intrusive or syenite with quartz vein stockwork; weak ankerite; trace pyrite; 99% quartz	Claim 4207036; Syenite Target	1A2	ultratrace 6
DH15734	1477664	0.006	Pen Gold	4207036	26/08/2016	421796	5335426	VVQV	10cm shear with 1cm quartz vein trending at azimuth 210 in syenite; weak ankerite; 98% quartz	Claim 4207036; Syenite Target	1A2	ultratrace 6
DH15735	1477665	0.006	Pen Gold	4207031	27/08/2016	423622	5336645	BGBR	0.5cm white quartz veinlets trending at azimuth 250 in gabbro, trace pyrite in wallrock; 10% quartz	Claim 4207031	1A2	ultratrace 6
DH15736	1477667	0.038	Pen Gold	3000605	29/08/2016	423484	5335603	UUTC	trench 1; light brown talc-carbonate schist	Claim 3000605	1A2	ultratrace 6
DH15737	1477668	< 0.005	Pen Gold	3000605	29/08/2016	423484	5335608	KUND	silicified chlorite-ankerite schist unit; ultramafic volcanic; 5% quartz; strong shear at azimuth 270	Claim 3000605	1A2	ultratrace 6
DH15738	1477669	0.006	Pen Gold	3000605	29/08/2016	423455	5335523	KFCB	angular slab, subcrop and outcrop; carb rock; trace fuchsite; 50% smokey quartz	Claim 3000605	1A2	ultratrace 6
DH15739	1477670	0.021	Pen Gold	3000605	29/08/2016	423484	5335631	UUTC	Trench 1; talc-carbonate schist; ultramafic intrusive	Claim 3000605	1A2	ultratrace 6
DH15740	1477671	< 0.005	Pen Gold	3000605	29/08/2016	423484	5335631	UUTC	Trench 1; talc-carbonate schist; ultramafic intrusive	Claim 3000605	1A2	ultratrace 6
DH15741	1477672	0.005	Pen Gold	3000605	29/08/2016	423487	5335643	UUTC	Trench 1; talc-carbonate schist; ultramafic intrusive	Claim 3000605	1A2	ultratrace 6
DH15742	1477673	0.006	Pen Gold	3000605	29/08/2016	423487	5335650	UUTC	Trench 1; talc-carbonate schist; ultramafic intrusive	Claim 3000605	1A2	ultratrace 6
DH15743	1477674	0.007	Pen Gold	3000605	29/08/2016	423489	5335649	UUND	Trench 1; block of muck; 8% quartz; changed from carb rock to ultramafic intrusive based on geochemistry	Claim 3000605	1A2	ultratrace 6
DH15744	1477675	< 0.005	Pen Gold	3000605	29/08/2016	423577	5335611	UUND	Trench 2; strongly sheared; changed from carb rock to ultramafic intrusive based on geochemistry	Claim 3000605	1A2	ultratrace 6
DH15745	1477676	0.009	Pen Gold	3000605	29/08/2016	423591	5335634	UUND	Trench 2; changed from carb rock to ultramafic intrusive based on geochemistry	Claim 3000605	1A2	ultratrace 6
DH15746	1477678	0.01	Pen Gold	3000605	29/08/2016	423591	5335636	UUND	Trench 2; 5% white quartz veinlets; changed from carb rock to ultramafic intrusive based on geochemistry	Claim 3000605	1A2	ultratrace 6
DH15747	1477679	< 0.005	Pen Gold	4207036	26/08/2016	421833	5335426	PSYN	syenite; trace pyrite	Claim 4207036; Syenite Target	1A2	ultratrace 6
DH15748	1477680	< 0.005	Pen Gold	4277342	01/09/2016	411739	5337981	PPQP	20cm wide rusty sericite shear trending at azimuth 270 in porphyry; trace pyrite	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
DH15749	1477681	0.006	Pen Gold	3000605	02/09/2016	423454	5335523	KUND	changed from serpentized ultramafic intrusive to ultramafic volcanic based on geochemistry; 10% quartz pods and discontinuous veins	West of Pen Gold East	1A2	ultratrace 6
DH15750	1477682	0.005	Pen Gold	3000605	02/09/2016	423487	5335651	UUND	changed from fuchsitic carb rock to ultramafic intrusive based on geochemistry	West of Pen Gold East	1A2	ultratrace 6
DH15751	1477683	< 0.005	Pen Gold	4207037	02/09/2016	422723	5335456	MPLW	pillowed mafic volcanic with minor carbonate and trace pyrite	West of Pen Gold East	1A2	ultratrace 6
DH15752	1477684	< 0.005	Pen Gold	4207037	02/09/2016	422752	5335326	KUND	7cm and 3cm white and rusty quartz veins; host rock changed from mafic volcanic to ultramafic volcanic based on geochemistry; 50% quartz	West of Pen Gold East	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15753	1477686	< 0.005	Pen Gold	4207037	03/09/2016	422763	5335333	VVQV	shear zone with rusty cross-cutting 10-20cm milky white quartz veins in mafic volcanic; 98% quartz, moderate ankerite	West of Pen Gold East	1A2	ultratrace 6
DH15754	1477687	< 0.005	Pen Gold	4207037	03/09/2016	422763	5335334	VVQV	shear zone with cross-cutting 5-10cm milky white quartz veins in mafic or ultramafic volcanic; 95% quartz, moderate ankerite, trace fuchsite	West of Pen Gold East	1A2	ultratrace 6
DH15755	1477688	< 0.005	Pen Gold	4207037	03/09/2016	422766	5335333	VVQV	shear zone with cross-cutting milky white quartz veins; 95% quartz, weak ankerite	West of Pen Gold East	1A2	ultratrace 6
DH15756	1477689	0.006	Pen Gold	4207037	03/09/2016	422763	5335335	KCCB	1cm rusty quartz vein and flooding in sheared chloritic-ankerite altered ultramafic volcanic; 25% quartz; trace pyrite; changed from mafic volcanic to chloritic carb rock based on geochemistry	West of Pen Gold East	1A2	ultratrace 6
DH15757	1477690	< 0.005	Pen Gold	4207037	03/09/2016	422767	5335332	KCCB	ankerite-chlorite schist; 10% milky white quartz veining; moderate ankerite; changed from mafic volcanic to chloritic carb rock based on geochemistry	West of Pen Gold East	1A2	ultratrace 6
DH15758	1477691	< 0.005	Pen Gold	4207037	03/09/2016	422773	5335342	FUND	angular float north side of creek by shear zone in mafic volcanic; intensely silicified with 15% white quartz veins; trace pyrite+chalcopryrite; changed from mafic volcanic to felsic volcanic based on geochemistry	West of Pen Gold East	1A2	ultratrace 6
DH15759	1477692	< 0.005	Pen Gold	3000603	03/09/2016	422979	5335503	MUND	2X3cm carbonate pod with minor white quartz veining in chloritic mafic volcanic; trace pyrite in carbonate pod	West of Pen Gold East	1A2	ultratrace 6
DH15760	1477693	0.006	Pen Gold	4221929	03/09/2016	425384	5335673	CMIF	magnetite iron formation, 25% magnetite	West of Pen Gold East	1A2	ultratrace 6
DH15761	1477694	0.007	Pen Gold	3000605	03/09/2016	423646	5335647	UUND	changed from carb rock to ultramafic intrusive based on geochemistry; trace pyrite; trace fuchsite	West of Pen Gold East	1A2	ultratrace 6
DH15762	1477695	< 0.005	Pen Gold	4207036	04/09/2016	422314	5335486	MUND	chloritic mafic volcanic with tiny quartz veinlets along foliation; 10% quartz	West of Pen Gold East	1A2	ultratrace 6
DH15763	1477696	< 0.005	Pen Gold	4207036	04/09/2016	422258	5335846	VVQV	chloritic mafic volcanic with disjointed glassy white quartz vein; 85% quartz	West of Pen Gold East	1A2	ultratrace 6
DH15764	1477697	0.156	Pen Gold	4207031	04/09/2016	422250	5335926	MUND	10x20m pod of rusty milky quartz in chloritic mafic volcanic; 50% quartz; 1% pyrite+chalcopryrite	Claim 4207031	1A2	ultratrace 6
DH15765	1477698	0.015	Pen Gold	4207031	04/09/2016	422243	5335920	VVQV	10x20m pod of rusty milky quartz in chloritic mafic volcanic; 99% quartz, 1% chalcopryrite+pyrite	Claim 4207031	1A2	ultratrace 6
DH15766	1477699	0.036	Pen Gold	4207031	04/09/2016	422256	5335925	VVQV	10X20m pod of rusty milky quartz in chloritic mafic volcanic; 95% quartz; 1-2% blebs of fine to coarse-grained chalcopryrite	Claim 4207031	1A2	ultratrace 6
DH15767	1477700	0.041	Pen Gold	4207031	04/09/2016	422260	5335925	VVQV	10X20m pod of rusty milky quartz in chloritic mafic volcanic; 90% quartz; minor chalcopryrite+malachite+azurite	Claim 4207031	1A2	ultratrace 6
DH15768	1477701	< 0.005	Pen Gold	4207031	05/09/2016	422254	5335934	VVQV	10x20m pod of rusty milky white quartz in pillowed mafic volcanic; north contact of veining; irregular 2-4 cm quartz veins; 75% quartz	Claim 4207031	1A2	ultratrace 6
DH15769	1477702	< 0.005	Pen Gold	4207031	05/09/2016	422258	5335931	VVQV	10x20m pod of rusty milky white quartz; north contact of veining; white quartz; 99% quartz	Claim 4207031	1A2	ultratrace 6
DH15770	1477703	0.005	Pen Gold	4207031	05/09/2016	422256	5335930	VVQV	10x20m pod of rusty milky white quartz; north contact of veining; rusty patch; 1% chalcopryrite+pyrite+malachite stain; brown mineral possibly sphalerite; 98% quartz	Claim 4207031	1A2	ultratrace 6
DH15771	1477704	< 0.005	Pen Gold	4207031	05/09/2016	422255	5335932	VVQV	10x20m pod of rusty milky white quartz; north contact of veining; pocket of white to grey quartz; 93% quartz; 7% grey tourmaline?	Claim 4207031	1A2	ultratrace 6
DH15772	1477705	< 0.005	Pen Gold	4207031	05/09/2016	422295	5335920	MUND	mafic volcanic with carbonate fractures and trace pyrite+chalcopryrite	Claim 4207031	1A2	ultratrace 6
DH15773	1477706	< 0.005	Pen Gold	4207031	05/09/2016	422330	5335945	MUND	small rusty pod in massive mafic volcanic; trace pyrite	Claim 4207031	1A2	ultratrace 6
DH15774	1477708	< 0.005	Pen Gold	4207031	05/09/2016	422312	5336000	VVQV	contact between pillowed mafic volcanic and diorite; irregular disjointed glassy slightly rusty white quartz vein; 95% quartz	Claim 4207031	1A2	ultratrace 6
DH15775	1477709	< 0.005	Pen Gold	4207036	05/09/2016	422080	5335843	MUND	quartz-carbonate fracture fill in massive chloritic mafic volcanic; 1-2% disseminated and cubic pyrite+pyrrhotite; 2% quartz	West of Pen Gold East	1A2	ultratrace 6
DH15776	1477710	< 0.005	Pen Gold	4207036	05/09/2016	422080	5335841	MUND	1.5m wide rusty chlorite-sericite shear zone trending at azimuth 230 in mafic volcanic; 1-2% pyrite; 1% quartz	West of Pen Gold East	1A2	ultratrace 6
DH15777	1477711	0.022	Pen Gold	4207916	07/09/2016	415715	5335774	MUND	shear zone trending at azimuth 240 in mafic volcanic; strong sericite+ankerite; 5% light grey quartz-ankerite veining; trace pyrite+chalcopryrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15778	1477712	< 0.005	Pen Gold	4207916	07/09/2016	415738	5335786	MUND	sheared mafic volcanic; moderate sericite+ankerite+chlorite; trace pyrite; 7% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15779	1477713	0.011	Pen Gold	4207916	07/09/2016	415739	5335786	MUND	shear zone trending at azimuth 240 in mafic volcanic; strong carbonate and ankerite; trace chalcopryrite+pyrite; 8% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15780	1477714	< 0.005	Pen Gold	4207916	07/09/2016	415103	5335499	VVQV	rusty quartz fractured outcrop in mafic volcanic; 2-6cm white quartz vein; 95% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15781	1477716	< 0.005	Pen Gold	4207916	09/09/2016	415108	5335499	MUND	quartz fractured outcrop in strong silica+carbonate+biotite altered mafic volcanic?; white to smokey grey quartz veining; minor pyrite+chalcopyrite in wallrock and along vein margins; 45% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15782	1477717	< 0.005	Pen Gold	4207916	09/09/2016	415109	5335499	VVQV	quartz fractured outcrop in altered mafic volcanic; 8cm white quartz vein; 99% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15783	1477718	< 0.005	Pen Gold	4207916	09/09/2016	415110	5335499	MUND	quartz fractured outcrop in silicified mafic volcanic; 8cm tourmaline-quartz vein; trace pyrite in wallrock; 50% tourmaline; 10% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15784	1477719	< 0.005	Pen Gold	4207916	09/09/2016	415128	5335494	MUND	2-4cm white to grey quartz fracture filling veins in silicified mafic volcanic; 50% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15785	1477720	< 0.005	Pen Gold	4207916	11/09/2016	415805	5335799	MUND	well foliated mafic volcanic; strong ankerite; abundant magnetite; trace galena+pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15786	1477721	< 0.005	Pen Gold	4207916	11/09/2016	415801	5335793	MUND	mafic volcanic, strong ankerite; moderately magnetic; trace chalcopyrite+pyrite; 2% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15787	1477722	< 0.005	Pen Gold	4207916	11/09/2016	415825	5335799	MUND	altered mafic volcanic or fine-grained sediment; strong silica+ankerite; quartz veinlet fracture fill; trace chalcopyrite+silver mineral?; 5% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15788	1477723	< 0.005	Pen Gold	4207916	11/09/2016	415840	5335756	MUND	well foliated mafic volcanic; strong ankerite; abundant magnetite, trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15789	1477724	0.005	Pen Gold	4207916	11/09/2016	415828	5335743	MUND	moderately sheared mafic volcanic; moderate ankerite; quartz fracture fill with trace pyrite, abundant magnetite; 3% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15790	1477725	< 0.005	Pen Gold	4207916	12/09/2016	415563	5335461	MUND	sheared mafic volcanic; local rust; local magnetite; trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15791	1477726	< 0.005	Pen Gold	4207916	12/09/2016	415701	5335458	MUND	sheared mafic volcanic; weak sericite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15792	1477727	0.024	Pen Gold	4207916	14/09/2016	415219	5335134	MUND	sheared mafic volcanic; strong ankerite+sericite+quartz-ankerite veining/flooding; trace pyrite; 2% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15793	1477729	< 0.005	Pen Gold	4207916	15/09/2016	415699	5335777	MTUF	sheared mafic volcanic; weak to moderate sericite+ankerite; hairline quartz stringers	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15794	1477730	0.571	Pen Gold	4207916	15/09/2016	415807	5335800	MCLC	0.5cm white quartz-ankerite vein trending at 325/65 in mafic volcanic with chlorite clots; moderately magnetic; trace to minor chalcopyrite; 10% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15795	1477731	< 0.005	Pen Gold	4207916	15/09/2016	415770	5335666	MCLC	light grey quartz veins trending at 183/60 in mafic volcanic with chlorite clots and weak to moderate ankerite+sericite; trace chalcopyrite; 15% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15796	1477732	< 0.005	Pen Gold	4207916	15/09/2016	415110	5335491	PUND	siliceous fine-grained felsic intrusive; abundant biotite; trace chalcopyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15797	1477733	< 0.005	Pen Gold	3019488	16/09/2016	414473	5335882	MBRC	sheared bleached mafic volcanic breccia; intense pervasive ankerite; trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15798	1477734	< 0.005	Pen Gold	3019488	16/09/2016	414555	5335867	PUND	1cm quartz veinlets in fractures in fine-grained felsic intrusive rock; same host rock as in sample 1477732; trace pyrite; 30% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15799	1477736	0.006	Pen Gold	4207916	16/09/2016	414807	5335706	MCLC	abundant chlorite clots in lighter felspar matrix	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15800	1477737	< 0.005	Pen Gold	4207916	16/09/2016	414784	5335712	MUND	biotite clots in very fine-grained quartz feldspar groundmass; changed from felsic intrusive to mafic volcanic based on geochemistry	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15801	1477738	< 0.005	Pen Gold	3019488	16/09/2016	414555	5335867	PUND	felsic intrusive; fine-grained quartz, feldspar and biotite	Between Kukatush Road and Nat River	1A2	ultratrace 6
DH15802	1477739	< 0.005	Pen Gold	4207032	20/09/2016	417494	5335381	VVQV	6cm dark grey quartz vein trending at azimuth 196 in altered ultramafic volcanic; 98% quartz	North of Jehann Lake	1A2	ultratrace 6
DH15803	1477740	< 0.005	Pen Gold	4207032	20/09/2016	417064	5335391	VVQV	irregular smokey grey quartz veins in Reeves ultramafic?, 80% quartz	North of Jehann Lake	1A2	ultratrace 6
DH15804	1477741	0.009	Pen Gold	4207032	20/09/2016	417451	5335045	KUND	shear zone with chloritic siliceous sections in ultramafic volcanic; trace pyrrhotite+arsenopyrite; changed from diorite to ultramafic volcanic based on geochemistry	North of Jehann Lake	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15805	1477742	< 0.005	Pen Gold	4207032	20/09/2016	417450	5335044	KUND	chloritic shear zone in ultramafic volcanic; trace pyrite	North of Jehann Lake	1A2	ultratrace 6
DH15806	1477743	< 0.005	Pen Gold	4207032	21/09/2016	416858	5335289	MUND	bleached mafic volcanic; strong carbonate; trace pyrite	North of Jehann Lake	1A2	ultratrace 6
DH15807	1477744	< 0.005	Pen Gold	4207032	21/09/2016	416826	5335265	MUND	sheared mafic volcanic; strong carbonate; trace pyrite	North of Jehann Lake	1A2	ultratrace 6
DH15808	1477745	0.007	Pen Gold	4207032	21/09/2016	416796	5335263	MUND	white to grey quartz-ankerite vein stockwork in mafic volcanic; moderate to strong ankerite; 1% arsenopyrite; 10% quartz	North of Jehann Lake	1A2	ultratrace 6
DH15809	1477746	< 0.005	Pen Gold	4207032	21/09/2016	416797	5335263	MUND	intense quartz-ankerite alteration in mafic volcanic; trace pyrite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
DH15810	1477747	0.006	Pen Gold	4207032	21/09/2016	416788	5335254	MUND	strongly sheared and silicified mafic volcanic; 1% pyrite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
DH15811	1477748	0.008	Pen Gold	4207032	21/09/2016	416789	5335255	MUND	rusty sheared and silicified mafic volcanic; 3-5% very fine-grained pyrite+arsenopyrite; quartz-brown tourmaline veinlets	North of Jehann Lake	1A2	ultratrace 6
DH15812	1477749	0.005	Pen Gold	4207032	22/09/2016	416787	5335264	MUND	pillowed mafic volcanic; moderate to strong ankerite+silica; 1% very fine-grained pyrite+arsenopyrite; 10% quartz	North of Jehann Lake	1A2	ultratrace 6
DH15813	1477750	0.005	Pen Gold	4207032	22/09/2016	416519	5335304	MUND	rusty sheared and bleached mafic volcanic; strong sericite+ankerite; minor pyrite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
DH15814	1477751	0.005	Pen Gold	4207032	22/09/2016	416520	5335304	MUND	rusty sheared and bleached mafic volcanic; strong sericite+ankerite; minor to 1% pyrite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
DH15815	1477752	< 0.005	Pen Gold	4207032	23/09/2016	416551	5334920	PQFP	sheared quartz feldspar porphyry; strong ankerite+sericite; 1-2% pyrrhotite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
DH15816	1477753	< 0.005	Pen Gold	4207032	23/09/2016	416567	5334938	PQFP	sheared quartz feldspar porphyry; strong ankerite+sericite; minor pyrrhotite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
DH15817	1477754	< 0.005	Pen Gold	4207032	23/09/2016	416640	5335096	MCLC	chlorite clot mafic volcanic; strong pervasive ankerite; minor pyrite	North of Jehann Lake	1A2	ultratrace 6
DH15818	1477755	0.007	Pen Gold	4207032	24/09/2016	416345	5335888	VVQV	3cm grey quartz-ankerite vein in folded sediment; 60% quartz	North of Jehann Lake	1A2	ultratrace 6
DH15819	1477756	0.005	Pen Gold	4207032	24/09/2016	416225	5334933	MUND	sheared mafic volcanic or intrusive in contact with conglomerate; local rust; moderate to strong ankerite+sericite; trace pyrite+pyrrhotite	North of Jehann Lake	1A2	ultratrace 6
DH15820	1477757	0.005	Pen Gold	4207032	24/09/2016	416136	5334937	MUND	sheared mafic volcanic; moderate to strong ankerite+sericite; trace pyrite+arsenopyrite	North of Jehann Lake	1A2	ultratrace 6
DH15821	1477759	0.446	Pen Gold East	4248298	27/09/2016	426644	5335466	BUND	rusty silicified mafic volcanic or intrusive; 20-25% disseminated pyrite+arsenopyrite, 5% quartz veins and stringers; north of stripped area	Broadsword	1A2	ultratrace 6
DH15822	1477760	0.703	Pen Gold East	4248298	27/09/2016	426644	5335466	BUND	rusty silicified mafic volcanic or intrusive; 10-15% disseminated pyrite+arsenopyrite; north end of stripped area	Broadsword	1A2	ultratrace 6
DH15823	1477761	0.735	Pen Gold East	4248298	27/09/2016	426645	5335466	BUND	rusty intensely silicified mafic volcanic or intrusive; 15-20% disseminated pyrite+arsenopyrite; north end of stripped area	Broadsword	1A2	ultratrace 6
DH15824	1477762	0.718	Pen Gold East	4248298	27/09/2016	426645	5335466	BUND	strong gossan; rusty intensely silicified mafic volcanic or intrusive; rusty white quartz veins; 5-10% disseminated pyrite+arsenopyrite; 30% quartz; north end of stripped area	Broadsword	1A2	ultratrace 6
DH15825	1477763	0.037	Pen Gold East	4248298	27/09/2016	426645	5335465	VVQV	10cm white quartz vein with minor ankerite in silicified mafic volcanic or intrusive; 99% quartz; north end of stripped area	Broadsword	1A2	ultratrace 6
DH15826	1477764	0.558	Pen Gold East	4248298	27/09/2016	426644	5335465	VVQV	white quartz vein in silicified mafic volcanic or intrusive; 1% pyrite+arsenopyrite in bleached wallrock; 90% quartz; north end of stripped area	Broadsword	1A2	ultratrace 6
DH15827	1477766	0.393	Pen Gold East	4248298	27/09/2016	426645	5335467	BUND	rusty silicified mafic volcanic or intrusive; pink tinge with local chlorite; 10-15% disseminated pyrite+arsenopyrite; north end of stripped area	Broadsword	1A2	ultratrace 6
DH15828	1477767	0.013	Pen Gold East	4248298	27/09/2016	426573	5335413	BUND	0.50cm rusty quartz vein at azimuth 035 in sheared silicified chloritic mafic volcanic or intrusive; 1% pyrite+arsenopyrite; 20% quartz	Broadsword	1A2	ultratrace 6
DH15829	1477768	0.005	Pen Gold East	4248298	27/09/2016	426217	5335413	BUND	silicified chloritic mafic volcanic or intrusive; rusty quartz veins; 5-10% pyrite+arsenopyrite; 10% quartz	Broadsword	1A2	ultratrace 6
DH15830	1477769	0.007	Pen Gold East	4248298	27/09/2016	426176	5335378	BUND	well foliated chloritic mafic volcanic or intrusive; white quartz veins and stringers up to 20cm; 2-3% pyrite+arsenopyrite in altered wallrock around veins and stringers; 10% quartz	Broadsword	1A2	ultratrace 6
DH15831	1477770	< 0.005	Pen Gold East	4248298	27/09/2016	426188	5335418	BUND	well foliated chloritic mafic volcanic or intrusive in contact with silicified felsic unit; strongly magnetic; 5% white quartz veins; 1-3% pyrite	Broadsword	1A2	ultratrace 6
DH15832	1477771	< 0.005	Pen Gold	4207032	28/09/2016	416789	5334368	MUND	bleached fractured mafic volcanic; moderate to strong ankerite; 10% quartz-carbonate stringers, trace to minor pyrite+chalcocopyrite; fault zone	South of Jehann Lake	1A2	ultratrace 6
DH15833	1477772	0.006	Pen Gold	4207032	28/09/2016	416663	5334296	MUND	fractured mafic volcanic; local bleaching with pervasive ankerite and ankerite-chlorite veins and stringers; trace pyrite+arsenopyrite	South of Jehann Lake	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15834	1477773	< 0.005	Pen Gold	4207040	28/09/2016	416634	5334244	MUND	mafic volcanic; moderate to strong bleaching with pervasive ankerite and ankerite-chlorite stringers; minor grey quartz-chlorite stringers; minor to 1% pyrite+chalcopyrite; 5% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15835	1477775	0.014	Pen Gold	4207040	28/09/2016	416583	5334205	MUND	mafic volcanic; moderate to strong pervasive ankerite and minor ankerite stringers; minor pyrite+chalcopyrite	South of Jehann Lake	1A2	ultratrace 6
DH15836	1477776	< 0.005	Pen Gold	4207040	28/09/2016	416592	5334214	MUND	strongly altered mafic volcanic; moderate to strong ankerite+silica; pink tinge; 5% quartz pods; minor very fine-grained pyrite	South of Jehann Lake	1A2	ultratrace 6
DH15837	1477777	< 0.005	Pen Gold	4207040	28/09/2016	416600	5334226	MUND	strongly altered mafic volcanic; moderate to intense ankerite; 5% white quartz stringers; trace to minor pyrite+chalcopyrite+arsenopyrite	South of Jehann Lake	1A2	ultratrace 6
DH15838	1477778	< 0.005	Pen Gold	4207040	28/09/2016	416577	5334233	MUND	rusty sheared mafic volcanic trending at azimuth 030; intense ankerite; trace pyrite	South of Jehann Lake	1A2	ultratrace 6
DH15839	1477779	0.024	Pen Gold	4207032	29/09/2016	416467	5334340	VQCV	2cm rusty white quartz-ankerite vein trending at azimuth 325 in mafic volcanic; moderate to strong ankerite+sericite; 1% chalcopyrite; 60% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15840	1477780	< 0.005	Pen Gold	4207032	29/09/2016	416380	5334301	PUND	70cm felsic dyke trending at azimuth 070 cross-cutting mafic volcanic, sporadic white quartz veins in felsic; trace pyrite+arsenopyrite; 20% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15841	1477782	< 0.005	Pen Gold	4207032	29/09/2016	416317	5334296	VQCV	sheared mafic volcanic; strong ankerite+sericite; 1cm white quartz-ankerite vein; trace pyrite; 75% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15842	1477783	< 0.005	Pen Gold	4207916	30/09/2016	415878	5334288	PPOR	porphyry; carbonate altered; 1-2cm quartz vein trending at 290/80 and 1cm grey quartz-tourmaline vein trending at 130/20; minor pyrite; 20% quartz	Southwest of Jehann Lake	1A2	ultratrace 6
DH15843	1477784	< 0.005	Pen Gold	4207916	30/09/2016	415842	5334287	KKCB	rusty sheared ultramafic volcanic; moderate to strong ankerite; quartz-carbonate sweats; trace pyrite; changed from mafic volcanic to carb rock based on geochemistry	Southwest of Jehann Lake	1A2	ultratrace 6
DH15844	1477785	< 0.005	Pen Gold	4207916	30/09/2016	415889	5334296	PPFP	sheared feldspar porphyry, moderate ankerite+sericite, 2% white quartz veins; trace pyrite	Southwest of Jehann Lake	1A2	ultratrace 6
DH15845	1477786	< 0.005	Pen Gold	4207916	30/09/2016	415889	5334297	PPOR	sheared porphyry or mafic volcanic; 50% dark grey siliceous bands and 50% ankerite +/- sericite bands; trace pyrite	Southwest of Jehann Lake	1A2	ultratrace 6
DH15846	1477787	< 0.005	Pen Gold	4207916	30/09/2016	415902	5334300	PPFP	sheared feldspar porphyry, strong ankerite+sericite; 1% pyrite	Southwest of Jehann Lake	1A2	ultratrace 6
DH15847	1477788	< 0.005	Pen Gold	4207040	30/09/2016	415994	5334162	MUND	sheared contact between mafic volcanic and porphyry; moderate to strong ankerite+sericite+silica; 5% white quartz veins; trace pyrite	Southwest of Jehann Lake	1A2	ultratrace 6
DH15848	1477789	< 0.005	Pen Gold	4207040	30/09/2016	415998	5334162	MUND	sheared contact between mafic volcanic and porphyry; moderate to strong ankerite+sericite; ankerite veinlets	Southwest of Jehann Lake	1A2	ultratrace 6
DH15849	1477790	< 0.005	Pen Gold	4207040	30/09/2016	415998	5334163	PPFP	sheared feldspar porphyry, moderate to strong ankerite+sericite; 1cm white quartz vein; trace pyrite; 40% quartz	Southwest of Jehann Lake	1A2	ultratrace 6
DH15850	1477791	< 0.005	Pen Gold	4207040	30/09/2016	415975	5334152	MUND	rusty sheared mafic volcanic in contact with porphyry; shearing trending at 50/85; trace pyrite	Southwest of Jehann Lake	1A2	ultratrace 6
DH15851	1477792	< 0.005	Pen Gold	4207040	01/10/2016	415739	5334066	VQTV	rusty quartz-ankerite veining along pillow selvages; 80% quartz; 20% black tourmaline	Southwest of Jehann Lake	1A2	ultratrace 6
DH15852	1477793	< 0.005	Pen Gold	4207040	01/10/2016	415729	5334061	KFCB	fuchsitic green carbonate; quartz-ankerite veins and stringers; trace pyrite; 25% quartz; changed from mafic volcanic to fuchsitic carb rock based on geochemistry	Southwest of Jehann Lake	1A2	ultratrace 6
DH15853	1477794	0.006	Pen Gold	4207040	01/10/2016	415725	5334051	KFCB	fuchsitic green carbonate; grey quartz-ankerite veins and stringers; trace pyrite; 10% quartz; changed from mafic volcanic to fuchsitic carb rock based on geochemistry	Southwest of Jehann Lake	1A2	ultratrace 6
DH15854	1477795	0.007	Pen Gold	4207040	01/10/2016	415725	5334048	KKCB	well foliated carb rock; moderate to strong ankerite+silica; grey quartz-ankerite stringers; 1-2% pyrite+arsenopyrite; 5% quartz; changed from mafic volcanic to carb rock based on geochemistry	Southwest of Jehann Lake	1A2	ultratrace 6
DH15855	1477796	0.006	Pen Gold	4207040	01/10/2016	415721	5334046	KFCB	well foliated fuchsitic carb rock; strong pervasive fuchsite+silica; white to grey quartz-ankerite stringers; 1-2% pyrite+arsenopyrite; 10% quartz; changed from mafic volcanic to fuchsitic carb rock based on geochemistry	Southwest of Jehann Lake	1A2	ultratrace 6
DH15856	1477797	< 0.005	Pen Gold	4207040	01/10/2016	415718	5334035	VVQV	pod of white quartz veins in feldspar porphyry; 75% quartz	Southwest of Jehann Lake	1A2	ultratrace 6
DH15857	1477798	0.007	Pen Gold	4207040	01/10/2016	415739	5334026	KCCB	well foliated chloritic carb rock with quartz-ankerite veins and stringers at contact with feldspar porphyry; trace pyrite+chalcopyrite; 25% quartz; changed from mafic volcanic to chloritic carb rock based on geochemistry	Southwest of Jehann Lake	1A2	ultratrace 6
DH15858	1477799	0.008	Pen Gold	4207032	03/10/2016	416901	5334358	MUND	sheared mafic volcanic; moderate to strong bleaching+ankerite; 5% ankerite veins; trace pyrite+chalcopyrite	South of Jehann Lake	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15859	1477800	0.006	Pen Gold	4207041	03/10/2016	416814	5334232	MUND	weakly sheared vuggy mafic volcanic; strong ankerite+sericite; 2cm white quartz vein; 25% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15860	1470501	0.012	Pen Gold	4207040	03/10/2016	416627	5334164	MUND	rusty sheared mafic volcanic; moderate ankerite; pink-beige tinge; trace pyrite; strongly magnetic	South of Jehann Lake	1A2	ultratrace 6
DH15861	1470502	< 0.005	Pen Gold	4207040	03/10/2016	416624	5334164	MUND	sheared mafic volcanic trending at azimuth 040; moderate to strong ankerite; beige-pink tinge; trace pyrite	South of Jehann Lake	1A2	ultratrace 6
DH15862	1470503	0.006	Pen Gold	4207040	03/10/2016	416598	5334107	MUND	massive mafic volcanic or intrusive; moderate ankerite; white quartz-ankerite veins and stringers; minor pyrite in veins and wallrock; 5% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15863	1470505	0.005	Pen Gold	4207040	03/10/2016	416581	5334102	VVQV	1m+ vuggy white quartz vein trending at azimuth 053 in mafic volcanic; 95% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15864	1470506	0.005	Pen Gold	4207040	03/10/2016	416580	5334093	VVQV	1m+ white quartz vein in mafic volcanic; 99% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15865	1470507	0.340	Pen Gold	4207040	03/10/2016	416768	5333964	MUND	mafic volcanic; weak to moderate ankerite; white quartz-ankerite veins and stringers; 1-2% fine to coarse-grained cubic pyrite; 5% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15866	1470508	0.005	Pen Gold	4207040	03/10/2016	416767	5334017	VVQV	10-30cm white quartz vein trending at azimuth 047 in fractured mafic volcanic; 95% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15867	1470509	0.008	Pen Gold	4207041	03/10/2016	417007	5334220	MUND	mafic volcanic; ankerite+silica altered; minor quartz-ankerite-chlorite veinlets; trace pyrite+chalcopyrite; 5% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15868	1470510	0.012	Pen Gold	4207032	04/10/2016	417113	5334499	UUND	intense pervasive ankerite alteration and white to grey ankerite veins and veinlets in ultramafic intrusive; local fuchsite along vein margins; changed from mafic volcanic to ultramafic intrusive based on geochemistry	South of Jehann Lake	1A2	ultratrace 6
DH15869	1470511	0.005	Pen Gold	4207032	04/10/2016	417106	5334502	UUND	intense pervasive ankerite alteration in ultramafic intrusive; weak green tinge may be fuchsite-green carbonate; changed from mafic volcanic to ultramafic intrusive based on geochemistry	South of Jehann Lake	1A2	ultratrace 6
DH15870	1470512	0.018	Pen Gold	4207032	04/10/2016	417098	5334504	UUND	rusty ultramafic intrusive; intense pervasive ankerite; 20% quartz; changed from mafic volcanic to ultramafic intrusive based on geochemistry	South of Jehann Lake	1A2	ultratrace 6
DH15871	1470514	0.009	Pen Gold	4207032	04/10/2016	417109	5334496	UUND	intense pervasive ankerite alteration in ultramafic intrusive; 15% white ankerite veins; trace arsenopyrite; changed from mafic volcanic to ultramafic intrusive based on geochemistry	South of Jehann Lake	1A2	ultratrace 6
DH15872	1470515	0.006	Pen Gold	4207032	04/10/2016	417117	5334452	MUND	sheared mafic volcanic trending at azimuth 255 with moderate to strong ankerite at contact with felsic intrusive	South of Jehann Lake	1A2	ultratrace 6
DH15873	1470516	0.008	Pen Gold	4207032	04/10/2016	417134	5334443	MUND	well foliated to sheared mafic volcanic trending at azimuth 262; moderate pervasive ankerite+sericite and ankerite veins; trace pyrite; 2% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15874	1470517	0.010	Pen Gold	4207032	04/10/2016	417206	5334262	MUND	moderately to strongly ankerite+sericite altered mafic volcanic at contact with felsic intrusive; irregular glassy quartz veins; 15% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15875	1470518	0.008	Pen Gold	4207032	04/10/2016	417241	5334375	MUND	sheared mafic volcanic trending at azimuth 063; weak to moderate pervasive ankerite and veins/pods; trace pyrite	South of Jehann Lake	1A2	ultratrace 6
DH15876	1470519	0.009	Pen Gold	4207032	04/10/2016	417244	5334454	MUND	mafic volcanic; moderate to strong ankerite; trace fine-grained pyrite; 4% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15877	1470520	0.017	Pen Gold	4207040	05/10/2016	415898	5334036	MUND	angular slabs of mafic volcanic float; moderate to strong ankerite+sericite; trace pyrite; 20% quartz	Southwest of Jehann Lake	1A2	ultratrace 6
DH15878	1470521	0.009	Pen Gold	4207040	05/10/2016	415899	5334051	MUND	angular slabs of mafic volcanic float; moderate to strong ankerite+sericite; 2% white quartz stringers; trace pyrite+hematite	Southwest of Jehann Lake	1A2	ultratrace 6
DH15879	1470522	0.005	Pen Gold	4207040	05/10/2016	416087	5334100	VQCV	white to grey quartz-ankerite vein stockwork in moderately ankerite-altered feldspar porphyry; 80% quartz	Southwest of Jehann Lake	1A2	ultratrace 6
DH15880	1470523	0.017	Pen Gold	4207040	05/10/2016	416092	5334111	MUND	sheared chloritic mafic volcanic trending at azimuth 050; weak to moderate pervasive ankerite and veins/stringers; 2% grey to white quartz-ankerite stringers; trace pyrite+chalcopyrite	Southwest of Jehann Lake	1A2	ultratrace 6
DH15881	1470524	< 0.005	Pen Gold	4207032	06/10/2016	417237	5334435	MUND	mafic volcanic; white quartz-ankerite vein stockwork; moderate bleaching+ankerite+sericite+chlorite around vein stockwork; trace chalcopyrite+pyrite; 10% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15882	1470525	0.008	Pen Gold	4207032	06/10/2016	417229	5334442	MUND	mafic volcanic; moderate to intense ankerite+sericite; white quartz-ankerite pods; trace pyrite; 3% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15883	1470526	< 0.005	Pen Gold	4207032	06/10/2016	417279	5334428	PPFP	feldspar porphyry; 1 cm white quartz-ankerite vein; 20% quartz	South of Jehann Lake	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15884	1470527	0.005	Pen Gold	4207032	06/10/2016	417291	5334419	PPFP	feldspar porphyry; moderate to intense ankerite as pervasive and veinlets; 5% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15885	1470529	0.005	Pen Gold	4207032	06/10/2016	417370	5334483	MUND	strongly deformed and altered mafic volcanic; moderate to intense ankerite as pervasive and contorted veins with sericite along vein margins; trace pyrite+arsenopyrite	South of Jehann Lake	1A2	ultratrace 6
DH15886	1470530	0.005	Pen Gold	4207030	14/10/2016	420432	5335994	MUND	rusty mafic volcanic; rusty quartz-carbonate veins; trace chalcopyrite+pyrite; 20% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15887	1470531	< 0.005	Pen Gold	4207030	14/10/2016	420496	5335947	MUND	0.5-1cm rusty quartz-carbonate veins in mafic volcanic; 35% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15888	1470532	< 0.005	Pen Gold	4207030	14/10/2016	420622	5336181	VVQV	irregular white quartz-carbonate veinlets in fractured mafic volcanic; 60% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15889	1470533	0.006	Pen Gold	4207030	14/10/2016	420670	5336250	VVQV	rusty grey sugary quartz veins in sheared oxidized rusty sericitic mafic volcanic; 1% pyrite+pyrrhotite; 80% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15890	1470534	0.009	Pen Gold	4207030	14/10/2016	420670	5336252	MUND	rusty grey sugary quartz veins in sheared oxidized rusty sericitic mafic volcanic; 1-2% pyrite+pyrrhotite; 15% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15891	1470535	< 0.005	Pen Gold	4207030	14/10/2016	420669	5336279	MUND	weakly carbonate altered mafic to intermediate volcanic; 1% pyrite, 10% rusty sugary quartz veins	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15892	1470536	< 0.005	Pen Gold	4207030	14/10/2016	420665	5336292	MUND	rusty chloritic mafic volcanic; 2-3% disseminated pyrrhotite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15893	1470537	< 0.005	Pen Gold	4207030	15/10/2016	420760	5336329	MUND	rusty quartz-ankerite veins or pods in mafic volcanic; trace chalcopyrite+pyrite; 30% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15894	1470538	0.030	Pen Gold	4207030	15/10/2016	420756	5336320	MUND	siliceous quartz-carbonate pods in mafic volcanic; minor pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15895	1470539	< 0.005	Pen Gold	4207030	15/10/2016	420756	5336315	SUND	rusty banded fine-grained sediment; siliceous dark grey; 5% quartz pods; 1% pyrrhotite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15896	1470541	0.039	Pen Gold	4207030	15/10/2016	420760	5336291	MUND	vuggy rusty mafic volcanic; 1% pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15897	1470542	0.045	Pen Gold	4207030	15/10/2016	420762	5336260	MUND	mafic volcanic; quartz-carbonate clots or amygdules; 2-3% pyrrhotite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15898	1470543	< 0.005	Pen Gold	4207030	15/10/2016	420307	5336031	MUND	rusty mafic volcanic with quartz sweats; trace pyrite; 50% quartz,	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15899	1470544	< 0.005	Pen Gold	4207030	16/10/2016	419965	5336272	MUND	rusty bleached mafic to intermediate volcanic; strong carbonate; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15900	1470545	< 0.005	Pen Gold	4207030	16/10/2016	419911	5336273	IUND	rusty massive intermediate volcanic; 1% fine-grained disseminated pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15901	1470546	< 0.005	Pen Gold	4207030	16/10/2016	419908	5336250	MUND	rusty chloritic shears trending at azimuth 012 in mafic volcanic; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15902	1470547	< 0.005	Pen Gold	4207030	16/10/2016	420061	5336171	FUND	massive intermediate to felsic volcanic; trace to 1% pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15903	1470548	0.090	Pen Gold	4207030	16/10/2016	420012	5336049	VVQV	20-80cm rusty sugary grey quartz vein in mafic intrusive or volcanic; trace chalcopyrite and malachite stain; 99% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15904	1470549	0.139	Pen Gold	4207030	16/10/2016	420012	5336051	VVQV	rusty sugary grey quartz vein in mafic intrusive or volcanic; strong malachite stain; trace pyrite+chalcopyrite; 98% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15905	1470550	0.067	Pen Gold	4207030	16/10/2016	420013	5336053	VVQV	20-80cm rusty sugary grey quartz vein in mafic intrusive or volcanic; 2% pyrite; 98% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15906	1470551	< 0.005	Pen Gold	4207030	16/10/2016	420013	5336051	IUND	host rock for rusty sugary vein in samples 1470548-1470550; intermediate to felsic intrusive or volcanic	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15907	1470552	0.006	Pen Gold	4207030	16/10/2016	420171	5335944	MUND	rusty mafic volcanic; carbonate along fractures; trace pyrite+chalcopyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15908	1470554	0.008	Pen Gold	4207030	16/10/2016	420228	5335952	MUND	mafic volcanic; strong carbonate along foliation	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15909	1470555	< 0.005	Pen Gold	4207054	18/10/2016	418738	5330674	KUND	sheared talc-chlorite ultramafic volcanic or intrusive trending at 298/90 in contact with diabase; trace pyrite	Burtho Showing West	1A2	ultratrace 6
DH15910	1470556	< 0.005	Pen Gold	4207054	18/10/2016	418830	5330596	PUND	fine-grained felsic intrusive; abundant magnetite; abundant actinolite or tremolite; Reeves intrusive?; trace pyrite	Burtho Showing West	1A2	ultratrace 6
DH15911	1470557	< 0.005	Pen Gold	4207054	18/10/2016	418800	5330570	PUND	rusty sericite schist; sheared felsic volcanic or intrusive; minor quartz eyes; trace pyrite	Burtho Showing West	1A2	ultratrace 6
DH15912	1470558	< 0.005	Pen Gold	4207054	18/10/2016	418919	5330528	KCCB	rusty weathering rhind; strong pervasive carbonate and 30% carbonate-ankerite veining; changed from contorted mafic volcanic to carb rock based on geochemistry	Burtho Showing West	1A2	ultratrace 6
DH15913	1470559	< 0.005	Pen Gold	4207054	18/10/2016	418921	5330517	KCCB	chlorite-ankerite schist; moderate quartz-ankerite veining; 15% quartz; changed from mafic volcanic to chloritic carb rock based on geochemistry	Burtho Showing West	1A2	ultratrace 6
DH15914	1470560	< 0.005	Pen Gold	4207054	18/10/2016	418882	5330501	KCCB	chlorite-actinolite-tremolite schist; 1-2% pyrite as medium-grained stringers; strongly magnetic; changed from mafic volcanic to chloritic carb rock based on geochemistry	Burtho Showing West	1A2	ultratrace 6
DH15915	1470561	< 0.005	Pen Gold	4207054	18/10/2016	418921	5330518	KCCB	chlorite-ankerite schist; 10% carbonate-ankerite veining cross-cuts foliation; changed from mafic volcanic to chloritic carb rock based on geochemistry	Burtho Showing West	1A2	ultratrace 6
DH15916	1470562	< 0.005	Pen Gold	4207030	19/10/2016	420358	5336497	MUND	well foliated rusty sericitic mafic volcanic; pitted weathering; 1% pyrite; changed from felsic to mafic volcanic based on geochemistry	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15917	1470563	< 0.005	Pen Gold	4207030	19/10/2016	420323	5336418	MUND	well foliated bleached and carbonated fine-grained mafic volcanic; 1% pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15918	1470565	< 0.005	Pen Gold	4207031	20/10/2016	422247	5336339	CMIF	sheared and minor folding in magnetite iron formation; 10% white sugary quartz veining; trace pyrite	Claim 4207031	1A2	ultratrace 6
DH15919	1470566	< 0.005	Pen Gold	4207031	20/10/2016	422243	5336395	VVQV	irregular rusty and vuggy quartz vein in felsic unit in contact with mafic volcanic; 80% quartz	Claim 4207031	1A2	ultratrace 6
DH15920	1470567	< 0.005	Pen Gold	4207031	20/10/2016	422217	5336546	VVQV	rusty white quartz-ankerite-chlorite veining in mafic volcanic; 75% quartz	Claim 4207031	1A2	ultratrace 6
DH15921	1470568	0.024	Pen Gold	4207030	21/10/2016	419144	5335901	MUND	blocky gossanous siliceous patch in mafic volcanic with rusty quartz veining; trace pyrite; 30% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15922	1470569	< 0.005	Pen Gold	4207030	23/10/2016	420242	5335895	MUND	rusty fine-grained mafic volcanic; strong carbonate; 1% pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15923	1470570	< 0.005	Pen Gold	4207034	23/10/2016	419911	5335840	MUND	rusty mafic volcanic; strong carbonate; 1% pyrrhotite+pyrite; changed from intermediate to mafic volcanic based on geochemistry	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15924	1470571	< 0.005	Pen Gold	4207034	23/10/2016	419914	5335852	MUND	rusty mafic volcanic; strong carbonate; 1% pyrrhotite+pyrite; changed from intermediate to mafic volcanic based on geochemistry	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15925	1470572	< 0.005	Pen Gold	4207034	23/10/2016	419789	5335783	MUND	rusty mafic volcanic; strong carbonate; 1% pyrrhotite+pyrite; changed from intermediate to mafic volcanic based on geochemistry	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15926	1470573	< 0.005	Pen Gold	4207030	23/10/2016	419784	5335905	VVQV	5cm slightly rusty white quartz vein trending at azimuth 035 in mafic volcanic; trace pyrite; 95% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15927	1470574	< 0.005	Pen Gold	4247080	24/10/2016	419638	5336778	VVQV	rusty 3-4cm beige-white sugary quartz vein 20cm long in shear trending at azimuth 045 in mafic volcanic; 95% quartz	Claim 4207080; west of Esker	1A2	ultratrace 6
DH15928	1470575	< 0.005	Pen Gold	4247080	24/10/2016	419626	5336779	MUND	weakly sheared mafic volcanic; 1% finely disseminated pyrite	Claim 4207080; west of Esker	1A2	ultratrace 6
DH15929	1470576	< 0.005	Pen Gold	4247080	24/10/2016	419668	5336667	MUND	mafic volcanic; rusty weathering rhind; strong carbonate as clots or phenocrysts; trace pyrite	Claim 4207080; west of Esker	1A2	ultratrace 6
DH15930	1470577	< 0.005	Pen Gold	4207030	24/10/2016	419829	5336602	MUND	rusty fine-grained mafic volcanic; minor to 1% pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15931	1470579	< 0.005	Pen Gold	4246167	24/10/2016	419801	5336668	MUND	mafic volcanic or intrusive with carbonate phenocrysts, weakly to strongly magnetite; trace pyrite	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15932	1470580	< 0.005	Pen Gold	4207030	24/10/2016	419790	5336596	PPFP	feldspar porphyry; strong carbonate	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15933	1470581	< 0.005	Pen Gold	4207030	24/10/2016	419791	5336595	VVQV	2cm rusty white quartz vein in feldspar porphyry; 95% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15934	1470582	< 0.005	Pen Gold	4207030	24/10/2016	419792	5336594	PPFP	1cm grey quartz vein trending at azimuth 222 in feldspar porphyry; 50% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15935	1470584	< 0.005	Pen Gold	4207030	24/10/2016	419788	5336594	MUND	slightly rusty sheared mafic volcanic; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15936	1470585	< 0.005	Pen Gold	4207030	24/10/2016	420048	5336373	MCLC	massive mafic volcanic with chlorite clots; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15937	1470586	< 0.005	Pen Gold	4207030	24/10/2016	420058	5336345	MUND	rusty white to grey quartz vein in mafic volcanic; 50% quartz	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15938	1470587	< 0.005	Pen Gold	4247081	25/10/2016	422114	5336685	MUND	30m wide zone of sheared chloritic mafic volcanic trending at azimuth 243; moderate carbonate veinlets	Claim 4247081	1A2	ultratrace 6
DH15939	1470588	< 0.005	Pen Gold	4247081	25/10/2016	422088	5336694	MUND	30m wide zone of sheared chloritic mafic volcanic trending at 250/74; moderate carbonate veinlets; minor pyrite	Claim 4247081	1A2	ultratrace 6
DH15940	1470589	< 0.005	Pen Gold	4207031	25/10/2016	421990	5336668	MUND	sheared fine-grained mafic volcanic; 25% carbonate veinlets; trace pyrite+chalcopryrite	Claim 4207031	1A2	ultratrace 6
DH15941	1470590	< 0.005	Pen Gold	4207031	25/10/2016	421991	5336582	MUND	strongly sheared mafic volcanic; moderately magnetic; trace pyrite	Claim 4207031	1A2	ultratrace 6
DH15942	1470591	< 0.005	Pen Gold	4207030	26/10/2016	420213	5336230	MUND	medium-grained massive mafic volcanic or intrusive; carbonate clots; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15943	1470592	< 0.005	Pen Gold	4246167	26/10/2016	420208	5336681	MUND	strongly sheared mafic volcanic trending at azimuth 255	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15944	1470593	< 0.005	Pen Gold	4246167	26/10/2016	420214	5336709	MUND	strongly sheared mafic volcanic, local rusty and sericitic; 1% pyrite	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15945	1470594	< 0.005	Pen Gold	4246167	26/10/2016	420212	5336711	VVQV	2-15cm pinch and swell glassy white quartz vein; 90% quartz, 5% black tourmaline; chloritic mafic volcanic wallrock	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15946	1470595	< 0.005	Pen Gold	4246167	26/10/2016	420215	5336711	VVQV	2-15cm pinch and swell glassy white quartz vein; 90% quartz, 5% black tourmaline; chloritic mafic volcanic wallrock	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15947	1470596	< 0.005	Pen Gold	4246167	26/10/2016	420198	5336719	MUND	moderately sheared mafic volcanic, moderate carbonate veining/flooding along foliation	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15948	1470597	< 0.005	Pen Gold	4246167	26/10/2016	420060	5336864	VVQV	2cm white to grey quartz-epidote vein in mafic volcanic; 90% quartz	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15949	1470598	0.007	Pen Gold	4246167	26/10/2016	420071	5336933	MUND	well foliated fine-grained mafic volcanic; moderate carbonate veinlets/flooding; trace chalcopryrite+pyrite	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15950	1470599	< 0.005	Pen Gold	4246167	26/10/2016	420006	5336931	MUND	2-6cm rusty vuggy grey pinch and swell quartz vein trending at azimuth 247 in sheared mafic volcanic; 20% quartz	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15951	1470600	< 0.005	Pen Gold	4246167	26/10/2016	420008	5336931	VVQV	2-6cm rusty vuggy grey pinch and swell quartz vein trending at azimuth 247 in sheared mafic volcanic; trace chalcopryrite; 80% quartz	Claim 4246167; west of Esker	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15952	1470901	< 0.005	Pen Gold	4207030	27/10/2016	419149	5336221	MUND	rusty sheared mafic volcanic; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15953	1470902	< 0.005	Pen Gold	4207030	27/10/2016	419215	5336236	MUND	mafic volcanic; slight rust and carbonate along foliation with tiny veinlets of pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15954	1470903	< 0.005	Pen Gold	4207030	27/10/2016	419223	5336281	MUND	moderately sheared rusty mafic volcanic; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15955	1470905	0.005	Pen Gold	4207030	27/10/2016	419240	5336196	MUND	rusty mafic volcanic; trace pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15956	1470906	< 0.005	Pen Gold	S94211	27/10/2016	419187	5336299	MUND	rusty sheared mafic volcanic; trace pyrite	west of Esker	1A2	ultratrace 6
DH15957	1470907	0.005	Pen Gold	S82788	27/10/2016	419067	5336284	MUND	rusty vuggy contorted mafic volcanic; trace pyrite	west of Esker	1A2	ultratrace 6
DH15958	1470909	0.006	Pen Gold	4207030	28/10/2016	419322	5336232	MUND	rusty patch in mafic volcanic; minor pyrite	Claim 4207030; west of Esker	1A2	ultratrace 6
DH15959	1470910	0.005	Pen Gold	4207034	28/10/2016	419653	5335783	MUND	rusty sheared mafic volcanic; 1% pyrrhotite+pyrite+chalcopyrite, weakly magnetic	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15960	1470911	< 0.005	Pen Gold	4207034	28/10/2016	419627	5335767	MUND	mafic volcanic; intense carbonate veining/flooding; changed from intermediate volcanic to mafic volcanic based on geochemistry	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15961	1470912	< 0.005	Pen Gold	4207034	28/10/2016	419614	5335757	MUND	rusty bleached sericitic mafic volcanic; 1% pyrrhotite; changed from intermediate to felsic volcanic to mafic volcanic based on geochemistry	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15962	1470913	< 0.005	Pen Gold	4207034	28/10/2016	419617	5335757	MUND	rusty sericitic gossan; trace pyrite; changed from intermediate to felsic volcanic to mafic volcanic based on geochemistry	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15963	1470914	< 0.005	Pen Gold	4207034	28/10/2016	419612	5335756	MUND	mafic volcanic; moderate to intense pervasive carbonate; trace pyrite; changed from intermediate to felsic volcanic to mafic volcanic based on geochemistry	Claim 4207034; west of Esker	1A2	ultratrace 6
DH15964	1470915	< 0.005	Pen Gold	4246167	30/10/2016	420362	5337008	MUND	2-5cm discontinuous quartz-epidote veining trending at azimuth 072 in mafic volcanic; 60% quartz	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15965	1470916	< 0.005	Pen Gold	4246167	30/10/2016	420192	5337036	MUND	well foliated mafic volcanic; weak carbonate; trace pyrite	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15966	1470917	< 0.005	Pen Gold	4246167	30/10/2016	420157	5336987	VVQV	3-5cm glassy-white discontinuous quartz vein in mafic volcanic; 95% quartz; green mineral possibly tourmaline	Claim 4246167; west of Esker	1A2	ultratrace 6
DH15967	1470918	< 0.005	Pen Gold	4207031	31/10/2016	422054	5336500	VQCV	white to grey sugary quartz-ankerite veining in 10m wide zone of sheared mafic volcanic trending at azimuth 080; moderate carbonate-ankerite in mafic volcanic; 1% magnetite and trace pyrite+chalcopyrite in vein; 80% quartz	Claim 4207031	1A2	ultratrace 6
DH15968	1470919	< 0.005	Pen Gold	4207031	31/10/2016	422056	5336500	VVQV	white to grey sugary quartz veining in 10m wide zone of rusty sheared mafic volcanic trending at azimuth 080; strong carbonate+chlorite in mafic volcanic; trace pyrite; 65% quartz	Claim 4207031	1A2	ultratrace 6
DH15969	1470920	0.012	Pen Gold	4207031	31/10/2016	422047	5336499	MUND	sheared mafic volcanic, rusty, chloritic; trace pyrite; 50% quartz; 50% chlorite schist	Claim 4207031	1A2	ultratrace 6
DH15970	1470921	0.010	Pen Gold	4207031	31/10/2016	422043	5336496	MUND	sheared and contorted mafic volcanic with tightly folded white sugary quartz veining/flooding and chlorite; 1% pyrite; 30% quartz	Claim 4207031	1A2	ultratrace 6
DH15971	1470922	0.043	Pen Gold	4207031	31/10/2016	421984	5336502	MUND	>1m rusty white to grey quartz veining in sheared mafic volcanic; strong chlorite and local ankerite in mafic volcanic host; trace chalcopyrite+pyrite; 25% quartz	Claim 4207031	1A2	ultratrace 6
DH15972	1470923	< 0.005	Pen Gold	4207031	31/10/2016	421894	5336502	VVQV	>1m white quartz veining with minor rust in sheared mafic volcanic; 99% quartz	Claim 4207031	1A2	ultratrace 6
DH15973	1470924	0.009	Pen Gold	4207031	31/10/2016	421982	5336497	VVQV	white to rusty quartz-carbonate vein breccia in sheared chloritic mafic volcanic; 1% pyrite+chalcopyrite; 90% quartz	Claim 4207031	1A2	ultratrace 6
DH15974	1470925	< 0.005	Pen Gold	4207031	31/10/2016	422008	5336491	VVQV	disjointed white to grey quartz veining on south margin of shear zone in mafic volcanic trending at 223/90; local black tourmaline; 90% quartz	Claim 4207031	1A2	ultratrace 6
DH15975	1470926	< 0.005	Pen Gold	4207033	01/11/2016	417591	5334313	VVQV	0.5m irregular white quartz vein in massive mafic volcanic; 60% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15976	1470927	< 0.005	Pen Gold	4207041	01/11/2016	417507	5334225	MPLW	white quartz in pillow selvages in mafic volcanic; 10% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15977	1470929	0.008	Pen Gold	4207031	02/11/2016	422090	5336514	MUND	ankerite-sericite-chlorite schist trending at 240/68 with 5-10% quartz-ankerite veining/flooding; possibly sheared mafic volcanic?	Claim 4207031	1A2	ultratrace 6
DH15978	1470930	< 0.005	Pen Gold	4207031	02/11/2016	422090	5336515	MUND	ankerite-sericite-chlorite schist trending at 240/68; possibly sheared mafic volcanic?	Claim 4207031	1A2	ultratrace 6
DH15979	1470931	0.020	Pen Gold	4207031	02/11/2016	422090	5336516	VQCV	quartz-ankerite veining-flooding in chloritic mafic volcanic; 1% chalcopyrite+pyrite; 60% quartz	Claim 4207031	1A2	ultratrace 6
DH15980	1470932	0.045	Pen Gold	4207031	02/11/2016	422092	5336514	VQCV	quartz-ankerite veining-flooding in chloritic-sericitic mafic volcanic; 1% chalcopyrite+pyrite; 70% quartz	Claim 4207031	1A2	ultratrace 6
DH15981	1470933	0.011	Pen Gold	4207031	02/11/2016	422092	5336516	MUND	quartz-ankerite veining-flooding in chloritic-sericitic mafic volcanic; chlorite ribbons; trace chalcopyrite+pyrite; 30% quartz	Claim 4207031	1A2	ultratrace 6
DH15982	1470934	< 0.005	Pen Gold	4207031	02/11/2016	421835	5336484	MUND	fine-grained mafic volcanic with carbonate amygdules and fractures; trace pyrite	Claim 4207031	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH15983	1470935	0.023	Pen Gold	4207031	02/11/2016	421849	5336477	MUND	siliceous-sericitic schist; 2-3% arsenopyrite; sheared mafic volcanic or sediment trending at 100/67	Claim 4207031	1A2	ultratrace 6
DH15984	1470936	< 0.005	Pen Gold	4207031	02/11/2016	421876	5336470	MUND	fractured siliceous mafic volcanic; 3-4% fine to coarse-grained pyrite as disseminated and with quartz veinlets; 1% quartz	Claim 4207031	1A2	ultratrace 6
DH15985	1470937	0.013	Pen Gold	4207031	02/11/2016	421863	5336434	MUND	2-5cm discontinuous rusty white quartz vein in 250ft shear zone in mafic volcanic trending at azimuth 250; 5-7% pyrite in rusty chloritic vein margins; 40% quartz	Claim 4207031	1A2	ultratrace 6
DH15986	1470939	0.620	Pen Gold	4207040	03/11/2016	416768	5333964	MUND	resample of 1470507; mafic volcanic; moderate pervasive ankerite and stringers; 4cm milky white quartz-ankerite vein; minor to 1% pyrite; 20% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15987	1470940	0.025	Pen Gold	4207040	03/11/2016	416767	5333964	MUND	mafic volcanic; moderate to strong pervasive ankerite; trace pyrite	South of Jehann Lake	1A2	ultratrace 6
DH15988	1470941	0.005	Pen Gold	4207040	03/11/2016	416765	5333964	MUND	mafic volcanic; moderate pervasive ankerite; 0.5cm white to grey quartz-ankerite veinlets; trace pyrite; 10% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15989	1470942	0.121	Pen Gold	4207040	03/11/2016	416760	5333964	MUND	mafic volcanic; strong pervasive ankerite; grey quartz-ankerite veinlets; trace pyrite; 10% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15990	1470943	0.007	Pen Gold	4207040	03/11/2016	416764	5333981	VQCV	3cm white quartz-ankerite vein in sheared chloritic mafic volcanic trending at azimuth 030; 60% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15991	1470944	< 0.005	Pen Gold	4207040	03/11/2016	416764	5333979	MUND	sheared mafic volcanic trending at azimuth 030; strong ankerite+chlorite; trace pyrite	South of Jehann Lake	1A2	ultratrace 6
DH15992	1470945	0.017	Pen Gold	4207040	03/11/2016	416764	5333977	VQCV	4cm white quartz-ankerite quartz vein in sheared chloritic mafic volcanic; trace chalcopyrite; 90% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15993	1470946	0.019	Pen Gold	4207040	03/11/2016	416736	5333799	VVQV	8cm white quartz vein trending at azimuth 070 in massive mafic volcanic; 90% quartz	South of Jehann Lake	1A2	ultratrace 6
DH15994	1470947	0.006	Pen Gold	4207040	03/11/2016	416727	5333778	MUND	mafic volcanic; moderate carbonate; trace pyrite	South of Jehann Lake	1A2	ultratrace 6
DH15995	1470948	< 0.005	Pen Gold	4207031	04/11/2016	421717	5336296	MUND	mafic volcanic with 4-5% magnetite; changed from intermediate volcanic based on geochemistry	Claim 4207031	1A2	ultratrace 6
DH15996	1470949	< 0.005	Pen Gold	4207031	04/11/2016	421753	5336334	MUND	0.50m shear trending at 270/90 in mafic volcanic; quartz-carbonate stringers; trace pyrite; 15% quartz	Claim 4207031	1A2	ultratrace 6
DH15997	1470950	0.007	Pen Gold	4207031	04/11/2016	421752	5336334	MUND	2-4cm irregular grey quartz vein in 0.50m rusty chloritic shear trending at 270/90 in mafic volcanic; 50% quartz	Claim 4207031	1A2	ultratrace 6
DH15998	1470951	< 0.005	Pen Gold	4207031	04/11/2016	421636	5336648	MUND	rusty sheared mafic volcanic, strong gossan; 7-8% pyrite; locally magnetic	Claim 4207031	1A2	ultratrace 6
DH15999	1470952	< 0.005	Pen Gold	4207031	04/11/2016	421638	5336649	MUND	rusty mafic volcanic; strong gossan; 5% pyrite; locally magnetic	Claim 4207031	1A2	ultratrace 6
DH16000	1470953	< 0.005	Pen Gold	4207031	05/11/2016	421597	5336624	MUND	quartz-epidote-carbonate veining-flooding in massive mafic volcanic; trace pyrite; 10% quartz	Claim 4207031	1A2	ultratrace 6
DH16001	1470955	< 0.005	Pen Gold	4207031	05/11/2016	421627	5336629	VVQV	quartz-carbonate-chlorite veining in massive mafic volcanic; trace pyrite+chalcopyrite; 60% quartz	Claim 4207031	1A2	ultratrace 6
DH16002	1470956	< 0.005	Pen Gold	4207031	05/11/2016	421572	5336308	VVQV	quartz-epidote vein in mafic volcanic with vuggy weathering; 98% quartz	Claim 4207031	1A2	ultratrace 6
DH16003	1470957	< 0.005	Pen Gold	4207042	06/11/2016	418421	5333917	MUND	sheared and bleached mafic volcanic; strong ankerite; quartz-ankerite veinlets; 1% chalcopyrite+pyrite; 10% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16004	1470959	< 0.005	Pen Gold	4207041	06/11/2016	417658	5333849	MUND	white quartz fracture fill veinlets in chloritic mafic volcanic; trace pyrite; 10% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16005	1470960	< 0.005	Pen Gold	4207041	06/11/2016	417683	5333720	KKCB	2-6cm white quartz vein in sheared and folded carb rock; 30% quartz; changed from carbonate-chlorite altered mafic volcanic to carb rock based on geochemistry	Southeast of Jehann Lake	1A2	ultratrace 6
DH16006	1470961	< 0.005	Pen Gold	4207041	06/11/2016	417683	5333718	KKCB	rusty sheared chloritic carb rock; trace pyrite; changed from chlorite-carbonate altered mafic volcanic to chloritic carb rock based on geochemistry	Southeast of Jehann Lake	1A2	ultratrace 6
DH16007	1470962	0.013	Pen Gold	4207041	06/11/2016	417682	5333715	KKCB	rusty sheared carb rock; 5% grey quartz stringers; trace pyrite; changed from carbonate altered mafic volcanic to carb rock based on geochemistry	Southeast of Jehann Lake	1A2	ultratrace 6
DH16008	1470963	0.006	Pen Gold	4207041	06/11/2016	417682	5333717	KKCB	sheared carb rock; trace pyrite; changed from strongly carbonate+chlorite altered mafic volcanic to carb rock based on geochemistry	Southeast of Jehann Lake	1A2	ultratrace 6
DH16009	1470964	< 0.005	Pen Gold	4207041	06/11/2016	417871	5333703	KKCB	carb rock; 5% grey quartz stringers; minor pyrite+arsenopyrite; changed from mafic volcanic based on geochemistry	Southeast of Jehann Lake	1A2	ultratrace 6
DH16010	1470965	< 0.005	Pen Gold	4207041	07/11/2016	417846	5333722	KKCB	carb rock; 10% purple grey ankerite stringers; 1% pyrite+arsenopyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16011	1470966	< 0.005	Pen Gold	4207041	07/11/2016	417849	5333712	KKCB	carb rock; 5% grey quartz stringers	Southeast of Jehann Lake	1A2	ultratrace 6
DH16012	1470967	< 0.005	Pen Gold	4207041	07/11/2016	417864	5333729	PUND	siliceous massive felsic intrusive; weak ankerite	Southeast of Jehann Lake	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH16013	1470968	< 0.005	Pen Gold	4207041	07/11/2016	417864	5333732	KFCB	fuchsitic carb rock; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16014	1470969	< 0.005	Pen Gold	4207041	07/11/2016	417881	5333747	KKCB	carb rock; minor pyrite+arsenopyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16015	1470970	< 0.005	Pen Gold	4207041	07/11/2016	417899	5333804	MUND	bleached mafic volcanic; moderate carbonate; minor pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16016	1470971	< 0.005	Pen Gold	4207033	09/11/2016	417668	5334727	BQDI	quartz diorite; minor pyrite+chalcopyrite as stringers	Northeast of Jehann Lake	1A2	ultratrace 6
DH16017	1470972	< 0.005	Pen Gold	4207033	09/11/2016	417745	5334776	IUND	re-sample of 1026693; rusty beige and siliceous with strong ankerite weathering rhind; intermediate to felsic volcanic?; 1% fine-grained disseminated pyrite	Northeast of Jehann Lake	1A2	ultratrace 6
DH16018	1470973	0.105	Pen Gold	4207033	09/11/2016	417713	5334759	IUND	rusty beige and siliceous with strong ankerite weathering rhind; intermediate to felsic volcanic?; 1% fine-grained disseminated pyrite	Northeast of Jehann Lake	1A2	ultratrace 6
DH16019	1470974	0.005	Pen Gold	4207033	09/11/2016	417763	5334767	VQCV	smokey dark grey quartz-ankerite boudins in chlorite schist; trace pyrite+chalcopyrite; 70% quartz	Northeast of Jehann Lake	1A2	ultratrace 6
DH16020	1470975	4.74	Pen Gold	4207033	09/11/2016	417778	5334742	CCRT	white to beige brecciated chert and argillite fragments; trace pyrite	Northeast of Jehann Lake	1A2	ultratrace 6
DH16021	1470976	< 0.005	Pen Gold	4207041	10/11/2016	418278	5333673	KMAS	massive serpentinized ultramafic volcanic; strongly magnetic	Southeast of Jehann Lake	1A2	ultratrace 6
DH16022	1470977	< 0.005	Pen Gold	4207041	10/11/2016	418030	5333413	KMAS	massive serpentinized ultramafic volcanic; weakly to nonmagnetic	Southeast of Jehann Lake	1A2	ultratrace 6
DH16023	1470978	< 0.005	Pen Gold	4207041	10/11/2016	417486	5333205	KSPX	serpentinized ultramafic volcanic with coarse spinifex texture; strongly magnetic	Southeast of Jehann Lake	1A2	ultratrace 6
DH16024	1470979	< 0.005	Pen Gold	4207041	10/11/2016	417555	5333514	KMAS	massive serpentinized ultramafic volcanic; moderately magnetic	Southeast of Jehann Lake	1A2	ultratrace 6
DH16025	1470980	< 0.005	Pen Gold	4207031	11/11/2016	421571	5336150	MUND	bleached mafic volcanic; moderate carbonate; spotty minor to 1% pyrite	Claim 4207031	1A2	ultratrace 6
DH16026	1470981	< 0.005	Pen Gold	4207030	11/11/2016	421225	5336458	VVQV	slightly rusty white quartz vein with local black tourmaline in chloritic mafic volcanic; 60% quartz	Claim 4207030	1A2	ultratrace 6
DH16027	1470982	< 0.005	Pen Gold	4207030	11/11/2016	421327	5336146	IUND	bleached intermediate to mafic volcanic; strong carbonate; minor to 1% pyrite	Claim 4207030	1A2	ultratrace 6
DH16028	1470984	< 0.005	Pen Gold	4207030	11/11/2016	421299	5336033	VVQV	rusty white sugary quartz veining/flooding in mafic volcanic; 60% quartz	Claim 4207030	1A2	ultratrace 6
DH16029	1470985	< 0.005	Pen Gold	4207041	12/11/2016	418045	5333760	MUND	weakly sheared mafic volcanic trending at azimuth 256; moderate carbonate veining; trace chalcopyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16030	1470986	< 0.005	Pen Gold	4207041	12/11/2016	417867	5333694	MUND	fractured mafic volcanic; minor dark grey quartz along fractures with minor chalcopyrite and local malachite staining; 1% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16031	1470988	< 0.005	Pen Gold	4207041	12/11/2016	417890	5333722	PUND	beige felsic dyke with white to grey quartz vein stockwork; moderate ankerite clots and veinlets in wallrock and quartz; 30% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16032	1470989	< 0.005	Pen Gold	4207041	12/11/2016	417893	5333724	PUND	beige felsic dyke with white to grey quartz vein stockwork; moderate ankerite clots and veinlets in wallrock and quartz; 30% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16033	1470990	< 0.005	Pen Gold	4207041	12/11/2016	417899	5333723	PUND	beige felsic dyke with white to grey quartz vein stockwork; moderate ankerite clots and veinlets in wallrock; local black tourmaline in vein along margins; 30% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16034	1470991	< 0.005	Pen Gold	4207041	12/11/2016	417911	5333725	VVQV	white to smokey grey quartz veining/flooding in intensely iron carbonate altered mafic volcanic; 60% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16035	1470992	< 0.005	Pen Gold	4207041	12/11/2016	417916	5333725	PUND	beige felsic dyke with white to grey quartz vein stockwork; moderate to strong ankerite clots and veinlets in wallrock; abundant green+black tourmaline in veins; 20% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16036	1470993	< 0.005	Pen Gold	4207041	12/11/2016	417913	5333736	KKCB	intensely carbonate-ankerite altered and veined ultramafic or mafic volcanic; vuggy quartz on fractures; trace very fine-grained pyrite+chalcopyrite; 10% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16037	1470994	< 0.005	Pen Gold	4207041	12/11/2016	417900	5333728	KKCB	sericite+ankerite seams and massive grey ankerite bands; 2-3% very fine-grained to fine-grained disseminated pyrite+arsenopyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16038	1470995	< 0.005	Pen Gold	4207041	12/11/2016	418152	5333853	MUND	sericite-ankerite-chlorite schist trending at 060/90; mafic volcanic?	Southeast of Jehann Lake	1A2	ultratrace 6
DH16039	1470996	0.005	Pen Gold	4207041	12/11/2016	418153	5333852	MUND	bleached mafic volcanic; strong carbonate-ankerite; minor quartz-carbonate veinlets; trace pyrite; 5% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16040	1470997	< 0.005	Pen Gold	4207041	13/11/2016	418026	5333838	VVQV	2-4cm rusty white quartz vein trending at 170/60 in chloritic massive mafic volcanic; 70% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16041	1470998	0.005	Pen Gold	4207041	13/11/2016	417942	5333883	MUND	bleached mafic volcanic; moderate carbonate; 1% pyrite on fractures	Southeast of Jehann Lake	1A2	ultratrace 6
DH16042	1470999	0.019	Pen Gold	4207041	13/11/2016	417928	5333904	MUND	vuggy white quartz-carbonate veining in fractured massive mafic volcanic; trace pyrite+chalcopyrite; 10% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16043	1471000	< 0.005	Pen Gold	4207041	13/11/2016	418048	5333947	VQCV	vuggy white quartz-carbonate veining in fractured massive mafic volcanic; 60% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16044	1274201	< 0.005	Pen Gold	4207041	13/11/2016	418073	5333909	VVQV	6-10cm white quartz vein with local rusty sections in gabbro; minor malachite staining; trace chalcopyrite; 95% quartz; 5% inclusions and seams of wallrock?	Southeast of Jehann Lake	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH16045	1274203	< 0.005	Pen Gold	4207041	13/11/2016	418073	5333909	VVQV	6-10cm white quartz vein trending at 070/75 in gabbro; 95% quartz; 5% inclusions of gabbro wallrock	Southeast of Jehann Lake	1A2	ultratrace 6
DH16046	1274204	< 0.005	Pen Gold	4207041	13/11/2016	418072	5333901	BGBR	disjointed rusty vuggy white quartz vein in medium-grained gabbro; 30% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16047	1274205	0.183	Pen Gold	4207041	13/11/2016	418075	5333891	BGBR	4cm white quartz-carbonate vein trending at 266/75 in chloritic gabbro; spotty 1-2% chalcopyrite as veinlets; minor malachite staining	Southeast of Jehann Lake	1A2	ultratrace 6
DH16048	1274207	< 0.005	Pen Gold	4207041	13/11/2016	418072	5333884	VVQV	20cm zone of white quartz veins and stringers at contact between gabbro and mafic volcanic; 80% quartz; 20% chlorite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16049	1274208	< 0.005	Pen Gold	4207041	13/11/2016	418147	5333830	KKCB	carb rock; 5% quartz veinlets; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16050	1274209	0.036	Pen Gold	4207041	14/11/2016	418153	5333814	KKCB	carb rock; 2% white quartz-ankerite veinlets; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16051	1274210	< 0.005	Pen Gold	4207041	14/11/2016	418174	5333828	KFCB	well foliated carb rock with slight green tinge possibly due to fuchsite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16052	1274211	< 0.005	Pen Gold	4207041	14/11/2016	418175	5333811	MUND	deformed and altered mafic volcanic; moderate to strong carbonate-ankerite; 20% white quartz vein stockwork; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16053	1274212	< 0.005	Pen Gold	4207041	14/11/2016	418176	5333809	MUND	deformed and altered mafic volcanic trending at azimuth 280; intense ankerite; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16054	1274213	0.013	Pen Gold	4207041	14/11/2016	418176	5333807	MUND	deformed and altered mafic volcanic trending at azimuth 280; intense ankerite as pervasive and veining; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16055	1274214	< 0.005	Pen Gold	4207041	14/11/2016	418209	5333815	MUND	well foliated to sheared mafic volcanic; intense carbonate-ankerite; possible fragments accentuated by alteration; 20% white quartz veins and veinlets; 1-2% pyrite as fine-grained disseminated and stringers	Southeast of Jehann Lake	1A2	ultratrace 6
DH16056	1274215	< 0.005	Pen Gold	4207041	14/11/2016	418209	5333821	MUND	bleached mafic volcanic; moderate to strong pervasive carbonate-ankerite; spotty minor to 1% pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16057	1274216	< 0.005	Pen Gold	4207041	14/11/2016	418212	5333825	MUND	well foliated to sheared bleached mafic volcanic trending at azimuth 280; strong carbonate-ankerite; 5% grey quartz veinlets; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16058	1274217	< 0.005	Pen Gold	4207041	14/11/2016	418138	5333818	KKCB	well foliated to sheared carb rock; trace to minor pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16059	1274218	< 0.005	Pen Gold	4207041	14/11/2016	418138	5333817	KKCB	carb rock; trace to minor pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16060	1274219	< 0.005	Pen Gold	4207041	14/11/2016	418115	5333800	KKCB	carb rock; minor rusty white to grey quartz vein pods; 10% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16061	1274220	< 0.005	Pen Gold	4207041	14/11/2016	418094	5333803	KKCB	carb rock; 5% grey quartz veinlets; 1-2% very fine-grained to fine-grained disseminated pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16062	1274221	< 0.005	Pen Gold	4207041	14/11/2016	418309	5333845	MUND	ankerite-sericite-chlorite schist trending at azimuth 070; mafic volcanic?; 10% white quartz-ankerite vein pods	Southeast of Jehann Lake	1A2	ultratrace 6
DH16063	1274222	< 0.005	Pen Gold	4207041	14/11/2016	418311	5333850	MUND	bleached mafic volcanic; strong pervasive carbonate-ankerite; 5% ankerite veinlets; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16064	1274223	< 0.005	Pen Gold	4207041	14/11/2016	418314	5333858	MUND	well foliated bleached mafic volcanic; strong pervasive carbonate-ankerite; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16065	1274224	< 0.005	Pen Gold	4207041	14/11/2016	418312	5333860	MUND	well foliated bleached mafic volcanic; strong pervasive carbonate-ankerite; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16066	1274225	0.063	Pen Gold	4207042	15/11/2016	418413	5334144	VVQV	rusty vuggy white quartz-epidote veining in massive gabbro; 60% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16067	1274226	0.011	Pen Gold	4207042	15/11/2016	418434	5334162	MUND	bleached vesicular mafic volcanic; strong carbonate; minor to 1% pyrite on fractures	Southeast of Jehann Lake	1A2	ultratrace 6
DH16068	1274228	0.008	Pen Gold	4207042	15/11/2016	418423	5334174	MUND	massive beige rock; intensely bleached and carbonatized; intermediate to mafic volcanic?; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16069	1274229	< 0.005	Pen Gold	4207042	15/11/2016	418688	5334104	BGBR	2cm rusty white quartz-carbonate vein trending at azimuth 320 in massive gabbro; 35% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16070	1274230	< 0.005	Pen Gold	4207042	15/11/2016	418501	5333409	PQFP	chalky white quartz feldspar porphyry or granodiorite; 10% sporadic white quartz veinlets; trace pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16071	1274231	< 0.005	Pen Gold	4207042	16/11/2016	418754	5333602	PUND	white to beige felsic intrusive with quartz vein stockwork; slightly rusty possibly ankerite; trace pyrite; 40% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16072	1274232	< 0.005	Pen Gold	4207042	16/11/2016	418754	5333608	PUND	rusty white to beige felsic intrusive; locally vuggy and weathered to gossan; difficult to determine amount of quartz veining or flooding; 1-2% pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16073	1274233	< 0.005	Pen Gold	4207042	16/11/2016	418752	5333610	PUND	rusty white to beige felsic intrusive; locally vuggy and weathered to gossan; dominantly quartz veining or flooding, difficult to determine amount; 2-3% pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16074	1274234	< 0.005	Pen Gold	4207042	16/11/2016	418855	5333680	PUND	beige rusty beige silicified felsic intrusion; 1% pyrite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16075	1274235	< 0.005	Pen Gold	4207042	16/11/2016	418867	5333685	PUND	rusty chalky white to orange felsic intrusion; 5% grey to white quartz vein stockwork; 1-2% pyrite+arsenopyrite	Southeast of Jehann Lake	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DH16076	1274236	< 0.005	Pen Gold	4207042	16/11/2016	418695	5333514	PUND	beige-green felsic intrusion with 1cm sporadic white quartz veining; trace pyrite; 10% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16077	1274238	< 0.005	Pen Gold	4207042	16/11/2016	418695	5333507	PUND	rusty beige fine-grained felsic intrusion; 3-5% pyrite as fine to coarse-grained in veinlets and blebs	Southeast of Jehann Lake	1A2	ultratrace 6
DH16078	1274239	< 0.005	Pen Gold	4207042	16/11/2016	418665	5333504	VVQV	white quartz veining in rusty beige felsic intrusion; minor to 1% pyrite as fine to coarse-grained in veinlets and disseminated in vein and wallrock; 60% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16079	1274240	< 0.005	Pen Gold	4207042	16/11/2016	418666	5333502	VVQV	10cm white quartz vein trending at 190/38 in beige felsic intrusion with rusty patches; trace to minor pyrite in vein and wallrock; 90% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16080	1274241	0.012	Pen Gold	4207042	16/11/2016	418644	5333476	VVQV	quartz vein stockwork in beige felsic intrusion; spotty minor to 1% pyrite in wallrock; 90% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16081	1274242	< 0.005	Pen Gold	4207042	16/11/2016	418577	5333349	GGRD	massive white medium-grained unaltered granodiorite	Southeast of Jehann Lake	1A2	ultratrace 6
DH16082	1274243	< 0.005	Pen Gold	4207042	17/11/2016	418498	5333333	VVQV	5cm slightly rusty white quartz vein trending at azimuth 180 in granodiorite; 99% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16083	1274244	< 0.005	Pen Gold	4207042	17/11/2016	418743	5333249	VVQV	4-6cm white quartz vein trending at azimuth 190 in massive granodiorite; 90% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16084	1274245	< 0.005	Pen Gold	4207042	17/11/2016	418652	5333254	VVQV	4cm white quartz-chlorite vein trending at 180 in massive granodiorite; 90% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16085	1274246	< 0.005	Pen Gold	4207042	17/11/2016	418657	5333249	VVQV	3-10cm rusty white quartz vein trending at azimuth 180 in massive granodiorite; 95% quartz	Southeast of Jehann Lake	1A2	ultratrace 6
DH16086	1274247	0.019	Pen Gold	4221929	18/11/2016	426048	5335402	VVQV	6-8cm white quartz vein trending at 080/90 in moderately magnetic diorite; 95% quartz; seams or stylolites of wallrock	West of Broadsword	1A2	ultratrace 6
DH16087	1274248	< 0.005	Pen Gold	4221929	18/11/2016	426048	5335402	BDIO	silicified and chloritic section of moderately magnetic diorite; spotty trace to 1% fine to medium-grained pyrite	West of Broadsword	1A2	ultratrace 6
DH16088	1274249	< 0.005	Pen Gold East	4248298	18/11/2016	426128	5335388	BUND	well foliated strongly magnetic mafic intrusive; quartz fracture fill; 1-2% fine-grained pyrite; 5% quartz	West of Broadsword	1A2	ultratrace 6
DH16089	1274250	0.006	Pen Gold	4221929	18/11/2016	425979	5335403	BUND	rusty weakly foliated strongly magnetic mafic intrusive; local grey to white quartz veining/flooding; 2-3% pyrite; 10% quartz	West of Broadsword	1A2	ultratrace 6
DH16090	1274251	0.006	Pen Gold	4221929	18/11/2016	425975	5335391	BUND	rusty 1cm quartz vein in rusty moderately magnetic mafic intrusive; 3-5% pyrite+arsenopyrite in wallrock and vein; rusty orange tinge to vein and wallrock; 10% quartz	West of Broadsword	1A2	ultratrace 6
DH16091	1274252	< 0.005	Pen Gold	4221929	18/11/2016	425300	5335528	MUND	strongly sheared mafic volcanic trending at 080/90; elongated fragments and rounded clasts; trace to 1% pyrite; nonmagnetic	West of Broadsword	1A2	ultratrace 6
DH16092	1274254	< 0.005	Pen Gold	4221929	18/11/2016	425300	5335534	MUND	1cm white to grey quartz vein in strongly sheared mafic volcanic trending at 080/90; trace pyrite; 10% quartz	West of Broadsword	1A2	ultratrace 6
DH16093	1274255	0.005	Pen Gold	4221929	18/11/2016	425304	5335533	VVQV	25cm rusty white quartz vein in silicified sheared mafic volcanic or intrusive; 3-5% pyrite in wallrock and less commonly in veining; 65% quartz	West of Broadsword	1A2	ultratrace 6
DH16094	1274256	< 0.005	Pen Gold	4221929	18/11/2016	425306	5335534	VVQV	2-6cm rusty quartz veins in rusty sheared mafic volcanic trending at 080/90; trace to minor pyrite in veining; 80% quartz	West of Broadsword	1A2	ultratrace 6
DH16095	1274257	0.013	Pen Gold	4221929	18/11/2016	425308	5335533	MUND	rusty mixture of sheared mafic volcanic and white quartz veins; spotty 1% pyrite in veining and wallrock; 35% quartz	West of Broadsword	1A2	ultratrace 6
DH16096	1274259	0.038	Pen Gold	4221929	18/11/2016	425310	5335533	MUND	35cm rusty white quartz vein in rusty chloritic schist; 10-15% pyrite in schist; 40% quartz	West of Broadsword	1A2	ultratrace 6
DH16097	1274260	0.006	Pen Gold	4221929	18/11/2016	425302	5335543	VVQV	muck from blasted trench, rusty white quartz vein in mafic volcanic; chloritic wallrock and inclusions in quartz; 3-5% pyrite in chloritic inclusions and wallrock; 90% quartz	West of Broadsword	1A2	ultratrace 6
DH16098	1274261	0.005	Pen Gold	4221929	18/11/2016	425302	5335543	MUND	muck from blasted trench; 50% rusty quartz veining; 45% chloritic mafic volcanic wallrock; 4-5% fine to coarse-grained pyrite in wallrock and quartz	West of Broadsword	1A2	ultratrace 6
PP11410	1027301	< 0.005	Pen Gold	P380231	31/07/2016	417735	5337860	VVQV	carb rock; very well foliated; 5% grey to black quartz-ankerite stringers/veins and pods parallel to foliation at 065; 60% quartz	carb rock west of Talc pit	1A2	ultratrace 6
PP11441	1027302	< 0.005	Pen Gold	4201493	02/08/2016	416874	5336874	MUND	bleached mafic volcanic; moderate ankerite; 1-2cm ankerite+arsenopyrite veinlets at 276/70; 1-2% pyrite+arsenopyrite, nice needles	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11446	1027303	< 0.005	Pen Gold	4201493	03/08/2016	416954	5336795	KKCB	carb rock; trace pyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11460	1027304	0.01	Pen Gold	4201493	05/08/2016	416978	5336736	KUND	2cm calcite vein in ultramafic volcanic with weak ankerite; 20% calcite vein; changed from dunite to ultramafic volcanic based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11461	1027305	< 0.005	Pen Gold	4201493	05/08/2016	416985	5336737	KUND	ultramafic volcanic; weak ankerite weathering and veinlets; vague polygonal jointing; chloritic veinlets; minor pyrrhotite +/- pyrite; strongly magnetic; changed from dunite to ultramafic volcanic based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11465	1027306	0.005	Pen Gold	4201493	07/08/2016	416470	5337030	FUND	felsic volcanic?; abundant quartz+feldspar crystals/grains; bleached white on weathered surface, siliceous and grey on fresh surface	between Nib Yellowknife showing and West Branch Nat River	1A2	
PP11471	1027308	0.711	Pen Gold	4201493	07/08/2016	416459	5336970	MUND	mafic volcanic; moderate vuggy ankerite clots; minor 0.25-0.5cm gently dipping grey quartz veins	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11472	1027309	0.006	Pen Gold	4201493	07/08/2016	416459	5336971	SSST	vaguely thinly banded fine-grained sediment; siltstone to argillite; bleached light green on weathered surface, dark grey green on fresh surface; very well foliated to schistose	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11474	1027310	< 0.005	Pen Gold	4201493	08/08/2016	416520	5336708	MUND	well foliated to sheared mafic volcanic; moderate to strong ankerite+sericite; dark grey moderately dipping quartz extension veins at 120/40; minor pyrite +/- arsenopyrite in wallrock; 50% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11474A	1027311	< 0.005	Pen Gold	4201493	08/08/2016	416521	5336709	VVQV	15-20cm dark grey quartz vein trending at azimuth 255 in well foliated to sheared mafic volcanic with strong sericite; appears to pinch and be a boudinaged pod; nice ribbons/stylolites and fractures at azimuth 220 cross-cut vein; 2-3% fine-grained arsenopyrite and black tourmaline in wallrock near vein; 60% quartz; sample from east end of vein	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11474B	1027312	< 0.005	Pen Gold	4201493	08/08/2016	416520	5336709	VVQV	west end of same quartz vein in sample 1027311; 95% quartz; minor siliceous mafic volcanic wallrock near vein contact with 1-2% arsenopyrite and black tourmaline	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11478	1027314	< 0.005	Pen Gold	4201493	09/08/2016	416532	5336689	KCCB	mapped as sheared rusty mafic volcanic; sericitic with local chlorite shears; local dark grey quartz-ankerite veining/flooding and siliceous; local up to 5-10% fine-grained magnetite + arsenopyrite +/- pyrrhotite; 5 % quartz; representation chip over 1.5m at north end of old trench; changed to chloritic carb rock based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11478	1027315	< 0.005	Pen Gold	4201493	09/08/2016	416532	5336689	KCCB	same unit as sample 1027314; best sulphide mineralization over 15cm width; 5-10% fine-grained magnetite+arsenopyrite +/- pyrrhotite; 10% rusty siliceous quartz stringers	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11479	1027316	< 0.005	Pen Gold	4201493	09/08/2016	416497	5336717	MUND	sheared mafic volcanic; bleached; strong ankerite+sericite; chloritic shears; minor to 1% fine-grained arsenopyrite+pyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11480	1027317	0.006	Pen Gold	4201493	09/08/2016	416504	5336697	MUND	mafic volcanic; well foliated; bleached; soft black stringers or bands parallel to foliation; strong ankerite+sericite; trace to minor pyrite +/- arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11481	1027318	< 0.005	Pen Gold	4201493	09/08/2016	416506	5336696	MUND	sheared mafic volcanic; strong ankerite+sericite; trace pyrite +/- arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11485	1027319	< 0.005	Pen Gold	4201493	10/08/2016	416565	5336741	MUND	sheared rusty mafic volcanic; strong ankerite; dark grey quartz vein trends at 165/35, cross-cuts foliation-extension type vein; trace fine-grained pyrite +/- arsenopyrite in wallrock	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11492	1027320	< 0.005	Pen Gold	4207914	11/08/2016	416956	5336619	KCCB	chloritic carb rock; local spinifex; carbonate breccia; abundant magnetite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11495	1027321	< 0.005	Pen Gold	4207914	11/08/2016	416900	5336603	KKCB	strong carb rock; strongly oxidized and rusty	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11501	1027322	0.007	Pen Gold	4207914	13/08/2016	416859	5336644	VVQV	5-10cm wide zone of vuggy white-beige-light grey siliceous quartz veins with chlorite-ankerite bands trending at 275/50; 60% quartz; host rock changed from strongly ankerite-altered diorite to chloritic carb rock based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11501	1027323	0.006	Pen Gold	4207914	13/08/2016	416859	5336644	KCCB	vuggy weathered surface; strong ankerite as pervasive,veins and pods; trace pyrite+pyrrhotite; representative grab; changed from diorite to chloritic carb rock based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11502	1027324	< 0.005	Pen Gold	4207914	13/08/2016	416865	5336632	KCCB	vuggy weathered surface; strong ankerite; 0.5-2cm light grey-white quartz-ankerite vein; 20% quartz; changed from diorite to chloritic carb rock based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11503	1027325	< 0.005	Pen Gold	4207914	13/08/2016	416873	5336625	KCCB	rusty gully >1m wide; vuggy weathered surface; minor siliceous patches with abundant black tourmaline and trace pyrite; cahnged from diorite to chloritic carb rock based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11504	1027326	< 0.005	Pen Gold	4207914	13/08/2016	416879	5336618	KCCB	vuggy ankerite clots; strong ankerite; trace pyrite; changed from diorite to chloritic carb rock based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11498	1027328	< 0.005	Pen Gold	4207914	13/08/2016	416851	5336628	KCCB	abundant vuggy ankerite clots and darker green fine-grained chloritic mafic volcanic or intrusive looking rock; 1-2cm beige siliceous quartz-ankerite veins; 20% quartz; changed from diorite and mafic volcanic to chloritic carb rock based on geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11507	1027329	< 0.005	Pen Gold	4207914	13/08/2016	416790	5336586	MFPO	bleached mafic volcanic; intense carbonate, probably calcite; vague coarse-grained feldspar phenocrysts/carbonate clots or varioles; similar to unit west of talc pit; minor pyrite+arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11527	1027330	0.007	Pen Gold	4207914	14/08/2016	416660	5336380	MPLW	bleached mafic volcanic; moderate to strong cabonate+silica	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11529	1027331	< 0.005	Pen Gold	4207914	16/08/2016	416588	5336552	MFPO	bleached mafic volcanic or intrusive; coarse-grained feldspar/carbonate crystals or clots; local rust with minor arsenopyrite+pyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11536	1027332	< 0.005	Pen Gold	4207914	16/08/2016	416516	5336495	MFPO	mafic feldspar porphyry; fine-grained groundmass; looks intrusive; sample for geochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11537	1027333	< 0.005	Pen Gold	4207914	17/08/2016	416516	5336503	BGBR	gabbro or diorite; medium-grained; chlorite clots; massive; nonmagnetic; different than mafic feldspar porphyry unit in sample 1027332; sample for lithochemistry	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11538	1027334	< 0.005	Pen Gold	4207914	17/08/2016	416516	5336501	BGBR	1m wide chloritic shear trending at 150/80 in gabbro; minor rusty patches; local 1-2mm rusty light grey quartz veins or boudins	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11539	1027335	< 0.005	Pen Gold	4207914	17/08/2016	416518	5336498	BGBR	rusty sericitic shear in gabbro; 5% sugary quartz; 5m southeast of sample 1027334	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11541	1027336	< 0.005	Pen Gold	4207914	17/08/2016	416391	5336546	MVAR	bleached variolitic or feldspar porphyritic mafic volcanic; moderately to well foliated along edge of ridge; strong carbonate, almost green carbonate; moderate sericite; minor to 1% arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11542	1027337	< 0.005	Pen Gold	4207914	17/08/2016	416385	5336554	MVAR	bleached variolitic or feldspar porphyritic mafic volcanic; strong carbonate; weak sericite; minor to 1% fine-grained arsenopyrite+pyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11543	1027338	< 0.005	Pen Gold	4207914	31/08/2016	416382	5336562	MVAR	bleached variolitic or feldspar porphyritic mafic volcanic; well foliated to sheared; strong carbonate, likely calcite grading to dolomite or ankerite; weak sericite; 1-2% fine-grained disseminated pyrite+arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11546	1027339	< 0.005	Pen Gold	4207914	31/08/2016	416373	5336579	MUND	rusty sheared mafic volcanic; moderate sericite; 5% rusty quartz stringers; trace arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11551	1027340	< 0.005	Pen Gold	4207914	31/08/2016	416632	5336337	MUND	1-10cm black and beige bands trending at 260/82 in fine-grained chloritic mafic volcanic; possibly minor black tourmaline	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11552	1027341	< 0.005	Pen Gold	4207914	31/08/2016	416632	5336332	MUND	2-5cm rusty sugary quartz vein trending at azimuth 240 in fine-grained massive mafic volcanic or intrusive; trace to minor fine-grained pyrite+arsenopyrite in vein and wallrock; 30% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11553	1027342	< 0.005	Pen Gold	4207914	31/08/2016	416632	5336329	MUND	15cm rusty shear trending at 60/70 in fine-grained massive chloritic mafic volcanic or intrusive; rusty sugary quartz veining; 20% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11563	1027343	< 0.005	Pen Gold	4207914	01/09/2016	416300	5336017	VVQV	1-2cm white sugary quartz vein in small shear trending at azimuth 310 in variolitic mafic volcanic; 60% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11564	1027344	< 0.005	Pen Gold	4207914	01/09/2016	416302	5336019	MVAR	variolitic mafic volcanic; moderate silica+sericite; 2-3% fine-grained disseminated arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11565	1027346	0.008	Pen Gold	4207914	01/09/2016	416297	5336014	MVAR	bleached variolitic or feldspar porphyritic mafic volcanic; moderate carbonate; shears trending at azimuth 310 along west edge of outcrop, contorted foliation	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11566	1027347	< 0.005	Pen Gold	4207914	02/09/2016	416289	5336035	VVQV	2cm grey sugary quartz vein trending at 150/80 in bleached variolitic mafic volcanic; trace very fine-grained arsenopyrite+pyrite in vein; limited strike extent of vein, cut by fault; 70% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11567	1027348	< 0.005	Pen Gold	4207914	02/09/2016	416278	5336032	MVAR	patchy rusty silica-sericite shears in variolitic mafic volcanic; 3-5% very fine-grained to medium-grained disseminated arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11568	1027349	0.008	Pen Gold	4207914	02/09/2016	416273	5336030	MVAR	patchy 1m X 0.6m rusty silica-sericite gossan in variolitic mafic volcanic along shear trending at 180/85; 3-5% very fine-grained to medium-grained disseminated arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11569	1027351	< 0.005	Pen Gold	4207914	02/09/2016	416278	5336030	MVAR	20-30cm wide patchy rusty silica-sericite shears trending at 266/65 in variolitic mafic volcanic; trace to minor very fine-grained arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11570	1027352	0.005	Pen Gold	4207914	02/09/2016	416072	5336030	MCLC	mafic volcanic; chlorite clots; strong bleaching with ankerite weathering rhind; trace fine-grained pyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11571	1027353	< 0.005	Pen Gold	4207914	02/09/2016	416080	5336028	VVQV	1cm grey quartz vein trending at 317/68 in mafic volcanic, cross-cuts foliation; moderate sericite-silica and local ankerite near vein; trace to minor chalcopyrite+arsenopyrite in vein; 60% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11571	1027354	< 0.005	Pen Gold	4207914	02/09/2016	416080	5336028	MUND	rusty ankerite pods in mafic volcanic parallel to foliation; moderate sericite+silica+ankerite; siliceous quartz pods/veins; 1-2% very fine-grained to fine-grained disseminated arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11573	1027355	< 0.005	Pen Gold	4207914	03/09/2016	416390	5336111	MPLW	representative grab of rusty silica+sericite pillow selvages in bleached mafic volcanic; trace arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11574	1027356	< 0.005	Pen Gold	4207914	03/09/2016	416378	5336118	MPLW	pillowed mafic volcanic; local rusty shears with moderate silica and 3-5% very fine-grained to medium-grained arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11575	1027358	< 0.005	Pen Gold	4207914	03/09/2016	416382	5336118	MPLW	bleached pillowed mafic volcanic; minor rusty silica+sericite shears with trace arsenopyrite+pyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11576	1027359	< 0.005	Pen Gold	4207914	03/09/2016	416384	5336115	MPLW	1cm light grey sugary quartz vein trending at 330/75 in small shear/fault in bleached pillowed mafic volcanic; trace arsenopyrite+pyrite in wallrock; 30% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11583	1027360	< 0.005	Pen Gold	4207914	03/09/2016	416392	5336243	MPLW	bleached pillowed mafic volcanic; minor rusty silica+sericite patches with selvages; trace to minor arsenopyrite+apryite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11585	1027361	< 0.005	Pen Gold	4207914	04/09/2016	416345	5336272	MVAR	variolitic pillowed mafic volcanic; 10-20cm rusty sericite+silica patches; trace very fine-grained to fine-grained disseminated pyrite+arsenopyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11586	1027362	< 0.005	Pen Gold	4207914	04/09/2016	416328	5336262	MVAR	variolitic pillowed mafic volcanic; well foliated to sheared; moderate carbonate; trace very fine-grained disseminated arsenopyrite+pyrite	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11587	1027364	< 0.005	Pen Gold	4207914	04/09/2016	416325	5336265	MVAR	1cm white to slightly rusty sugary quartz vein subparallel to foliation in variolitic pillowed mafic volcanic; 15% quartz	between Nib Yellowknife showing and West Branch Nat River	1A2	ultratrace 6
PP11591	1027365	0.005	Pen Gold	4207914	05/09/2016	417053	5336223	LLMD	dark green, fine-grained massive mafic dike; blocky N-S and E-W fractures; trace pyrite, nonmagnetic	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11592	1027366	< 0.005	Pen Gold	4207914	05/09/2016	417049	5336221	KKCB	20cm wide zone of rusty siliceous pods in carb rock; 10-15% fine to medium-grained disseminated arsenopyrite+pyrrhotite; moderately magnetic	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11592	1027367	< 0.005	Pen Gold	4207914	05/09/2016	417049	5336221	KKCB	northeast of sample 102766; rusty carb rock; slightly schistose, weathers lower than siliceous pods; moderate sericite; trace to minor fine-grained disseminated pyrite	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11592	1027368	< 0.005	Pen Gold	4207914	05/09/2016	417049	5336221	KKCB	southwest of sample 102766; rusty schistose carb rock; talcose	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11593	1027369	< 0.005	Pen Gold	4207914	05/09/2016	417049	5336214	KUND	ultramafic volcanic; N-S and E-W structures, contorted	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11596	1027370	< 0.005	Pen Gold	4207914	05/09/2016	417054	5336202	LLMD	fine-grained mafic dike with feldspar phenocrysts; nonmagnetic; well developed fractures at 240/75; finer-grained to north; same mafic intrusive unit as outcrops to north	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11597	1027371	< 0.005	Pen Gold	4207914	05/09/2016	417061	5336191	KCCB	well foliated chloritic carb rock	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11598	1027372	< 0.005	Pen Gold	4207914	09/09/2016	417148	5336167	KCCB	well foliated chloritic carb rock	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11598	1027373	0.021	Pen Gold	4207914	09/09/2016	417148	5336167	VVQV	representative grab of folded and contorted grey quartz-ankerite pods or boudins in chloritic carb rock; trace chalcopyrite+arsenopyrite in quartz; 70% quartz	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11598A	1027374	< 0.005	Pen Gold	4207914	09/09/2016	417148	5336172	SUND	rusty beige siliceous sediment; 30-40% siliceous veining and flooding; trace minor very fine-grained to fine-grained pyrite+arsenopyrite	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11600	1027375	< 0.005	Pen Gold	4207914	09/09/2016	417151	5336187	SARG	rusty fine-grained sediment, possibly argillite; strong siliceous quartz breccia stockwork; local abundant sericite; trace to minor fine-grained pyrite+arsenopyrite; 30% quartz	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11601	1027376	< 0.005	Pen Gold	4207914	09/09/2016	417149	5336205	SARG	east extent of old trench blasted from outcrop; rusty fine-grained sediment, possibly argillite; strong rusty white sugary quartz stockwork; trace to minor fine-grained arsenopyrite+pyrite in veining; 30% quartz; same unit as sample 1027375	southwest of Nib Yellowknife showing	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11602	1027377	< 0.005	Pen Gold	4207914	09/09/2016	417148	5336204	CCRT	southwest of sample 1027376 in same trench; 1m wide rusty beige siliceous cherty unit trends at azimuth 305, appears to cross-cut chloritic carb rock-sediment contact; strong grey quartz-ankerite veinlet stockwork; trace to minor very fine-grained to fine-grained arsenopyrite+pyrite; 5% quartz; similar to sample 1027374	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11603	1027378	< 0.005	Pen Gold	4207914	09/09/2016	417146	5336203	KCCB	southwest of sample 1027377 in same trench; chloritic carb rock; local white sugary quartz-ankerite veins or pods; trace pyrite; 5% quartz	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11604	1027379	< 0.005	Pen Gold	4207914	11/09/2016	417128	5336038	KCCB	chloritic carb rock; poor outcrop exposure	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11606	1027380	< 0.005	Pen Gold	4207914	11/09/2016	417095	5335977	KUND	ultramafic volcanic; possible polygonal jointing; very chloritic; 5% calcite-ankerite veinlets; trace fine-grained disseminated pyrite+arsenopyrite	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11608	1027381	0.007	Pen Gold	4207914	12/09/2016	417067	5335944	KPYJ	ultramafic volcanic; polygonal jointing to small pillows; local weak to moderate ankerite grading to chloritic carb rock; abundant talc	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11610	1027383	< 0.005	Pen Gold	4207914	12/09/2016	417103	5335923	KPYJ	ultramafic volcanic; polygonal jointing to small pillows; weak ankerite; rusty within 30-50cm of contact with mafic dike	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11611	1027384	< 0.005	Pen Gold	4207914	12/09/2016	417103	5335924	LLMD	fine-grained mafic dike; fine-grained feldspar crystals or phenocrysts; almost diabasic texture; nonmagnetic; sample taken within 1m of contact with ultramafic volcanic	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11613	1027385	< 0.005	Pen Gold	4207914	12/09/2016	417094	5335896	KCCB	well foliated chloritic carb rock; talcose	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11615	1027386	< 0.005	Pen Gold	4207914	12/09/2016	417041	5335906	KKCB	30cm rusty well foliated zone trending at 332/80; very hard compared to surrounding soft carb rock; intense carbonate as pervasive and veining; 1-2% fine-grained disseminated pyrrhotite+arsenopyrite; same location as sample 1026940 taken in 2013	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11616	1027387	< 0.005	Pen Gold	4207914	12/09/2016	417037	5335906	KKCB	carb rock; weakly to moderately foliated	southwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11618	1027388	< 0.005	Pen Gold	4207032	14/09/2016	417172	5335812	KUND	ultramafic volcanic; massive to locally pillowed	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11619	1027389	< 0.005	Pen Gold	4207032	14/09/2016	417163	5335805	KUND	sheared ultramafic volcanic; intense chlorite and biotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11619	1027390	< 0.005	Pen Gold	4207032	14/09/2016	417163	5335805	KUND	sheared ultramafic volcanic; intense chlorite and local biotite; 40% calcite veining with 2-3% fine to medium-grained arsenopyrite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11620	1027391	< 0.005	Pen Gold	4207032	14/09/2016	417241	5335798	KCCB	chloritic carb rock	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11622	1027393	0.005	Pen Gold	4207032	14/09/2016	417366	5335820	KUND	15cm pod of biotite with 5% calcite veins in baked ultramafic volcanic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11622	1027394	< 0.005	Pen Gold	4207032	14/09/2016	417366	5335820	KUND	baked ultramafic volcanic near mafic intrusive; abundant actinolite and tremolite; local calcite-biotite pods; well foliated	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11629	1027395	< 0.005	Pen Gold	4207914	15/09/2016	417289	5336018	KCCB	chloritic carb rock	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11633	1027396	< 0.005	Pen Gold	4207914	15/09/2016	417302	5336072	KCCB	sheared chloritic carb rock	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11635	1027397	< 0.005	Pen Gold	4207914	15/09/2016	417350	5336040	KUND	fine-grained; no primary textures; rusty brown on weathered surface; weakly magnetic; changed from ultramafic intrusive to volcanic based on geochemistry	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11636	1027398	< 0.005	Pen Gold	4207914	15/09/2016	417351	5335989	KTCS	talc-chlorite schist near contact with fine-grained mafic intrusive with feldspar phenocrysts; ultramafic volcanic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11637	1027399	< 0.005	Pen Gold	4207914	16/09/2016	417351	5335992	LLMD	fine-grained mafic dike; local rusty shears trending at 285/70 with trace pyrite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11639	1027400	0.008	Pen Gold	4207914	16/09/2016	417374	5335999	BDIO	1-5cm rusty shear trending at azimuth 320 with discontinuous 0.5-1cm white to grey quartz veins with chlorite margins; in fine to medium-grained massive diorite grading to gabbro; local trace pyrite in veining and wallrock; representative chip along shear and in extension along strike 6m to east-southeast; 20% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11640	1477551	0.006	Pen Gold	4207914	16/09/2016	417372	5335996	BDIO	fine to medium-grained diorite to gabbro; local rusty chlorite shears with trace pyrite trending at 200/85	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11647	1477552	< 0.005	Pen Gold	4207914	16/09/2016	417400	5335978	KUND	representative grab along 10cm rusty shear trending at azimuth 310 in ultramafic volcanic; contorted foliation; moderate rusty patches; changed from mafic volcanic, possibly pillowed, to ultramafic volcanic based on geochemistry	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11649	1477554	< 0.005	Pen Gold	4207914	16/09/2016	417497	5335917	BDIO	medium-grained diorite; local rusty shears trending at 233/90; trace pyrite	south of Nib Yellowknife showing	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11651	1477555	< 0.005	Pen Gold	S82801	20/09/2016	417697	5335951	KUND	changed from serpentinite to ultramafic volcanic based on geochemistry; local asbestos veinlets; local weak to moderate ankerite or carbonate; strongly magnetic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11652	1477556	0.005	Pen Gold	S82801	20/09/2016	417715	5335985	KUND	changed from serpentinite to ultramafic volcanic based on geochemistry; serpentine veinlets; locally weakly to strongly magnetic; big outcrop ridge	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11659	1477557	0.005	Pen Gold	4207033	20/09/2016	417788	5335835	KUND	changed from serpentinite to ultramafic volcanic based on geochemistry; moderately foliated to sheared and chopped up; abundant tremolite; nonmagnetic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11661	1477558	0.008	Pen Gold	4207032	21/09/2016	417119	5335830	MPLW	bleached pillowed mafic volcanic; local carbonate clots or varioles; moderate to strong carbonate, not ankerite; trace pyrite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11663	1477559	0.005	Pen Gold	4207032	21/09/2016	417096	5335842	MPLW	5cm rusty shear trending at azimuth 240 in bleached pillowed mafic volcanic with carbonate clots or varioles; weak sericite; strong carbonate	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11663	1477560	0.005	Pen Gold	4207032	21/09/2016	417096	5335842	MPLW	0.25cm grey quartz vein trending at 140/40 in bleached pillowed mafic volcanic with carbonate clots or varioles; 30% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11667	1477561	0.007	Pen Gold	4207032	21/09/2016	416998	5335862	MPLW	0.25cm grey quartz vein trending at azimuth 160 in bleached pillowed mafic volcanic with carbonate clots/feldspar phenocrysts/varioles; 30% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11668	1477562	0.005	Pen Gold	4207032	21/09/2016	417002	5335841	MFPO	mafic feldspar porphyry intrusive or volcanic; bleached with strong carbonate; minor rusty shears trending at azimuth 330	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11670	1477564	0.006	Pen Gold	4207914	22/09/2016	417293	5336131	KUND	fine to medium-grained ultramafic volcanic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11671	1477565	0.005	Pen Gold	4207914	22/09/2016	417415	5336190	BDIO	2-5cm quartz-chlorite-calcite vein trending at 030/70 in fine-grained diorite; 20% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11672	1477566	0.005	Pen Gold	4207914	22/09/2016	417404	5336197	BDIO	abundant green actinolite needles up to >2cm in beige fine-grained feldspar groundmass; gradational to fine to medium-grained massive diorite; nonmagnetic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11673	1477567	0.006	Pen Gold	4207914	22/09/2016	417416	5336203	BDIO	0.5cm grey quartz vein trending at 240/70 in rusty diorite; 3-5% very fine-grained to fine-grained disseminated arsenopyrite+pyrite; 20% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11674	1477568	0.006	Pen Gold	4207914	22/09/2016	417415	5336203	BDIO	rusty gossan in diorite; rusty vuggy quartz vein stockwork with fibrous mineral, chlorite along vein margins; 2-3% arsenopyrite+pyrite in wallrock and vein; 30% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11675	1477569	0.006	Pen Gold	4207914	22/09/2016	417414	5336203	BDIO	5cm rusty siliceous vuggy zone trending at azimuth 225 in diorite; 10% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11676	1477570	0.007	Pen Gold	4207914	22/09/2016	417414	5336200	BDIO	rusty diorite; moderate fractures and shears trending at 230/80; strong bleaching-silica-sericite-ankerite; 3-5% very fine-grained to medium-grained arsenopyrite as disseminated clusters and blebs	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11677	1477571	0.005	Pen Gold	4207914	23/09/2016	417418	5336201	BDIO	rusty vuggy quartz vein in rusty diorite; strong silica; chlorite along vein margins; trace to minor very fine-grained to fine-grained pyrite+arsenopyrite in vein and wallrock; 40% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11678	1477572	0.006	Pen Gold	4207914	23/09/2016	417437	5336180	BDIO	fine to medium-grained rusty diorite; local 2-3% very fine-grained to fine-grained disseminated pyrrhotite+arsenopyrite+magnetite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11679	1477573	0.005	Pen Gold	4207914	23/09/2016	417450	5336159	LLMP	lamprophyre dike; abundant calcite+biotite; rusty brown weathered surface; nonmagnetic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11680	1477574	0.005	Pen Gold	4207914	23/09/2016	417426	5336164	KUND	ultramafic volcanic; well foliated to sheared; talcose; minor to abundant ankerite clots; nonmagnetic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11681	1477575	0.005	Pen Gold	4207914	23/09/2016	417410	5336200	BDIO	1cm rusty green to grey quartz vein trending at 050/60 in 10cm rusty zone in silicified diorite; abundant chlorite along vein margins; minor to 1% fine to medium-grained arsenopyrite+pyrite in wallrock	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11686	1477576	0.005	Pen Gold	4207914	30/09/2016	417483	5336102	KUND	brown pods and network of beige to white stockwork and rust with polygonal jointing look; poddy texture overall; abundant tremolite+actinolite; nonmagnetic; changed from ultramafic intrusive to ultramafic volcanic based on geochemistry	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11688	1477578	0.005	Pen Gold	4207040	01/10/2016	415728	5334020	PPFP	feldspar porphyry; pink to orange feldspar phenocrysts; moderate chlorite clots and stringers; local weakly magnetic; trace pyrite along fractures	southwest of Jehann Lake	1A2	ultratrace 6
PP11689	1477579	0.005	Pen Gold	4207040	01/10/2016	415729	5334021	PPFP	2-5cm white quartz-chlorite vein trending at 100/90 in feldspar porphyry; 40% quartz	southwest of Jehann Lake	1A2	ultratrace 6
PP11690	1477580	0.005	Pen Gold	4207040	01/10/2016	415728	5334025	KUND	sheared lens of ultramafic volcanic in feldspar porphyry; minor to moderate carbonate-ankerite veins and pods; minor fine to coarse-grained cubic pyrite with carbonate-ankerite veins and pods	southwest of Jehann Lake	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11691	1477581	< 0.005	Pen Gold	4207040	01/10/2016	415727	5334026	VVQV	widely spaced 5-10cm white quartz veins trending at 110/90 in feldspar porphyry near contact with sheared and ankerite-altered ultramafic volcanic; veins at 90 degrees to contact; abundant chlorite along vein margins and in wallrock; 70% quartz	southwest of Jehann Lake	1A2	ultratrace 6
PP11698	1477582	< 0.005	Pen Gold	4207914	03/10/2016	417528	5336110	BDIO	rusty fine to medium-grained massive diorite; local fractures trending at 235/70	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11700	1477584	< 0.005	Pen Gold	4207914	03/10/2016	417557	5336087	BUND	medium to coarse-grained gabbro to diorite with abundant actinolite+tremolite; well developed fractures/shears at 240/80; trace pyrite; nonmagnetic	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11701	1477585	< 0.005	Pen Gold	4207914	03/10/2016	417560	5336085	BDIO	sheared bleached diorite; local moderate to strong carbonate flooding and veins	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11703	1477586	< 0.005	Pen Gold	4207914	03/10/2016	417585	5336070	BDIO	medium-grained diorite with abundant actinolite+tremolite; local rust with minor fine-grained magnetite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11706	1477587	< 0.005	Pen Gold	4207914	04/10/2016	417486	5336145	VVQV	1-2cm light grey sugary quartz vein trending at 050/60 in fine-grained diorite; local minor rust in quartz; 70% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11707	1477588	< 0.005	Pen Gold	4207914	04/10/2016	417499	5336138	VVQV	1-5cm vuggy grey quartz vein stockwork to gently dipping in fine-grained diorite along base of cliff face; increase in foliation to sheared with weak sericite; possibly ultramafic volcanic wallrock based on geochemistry; 60% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11708	1477589	< 0.005	Pen Gold	4207914	04/10/2016	417513	5336124	BDIO	1cm white quartz vein in 10cm shear trending at 055/75 in diorite; weak sericite; 40% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11709	1477590	< 0.005	Pen Gold	4207914	04/10/2016	417523	5336120	BDIO	rusty shears trending at 044/60 in fine-grained diorite; trace to minor very fine-grained arsenopyrite+pyrite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11710	1477591	< 0.005	Pen Gold	4207914	04/10/2016	417527	5336123	BDIO	rusty shears trending at 050/70 in slightly bleached fine-grained diorite; trace fine-grained pyrite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11711	1477592	< 0.005	Pen Gold	4207914	04/10/2016	417542	5336108	BDIO	fine-grained diorite; local rust; minor pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11712	1477593	< 0.005	Pen Gold	4207914	05/10/2016	417560	5336100	BDIO	1m wide rusty zone in fine-grained diorite; intersection of shears at 228/60 and 180/30; 1% fine-grained disseminated pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11713	1477594	< 0.005	Pen Gold	4207914	05/10/2016	417562	5336099	BDIO	10cm rusty shear/fault gouge trending at 240/40 at contact between fine-grained massive diorite to north and medium to coarse-grained actinolite-tremolite diorite to south; minor fine-grained pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11714	1477595	< 0.005	Pen Gold	4207914	05/10/2016	417573	5336093	BDIO	rusty fine-grained diorite; shears and fractures trending at 047/90; minor to 1% fine-grained disseminated pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11715	1477596	< 0.005	Pen Gold	4207914	05/10/2016	417576	5336093	BDIO	rusty medium-grained actinolite-tremolite diorite; trace pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11716	1477597	< 0.005	Pen Gold	4207914	05/10/2016	417585	5336101	BUND	mafic intrusive; medium-grained actinolite needles; local rust; beige weathered surface	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11721	1477598	< 0.005	Pen Gold	4207914	06/10/2016	417591	5336034	KUND	changed from serpentinite to ultramafic volcanic based on geochemistry; local rusty pods/patches	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11722	1477599	0.009	Pen Gold	4207914	06/10/2016	417602	5336041	BGBR	rusty well foliated chloritic medium-grained actinolite-tremolite gabbro; 5% fine to medium-grained pyrite along foliation/fractures	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11723	1477600	< 0.005	Pen Gold	4207914	06/10/2016	417606	5336056	BDIO	rusty fine to medium-grained diorite; trace pyrite; northwest exposed extent of rusty zone along fault trending at 160/45	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11724	1470751	< 0.005	Pen Gold	4207914	06/10/2016	417609	5336054	BDIO	2-10cm fault or shear trending at 160/45 near contact between fine to medium-grained diorite to east and coarse-grained actinolite diorite to west; patchy rust 30cm on hangingwall and 1m on footwall; minor fine-grained pyrite+pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11725	1470752	< 0.005	Pen Gold	4207914	06/10/2016	417611	5336052	BDIO	same fault/shear structure as sample 1470751; rusty fine to medium-grained diorite; patchy rust for 50cm on hangingwall and 50cm on footwall; 2-3% fine to medium-grained disseminated and streaky pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11726	1470753	< 0.005	Pen Gold	S82801	06/10/2016	417626	5336049	BDIO	rusty fine to medium-grained diorite along strike of rusty fault trending at 160/45; faults and shears trending at 270/85; minor fine-grained pyrrhotite+pyrite as disseminated and along fractures	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11727	1470754	< 0.005	Pen Gold	S82801	06/10/2016	417639	5336054	BDIO	fine to medium-grained diorite; local patchy rust with shears trending at 250/80; trace fine-grained pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11738	1470756	< 0.005	Pen Gold	S82801	10/10/2016	417679	5336156	USRP	serpentinite; local minor rust; weak ankerite	southeast of Nib Yellowknife showing	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11739	1470758	< 0.005	Pen Gold	S82801	10/10/2016	417677	5336287	BDIO	fine to medium-grained diorite-gabbro; local patchy rust; minor calcite	southeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11752	1470759	< 0.005	Pen Gold	S82805	11/10/2016	417780	5336769	BDIO	coarse-grained massive diorite; local rusty chloritic shears trending at 290/60	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11753	1470760	< 0.005	Pen Gold	S82805	11/10/2016	417781	5336767	BDIO	medium to coarse-grained diorite; chloritic shears trending at 190/90; local patchy rust	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11754	1470761	< 0.005	Pen Gold	S82805	11/10/2016	417771	5336762	VVQV	1-2cm rusty dark grey quartz veins/pods associated with chloritic shears trending at 350/80 in medium to coarse-grained diorite	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11755	1470762	0.041	Pen Gold	S82805	11/10/2016	417774	5336759	BDIO	2cm rusty sugary quartz-black tourmaline vein trending at 250/50 in coarse-grained diorite; dark green fresh surface may be due to chlorite; 40% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11756	1470763	< 0.005	Pen Gold	S82800	13/10/2016	417795	5336713	BDIO	0.5-1cm grey quartz veins at 140/55 in heterogeneous fine to coarse-grained diorite; narrow bleaching around veins; possibly close to daibase contact; 20% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11757	1470764	0.007	Pen Gold	S82800	13/10/2016	417794	5336715	BDIO	medium to coarse-grained diorite-gabbro; local minor patchy rust; chlorite shears and patches	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11758	1470765	0.061	Pen Gold	S82800	13/10/2016	417793	5336718	BGBR	heterogeneous gabbro-diorite; chloritic shears and fractures; local irregular grey quartz veins, stringers and flooding; 3-5% fine to coarse-grained arsenopyrite needles; 5% quartz; same location as sample 1026813 taken in 2013	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11759	1470766	< 0.005	Pen Gold	S82800	13/10/2016	417796	5336721	BDIO	0.25cm grey quartz vein trending at 220/86 in coarse-grained diorite; local shears along vein; 30% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11760	1470767	< 0.005	Pen Gold	S82800	13/10/2016	417798	5336718	BDIO	1cm dark grey quartz-magnetite veins in fine-grained diorite near contact with diabase; 20% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11761	1470768	< 0.005	Pen Gold	S82800	13/10/2016	417793	5336720	BDIO	0.5cm grey quartz vein trending at 150/30 in coarse-grained diorite; local chloritic shears; 10% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11763	1470769	< 0.005	Pen Gold	S82805	13/10/2016	417832	5336779	BDIO	coarse-grained diorite; rusty along fractures at 140/75; 1% fine-grained blebs pyrrhotite along fractures	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11764	1470770	< 0.005	Pen Gold	S82805	13/10/2016	417828	5336781	BDIO	medium to coarse-grained diorite-gabbro; rusty chloritic shears; 0.25-2cm dark grey quartz vein stockwork; 20% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11766	1470771	0.019	Pen Gold	S82805	14/10/2016	417848	5336905	BDIO	medium to coarse-grained diorite; local rusty chloritic shears at 200/30	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11767	1470772	< 0.005	Pen Gold	S82805	14/10/2016	417851	5336897	VVQV	1cm rusty white to grey flat quartz vein in slightly rusty and chloritic medium to coarse-grained diorite; 60% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11768	1470773	< 0.005	Pen Gold	S82805	14/10/2016	417850	5336891	BDIO	1cm white to grey slightly rusty quartz vein trending at 080/20 in medium to coarse-grained chloritic diorite; 30% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11770	1470774	< 0.005	Pen Gold	S82805	14/10/2016	417819	5336941	BDIO	medium to coarse-grained diorite; narrow rusty shears trending at 080 and 290/80; gossan along shears; moderate to strong chlorite+sericite +/- biotite	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11771	1470775	< 0.005	Pen Gold	S82805	14/10/2016	417800	5336917	BQDI	0.25-3cm white to light grey quartz veins trending at azimuth 180 in medium-grained quartz diorite; minor rust in vein and minor epidote along vein margins; 30% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11772	1470776	< 0.005	Pen Gold	S82805	14/10/2016	417806	5336902	BDIO	1-2cm flat to gently dipping rusty grey quartz vein in chloritic diorite; trace to minor very fine-grained to fine-grained disseminated pyrite in wallrock; 5% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11774	1470777	< 0.005	Pen Gold	S82805	14/10/2016	417827	5336921	VVQV	3-10cm slightly rusty white quartz vein trending at azimuth 325 in chloritic quartz diorite; 70% quartz	northeast of Nib Yellowknife showing	1A2	ultratrace 6
PP11780	1470778	< 0.005	Pen Gold	S82800	16/10/2016	417698	5336381	USRP	serpentinite; strong ankerite weathering rhind; trace pyrite+chalcopyrite; near contact with bleached diorite to west	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11781	1470779	< 0.005	Pen Gold	S82800	16/10/2016	417697	5336381	BDIO	fine-grained diorite; bleached; strong ankerite weathering rhind; sheared near contact with serpentinite at azimuth 020; moderate sericite; chlorite shears	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11783	1470780	< 0.005	Pen Gold	S82800	16/10/2016	417719	5336379	BDIO	fine to medium-grained diorite; chloritic shears; local patchy rust	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11784	1470782	< 0.005	Pen Gold	S82800	16/10/2016	417720	5336391	BDIO	fine to medium-grained diorite; chloritic shears trending at 090/90; local rust; 5% rusty vuggy quartz veins/pods	east of Nib Yellowknife showing	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11785	1470783	0.007	Pen Gold	S82800	16/10/2016	417703	5336401	BDIO	1-2cm vuggy white quartz-carbonate vein in 10cm sheart rending at 0 90/90 in fine to medium-grained diorite; bleached wallrock; trace to minor fine-grained pyrite+chalcopyrite in wallrock and vein; 40% quartz	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11786	1470784	< 0.005	Pen Gold	S82800	16/10/2016	417705	5336403	BDIO	narrow zone of rusty chloritic shears trending at 080/90 in fine to medium-grained diorite; trace pyrite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11796	1470785	< 0.005	Pen Gold	4207037	18/10/2016	422844	5334836	MUND	rusty very fine-grained mafic volcanic or iron formation; strongly magnetic; trace pyrrhotite along fractures	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11796	1470786	< 0.005	Pen Gold	4207037	18/10/2016	422844	5334836	PPQP	irregular 2-5cm light orange quartz porphyry dyke cross-cutting rusty mafic volcanic or iron formation; minor pyrrhotite in quartz porphyry and along contact; similar appearance to quartz porphyry at Karvien #1 showing; 60% porphyry; 40% mafic volcanic or iron formation	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11797	1470787	< 0.005	Pen Gold	4207037	18/10/2016	422844	5334824	BUND	medium-grained massive gabbro-diorite; buff to rusty brown weathered surface; well developed fractures at 060/70; 1-2% fine to medium-grained dsseminated pyrrhotite; strongly magnetic	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11798	1470788	0.006	Pen Gold	4207037	18/10/2016	422831	5334858	MUND	fine-grained chloritic mafic volcanic; local minor fine-grained arsenopyrite	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11799	1470789	0.006	Pen Gold	4207037	18/10/2016	422803	5334809	MUND	well foliated chloritic mafic volcanic; local patchy rust; local contorted carbonate veining; 1-2% pyrrhotite; strongly magnetic	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11804	1470790	0.243	Pen Gold	4207037	19/10/2016	423229	5334933	VVQV	3-10cm white quartz-chlorite vein trending at 250/60 near fold in well foliated quartz feldspar crystal tuff; trace to minor pyrite in vein and wallrock; old stripped and blasted pits beside loggong road; channel sample cut but not chipped; 70% quartz	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11805	1470791	< 0.005	Pen Gold	4207037	19/10/2016	422970	5334927	FTUF	well foliated quartz feldspar porphyry tuff; intense pervasive quartz flooding or veining; moderate sericite+chlorite; slight orange hematite/kspar tinge; 1-2% very fine-grained to fine-grained disseminated pyrite; near southwest end of blasted trench north of logging road	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11806	1470792	0.010	Pen Gold	4207037	19/10/2016	422972	5334931	PQFP	well foliated reddish quartz feldspar porphyry or tuff; reddish colour is hematite or kspar; 3-5% fine-grained disseminated pyrite; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11807	1470793	0.022	Pen Gold	4207037	19/10/2016	422972	5334931	FTUF	well foliated quartz feldspar porphyry tuff; slight orange hematite/kspar tinge; 1-2cm white quartz vein cross-cuts foliation; 3-5% pyrite in wallrock and vein; 30% quartz; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11808	1470795	0.106	Pen Gold	4207037	19/10/2016	422733	5334776	PQFP	quartz feldspar porphyry; white quartz vein stockwork/flooding; intense bleaching, silicification and reddish hematite or ankerite stain; 2-3% fine-grained pyrite as disseminated and along chlorite stringers; massive not foliated; 10% quartz; west end of blasted trench north of logging road	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11809	1470796	0.006	Pen Gold	4207037	19/10/2016	422736	5334776	FTUF	sheared quartz feldspar porphyry tuff; moderate sericite and moderate to strong reddish hematite/kspar/ankerite; 1-2% pyrite; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11810	1470797	0.063	Pen Gold	4207037	19/10/2016	422744	5334774	VVQV	quartz feldspar porphyry; white quartz vein stockwork; intense bleaching, silicification and reddish ankerite or hematite stain; 1-2% fine to medium-grained pyrite+chalcopyrite+arsenopyrite in wallrock; 60% quartz; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11811	1470798	0.008	Pen Gold	4207037	19/10/2016	422751	5334773	MUND	mafic volcanic; strong to intense ankerite and silica; 2-3% very fine-grained to fine-grained disseminated pyrite; chlorite+fuchsite clots; 5% white to grey quartz-ankerite stringers/veins; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11812	1470799	< 0.005	Pen Gold	4207037	19/10/2016	422753	5334773	PQFP	nose of quartz feldspar porphyry; intense pervasive silica+sericite+ankerite and quartz vein stockwork; 2-3% pyrite; 10% quartz; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11813	1470800	0.021	Pen Gold	4207037	19/10/2016	422753	5334773	VVQV	50cm white quartz-ankerite vein at contact between quartz feldspar porphyry and mafic volcanic; sericite+fuchsite along vein contact in mafic volcanic; trace to minor pyrite in wallrock and along vein margins; 95% quartz; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11814	1470801	0.095	Pen Gold	4207037	19/10/2016	422753	5334773	MUND	mafic volcanic; crenulated; moderate to strong ankerite+sericite; white quartz-ankerite veining at contact with sample 1470800; trace to minor very fine-grained to fine-grained pyrite; 10% quartz; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11815	1470802	0.125	Pen Gold	4207037	19/10/2016	422756	5334772	MUND	mafic volcanic; weak to moderate ankerite+sericite; minor grey to white quartz stringers; 1-2% very fine-grained to fine-grained disseminated pyrite+arsenopyrite; 5% quartz; blasted trench	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11816	1470803	0.052	Pen Gold	4207037	19/10/2016	422758	5334772	MUND	intensely crenulated mafic volcanic; moderate to strong ankerite+sericite; crenulated white quartz-ankerite veins; spotty 2-5% fine-grained disseminated pyrite+arsenopyrite; 20% quartz; east end of blasted trench near logging road	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11820	1470804	< 0.005	Pen Gold	4207037	19/10/2016	423052	5334628	KUND	ultramafic volcanic; small outcrop; poor exposure; changed from mafic volcanic to ultramafic volcanic based on geochemistry	between Golden Chalice iron formation trenches and Karvien #1 showing	1A2	ultratrace 6
PP11821	1470805	< 0.005	Pen Gold	S82800	20/10/2016	417709	5336403	BDIO	rusty white to grey flat to gently dipping sugary quartz-chlorite vein in fine to medium-grained massive diorite; 40% quartz	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11822	1470806	< 0.005	Pen Gold	S82800	20/10/2016	417751	5336412	BDIO	50cm rusty bleached well foliated zone in fine to medium-grained massive diorite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11823	1470807	< 0.005	Pen Gold	S82800	20/10/2016	417751	5336406	BDIO	1-5cm rusty shears trending at 275/70 with bleaching and grain size reduction in fine to medium-grained massive diorite; moderate carbonate or feldspar veins and veinlets; rare rusty sugary quartz; trace pyrite; 2% quartz	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11826	1470808	< 0.005	Pen Gold	S82800	20/10/2016	417747	5336399	BDIO	5cm rusty chlorite-biotite shear trending at 240/70 in fine to medium-grained massive diorite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11837	1470810	< 0.005	Pen Gold	S82800	21/10/2016	417808	5336414	BDIO	medium-grained massive diorite; local rust along fractures	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11843	1470811	< 0.005	Pen Gold	S82800	21/10/2016	417854	5336400	BDIO	fine to medium-grained massive diorite; local patchy rust along fractures; 10m north is serpentinite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11846	1470812	< 0.005	Pen Gold	S82800	22/10/2016	417844	5336374	BDIO	fine to medium-grained diorite; moderate chlorite+carbonate clots; local chloritic shears trending at 046/90; trace pyrite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11850	1470814	< 0.005	Pen Gold	S82800	22/10/2016	417884	5336337	BDIO	sheared chloritic diorite trending at 038/85	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11851	1470815	< 0.005	Pen Gold	S82800	22/10/2016	417877	5336341	BDIO	fine to medium-grained diorite; local shears and patchy rust near contact with bleached mafic volcanic	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11852	1470816	0.005	Pen Gold	S82800	22/10/2016	417876	5336340	MUND	bleached mafic volcanic; possible vague pillow selvages; strong carbonate; xenolith in diorite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11853	1470817	< 0.005	Pen Gold	S82800	22/10/2016	417873	5336338	BDIO	sheared chloritic diorite trending at 040/85; moderate carbonate; local patchy rust	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11854	1470818	< 0.005	Pen Gold	S82800	22/10/2016	417867	5336323	BDIO	heterogeneous medium-grained diorite; strong chlorite; local rusty carbonate shears and irregular light grey quartz veins; 5% quartz	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11856	1470819	0.007	Pen Gold	S82801	24/10/2016	417880	5336213	BDIO	local narrow rusty shears trending at 315/70 in coarse-grained diorite with actinolite/tremolite; trace pyrite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11859	1470820	< 0.005	Pen Gold	S82801	24/10/2016	417870	5336229	BDIO	50cm rusty carbonate shear trending at 200/80 in diorite; moderate to intense carbonate flooding/veining	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11861	1470821	0.006	Pen Gold	S82800	24/10/2016	417847	5336296	BDIO	5cm rusty chloritic shear trending at 010 in medium-grained massive diorite; 1-2cm discontinuous sugary quartz vein; minor to 1% pyrrhotite; 20% quartz	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11862	1470822	< 0.005	Pen Gold	S82800	24/10/2016	417847	5336293	BDIO	rusty chloritic shears trending at 206/85 in diorite; moderate carbonate veinlets and flooding; trace to minor pyrite	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11863	1470823	< 0.005	Pen Gold	S82801	24/10/2016	417897	5336063	KUND	ultramafic volcanic; weird poddy texture; white veinlets; nonmagnetic; changed from ultramafic to mafic intrusive to ultramafic volcanic based on geochemistry	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11866	1470824	0.009	Pen Gold	S82800	25/10/2016	417766	5336542	USRP	serpentinite; strongly magnetic	east of Nib Yellowknife showing	1A2	ultratrace 6
PP11875	1470825	0.009	Pen Gold	4207914	26/10/2016	417196	5336300	KCCB	chloritic carb rock; folded foliation; minor 0.25-1cm discontinuous grey quartz-ankerite veins; trace arsenopyrite in veins; 30% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11877	1470826	0.007	Pen Gold	4207914	26/10/2016	417180	5336311	VVQV	0.25-2cm grey quartz veins trending at 003 in chloritic carb rock; 70% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11878	1470827	0.005	Pen Gold	4207914	26/10/2016	417181	5336319	KCCB	0.5cm grey quartz vein trending at 360/40 in chloritic carb rock; 40% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11879	1470829	0.005	Pen Gold	4207914	26/10/2016	417194	5336307	VQCV	1-10cm mottled grey to white folded quartz-ankerite veins in crenulated chloritic carb rock; fold plunge at -70 to 060 ; 80% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11880	1470830	0.007	Pen Gold	4207914	26/10/2016	417193	5336307	KCCB	same quartz-ankerite vein zone as sample 1470829; smaller veins on fold hinge/limb; 40% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11881	1470831	0.007	Pen Gold	4207914	26/10/2016	417199	5336265	VVQV	2-5cm grey quartz veins trending at 026/80 in chloritic carb rock; also folded; 80% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11882	1470832	< 0.005	Pen Gold	4207914	26/10/2016	417199	5336260	KCCB	sheared chloritic carb rock trending at 010/60	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11883	1470833	< 0.005	Pen Gold	4207914	26/10/2016	417200	5336259	VVQV	1cm grey quartz vein trending at 020/80 in chloritic carb rock; 90% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11884	1470834	< 0.005	Pen Gold	4207914	26/10/2016	417196	5336260	KCCB	irregular 0.5cm grey quartz veins in chloritic carb rock; 10% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11885	1470835	0.016	Pen Gold	4207914	31/10/2016	417172	5336233	KCCB	well foliated chloritic carb rock; 10cm oxidized ankerite veining/flooding trending at azimuth 035 with trace very fine-grained disseminated pyrite +/- arsenopyrite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11886	1470836	< 0.005	Pen Gold	4207914	31/10/2016	417237	5336262	KCCB	carb rock; vuggy weathered ankerite clots; well foliated; moderate to strong chlorite; representative chip/grab over 5m; changed from mafic intrusive or volcanic to chloritic carb rock based on similar unit with geochemistry at PP11498	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11887	1470837	0.005	Pen Gold	4207914	31/10/2016	417240	5336259	KCCB	carb rock; vuggy weathered ankerite clots; well foliated; moderate to strong chlorite; local light grey quartz veining/flooding; 5% quartz; representative chip/grab over 5m; changed from mafic intrusive or volcanic to chloritic carb rock based on similar unit with geochemistry at PP11498	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11891	1470838	< 0.005	Pen Gold	4207914	31/10/2016	417300	5336259	MVAR	variolithic mafic volcanic; moderate to strong bleaching+carbonate; minor fine-grained pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11892	1470839	0.007	Pen Gold	4207914	31/10/2016	417303	5336261	MUND	mafic volcanic; moderate bleaching+carbonate; minor pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11893	1470840	0.015	Pen Gold	4207914	31/10/2016	417311	5336265	MVAR	variolithic mafic volcanic; moderate bleaching+carbonate; trace to minor pyrite+pyrrhotite +/- arsenopyrite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11894	1470842	< 0.005	Pen Gold	4207914	31/10/2016	417313	5336258	MVAR	variolithic mafic volcanic; strong bleaching+carbonate; rusty fractures	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11895	1470843	0.016	Pen Gold	4207914	31/10/2016	417310	5336252	VVQV	irregular white to grey quartz vein stockwork in variolithic mafic volcanic; strong bleaching+carbonate+chlorite around veining; trace to minor arsenopyrite in veining; 60% quartz	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11896	1470844	0.021	Pen Gold	S120748	02/11/2016	417304	5336385	BDIO	heterogeneous medium to coarse-grained diorite; minor quartz; local chloritic shears trending at 340/80; moderate to strong chlorite; local patchy rust; minor fine-grained disseminated pyrrhotite; just south of Nib Yellowknife showing	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11899	1470845	< 0.005	Pen Gold	S120748	02/11/2016	417280	5336352	IUND	intermediate volcanic; strongly bleached; abundant rusty patches; strong carbonate; weak sericite; local chloritic shears; dark grey quartz stringer stockwork; trace to minor pyrrhotite; 5% quartz; changed from strongly bleached mafic volcanic to intermediate volcanic based on geochemistry	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11900	1470846	< 0.005	Pen Gold	S120748	02/11/2016	417274	5336354	IUND	intermediate volcanic; poorly exposed textures; patchy rust; minor to 1% steely grey sulphide, possibly arsenopyrite; changed from mafic volcanic to intermediate volcanic based on geochemistry	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11901	1470847	< 0.005	Pen Gold	4207914	03/11/2016	417343	5336247	MPLW	bleached variolithic pillowed mafic volcanic; weak to moderate carbonate; local minor rust; trace to minor pyrrhotite	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11910	1470848	0.007	Pen Gold	S120748	04/11/2016	417188	5336432	VQCV	rusty shear trending at azimuth 085 in quartz diorite with intense ankerite+chlorite; white to grey sugary quartz-ankerite veins/pods up to 10cm; 60% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11911	1470849	< 0.005	Pen Gold	S120748	04/11/2016	417186	5336432	VQCV	same shear structure as sample 1470848; smokey grey quartz-ankerite veining/flooding; chlorite stringers in quartz; trace sulphides; 80% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11912	1470850	< 0.005	Pen Gold	S120748	04/11/2016	417200	5336423	VVQV	5cm slightly rusty grey quartz vein trending at azimuth 060 in well foliated to sheared chloritic quartz diorite; 80% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11913	1470851	< 0.005	Pen Gold	S120748	04/11/2016	417200	5336422	BQDI	discontinuous grey quartz vein pods in well foliated to sheared chloritic quartz diorite; local abundant black tourmaline; 30% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11914	1470852	< 0.005	Pen Gold	S120748	04/11/2016	417200	5336436	BQDI	sheared quartz diorite trending at 040/90; strong ankerite+chlorite	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11915	1470854	< 0.005	Pen Gold	S120748	06/11/2016	417176	5336451	BDIO	0.5-1cm rusty grey quartz veins trending at azimuth 345 in diorite with strong ankerite+chlorite; minor steely grey sulphide, possibly arsenopyrite; 30% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11916	1470855	< 0.005	Pen Gold	S120748	06/11/2016	417176	5336453	BDIO	2m north along same structure as sample 1470854; diorite with intense chlorite+ankerite; 10% grey quartz veining/flooding; 1-2% very fine-grained steely grey sulphide, possibly arsenopyrite	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11917	1470857	< 0.005	Pen Gold	S120748	06/11/2016	417173	5336451	BDIO	2m wide gossan at contact between diorite and chloritic carb rock; no primary textures; possibly diorite; local rusty quartz veining/flooding; trace to minor arsenopyrite; 10% quartz; representative chip/grab over 2m	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11918	1470858	< 0.005	Pen Gold	S120748	06/11/2016	417172	5336452	BDIO	rusty sheared diorite near contact with chloritic carb rock; bleached; trace arsenopyrite	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11919	1470859	< 0.005	Pen Gold	S120748	06/11/2016	417171	5336451	VVQV	10cm rusty white to grey sugary quartz vein/pod trending at azimuth 345 in sheared chloritic carb rock near contact with diorite; ankerite stringers and chlorite pods; trace chalcopyrite+steely grey sulphide+arsenopyrite; 90% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11920	1470860	< 0.005	Pen Gold	S120748	06/11/2016	417170	5336451	KCCB	well foliated to sheared chloritic carb rock	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11921	1470861	< 0.005	Pen Gold	S120748	06/11/2016	417180	5336469	BDIO	chloritic diorite; narrow rusty gently dipping fractures trending at 250/22 with moderate ankerite alteration halos	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11925	1470862	< 0.005	Pen Gold	S120748	07/11/2016	417207	5336473	BDIO	medium-grained diorite; local chloritic shears trending at azimuth 330; local patchy rust	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11926	1470863	0.046	Pen Gold	S120748	07/11/2016	417213	5336473	BDIO	fine to medium-grained diorite; strongly bleached with patchy strong rust or gossan and local vuggy weathering of sulphides; spotty minor to 1% fine-grained disseminated arsenopyrite	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11929	1470864	< 0.005	Pen Gold	S120748	07/11/2016	417148	5336631	KUND	ultramafic volcanic; weird poddy stockwork textures; 1-2cm irregular white quartz vein pods; 30% quartz; changed from ultramafic intrusive to ultramafic volcanic based on geochemistry	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11934	1470865	< 0.005	Pen Gold	4207914	11/11/2016	416950	5336505	KCCB	1-2cm discontinuous grey quartz vein trending at azimuth 040 in contorted chloritic carb rock; 30% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11935	1470866	< 0.005	Pen Gold	4207914	11/11/2016	416944	5336521	VVQV	2-3cm white to grey quartz vein trending at 352/70 in chloritic carb rock; cross-cuts foliation; 60% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11936	1470867	< 0.005	Pen Gold	4207914	11/11/2016	416938	5336519	KCCB	strongly contorted chloritic carb rock; 5% white quartz-ankerite veining/flooding; trace to minor fine-grained disseminated pyrite	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11938	1470868	< 0.005	Pen Gold	4207914	11/11/2016	417123	5336615	KCCB	chloritic carb rock	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11941	1470869	< 0.005	Pen Gold	4207914	11/11/2016	417137	5336497	KCCB	0.25-0.5cm grey quartz stringer in chloritic carb rock; 10% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11942	1470870	< 0.005	Pen Gold	4207914	11/11/2016	417125	5336443	KCCB	1-3cm folded discontinuous grey quartz veins in chloritic carb rock	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11944	1470871	< 0.005	Pen Gold	4207914	11/11/2016	417135	5336442	VVQV	1-2cm discontinuous grey quartz vein trending at azimuth 020 with gentle east dip; in chloritic carb rock; 80% quartz	west of Nib Yellowknife showing	1A2	ultratrace 6
PP11947	1470872	< 0.005	Pen Gold	4207036	15/11/2016	421848	5335517	BDIO	rusty diorite grading to syenite; chloritic shears trending at 074/70; moderate to strong pervasive ankerite veinlets and flooding; trace to minor fine-grained disseminated pyrite+arsenopyrite +/- arsenopyrite	syenite north of Kenogaming road	1A2	ultratrace 6
PP11948	1470873	< 0.005	Pen Gold	4207036	15/11/2016	421898	5335456	PSYN	syenite; orange, rusty and oxidized; numerous shears and fractures at variable orientations; moderate to strong pervasive ankerite or hematite alteration and veinlets; nonmagnetic	syenite north of Kenogaming road	1A2	ultratrace 6
PP11949	1470874	< 0.005	Pen Gold	4207036	15/11/2016	421888	5335435	VVQV	1-3cm white quartz veins trending at 043/75 in slightly rusty oxidized syenite; trace pyrite in wallrock; 90% quartz	syenite north of Kenogaming road	1A2	ultratrace 6
PP11950	1470875	< 0.005	Pen Gold	4207036	15/11/2016	421895	5335435	PSYN	1cm white quartz vein trending at 047/80 in small ankerite-chlorite shear in orange syenite; moderate to strong ankerite+chlorite; trace to minor pyrite in wallrock; 20% quartz	syenite north of Kenogaming road	1A2	ultratrace 6
PP11953	1470876	< 0.005	Pen Gold	4207036	15/11/2016	421825	5335424	VVQV	1-4cm rusty white quartz vein trending at azimuth 040 in brick red syenite; strong ankerite or hematite; 70% quartz	syenite north of Kenogaming road	1A2	ultratrace 6
PP11954	1470877	< 0.005	Pen Gold	4201493	16/11/2016	416459	5336971	SSST	fine-grained vaguely banded sediment, possibly siltstone; near contact with ankerite clot mafic volcanic; moderate to strong pervasive carbonate/ankerite and stringers; trace to minor pyrite+arsenopyrite	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11955	1470878	< 0.005	Pen Gold	4201493	16/11/2016	416459	5336969	MUND	massive mafic volcanic; moderate to strong vuggy ankerite clots	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11956	1470880	< 0.005	Pen Gold	4201493	16/11/2016	416460	5336969	MUND	0.25-0.5cm dark grey quartz veins along fracture surface trending at 160/33 in ankerite clot mafic volcanic; 20% quartz	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11957	1470881	0.082	Pen Gold	4201493	16/11/2016	416459	5336968	MUND	1cm dark grey quartz vein trending at 160/33 along fracture surface in ankerite clot mafic volcanic and siltstone; local abundant muscovite; 30% quartz	northwest of Nib Yellowknife showing	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PP11958	1470882	0.051	Pen Gold	4201493	16/11/2016	416460	5336967	SSST	dark grey quartz vein along fracture surface trending at 160/33 in siltstone; 10% quartz	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11959	1470883	< 0.005	Pen Gold	4201493	16/11/2016	416460	5336964	SUND	sericite schist; possibly sediment; grading to intermediate or mafic volcanic tuff; moderate carbonate; well foliated	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11960	1470884	< 0.005	Pen Gold	4201493	16/11/2016	416461	5336960	IUND	1-2cm vuggy rusty white to grey quartz vein pods in vaguely banded intermediate or mafic volcanic; minor to moderate bleaching and ankerite; 10% quartz	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11961	1470885	< 0.005	Pen Gold	4201493	16/11/2016	416471	5336979	MUND	rusty oxidized well foliated mafic volcanic or sediment; moderate to strong ankerite clots, pervasive and stringers	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11962	1470886	< 0.005	Pen Gold	4201493	16/11/2016	416475	5336978	SUND	rusty oxidized well foliated fine-grained sediment or volcanic; trace pyrite; siltstone to north	northwest of Nib Yellowknife showing	1A2	ultratrace 6
PP11970	1470887	< 0.005	Pen Gold East	4248298	17/11/2016	426403	5335308	USRP	serpentinite; angular subcrop; strongly magnetic	southwest of Broadsword	1A2	ultratrace 6
PP11983	1470888	< 0.005	Pen Gold East	4248298	17/11/2016	426261	5335291	USRP	serpentinite; moderately magnetic	southwest of Broadsword	1A2	ultratrace 6
PP11988	1470889	< 0.005	Pen Gold East	4248298	17/11/2016	426230	5335244	USRP	serpentinite; relict olivine cumulate texture; local weak to moderate rust, bleaching and ankerite	southwest of Broadsword	1A2	ultratrace 6
PP11989	1470891	< 0.005	Pen Gold East	4248298	17/11/2016	426242	5335248	USRP	serpentinite; moderately foliated; local rusty patches; moderate bleaching+ankerite+talc; trace pyrite	southwest of Broadsword	1A2	ultratrace 6
PP11990	1470892	< 0.005	Pen Gold East	4248298	17/11/2016	426242	5335253	UUND	ankerite-talc schist in highly altered serpentinite at edge of outcrop in dry pond; probably sheared and highly altered serpentinite	southwest of Broadsword	1A2	ultratrace 6
PP11996	1470893	< 0.005	Pen Gold East	4248298	18/11/2016	426170	5335259	USRP	serpentinite; relict olivine cumulate texture cut by moderate to strong ankerite fracture cleavage	southwest of Broadsword	1A2	ultratrace 6
PP12003	1470894	< 0.005	Pen Gold	4221929	18/11/2016	426073	5335362	BDIO	medium-grained diorite; reddish hairline fractures trending at 140/78; 0.5cm rusty white quartz vein trending at 230/45; local rust; trace to minor pyrite in wallrock around veins; 5% quartz	west of Broadsword	1A2	ultratrace 6
PP12004	1470895	0.006	Pen Gold	4221929	18/11/2016	426078	5335363	BDIO	rusty chloritic shear in diorite; local white to grey sugary quartz vein pods/flooding; 2-3% pyrite as fine to medium-grained disseminated and stringers; 10% quartz	west of Broadsword	1A2	ultratrace 6
PP12005	1470896	< 0.005	Pen Gold	4221929	18/11/2016	426020	5335386	BDIO	sheared chloritic diorite; minor grey siliceous pods/flooding; 1-2% very fine-grained to medium-grained pyrrhotite; 10% quartz	west of Broadsword	1A2	ultratrace 6
PP12008	1470897	< 0.005	Pen Gold	4221929	18/11/2016	426093	5335412	PPFP	30cm reddish feldspar porphyry sill in diorite	west of Broadsword	1A2	ultratrace 6
PP12009	1470898	< 0.005	Pen Gold East	4248298	18/11/2016	426142	5335434	BUND	completely altered rock; soft, orange and rusty; possibly diorite; intense bleaching and carbonate; 0.25-0.5cm folded grey to white quartz veins trending at azimuth 160; white quartz vein pods up to 10cmX20cm; trace to minor pyrite in quartz veining and wallrock; 30% quartz	west of Broadsword	1A2	ultratrace 6
PP12010	1470899	< 0.005	Pen Gold East	4248298	18/11/2016	426148	5335417	VVQV	1-2cm rusty white quartz veins trending at 260/70 in sheared reddish feldspar porphyry; 70% quartz	west of Broadsword	1A2	ultratrace 6
PP12011	1470900	< 0.005	Pen Gold East	4248298	18/11/2016	426152	5335417	BDIO	1-2cm rusty white to grey discontinuous quartz veins trending at 260/80 in sheared diorite with moderate to strong chlorite+ankerite; near contact with feldspar porphyry; 1-2% pyrite in wallrock near veins; 40% quartz	west of Broadsword	1A2	ultratrace 6
PP11888A	1477528	< 0.005	Pen Gold	4207914	19/11/2016	417262	5336251	MUND	mafic volcanic near contact with feldspar porphyritic mafic dyke; possible relict flow textures; epidote pods; local patchy rust; hard; local bleaching	south of Nib Yellowknife showing	1A2	ultratrace 6
PP11888B	1477529	0.005	Pen Gold	4207914	19/11/2016	417264	5336254	LLMD	feldspar porphyritic mafic dyke; dark green; abundant white to beige feldspar phenocrysts; massive and not foliated; nonmagnetic	south of Nib Yellowknife showing	1A2	ultratrace 6
PH18001	1027401	0.006	Pen Gold	4247692	30/07/2016	415295	5337740	PQFP	Porphyry with shear at 070-80N, with crossing 30 degree west dipping quartz-chlorite veins; 2m east of sample #503; 5% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18002	1027402	0.108	Pen Gold	4247692	30/07/2016	415200	5337880	PQFP	Massive porphyry with 1.0cm sized quartz-chlorite veins dipping 30 degrees west, 10% qtz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18003	1027403	0.157	Pen Gold	4247692	30/07/2016	415195	5337880	PQFP	20cm wide strong ankerite altered shear at 070-80N in porphyry, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18004	1027404	< 0.005	Pen Gold	4247692	30/07/2016	415130	5337880	PQFP	Very blocky massive white porphyry with ankerite altered fractures/shears at 070-70N; no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18005	1027405	< 0.005	Pen Gold	4247692	31/07/2016	414150	5338180	MUND	Very siliceous, aphanitic glassy mafic volcanic, strong foliation at 070-80N, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18006	1027406	< 0.005	Pen Gold	4247692	31/07/2016	414130	5338190	PQFP	Very siliceous, massive cherty porphyry, weak orange stained weathered surface, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18007	1027408	< 0.005	Pen Gold	4247692	31/07/2016	414090	5338170	BDIO	Siliceous, massive diorite, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18008	1027409	< 0.005	Pen Gold	4247691	31/07/2016	413820	5338070	PQFP	Massive white porphyry, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18009	1027410	< 0.005	Pen Gold	4247691	31/07/2016	413710	5338320	PQFP	Massive white porphyry, minor ankerite spotted alteration, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18010	1027411	0.006	Pen Gold	4247691	31/07/2016	413780	5338345	PQFP	Porphyry with a 2cm wide quartz-ankerite vein at 030-70S; many other veins in outcrop area, sampled vein has trace pyrite in adjacent ankerite altered wallrock with shearing, 50% quartz vein	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18011	1027412	0.007	Pen Gold	4247691	31/07/2016	413780	5338343	PQFP	Porphyry with a 10cm wide strong ankerite altered shear at 060-70N, trace pyrite, 5% quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18012	1027413	0.006	Pen Gold	4247691	06/08/2016	413420	5338410	PQFP	Porphyry with a 2cm wide quartz ankerite vein at 050-80N, wallrock is moderately ankerite altered with a weak foliation at 080-80N, 50% quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18013	1027414	< 0.005	Pen Gold	4247691	06/08/2016	413538	5337921	PQFP	Massive white porphyry with a 2cm wide glassy quartz vein 090-30S, 30% quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18014	1027416	< 0.005	Pen Gold	4247691	06/08/2016	413580	5337942	MUND	Siliceous mafic volcanic, very fine grained, glassy, banded at 090-50N, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18015	1027417	0.005	Pen Gold	4247691	07/08/2016	413820	5337880	PQFP	Strong ankerite shear at 110-90 in porphyry, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18016	1027418	< 0.005	Pen Gold	4247691	07/08/2016	413820	5337910	PUND	Chlorite schist in felsic intrusive, very strong shearing at 070-90, biotitic, variolitic texture in places, no quartz veining; changed from mafic volcanic to felsic intrusive based on geochemistry	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18017	1027419	0.006	Pen Gold	4247691	07/08/2016	413800	5337870	PQFP	2cm wide glassy quartz-ankerite vein at 130-90, coarse pyrite in vein; 30% quartz; several other veins in this outcrop of white porphyry	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18018	1027420	0.009	Pen Gold	4247691	07/08/2016	413212	5337975	PUND	Siliceous, banded texture at 120-70N, no quartz veining, changed from very fine grained aphanitic mafic volcanic to felsic intrusive based on geochemistry	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18019	1027421	< 0.005	Pen Gold	4247691	07/08/2016	413120	5337960	PQFP	Strong ankerite altered and sheared porphyry, sheared at 070-90, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18020	1027422	< 0.005	Pen Gold	4247691	07/08/2016	413000	5338135	PUND	Brown ankerite weathered surface, moderately sheared at 080-80N, no quartz veining, changed from siliceous mafic volcanic to felsic intrusive based on geochemistry	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18021	1027423	< 0.005	Pen Gold	4247691	07/08/2016	413028	5338180	MUND	Fine grained mafic volcanic, siliceous, sheared at 080-90, trace fine pyrite, no quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18022	1027424	< 0.005	Pen Gold	4247691	07/08/2016	413006	5338230	PQFP	Massive porphyry, weak ankerite altered with a few mm sized quartz stringers at 360-90, 5% total quartz veining	North Contact Kukatash Porphyry	1A2	ultratrace 6
PH18023	1027425	0.021	Pen Gold	4247692	08/08/2016	415330	5337680	PQFP	Strong shear at 060-90 in porphyry, moderate ankerite altered, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6
PH18024	1027426	0.005	Pen Gold	4247692	08/08/2016	415290	5337620	PQFP	Strong shear at 060-90 in porphyry, moderate ankerite altered with trace pyrite, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6
PH18025	1027427	< 0.005	Pen Gold	4247692	08/08/2016	415230	5337590	PQFP	Moderate sheared porphyry, shearing at 080-80N, with moderate sericite alteration on foliation surfaces, minor ankerite, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6
PH18026	1027429	< 0.005	Pen Gold	4247692	08/08/2016	415050	5337660	PQFP	Porphyry with weak shearing at 070-90, with waxy, weak sericite on foliation surfaces, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6
PH18027	1027430	< 0.005	Pen Gold	4247692	08/08/2016	414825	5337625	PQFP	Strong shearing in zone 20cm wide at 050-90 in porphyry, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6
PH18028	1027432	< 0.005	Pen Gold	4247692	09/08/2016	414120	5337620	PQFP	Weak shear at 100-90 in porphyry with weak ankerite, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6
PH18029	1027433	0.006	Pen Gold	4247691	09/08/2016	413725	5337620	PQFP	Porphyry with strong foliation at 040-90, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6
PH18030	1027434	0.028	Pen Gold	4247691	09/08/2016	413550	5337690	PQFP	Porphyry with moderate sericite alteration, foliation at 100-90, no quartz veining	South Contact Kukatash Porphyry	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18031	1027435	0.018	Pen Gold	4247691	09/08/2016	413868	5337690	PQFP	2cm wide quartz vein at 040-70S, in white porphyry, 30% quartz veining	South Contact Kukatush Porphyry	1A2	ultratrace 6
PH18032	1027436	< 0.005	Pen Gold	4247691	10/08/2016	412980	5338338	PQFP	Porphyry with 2cm wide quartz-ankerite vein at 100-80S, 30% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18033	1027437	0.005	Pen Gold	4247691	10/08/2016	412898	5338320	PQFP	Porphyry with sericite alteration in shearing at 090-90, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18034	1027438	< 0.005	Pen Gold	4247691	10/08/2016	412943	5338283	PQFP	Porphyry with waxy sericitic shear at 040-70N, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18035	1027439	< 0.005	Pen Gold	4247691	10/08/2016	412670	5337880	PQFP	Massive porphyry, weak orange stained, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18036	1027440	0.005	Pen Gold	4247691	10/08/2016	412600	5337930	PQFP	Porphyry with mm-cm scale quartz-ankerite-pyrite veins at 360-90, 20% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18037	1027441	< 0.005	Pen Gold	4247691	10/08/2016	412600	5337935	PQFP	Porphyry with mm-cm stockwork quartz veins with trace pyrite; veins at 360-90, flat, and 030-50W orientation, 30% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18038	1027442	< 0.005	Pen Gold	4247691	10/08/2016	412585	5338040	PQFP	Porphyry with shearing at 070-90, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18039	1027443	0.005	Pen Gold	4247691	10/08/2016	412640	5338371	PQFP	Porphyry, massive to weakly foliated at 110-90, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18040	1027444	< 0.005	Pen Gold	4242442	14/08/2016	416800	5339600	MUND	Weak ankerite altered mafic volcanic with shear vein at 090-80N, 20% quartz veining	Bend in Nat River Carb Outcrop	1A2	ultratrace 6
PH18041	1027445	< 0.005	Pen Gold	4242442	14/08/2016	416780	5339620	MUND	Weak ankerite altered mafic volcanic with a 2 cm quartz-ankerite vein at 040-90, 10% quartz veining	Bend in Nat River Carb Outcrop	1A2	ultratrace 6
PH18042	1027446	< 0.005	Pen Gold	4242442	14/08/2016	416730	5339630	VVQV	Carbonate altered mafic volcanic with a 10cm wide quartz vein at 140-90, vein is smokey grey, banded texture, 100% quartz vein in sample.	Bend in Nat River Carb Outcrop	1A2	ultratrace 6
PH18043	1027447	0.012	Pen Gold	4242442	14/08/2016	416850	5340180	MUND	Chloritic mafic volcanics with a 2-10cm wide quartz-ankerite-chlorite-pyrite vein at 090-90, 30% quartz vein	West part Westgate	1A2	ultratrace 6
PH18044	1027448	0.006	Pen Gold	4242442	14/08/2016	416850	5340181	MUND	Chloritic mafic volcanics with a 10cm wide quartz-ankerite-chlorite-pyrite vein, 1% pyrite in wallrock; 30% quartz	West part Westgate	1A2	ultratrace 6
PH18045	1027449	< 0.005	Pen Gold	4247691	15/08/2016	412545	5338100	VVQV	Porphyry with a 30cm wide white quartz vein rotated into strong shearing at 060-90 with weak ankerite alteration; 60% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18046	1027450	< 0.005	Pen Gold	4247691	15/08/2016	412585	5337886	PQFP	Strong shear in porphyry at 060-70S with minor ankerite alteration, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18047	1027451	< 0.005	Pen Gold	4247691	15/08/2016	412520	5337970	PQFP	Strong shear in porphyry at 070-90 with a cm sized quartz vein, 5% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18048	1027452	0.005	Pen Gold	4247691	15/08/2016	412531	5337897	PQFP	Strong shearing in porphyry at 060-90 with cm sized banded chlorite, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18049	1027453	< 0.005	Pen Gold	4247630	16/08/2016	411050	5337815	PQFP	Massive porphyry with weak spotted ankerite alteration, trace pyrite, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18050	1027454	< 0.005	Pen Gold	4247630	16/08/2016	411000	5337815	PQFP	5mm size quartz-ankerite vein at 070-90 in strongly sheared and ankerite altered porphyry, 20% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18051	1027456	< 0.005	Pen Gold	4247630	16/08/2016	410930	5337840	PQFP	Boudinaged quartz veining at 090-90 in strongly sheared and ankerite altered porphyry, 30% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18052	1027457	0.006	Pen Gold	4247630	16/08/2016	410820	5337850	PQFP	Porphyry, sheared at 110-90, with crossing clear quartz stringers and quartz stringers in shearing; 5% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18053	1027458	< 0.005	Pen Gold	4247630	17/08/2016	410930	5337830	PQFP	Strong shear at 080-90 in strongly ankerite altered porphyry, no quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18054	1027459	< 0.005	Pen Gold	4247630	17/08/2016	410957	5337806	PQFP	Quartz vein 1.0cm wide at 120-90 in weakly sheared and ankerite altered porphyry, 30% quartz veining	North Contact Kukatush Porphyry	1A2	ultratrace 6
PH18055	1027460	< 0.005	Pen Gold	4247691	22/08/2016	413816	5337926	PQFP	Very strong chloritic shear zone in porphyry with 1% disseminated pyrite, zone at 070-80N, no quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18056	1027462	< 0.005	Pen Gold	4247691	22/08/2016	413814	5337916	VVQV	3cm wide quartz vein with ankerite alteration and 1% pyrite, in sheared porphyry at 070-80N, 60% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18057	1027463	0.036	Pen Gold	4247691	22/08/2016	413830	5337874	VVQV	3cm wide quartz vein at 130-90 in weak shearing in porphyry, 80% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18058	1027464	0.006	Pen Gold	4247691	22/08/2016	413813	5337890	PQFP	Quartz ankerite stringers about 0.5cm wide with trace pyrite in sheared porphyry at 130-90, 10% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18059	1027465	< 0.005	Pen Gold	4247691	22/08/2016	413820	5337883	PQFP	Series of stockwork quartz-ankerite stringers about 0.5cm wide in porphyry, 5% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18060	1027466	0.009	Pen Gold	4247691	23/08/2016	413773	5337878	PQFP	Weak shear zone at 070-90 in porphyry with minor quartz veining, 30% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18061	1027467	0.005	Pen Gold	4247691	23/08/2016	413779	5337880	PQFP	Chloritic shears and fractures at 070-90 in porphyry, no quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18062	1027468	0.006	Pen Gold	4247691	23/08/2016	413806	5337825	PQFP	Massive white porphyry, ankerite stained fractures, no quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18063	1027469	< 0.005	Pen Gold	4247691	23/08/2016	413816	5337800	PQFP	Shearing at 130-90 in porphyry, no quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18064	1027470	0.018	Pen Gold	4247691	23/08/2016	413800	5337760	PQFP	Shearing at 090-90 in porphyry with trace pyrite, no quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18065	1027471	0.039	Pen Gold	4247691	24/08/2016	413773	5337556	PQFP	Quartz ankerite vein 0.5cm wide at 090-90 with strong ankerite and trace pyrite, 30% quartz	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18066	1027472	0.006	Pen Gold	4247691	24/08/2016	413760	5337584	PQFP	Massive jointed porphyry, rust on fracture surfaces, no quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18067	1027473	< 0.005	Pen Gold	4247691	24/08/2016	413763	5337678	PQFP	Massive fractured porphyry, no quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18068	1027474	0.016	Pen Gold	4247691	24/08/2016	413778	5337707	PQFP	Discontinuous quartz vein at 050-90, about 1cm wide in a large outcrop of massive porphyry near diabase contact, 20% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18069	1027475	0.012	Pen Gold	4247691	24/08/2016	413850	5337670	PQFP	Stockwork 0.5cm quartz veins; veins at 060-90 and 130-90, in massive white porphyry, 20% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18070	1027476	0.006	Pen Gold	4247691	24/08/2016	413842	5337683	PQFP	Quartz-chlorite vein at 070-90 in white porphyry, 30% quartz veining	Graben in Kukatush Porphyry	1A2	ultratrace 6
PH18071	1027478	< 0.005	Pen Gold	4247698	25/08/2016	416720	5341680	VVQV	20cm white-grey quartz vein at 360-30W in massive porphyry, 80% quartz veining	North of Hwy 101 Porphyry	1A2	ultratrace 6
PH18072	1027479	< 0.005	Pen Gold	4247698	25/08/2016	416727	5341630	MUND	Quartz vein about 1cm wide at 120-90 in a sheared biotite rich mafic volcanic with 5% blebby pyrite, 30% quartz veining	North of Hwy 101 Porphyry	1A2	ultratrace 6
PH18073	1027480	< 0.005	Pen Gold	4247698	25/08/2016	416712	5341640	MUND	Biotite rich fine grained mafic volcanic with trace fine grained pyrite, strong foliation at 090-90; no quartz veining	North of Hwy 101 Porphyry	1A2	ultratrace 6
PH18074	1027481	< 0.005	Pen Gold	4247698	25/08/2016	416744	5341713	MUND	Changed from massive porphyry with chloritic matrix to mafic volcanic based on geochemistry, rust on fracture surfaces, trace blebby pyrite, no quartz veining	North of Hwy 101 Porphyry	1A2	ultratrace 6
PH18075	1027482	< 0.005	Pen Gold	4247698	25/08/2016	416720	5341709	MUND	Banded fine grained mafic volc, nil quartz	North of Hwy 101 Porphyry	1A2	ultratrace 6
PH18076	1027483	0.005	Pen Gold East	4248298	29/08/2016	426402	5335621	MUND	10cm sized quartz vein in fine grained mafic volcanic next to diabase sill	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18077	1027484	0.005	Pen Gold East	4248298	29/08/2016	426526	5335750	MUND	Fine grained mafic volcanic, strong shearing at 090-90 with 3% pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18078	1027485	0.005	Pen Gold East	4248298	29/08/2016	426356	5335758	FUND	Felsic volcanic, sericitic, sheared at 090-90 with 5% fine disseminated pyrite, 1% quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18079	1027486	0.005	Pen Gold East	4248298	29/08/2016	426334	5335760	FUND	Felsic volcanic, sericitic, sheared at 090-90 with 3% fine disseminated pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18080	1027487	0.008	Pen Gold East	4248298	29/08/2016	426330	5335760	FUND	Felsic volcanic, sericitic, sheared at 090-90 with 5% fine disseminated pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18081	1027488	< 0.005	Pen Gold East	4248298	29/08/2016	426300	5335760	FUND	Felsic volcanic, sericitic, sheared at 090-90 with 1% fine disseminated pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18082	1027489	< 0.005	Pen Gold East	4248298	31/08/2016	426200	5335647	MUND	Fine grained mafic volcanic, banded at 080-90, 3% disseminated and banded pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18083	1027491	< 0.005	Pen Gold East	4248298	31/08/2016	426201	5335647	MUND	3cm wide quartz vein at 120-30N in banded mafic volcanic, 20% quartz vein	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18084	1027492	0.007	Pen Gold East	4248298	31/08/2016	426246	5335714	MUND	Fine grained and sheared mafic volcanic with 5% pyrite at south contact of 30cm wide quartz vein at 080-90, 20% quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18085	1027493	0.034	Pen Gold East	4248298	31/08/2016	426196	5335738	FUND	Felsic volcanic, sericitic, sheared at 090-90 with 3% fine disseminated pyrite, few mm scale qtz stgrs, 5% quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18086	1027494	< 0.005	Pen Gold East	4248298	31/08/2016	426196	5335739	MUND	Mafic volcanics at contact with Iron Formation, 10% coarse and blebby pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18087	1027495	< 0.005	Pen Gold East	4248298	31/08/2016	426150	5335733	CMIF	Sugary quartz vein within banded Iron Formation with trace pyrite, 30% quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18088	1027496	< 0.005	Pen Gold East	4248298	31/08/2016	426161	5335705	FUND	Band of sericitic felsic volcanic about 10cm wide with 2% blebby pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18089	1027497	0.006	Pen Gold East	4248298	31/08/2016	426717	5335786	FUND	Felsic volcanic, sericitic, sheared at 080-90 with 5% fine disseminated pyrite, few mm scale qtz stgrs, 5% quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18090	1027498	0.005	Pen Gold East	4248298	31/08/2016	426719	5335786	FUND	Felsic volcanic, sericitic, sheared at 080-90, in contact with diabase sill, with 5% fine disseminated pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18091	1027499	< 0.005	Pen Gold East	4248298	31/08/2016	426715	5335788	FUND	Felsic volcanic, sericitic, sheared at 080-90 with 5% fine disseminated pyrite, no quartz veining	Pen Gold East Claim south of Iron Formation	1A2	ultratrace 6
PH18092	1027500	0.096	Pen Gold East	4248298	01/09/2016	426646	5335464	BUND	Mafic intrusive with 10cm quartz vein at 090-90, 5% pyrite in wall rock, 5% quartz veining , changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18093	1477951	0.318	Pen Gold East	4248298	01/09/2016	426644	5335465	VVQV	Massive white-pink quartz vein at 090-90, in area of small trench, in mafic intrusive with 5% pyrite, 60% quartz veining, changed wall rock from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18094	1477952	0.074	Pen Gold East	4248298	01/09/2016	426657	5335435	VVQV	Mafic intrusive with series of 2-10cm quartz veins at 090-90, with 10% pyrite in wall rock, 60% quartz veining, changed wall rock from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18095	1477953	0.085	Pen Gold East	4248298	01/09/2016	426666	5335434	VVQV	Quartz vein 2-10cm wide at 090-90 rotated into shear at 330-90, 10% pyrite in mafic intrusive wall rock, 70% quartz veining, changed wall rock from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18096	1477954	< 0.005	Pen Gold East	4248298	01/09/2016	426666	5335435	VVQV	Massive pink-red quartz vein about 20cm wide at 360-40E, 90% quartz veining	Broadsword	1A2	ultratrace 6
PH18097	1477955	0.006	Pen Gold East	4248298	01/09/2016	426658	5335434	VVQV	20cm wide quartz vein at 090-90, with 5% pyrite in wall, 80% quartz veining	Broadsword	1A2	ultratrace 6
PH18098	1477956	0.161	Pen Gold East	4248298	01/09/2016	426658	5335435	BUND	Mafic intrusive wall rock to veins sampled as 1477952, has 10% pyrite, no quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18099	1477957	0.029	Pen Gold East	4248298	01/09/2016	426658	5335436	BUND	Mafic intrusive south wall rock to main vein in outcrop at 090-70N, wall rock has 10% pyrite, 20% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18100	1477958	0.013	Pen Gold East	4248298	01/09/2016	426713	5335436	VVQV	10cm wide banded texture quartz vein at 090-60N, with 2% pyrite in mafic intrusive wall rock, 60% quartz veining , wall rock changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18101	1477959	0.02	Pen Gold	4277342	02/09/2016	411737	5337977	PQFP	Porphyry with strong ankerite shear at 100-90, few quartz stringers in shear with trace pyrite, 10% quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18102	1477960	< 0.005	Pen Gold	4277342	02/09/2016	411737	5337979	PQFP	30cm wide ankerite shear at 100-90, sharp contacts with adjacent porphyry, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18103	1477961	0.005	Pen Gold	4277342	02/09/2016	411793	5337947	PQFP	Porphyry with weak shear at 120-90, weak ankerite, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18104	1477962	0.006	Pen Gold	4277342	02/09/2016	411866	5337888	PQFP	Porphyry with weak shear at 130-90, weak spotted ankerite, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18105	1477963	0.017	Pen Gold	4277342	02/09/2016	411850	5337833	VVQV	1.0cm wide quartz vein at 120-50SW in shear, ankerite alteration, banded with chlorite, trace pyrite, 80% quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18106	1477964	0.005	Pen Gold	4277342	02/09/2016	411851	5337833	PQFP	Porphyry with strong ankerite in shear at 120-90, trace pyrite, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18107	1477965	0.008	Pen Gold	4277342	02/09/2016	411860	5337830	VVQV	Quartz vein up to 10cm wide at 120-60SW in shear within porphyry, 70% quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18108	1477966	< 0.005	Pen Gold	4277342	02/09/2016	411809	5337710	PQFP	Massive porphyry, jointed at 140-90, rust stained on fractures, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18109	1477967	< 0.005	Pen Gold	4277342	02/09/2016	411750	5337580	PQFP	Massive porphyry, jointed at 130-90, rust stained on fractures, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18110	1477968	< 0.005	Pen Gold	4277342	02/09/2016	411800	5337605	PQFP	Porphyry with weak shearing at 130-90, weak ankerite, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18111	1477969	< 0.005	Pen Gold	4277342	03/09/2016	412262	5338080	PQFP	Shear in porphyry at 120-90, strong orange staining, 5% quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18112	1477970	< 0.005	Pen Gold	4277342	03/09/2016	412390	5337770	PQFP	Fractured porphyry, fractures at 100-80N, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18113	1477971	< 0.005	Pen Gold	4247691	03/09/2016	412420	5337770	PQFP	Porphyry with crossing fractures at 120-90 and 070-90, weak orange stained, no quartz veining	East of New Porphyry Gap claim south of Groundhog	1A2	ultratrace 6
PH18114	1477972	0.006	Pen Gold	4277342	03/09/2016	412273	5337712	VVQV	Quartz-ankerite veins at 010-70W, with trace to 1% pyrite in strong ankerite altered porphyry, 80% quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18115	1477973	0.006	Pen Gold	4277342	03/09/2016	412273	5337714	PQFP	Shear in porphyry at 070-90 with 0.5cm size quartz stringers, strong ankerite alteration, trace pyrite, 20% quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18116	1477974	< 0.005	Pen Gold	4277342	03/09/2016	412271	5337705	PQFP	Stockwork fractures and shearing at 070-90 in strongly ankerite altered porphyry, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18117	1477975	0.005	Pen Gold	4277342	03/09/2016	412273	5337722	PQFP	Shear in porphyry at 070-90 with 0.5cm size quartz stringers, strong ankerite alteration, trace pyrite, 5% quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18118	1477976	< 0.005	Pen Gold	4277342	03/09/2016	412000	5337510	PQFP	Massive porphyry, minor rust on fracture surfaces, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18119	1477977	0.014	Pen Gold	4277342	03/09/2016	412113	5337893	PQFP	Massive porphyry, minor rust on fractures at 070-80N, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18120	1477978	< 0.005	Pen Gold	4277342	03/09/2016	412194	5338106	PQFP	Massive porphyry, weak fractures at 120-90, no quartz veining	New Porphyry Gap claim 4277342 south of Groundhog	1A2	ultratrace 6
PH18121	1477979	0.005	Pen Gold East	4248298	05/09/2016	426651	5335423	VVQV	Series of 1-2cm quartz veins at 090-50N in pyritic mafic intrusive at crossing structure at 340-90, 70% quartz veining, changed wall rock from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18122	1477980	0.01	Pen Gold East	4248298	05/09/2016	426658	5335435	BUND	Mafic intrusive with 10% pyrite at Hanging wall contact to 30cm wide main quartz vein at 090-70N, no quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18123	1477981	< 0.005	Pen Gold East	4248298	05/09/2016	426658	5335436	VVQV	10cm wide quartz vein at 090, rolls flat towards main 30cm wide quartz vein in outcrop, 90% quartz veining	Broadsword	1A2	ultratrace 6
PH18124	1477982	< 0.005	Pen Gold East	4248298	05/09/2016	426658	5335437	BUND	Mafic intrusive with 5% pyrite at contact to vein sampled at #1477981, no quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18125	1477983	0.282	Pen Gold East	4248298	05/09/2016	426487	5335423	VVQV	10cm quartz vein in 070-70N shear, with 5% pyrite in mafic intrusive wall rock, 70% quartz veining, changed wall rock from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18126	1477984	0.125	Pen Gold East	4248298	05/09/2016	426488	5335423	VVQV	Flat quartz vein adjacent to shear in outcrop, with 5% pyrite in adjacent wall rock, 60% quartz veining	Broadsword	1A2	ultratrace 6
PH18127	1477985	0.335	Pen Gold East	4248298	05/09/2016	426487	5335424	BUND	Strongly oxidized shear zone in mafic intrusive with 3% pyrite at 070-90 with 2cm quartz stringers throughout, 30% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18128	1477986	0.53	Pen Gold East	4248298	05/09/2016	426487	5335424	BUND	Mafic intrusive with 10% pyrite adjacent to shearing at 070-70N, no quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18129	1477987	0.091	Pen Gold East	4248298	05/09/2016	426508	5335414	BUND	Shear zone at 070 infilled with feldspar porphyry dike, and 5cm quartz veining at south contact, 30% quartz veining	Broadsword	1A2	ultratrace 6
PH18130	1477989	0.13	Pen Gold	3000604	07/09/2016	423685	5335763	KFCB	Bright emerald green carbonate, magnesite veins, strong sheared at 070-90, 5% qtz veining	West of Pen Gold East	1A2	ultratrace 6
PH18131	1477991	< 0.005	Pen Gold	3000604	07/09/2016	423700	5335805	MUND	Massive mafic volcanic, trace py with 5cm quartz vein at 040-60S, 30% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18132	1477992	< 0.005	Pen Gold	3000605	07/09/2016	423606	5335824	MUND	Massive fine grained mafic volcanic with 5cm feldspar-quartz vein at 320-90, 5% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18133	1477993	< 0.005	Pen Gold	3000605	07/09/2016	423610	5335780	MUND	Strong sheared mafic volcanic at 060-50N, with carbonate alteration, trace pyrite, no quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18134	1477994	< 0.005	Pen Gold	3000605	07/09/2016	423590	5335727	VVQV	10cm wide flat quartz vein in fine grained mafic volcanic with trace pyrite, 80% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18135	1477995	< 0.005	Pen Gold	3000605	07/09/2016	423574	5335737	MUND	Fine grained mafic volcanic with rusty pyritic shears/pillow margins, no quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18136	1477996	< 0.005	Pen Gold	3000605	07/09/2016	423480	5335566	MUND	Fine grained mafic volcanic, strong shearing at 090-70N, 2% coarse pyrite, no quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18137	1477997	< 0.005	Pen Gold	3000605	07/09/2016	423470	5335707	VVQV	Swarm of quartz calcite veins in fine grained massive mafic volcanic, 80% quartz veining	West of Pen Gold East	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18138	1477998	0.005	Pen Gold	4221929	09/09/2016	425762	5335700	VVQV	Sugary quartz vein within banded Iron Formation with trace pyrite, 90% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18139	1477999	< 0.005	Pen Gold	4221929	09/09/2016	425812	5335698	FUND	Felsic volcanic, sericitic, sheared at 090-90 with 5% fine disseminated pyrite, 5% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18140	1478000	0.704	Pen Gold	4221929	09/09/2016	425883	5335685	FUND	Felsic volcanic, sericitic, sheared at 070-90 with 5% fine disseminated pyrite, 5% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18141	1276554	< 0.005	Pen Gold East	4248298	09/09/2016	426121	5335702	MUND	Mafic volcanic at Iron Formation contact, with 10% blebby pyrite, 5% quartz veining	Pen Gold East	1A2	ultratrace 6
PH18142	1276555	< 0.005	Pen Gold	3000605	09/09/2016	423523	5335585	KFCB	Emerald green carbonate rock with 10% quartz veining and trace pyrite	West of Pen Gold East	1A2	ultratrace 6
PH18143	1276556	< 0.005	Pen Gold	3000605	09/09/2016	423415	5335575	VVQV	White-pink quartz veins at 120-90 in fine grained volcanics, 70% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18144	1276557	< 0.005	Pen Gold	3000605	09/09/2016	423375	5335745	MUND	Fine grained mafic volcanic, fractured, rusty, 10% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18145	1276558	< 0.005	Pen Gold	3000605	11/09/2016	423340	5335765	MUND	Shear zone at 170-90 in fine grained, fractured mafic volcanic, with trace pyrite, 5% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18146	1276560	< 0.005	Pen Gold	3000605	11/09/2016	423327	5335850	MUND	Fine grained mafic volcanic, fractured, rusty, with 3-5% disseminated and blebby pyrite and pyrrhotite, 1% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18147	1276561	< 0.005	Pen Gold	3000605	11/09/2016	423352	5335870	MUND	Strong shear zone at 140-90, about 20cm wide at north end of a trench with 2-3% fine grained pyrite and pyrrhotite, 2% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18148	1276562	< 0.005	Pen Gold	4207031	11/09/2016	423085	5336039	MUND	Fine grained mafic volcanic, fractured, with 1% fine grained disseminated pyrite, 1% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18149	1276564	< 0.005	Pen Gold	3000603	12/09/2016	422871	5335706	KFCB	Folded quartz veining in strong sheared emerald green carbonate, 30% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18150	1276565	< 0.005	Pen Gold	3000603	12/09/2016	422871	5335705	VVQV	3cm wide tabular quartz vein at 070-90 in strongly sheared emerald green carbonate, 95% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18151	1276566	0.007	Pen Gold	3000603	12/09/2016	422870	5335695	KFCB	Emerald green carbonate rock, strong shear at 070-90, with 3% pyrite adjacent to ankerite veining, 2% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18152	1276567	0.038	Pen Gold	4207031	12/09/2016	422981	5336242	MPLW	Weakly sheared chloritic pillow lava with quartz and pyrite in pillow selva areas, 2% medium to coarse grained pyrite, 10% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18153	1276568	0.067	Pen Gold East	4248298	20/09/2016	426391	5335469	VVQV	5cm wide quartz vein in shear at 080-90 with 3% pyrite, 70% quartz veining	Broadsword	1A2	ultratrace 6
PH18154	1276569	0.021	Pen Gold East	4248298	20/09/2016	426388	5335468	FUND	2cm wide quartz vein in shear at 080-90 with 2% pyrite, 50% quartz veining, changed from mafic volcanic to felsic volcanic based on geochemistry	Broadsword	1A2	ultratrace 6
PH18155	1276570	0.029	Pen Gold East	4248298	20/09/2016	426241	5335367	VVQV	10cm wide ribbon textured quartz vein with 2% pyrite, vein in shear at 080-90, 60% quartz veining	Broadsword	1A2	ultratrace 6
PH18156	1276571	0.016	Pen Gold East	4248298	20/09/2016	426240	5335368	VVQV	5cm wide quartz vein in shear at 080-90 with 5% pyrite, 60% quartz veining	Broadsword	1A2	ultratrace 6
PH18157	1276572	0.007	Pen Gold East	4248298	20/09/2016	426243	5335369	VVQV	10cm wide quartz vein in shear at 080-90 with 5% pyrite, 70% quartz veining	Broadsword	1A2	ultratrace 6
PH18158	1276573	0.176	Pen Gold East	4248298	20/09/2016	426500	5335494	FUND	20cm wide shear at 105-90 in felsic volcanic, 10% fine pyrite throughout, no quartz veining, changed from mafic volcanic to felsic volcanic based on geochemistry	Broadsword	1A2	ultratrace 6
PH18159	1276574	0.334	Pen Gold East	4248298	20/09/2016	426502	5335495	VVQV	10cm wide quartz vein at 105-90 with 5% pyrite in wall, 70% quartz veining	Broadsword	1A2	ultratrace 6
PH18160	1276575	0.019	Pen Gold	4207031	25/09/2016	422389	5336440	FUND	Rusty shear in band 1.0m wide of felsic crystal tuff within mafic volcanics, 1% pyrite, 10% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18161	1276576	0.009	Pen Gold	4207031	25/09/2016	422766	5336272	MUND	Strongly sheared mafic volcanic at 050-90, 1% medium grained pyrite, no quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18162	1276578	0.050	Pen Gold East	4248298	28/09/2016	426583	5335433	BUND	Sheared mafic intrusive, few quartz stringers, 5% medium grained pyrite, 5% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18163	1276579	0.008	Pen Gold East	4248298	28/09/2016	426561	5335436	BUND	Massive mafic intrusive, few quartz stringers, 5% medium grained pyrite, 5% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18164	1276580	0.070	Pen Gold East	4248298	28/09/2016	426435	5335417	VVQV	Well developed quartz vein array, pyritic wall rock, 70% quartz veining	Broadsword	1A2	ultratrace 6
PH18165	1276581	0.053	Pen Gold East	4248298	28/09/2016	426460	5335412	VVQV	30cm wide quartz vein at 110-90 with 10% pyrite in wall, 70% quartz veining	Broadsword	1A2	ultratrace 6
PH18166	1276582	0.012	Pen Gold East	4248298	28/09/2016	426466	5335411	VVQV	2cm wide quartz vein at 100-65N, with 5% pyrite in wall, 70% quartz veining	Broadsword	1A2	ultratrace 6
PH18167	1276583	0.038	Pen Gold East	4248298	28/09/2016	426461	5335412	VVQV	30cm wide quartz vein at 110-90 with 10% pyrite in wall, 80% quartz veining	Broadsword	1A2	ultratrace 6
PH18168	1276584	0.111	Pen Gold East	4248298	28/09/2016	426458	5335433	BUND	1cm wide quartz vein at 050-90, with 10% pyrite in wall, 10% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18169	1276585	0.005	Pen Gold East	4248298	28/09/2016	426479	5335431	BUND	Strongly sheared mafic intrusive at 070-90, few quartz stringers, 2% medium grained pyrite, 10% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18170	1276587	< 0.005	Pen Gold East	4248298	28/09/2016	426498	5335431	BUND	Strongly sheared mafic intrusive at 080-90, few quartz stringers, 2% medium grained pyrite, 20% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18171	1276588	< 0.005	Pen Gold East	4248298	28/09/2016	426500	5335430	VVQV	Quartz vein at 050-90 in shear with 3% pyrite in wall, 90% quartz veining	Broadsword	1A2	ultratrace 6
PH18172	1276589	< 0.005	Pen Gold	4207031	30/09/2016	423229	5336584	VVQV	5cm wide quartz vein in shear at 070-90 with 1% pyrite, 70% quartz veining	West of Pen East	1A2	ultratrace 6
PH18173	1276590	< 0.005	Pen Gold	4207031	30/09/2016	423240	5336617	MUND	2cm wide quartz vein in shear at 070-90 with trace pyrite, 10% quartz veining	West of Pen East	1A2	ultratrace 6
PH18174	1276591	< 0.005	Pen Gold	4207031	30/09/2016	423258	5336638	MUND	Massive chloritic mafic volcanic with 2% coarse pyrite on fracture surfaces, no quartz veining	West of Pen East	1A2	ultratrace 6
PH18175	1276592	< 0.005	Pen Gold	4207031	30/09/2016	423474	5336343	MUND	Chloritic mafic volcanic with a weak shear at 070-90, no quartz veining	West of Pen East	1A2	ultratrace 6
PH18176	1276593	0.028	Pen Gold	4207031	30/09/2016	423582	5336652	MUND	Strongly sheared mafic volcanic at 070-90, near to quartz vein array, with 5% coarse grained pyrite, 10% quartz veining	West of Pen East	1A2	ultratrace 6
PH18177	1276594	< 0.005	Pen Gold	4207031	30/09/2016	423583	5336652	VVQV	Quartz vein array with 1% coarse pyrite in strongly sheared mafic volcanic at 070-90, 100% quartz veining	West of Pen East	1A2	ultratrace 6
PH18178	1276595	0.005	Pen Gold	4207031	30/09/2016	423584	5336652	MUND	Strongly sheared mafic/ultramafic volcanic at 070-90, near to quartz vein array, 5% quartz veining	West of Pen East	1A2	ultratrace 6
PH18179	1276596	< 0.005	Pen Gold	4207031	01/10/2016	423052	5336512	VVQV	Chloritic pillow volcanic with a quartz-chlorite vein, 70% quartz veining	West of Pen East	1A2	ultratrace 6
PH18180	1276597	0.005	Pen Gold	4207031	01/10/2016	423061	5336593	MUND	Ankerite altered mafic volcanic wall rock with 2% fine pyrite adjacent to 30cm quartz vein, no quartz veining; changed from ultramafic volcanic to mafic volcanic based on geochemistry	West of Pen East	1A2	ultratrace 6
PH18181	1276598	< 0.005	Pen Gold	4207031	01/10/2016	423060	5336594	VVQV	30cm wide quartz vein, at 350-30E, with 2% pyrite, 90% quartz veining	West of Pen East	1A2	ultratrace 6
PH18182	1276599	0.025	Pen Gold	4207031	01/10/2016	423060	5336595	MUND	Ankerite altered mafic volcanic wall rock with 10% fine pyrite adjacent to 30cm quartz vein, no quartz veining; changed from ultramafic volcanic to mafic volcanic based on geochemistry	West of Pen East	1A2	ultratrace 6
PH18183	1276600	< 0.005	Pen Gold	4207031	01/10/2016	423056	5336669	VVQV	20cm wide quartz vein at 070-90 in pillow volcanic, 90% quartz veining	West of Pen East	1A2	ultratrace 6
PH18184	1470701	< 0.005	Pen Gold	4207031	01/10/2016	422982	5336642	VVQV	20cm wide quartz vein in shear at 050-90 in chloritic mafic volcanic, 70% quartz veining	West of Pen East	1A2	ultratrace 6
PH18185	1470702	0.017	Pen Gold	4207031	01/10/2016	422937	5336650	MUND	Rusty shear at 050-90 in mafic volcanics with 1% pyrite, no quartz veining	West of Pen East	1A2	ultratrace 6
PH18186	1470703	0.006	Pen Gold	4207031	01/10/2016	422836	5336600	VVQV	Green carbonate rock, highly altered ultramafic volcanic, with quartz stringers and veining, 2% pyrite in wallrock, 60% quartz veining	West of Pen East	1A2	ultratrace 6
PH18187	1470705	0.006	Pen Gold East	4248298	03/10/2016	426712	5335434	BUND	Shear zone in mafic intrusive adjacent to quartz veining at 090-60N, with 5% pyrite, no quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18188	1470706	0.038	Pen Gold East	4248298	03/10/2016	426676	5335434	VVQV	20cm wide orange stained quartz vein at 090-70N with 2% pyrite, 70% quartz veining	Broadsword	1A2	ultratrace 6
PH18189	1470707	0.056	Pen Gold East	4248298	03/10/2016	426669	5335434	VVQV	10cm wide quartz vein at 090-70N with 3% pyrite, 90% quartz veining	Broadsword	1A2	ultratrace 6
PH18190	1470708	0.014	Pen Gold East	4248298	03/10/2016	426514	5335464	VVQV	Series of 5cm wide quartz veins at 090-70N with 5% pyrite, 60% quartz veining	Broadsword	1A2	ultratrace 6
PH18191	1470710	0.007	Pen Gold East	4248298	03/10/2016	426168	5335205	USRP	Serpentine, relict olivine cumulate texture; weak brown carbonate altered, fracture cleavage filled by ankerite; no quartz veining	southwest of Broadsword	1A2	ultratrace 6
PH18192	1470711	0.033	Pen Gold East	4248298	03/10/2016	426657	5335436	BUND	Well mineralized mafic intrusive hanging wall contact to Big Vein with 5% pyrite, 20% quartz veining, changed from mafic volcanic to mafic intrusive	Broadsword	1A2	ultratrace 6
PH18193	1470712	0.005	Pen Gold East	4248298	03/10/2016	426624	5335497	FTUF	Sheared felsic tuff at 090-70N, mm size crystals, no quartz veining	Broadsword	1A2	ultratrace 6
PH18194	1470713	0.507	Pen Gold East	4248298	03/10/2016	426624	5335496	BUND	Rusty shear at 090-70N and quartz veining in mafic intrusive, 30% quartz veining; changed from felsic tuff to mafic intrusive based on geochemistry	Broadsword	1A2	ultratrace 6
PH18195	1470714	0.027	Pen Gold	4207037	04/10/2016	422489	5334506	PUND	Sheared at 070-90 with quartz stringers and 3% disseminated pyrite, 5% quartz veining, changed from ankerite-sericite carb rock to felsic intrusive based on geochemistry	Karvinen #1	1A2	ultratrace 6
PH18196	1470715	0.006	Pen Gold	4207037	04/10/2016	422490	5334505	PUND	Sheared at 070-90 with quartz stringers and 3% disseminated pyrite, 5% quartz veining, changed from ankerite-sericite carb rock to felsic intrusive based on geochemistry	Karvinen #1	1A2	ultratrace 6
PH18197	1470716	0.006	Pen Gold	4207037	04/10/2016	422490	5334504	VVQV	20cm well mineralized quartz vein at 070-90, on porphyry/carb rock contact, with 3% pyrite, 100% quartz veining	Karvinen #1	1A2	ultratrace 6
PH18198	1470717	0.007	Pen Gold	4207037	04/10/2016	422495	5334504	VVQV	20cm well mineralized quartz vein at 070-90, on porphyry/carb rock contact, with 3% pyrite, 100% quartz veining	Karvinen #1	1A2	ultratrace 6
PH18199	1470718	0.013	Pen Gold	4207037	04/10/2016	422489	5334508	VVQV	Quartz-ankerite veining at 070-90 in carbonate ultramafics, 70% quartz veining	Karvinen #1	1A2	ultratrace 6
PH18200	1470719	0.006	Pen Gold	4207037	04/10/2016	422489	5334513	KKCB	2cm sized quartz-ankerite tension veins at 330-60E in soft talc ultramafics, 30% quartz veining	Karvinen #1	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
PH18201	1470720	0.007	Pen Gold	4207037	04/10/2016	422484	5334510	VVQV	Quartz vein array in soft talc ultramafics, 70% quartz veining	Karvinen #1	1A2	ultratrace 6
PH18202	1470721	< 0.005	Pen Gold	4207037	04/10/2016	422520	5334519	PSYN	Sheared and mineralized fine grained red syenite, 1% pyrite, 5% quartz veining	Karvinen #1	1A2	ultratrace 6
PH18203	1470722	0.131	Pen Gold	4207036	04/10/2016	422171	5334610	VVQV	Quartz-ankerite veining in carbonate ultramafic boulders from trenching, 5% pyrite, 70% quartz veining	Karvinen #2	1A2	ultratrace 6
PH18204	1470723	< 0.005	Pen Gold	4207031	06/10/2016	423052	5336600	VVQV	Quartz veining about 30cm wide across sheared very fine grained siliceous mafic volcanic with 1% fine pyrite, 60% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18205	1470724	< 0.005	Pen Gold	4207031	06/10/2016	423053	5336601	MUND	Sheared very fine grained siliceous mafic volcanic with 2% fine pyrite, few mm sized quartz stringers, 5% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18206	1470725	0.005	Pen Gold	4207031	06/10/2016	423054	5336600	MUND	Sheared very fine grained siliceous mafic volcanic with 2% fine pyrite, no quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18207	1470726	< 0.005	Pen Gold	4207031	06/10/2016	423081	5336620	MPLW	Sheared very chloritic pillow volcanic with trace fine pyrite, magnetic, no quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18208	1470727	0.006	Pen Gold	4207031	06/10/2016	423110	5336650	KKCB	Soft, brown carbonate altered ultramafic with 5cm quartz vein at 070-90 with trace pyrite, 20% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18209	1470728	0.011	Pen Gold	4207031	06/10/2016	423084	5336660	KKCB	Soft, brown carbonate altered ultramafic with cm quartz stringers, 20% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18210	1470729	0.011	Pen Gold	4207031	06/10/2016	422756	5336566	KKCB	Soft, brown carbonate altered ultramafic with minor fuchsite and cm quartz stringers with trace pyrite, 10% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18211	1470730	0.008	Pen Gold	4207031	06/10/2016	422731	5336574	KKCB	Soft, talcy brown carbonate altered ultramafic with minor fuchsite and crossing cm quartz stringers with trace pyrite, 10% quartz veining	West of Pen Gold East	1A2	ultratrace 6
PH18212	1470732	< 0.005	Pen Gold	4207031	06/10/2016	422834	5336595	VVQV	Quartz vein swarm in soft brown carb rock, trace pyrite, 90% quartz veining	West of Pen Gold East	1A2	ultratrace 6
DG10368	1477801	< 0.005	Pen Gold	4201492	15/08/2016	414764	5336726	SAST	weak-moderate sericitic, weak ankerite altered arkosic sandstone with angular to sub-rounded blue quartz eyes; trace disseminated pyrite; no quartz veining	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10369	1477802	< 0.005	Pen Gold	3019488	15/08/2016	414782	5336640	MBRC	bleached, weak chlorite altered mafic breccia with felsic clasts up to 15cm X 5cm; no quartz veining or pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10372	1477803	< 0.005	Pen Gold	3019488	15/08/2016	414784	5336546	MBRC	weak chlorite altered mafic breccia with felsic clasts up to 25cm X 5cm; locally variolitic?; no quartz veining; trace pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10373	1477804	< 0.005	Pen Gold	3019488	15/08/2016	414686	5336504	MCLC	weak-moderate chlorite altered; fine grained to medium grained mafic volcanic with chlorite clots and vage pillow selvages?; no quartz veining or pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10381	1477805	< 0.005	Pen Gold	3019488	16/08/2016	414933	5336630	MBRC	bleached, weak chlorite altered mafic breccia with felsic clasts up to 15cm X 5cm; no quartz veining; trace pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10384	1477806	< 0.005	Pen Gold	3019488	16/08/2016	414940	5336593	MBRC	bleached, weak chlorite altered mafic breccia with felsic clasts up to 15cm X 5cm; no quartz veining; trace pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10397	1477807	0.006	Pen Gold	4201492	16/08/2016	415028	5336669	MBRC	weakly bleached; weak chlorite altered mod sheared mafic breccia; no quartz veining; trace pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10400	1477808	0.005	Pen Gold	3019488	17/08/2016	414869	5336547	MBRC	bleached, weak chlorite altered mafic breccia with felsic clasts up to 15cm X 5cm; no quartz veining; trace pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10404	1477810	< 0.005	Pen Gold	3019488	17/08/2016	414820	5336469	MCLC	moderate chlorite altered; fine-grained to medium-grained mafic volcanic with chlorite clots and vague pillow selvages? within mafic breccia; no quartz veining or pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10420	1477811	0.005	Pen Gold	3019488	19/08/2016	415464	5336559	MBRC	weak chlorite altered mafic breccia with felsic clasts up to 25cm X 5cm; locally variolitic?; no quartz veining; trace pyrite	West of Nat River & South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10298	1477812	0.006	Pen Gold	4207914	16/09/2016	415694	5336655	SCON	weak-moderate sericitic, weak ankerite altered polymictic conglomerate; trace disseminated pyrite; <0.5cm folded quartz veining	West of Nat River & South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10443	1477813	< 0.005	Pen Gold	4207914	16/09/2016	415719	5336372	MBRC	moderately chlorite altered mafic breccia; no quartz veining; trace disseminated pyrite	West of Nat River & South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10453	1477814	0.006	Pen Gold	4207914	20/09/2016	416365	5336395	VVQV	exposed 1m long x 2cm wide dark grey quartz stringer (90% quartz) within medium grained gabbro	West of Nat River & South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10460	1477815	0.005	Pen Gold	4207914	21/09/2016	416401	5336445	VVQV	exposed 2.5m long x 40cm wide bull white quartz-chlorite vein (70% quartz) cutting across contact of mafic porphyry and medium grained gabbro	West of Nat River & South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10461	1477816	0.005	Pen Gold	4207914	21/09/2016	416396	5336425	BGBR	medium to coarse-grained gabbro; no quartz veining or pyrite	West of Nat River & South of 2012 Conglomerate Trenching	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
DG10485	1477818	0.006	Pen Gold	4207914	22/09/2016	415696	5335886	MPLB	mafic pillow breccia with 0.5% cubic pyrite; moderately foliated; weakly bleached, weak sericite and carbonate altered; no quartz veining	West of Nat River & South of 2012 Conglomerate Trenching	1A2	ultratrace 6
DG10500	1477819	0.006	Pen Gold	3019488	24/09/2016	415013	5336395	MCLC	moderate chlorite and weakly carbonate altered; fine grained to medium grained mafic volcanic with chlorite clots; no quartz veining or pyrite	South of 2012 Conglomerate Trenching	1A2	ultratrace 6
MS13183	1477501	0.007	Pen Gold	4247079	01/09/2016	420094	5340053	MUND	Chloritic sheared mafic volcanic; slightly rusty; minor carbonate	south of Eastgate	1A2	ultratrace 6
MS13187	1477502	< 0.005	Pen Gold	4247079	01/09/2016	420133	5340122	MUND	Two parallel 1-3 cm boudinaged white and rusty quartz stringers; minor pyrite in sheared mafic volcanic; minor sericite; 60% quartz	south of Eastgate	1A2	ultratrace 6
MS13189	1477503	< 0.005	Pen Gold	4247079	01/09/2016	420182	5340142	MUND	Chloritic sheared mafic volcanic with white quartz and minor rusty quartz; minor pyrite; 60% quartz	south of Eastgate	1A2	ultratrace 6
MS13190	1477504	< 0.005	Pen Gold	4207914	23/09/2016	417494	5336128	BDIO	Medium to coarse grained diorite with trace pyrite and trace chalcopyrite; slightly rusty and minor shearing	Southeast of Nib Yellowknife	1A2	ultratrace 6
MS13192	1477505	0.057	Pen Gold	4207031	11/10/2016	422976	5336232	VVQV	5 cm rusty and white and grey quartz stringer at 055/85 with minor pyrite and trace chalcopyrite; sample is 60% vein and 40% wallrock with trace pyrite; to south wallrock is chloritic pillowed mafic volcanic but to north looks more intrusive but with pods that could be pillows	Claim 4207031	1A2	ultratrace 6
MS13193	1477506	0.007	Pen Gold	4207031	11/10/2016	422979	5336233	MUND	0-5 cm rusty and white quartz stringer at 240/87 with trace pyrite; bleby mafic volcanic host with trace pyrite foliated at azimuth 220-225, dip 85-90	Claim 4207031	1A2	ultratrace 6
MS13194	1477507	< 0.005	Pen Gold	4207031	11/10/2016	422973	5336235	MUND	Thin quartz stringers (≤1 cm) with foliation and slightly cross-cutting foliation; stringers make up 10% of outcrop, mafic volcanic or intrusive with abundant carbonate blebs	Claim 4207031	1A2	ultratrace 6
MS13195	1477509	< 0.005	Pen Gold	4207031	11/10/2016	422975	5336251	MUND	Beige mafic volcanic with coarse grained chlorite blebs; carbonate rich; minor to 0.5% pyrite; minor fuchsite; chlorite in grid like hairline fractures; possibly pillows	Claim 4207031	1A2	ultratrace 6
MS13196	1477510	0.057	Pen Gold	4207031	11/10/2016	422981	5336254	VQCV	2-3 cm white sugary quartz carbonate stringer with common chlorite; minor pyrite and chalcopyrite in vein; 80% vein in sample and 20% chloritic rusty (orange and red) mafic volcanic with minor pyrite; beige and green pody mafic volcanic, probable pillows	Claim 4207031	1A2	ultratrace 6
MS13197	1477511	0.045	Pen Gold	4207031	11/10/2016	422982	5336255	VQCV	2-3 cm vuggy rusty quartz stringer; continuation of vein from sample 1477510; trace pyrite; 70% vein in sample	Claim 4207031	1A2	ultratrace 6
MS13198	1477512	0.236	Pen Gold	4207031	11/10/2016	422983	5336255	MUND	Continuation of vein from 1477510 and 1477511; vein divides into stringers; chlorite and 0.5% pyrite in vein and wallrock; wallrock chloritic mafic volcanic; 40% quartz in sample	Claim 4207031	1A2	ultratrace 6
MS13199	1477513	< 0.005	Pen Gold	4207031	11/10/2016	422988	5336264	MUND	Mafic volcanic with chlorite blebs and carbonate pods; common chlorite; minor pyrite	Claim 4207031	1A2	ultratrace 6
MS13200	1477514	0.007	Pen Gold	4207031	11/10/2016	422952	5336214	MUND	Rusty mafic volcanic at west end of outcrop locally chloritic or silicified; minor pyrite to 0.5% locally; with quartz blebs	Claim 4207031	1A2	ultratrace 6
MS13201	1477515	< 0.005	Pen Gold East	4248298	14/10/2016	426522	5335761	VVQV	20 cm orange rusty quartz vein at 355/85 with hematite staining cross-cutting foliation	Pen Gold East	1A2	ultratrace 6
MS13202	1477516	0.024	Pen Gold East	4248298	14/10/2016	426522	5335760	MTUF	Chloritic wall rock of vein in 1477515; mafic tuff?; moderate chlorite; locally with rusty pods with minor pyrite that follows foliation	Pen Gold East	1A2	ultratrace 6
MS13203	1477517	< 0.005	Pen Gold East	4248298	14/10/2016	426522	5335759	VVQV	Continuation of vein from 1477515; 20 cm bull white quartz vein; glassy and blocky; cross-cutting foliation	Pen Gold East	1A2	ultratrace 6
MS13204	1477518	< 0.005	Pen Gold East	4248298	14/10/2016	426522	5335755	VVQV	Continuation of vein from 1477515; 10-20 cm bull white quartz vein; glassy and blocky; cross-cutting foliation	Pen Gold East	1A2	ultratrace 6
MS13205	1477519	< 0.005	Pen Gold East	4248298	14/10/2016	426522	5335753	VVQV	Continuation of vein from 1477515; 20 cm bull white quartz vein; glassy and blocky; cross-cutting foliation	Pen Gold East	1A2	ultratrace 6
MS13206	1477520	< 0.005	Pen Gold East	4248298	14/10/2016	426522	5335748	VVQV	Continuation of vein from 1477515; 10-20 cm bull white quartz vein; glassy and blocky; cross-cutting foliation	Pen Gold East	1A2	ultratrace 6
MS13207	1477522	< 0.005	Pen Gold East	4248298	14/10/2016	426522	5335756	MTUF	Pyrite rich wall rock to vein near samples 1477515-1477520; minor medium to coarse grained pyrite in thin stringers following foliation	Pen Gold East	1A2	ultratrace 6
MS13209	1477523	2.120	Pen Gold East	4248298	14/10/2016	426638	5335798	CSIF	Banded sulphide iron formation; light orange rusty; very gossaned; possibly sphalerite locally; gossan colour almost like arsenic weathering; 5% pyrite visible; with chert layers	Pen Gold East	1A2	ultratrace 6
MS13210	1477524	0.010	Pen Gold East	4248298	14/10/2016	426635	5335796	CSIF	Silicified cherty layers in banded iron formation; with magnetite pods; rusty; minor pyrite	Pen Gold East	1A2	ultratrace 6
MS13211	1477525	0.009	Pen Gold East	4248298	14/10/2016	426635	5335791	CSIF	Iron formation; non-magnetic possibly silicified tuff; rusty; weakly silicified; 0.5% fine to medium grained pyrite	Pen Gold East	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
MS13212	1477526	< 0.005	Pen Gold East	4248298	14/10/2016	426800	5335646	VVQV	Chloritic tuff (mafic?) with pody, discontinuous white and minor smoky, glassy quartz stringers; minor pyrite in vein and wall rock; 60% quartz with minor pyrite; 40% chloritic wall rock with 0.5% pyrite; foliation trends at 258/85; stringers trend at 240/85	Pen Gold East	1A2	ultratrace 6
MS13213	1477527	0.215	Pen Gold	4207037	20/10/2016	423574	5334876	CSIF	Iron formation trending at 035/88 with 60% pyrite, minor pyrrhotite? and 30% quartz; sample taken by John Reddick	Golden Chalice iron formation trench or Sabre area	1A2	ultratrace 6
YV16076	1477851	< 0.005	Pen Gold	3000603	13/10/2016	422872	5335681	FUND	rusty sericite schist; felsic volcanic?; 3-5% disseminated pyrite		1A2	ultratrace 6
YV16077	1477853	0.011	Pen Gold	3000603	13/10/2016	422873	5335681	FUND	rusty sericite schist; quartz eyes; felsic volcanic?; 5-10% fine to coarse-grained pyrite		1A2	ultratrace 6
YV16078	1477854	0.035	Pen Gold	3000603	13/10/2016	422874	5335681	FUND	rusty sericite-carbonate-chlorite schist; felsic volcanic?; 2-3% pyrite as fine to medium-grained in stringers		1A2	ultratrace 6
YV16079	1477855	< 0.005	Pen Gold	3000603	13/10/2016	422874	5335680	FUND	sericite schist; slight rust; felsic volcanic?; 5% grey ankerite stringers; 2-3% pyrite in wallrock and ankerite stringers		1A2	ultratrace 6
YV16080	1477856	< 0.005	Pen Gold	3000604	13/10/2016	423679	5335757	KFCB	green carbonate; strong fuchsitic tinge; minor white quartz veins cross-cutting foliation; 5% quartz	Green Carbonate west of Pen Gold East	1A2	ultratrace 6
YV16081	1477857	0.169	Pen Gold	3000604	13/10/2016	423679	5335756	KFCB	green carbonate; strong fuchsitic tinge; trace pyrite	Green Carbonate west of Pen Gold East	1A2	ultratrace 6
YV16082	1477858	< 0.005	Pen Gold	3000605	13/10/2016	423651	5335810	BUND	fine-grained massive mafic intrusive or volcanic; nonmagnetic	Green Carbonate west of Pen Gold East	1A2	ultratrace 6
YV16083	1477859	< 0.005	Pen Gold	3000605	13/10/2016	423640	5335797	MUND	fine-grained massive mafic volcanic or intrusive; minor rusty vuggy white to light grey quartz veins; minor pyrite; 20% quartz	Green Carbonate west of Pen Gold East	1A2	ultratrace 6
YV16084	1477861	< 0.005	Pen Gold	3000605	13/10/2016	423635	5335799	MUND	rusty well foliated mafic volcanic; minor rusty grey quartz veins; minor pyrite; 5% quartz	Green Carbonate west of Pen Gold East	1A2	ultratrace 6
BA20212	1274001	< 0.005	Pen Gold	4207916	03/11/2016	414900	5334736	MUND	Strongly foliated mafic flow; chlorite porphyroblasts	Northwest of Primer Lake	1A2	ultratrace 6
BA20213	1274002	< 0.005	Pen Gold	4207916	03/11/2016	414929	5334760	MBRC	Strongly foliated mafic breccia; elongate, angular felsic to intermediate clasts	Northwest of Primer Lake	1A2	ultratrace 6
BA20214	1274004	< 0.005	Pen Gold	4207916	03/11/2016	414939	5334782	MUND	Foliated, dark green mafic flow; chlorite overprint	Northwest of Primer Lake	1A2	ultratrace 6
BA20215	1274005	< 0.005	Pen Gold	4207916	03/11/2016	414944	5334804	MUND	Foliated, fine-grained mafic flow; chlorite and carbonate alteration	Northwest of Primer Lake	1A2	ultratrace 6
BA20218	1274006	0.005	Pen Gold	4207916	03/11/2016	414905	5334779	MBRC	Mafic breccia; boulder-sized, subrounded felsic to intermediate clasts; matrix supported mafic matrix	Northwest of Primer Lake	1A2	ultratrace 6
BA20219	1274007	< 0.005	Pen Gold	4207916	03/11/2016	414911	5334776	MUND	Moderately foliated, bleached mafic flow	Northwest of Primer Lake	1A2	ultratrace 6
BA20220	1274008	0.432	Pen Gold	4207916	04/11/2016	414962	5334718	VVQV	Smokey quartz vein; 2 cm wide; intruding polymictic conglomerate; >99% quartz	Northwest of Primer Lake	1A2	ultratrace 6
BA20220	1274010	0.005	Pen Gold	4207916	04/11/2016	414962	5334710	SCON	Moderately foliated, polymictic, matrix-supported pebble conglomerate	Northwest of Primer Lake	1A2	ultratrace 6
BA20222	1274011	< 0.005	Pen Gold	4207916	04/11/2016	414983	5334718	SAST	Sandstone; interbedded within polymictic conglomerate; south-facing trough crossbedding	Northwest of Primer Lake	1A2	ultratrace 6
BA20222	1274012	< 0.005	Pen Gold	4207916	04/11/2016	414981	5334718	SAST	Sandstone; interbedded within polymictic conglomerate; south-facing trough crossbedding; trace pyrite	Northwest of Primer Lake	1A2	ultratrace 6
BA20224	1274013	< 0.005	Pen Gold	4207916	04/11/2016	415139	5334735	SCON	Stretched clast; clast-supported; polymictic pebble conglomerate	Northwest of Primer Lake	1A2	ultratrace 6
BA20226	1274014	0.007	Pen Gold	4207916	04/11/2016	415180	5334748	SGWK	Strongly foliated greywacke; pervasive chlorite alteration	Northwest of Primer Lake	1A2	ultratrace 6
BA20228	1274015	< 0.005	Pen Gold	4207916	04/11/2016	415300	5334744	SGWK	Greywacke with 1cm grey quartz vein; 50% quartz	Northwest of Primer Lake	1A2	ultratrace 6
BA20229	1274016	< 0.005	Pen Gold	4207916	04/11/2016	415306	5334767	SCON	Polymictic, matrix-supported pebble conglomerate	Northwest of Primer Lake	1A2	ultratrace 6
BA20230	1274017	0.013	Pen Gold	4207916	04/11/2016	415303	5334776	MVAR	Strongly foliated; carbonate altered; mafic flow with varioles(?); or monomict pebble conglomerate	Northwest of Primer Lake	1A2	ultratrace 6
BA20233	1274018	< 0.005	Pen Gold	3019488	05/11/2016	414528	5336050	MCLC	Moderately foliated; mafic flow; patchy epidote alteration	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20235	1274019	< 0.005	Pen Gold	3019488	05/11/2016	414537	5336062	MCLC	Weakly foliated; mafic flow; chlorite porphyroblasts	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20237	1274020	< 0.005	Pen Gold	3019488	05/11/2016	414560	5336072	MCLC	Weakly to moderately foliated mafic flow; moderated carbonate alteration	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20238	1274021	< 0.005	Pen Gold	3019488	05/11/2016	414581	5336190	MBRC	Agglomerate; pebble to cobble sized subrounded to subangular clasts of felsic to intermediate composition; chloritic matrix	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20239	1274022	< 0.005	Pen Gold	3019488	05/11/2016	414657	5336082	MCLC	Moderately foliated mafic flow; elongate porphyroblasts of chlorite	Between Kukatush Road and Nat River	1A2	ultratrace 6

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BA20240	1274023	< 0.005	Pen Gold	3019488	05/11/2016	414657	5336075	MAMG	Moderately foliated; mafic flow; 5 mm quartz amygdules	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20241	1274024	< 0.005	Pen Gold	3019488	05/11/2016	414681	5336049	MCLC	Moderately foliated; mafic flow; elongate porphyroblasts of chlorite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20242	1274025	< 0.005	Pen Gold	3019488	05/11/2016	414731	5336095	MCLC	Moderately foliated; mafic flow; elongate porphyroblasts of chlorite; weakly carbonate altered	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20248	1274026	< 0.005	Pen Gold	3019488	05/11/2016	414806	5336020	MCLC	Moderately foliated; mafic flow; chlorite porphyroblasts	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20252	1274027	< 0.005	Pen Gold	3019488	05/11/2016	414819	5335978	MCLC	Moderately foliated; mafic flow; weak carbonate alteration	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20258	1274028	< 0.005	Pen Gold	3019488	05/11/2016	414726	5336011	MCLC	Moderately foliated; mafic flow; weak carbonate alteration	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20260	1274029	< 0.005	Pen Gold	3019488	06/11/2016	414468	5335954	VVQV	Quartz vein; 2 cm thick on joint plane; 99% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20260	1274031	< 0.005	Pen Gold	3019488	06/11/2016	414468	5335954	MBRC	Matrix-supported, pebble to boulder-sized subrounded clasts; mafic matrix; southward facing gradation of clast sizes	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20260	1274032	< 0.005	Pen Gold	3019488	06/11/2016	414470	5335947	MBRC	Mafic breccia; 8 cm wide shear zone; trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20265	1274033	< 0.005	Pen Gold	3019488	06/11/2016	414755	5335906	MCLC	Weakly foliated mafic flow; chlorite porphyroblasts	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20268	1274034	< 0.005	Pen Gold	3019488	06/11/2016	414825	5335864	MCLC	Moderately foliated; mafic flow; chlorite porphyroblasts; weak epidote and carbonate alteration	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20269	1274036	< 0.005	Pen Gold	3019488	06/11/2016	414839	5335869	IUND	Moderately foliated; intermediate volcanic flow (?); greywacke or biotite tonalite; biotite is the mafic component mineral; minor tourmaline	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20270	1274037	< 0.005	Pen Gold	3019488	06/11/2016	414844	5335866	VVQV	Quartz vein; 1 cm wide; chlorite halo into MCLC host rock; 50% quartz	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20272	1274038	< 0.005	Pen Gold	3019488	06/11/2016	414864	5335881	MUND	Mafic flow; hornblende and biotite; 1% pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20273	1274039	< 0.005	Pen Gold	4207916	06/11/2016	414862	5335859	GUND	Biotite tonalite dike; 1.75 m wide; fine grained; south contact zone; < 0.5% pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20273	1274040	< 0.005	Pen Gold	4207916	06/11/2016	414862	5335859	GUND	Biotite tonalite dike; 1.75 m wide; fine grained; central part of the dike	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20276	1274041	< 0.005	Pen Gold	4207916	06/11/2016	414923	5335838	UPER	Coarse-grained peridotitic gabbro; olivine pseudomorphs up to 1 cm diameter; for PGE analysis	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20276	1274042	< 0.005	Pen Gold	4207916	06/11/2016	414923	5335838	UPER	Coarse-grained peridotitic gabbro; olivine/pyroxene pseudomorphs up to 1 cm diameter; for PGE analysis	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20278	1274043	< 0.005	Pen Gold	3019488	07/11/2016	415320	5335958	UPYX	Pyroxene gabbro; pyroxene phenocrysts to 1cm diameter aligned to foliation; partly retrograded to phlogopite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20279	1274044	0.008	Pen Gold	3019488	07/11/2016	415284	5335926	UPER	Very fine-grained peridotite; phlogopite pseudomorphs after olivine; columnar jointing; trace sulphides	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20282	1274045	< 0.005	Pen Gold	3019488	07/11/2016	415308	5335979	UPYX	Porphyritic pyroxenite; pyroxenes retrograded to phlogopite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20286	1274046	< 0.005	Pen Gold	4207916	07/11/2016	415079	5335852	UPER	Massive, jointed; fine-grained peridotite; partly serpentinized; some fresh green olivine phenocrysts; trace sulphides; pyrite; chalcocopyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20286	1274047	< 0.005	Pen Gold	4207916	07/11/2016	415079	5335852	UPER	Fine-grained peridotite, partly serpentinized; olivine phenocrysts to 7 mm; trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20288	1274048	< 0.005	Pen Gold	3019488	07/11/2016	415072	5335861	UPER	Aphanitic peridotite (?) with strained quartz amygdules to 5 mm; columnar jointed; very unusual rock; thin section	Between Kukatush Road and Nat River	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BA20289	1274049	< 0.005	Pen Gold	3019488	07/11/2016	415086	5335887	UPYX	Foliated, fine-grained pyroxenite; jade coloured (nephrite(?)); trace sulphides	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20017	1274051	0.005	Pen Gold	4207916	22/10/2016	415836	5335694	MUND	Mafic flow; fine-grained; weak carbonate alteration; magnetic attraction	West of Nat River West Branch	1A2	ultratrace 6
BA20018	1274052	< 0.005	Pen Gold	4207916	22/10/2016	415842	5335664	MUND	Mafic flow; fine-grained; weak carbonate alteration; no discernable features	West of Nat River West Branch	1A2	ultratrace 6
BA20019	1274053	< 0.005	Pen Gold	4207916	22/10/2016	415850	5335665	MUND	Mafic flow; fine-grained; strong carbonate alteration; patchy ankerite alteration; moderate foliation; trace pyrite	West of Nat River West Branch	1A2	ultratrace 6
BA20025	1274055	0.006	Pen Gold	4207916	22/10/2016	415928	5335673	MUND	Mafic flow; fine-grained; strong carbonate alteration; strongly foliated; small, 3 mm euhedral submetallic crystals (magnetite?)	West of Nat River West Branch	1A2	ultratrace 6
BA20026	1274056	< 0.005	Pen Gold	4207914	22/10/2016	416361	5336540	FTUF	Felsic pyroclastic; tuffaceous to lapilli tuff and spherulitic; rare fuchsite; moderate sericitic alteration; moderate foliation	West of Nat River West Branch	1A2	ultratrace 6
BA20028	1274057	< 0.005	Pen Gold	4207914	23/10/2016	415940	5336119	MBRC	Mafic flow with felsic clasts; moderate chlorite alteration; moderate ankerite alteration; moderately foliated; trace pyrite	West of Nat River West Branch	1A2	ultratrace 6
BA20029	1274058	0.011	Pen Gold	4207914	23/10/2016	415920	5336109	MBRC	Mafic flow; fine-grained; strong carbonate alteration; patchy ankerite alteration; moderate foliation; trace pyrite	West of Nat River West Branch	1A2	ultratrace 6
BA20031	1274059	< 0.005	Pen Gold	4207916	23/10/2016	415832	5335796	MCLC	Mafic flow with chlorite clots; moderate ankerite alteration; magnetite-bearing; strongly foliated, trace pyrite; 10% quartz as vein	West of Nat River West Branch	1A2	ultratrace 6
BA20032	1274061	< 0.005	Pen Gold	4207916	23/10/2016	415831	5335797	MCLC	Mafic flow with chlorite clots to 5 mm; moderate ankerite alteration; moderate magnetite	West of Nat River West Branch	1A2	ultratrace 6
BA20041	1274062	< 0.005	Pen Gold	4207916	24/10/2016	415728	5335509	SARG	Wacke clastic sediment; turbiditic; very fine-grained; strongly foliated	West of Nat River West Branch	1A2	ultratrace 6
BA20045	1274063	0.006	Pen Gold	4207916	24/10/2016	415595	5335487	MCLC	Mafic flow with chlorite clots; moderately foliated; 3 inch wide zone with medium-grained submetallic black mineral (diopside or illmenite?)	West of Nat River West Branch	1A2	ultratrace 6
BA20052	1274064	< 0.005	Pen Gold	4207916	25/10/2016	415230	5335086	MBRC	Mafic flow with intermediate intrusive clasts; crystalline chlorite or chloritoid alteration; moderately foliated	North of Primer Lake	1A2	ultratrace 6
BA20059	1274065	< 0.005	Pen Gold	4207916	25/10/2016	414955	5335035	MCLC	Mafic flow with chlorite clots; prograding to biotite; i.e. potassic alteration	North of Primer Lake	1A2	ultratrace 6
BA20060	1274066	< 0.005	Pen Gold	4207916	25/10/2016	414853	5335563	MUND	Mafic flow; weakly foliated	North of Primer Lake	1A2	ultratrace 6
BA20067	1274067	< 0.005	Pen Gold	3019488	26/10/2016	414565	5336183	MBRC	Mafic breccia with felsic intrusive cobble-size clasts; moderately foliated	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20070	1274068	0.005	Pen Gold	3019488	26/10/2016	414633	5336152	SCON	Mafic breccia verging to conglomerate; strong biotite alteration	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20071	1274069	< 0.005	Pen Gold	3019488	26/10/2016	414640	5336143	MBRC	Mafic flow; weak carbonate alteration; moderate chlorite alteration; moderately foliated	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20077	1274070	< 0.005	Pen Gold	3019488	26/10/2016	414558	5336009	MCLC	Mafic flow with chlorite clots; moderately foliated	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20081	1274071	< 0.005	Pen Gold	3019488	26/10/2016	414413	5336042	UPYX	Coarse-grained massive pyroxenite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20079	1274072	< 0.005	Pen Gold	3019488	26/10/2016	414570	5336068	MCLC	Mafic flow with chlorite porphyroblasts aligned to weak foliation; trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20082	1274073	0.008	Pen Gold	3019488	26/10/2016	414413	5336045	UPYX	Medium-grained pyroxenite; border phase with 1 cm pegmatitic pyroxenite and trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20111	1274074	< 0.005	Pen Gold	3019488	28/10/2016	414528	5336049	MCLC	Mafic flow; chlorite clots; weak foliation	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20113	1274075	< 0.005	Pen Gold	3019488	28/10/2016	414591	5335891	SGWK	Mafic breccia with felsic intrusive cobble-size clasts; moderately foliated	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20114	1274076	< 0.005	Pen Gold	3019488	28/10/2016	414624	5335882	MCLC	Mafic flow wallrock to quartz-chlorite-tourmaline vein	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20114	1274077	0.005	Pen Gold	3019488	28/10/2016	414624	5335882	VVQV	30cm quartz-chlorite-tourmaline vein with minor pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20114	1274078	< 0.005	Pen Gold	3019488	28/10/2016	414624	5335882	VVQV	30cm quartz-chlorite-tourmaline vein with minor pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6

Appendix II - Pen Gold 2016 Grab Sample Descriptions and Results

Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BA20119	1274079	< 0.005	Pen Gold	4207916	28/10/2016	414676	5335763	MCLC	Mafic flow with chlorite clots; moderate carbonate alteration; trace pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20127	1274080	< 0.005	Pen Gold	3019488	30/10/2016	414476	5335893	MBRC	Mafic breccia with cobble sized felsic clasts; moderate carbonate alteration over one metre width; moderately foliated	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20127	1274081	< 0.005	Pen Gold	3019488	30/10/2016	414461	5335883	MBRC	Mafic breccia with cobble sized felsic clasts; moderate carbonate alteration over one metre width; moderately foliated	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20140	1274083	< 0.005	Pen Gold	4207916	30/10/2016	414442	5335247	SCON	Matrix-supported, boulder conglomerate; chloritic matrix; weak carbonate alteration; weakly foliated	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20145	1274084	< 0.005	Pen Gold	4207916	30/10/2016	414566	5335161	SGWK	Thick-bedded greywacke; transposed bedding; black biotite alteration	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20154	1274085	< 0.005	Pen Gold	4201492	31/10/2016	414762	5336932	FTUF	Coarse-grained sandstone with small chert pebbles; minor pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20155	1274086	0.024	Pen Gold	4201492	31/10/2016	414789	5336946	SCON	Polymictic, clast-supported pebble conglomerate; strongly foliated; rusty weathering	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20156	1274087	< 0.005	Pen Gold	4201492	31/10/2016	414855	5336912	SCON	Polymictic, clast-supported pebble conglomerate; very strongly foliated; rusty weathering	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20157	1274088	< 0.005	Pen Gold	4201492	31/10/2016	414870	5336912	SCON	Polymictic, clast-supported pebble conglomerate; very strongly foliated; rusty weathering	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20163	1274089	< 0.005	Pen Gold	4201492	31/10/2016	415081	5336793	SCON	Polymictic matrix-supported pebble conglomerate; minor disseminated pyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20169	1274090	< 0.005	Pen Gold	3019488	31/10/2016	415121	5336567	MBRC	Mafic; clastic sediment (tuff?) with cobble-size clasts (bombs?); sample is a clast	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20174	1274093	< 0.005	Pen Gold	3019488	31/10/2016	415057	5336416	VVQV	One inch wide; barren; white quartz vein	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20177	1274094	< 0.005	Pen Gold	3019488	31/10/2016	414992	5336386	MAMG	Mafic flow; calcite-filled amygdules; trace chalcopyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20180	1274095	< 0.005	Pen Gold	3019488	31/10/2016	414871	5336397	MAMG	Mafic flow; calcite-filled amygdules; chlorite porphyroblasts; weakly foliated; trace chalcopyrite	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20187	1274096	0.006	Pen Gold	4201492	31/10/2016	414748	5336743	FTUF	Felsic tuff; subangular lithic clasts; 5 mm quartz phenocrysts	Between Kukatush Road and Nat River	1A2	ultratrace 6
BA20193	1274097	0.008	Pen Gold	5120748	02/11/2016	417246	5336423	MUND	Microcrystalline; pale green; mafic flow; minor pyrite; may be a border phase of the Reeves Intrusive Complex	west of Nib Yellowknife showing	1A2	ultratrace 6
BA20208	1274098	< 0.005	Pen Gold	4207916	03/11/2016	414542	5335003	MCLC	Mafic flow; chlorite porphyroblasts up to 4 mm; very fine-grained magnetite; biotite porphyroblasts; minor calcite veinlets	Northwest of Primer Lake	1A2	ultratrace 6
BA20211	1274099	< 0.005	Pen Gold	4207916	03/11/2016	414810	5334753	MBRC	Mafic flow; moderate foliation; minor pyrite as 3 mm cubes	Northwest of Primer Lake	1A2	ultratrace 6
BA20212	1274100	0.006	Pen Gold	4207916	03/11/2016	414898	5334737	MUND	Strongly foliated; mafic flow; chlorite porphyroblasts	Northwest of Primer Lake	1A2	ultratrace 6
BA20302	1274101	< 0.005	Pen Gold	4207033	09/11/2016	417621	5334688	BQDI	Sheared chloritic quartz diorite with white calcite or antigorite vein	northeast of Jehann Lake	1A2	ultratrace 6
BA20302	1274102	0.059	Pen Gold	4207033	09/11/2016	417729	5334779	BQDI	Strongly foliated; fine-grained silicified rock with 1% pyrite; original composition unknown - looks felsic; fault grunge	northeast of Jehann Lake	1A2	ultratrace 6
BA20303	1274104	0.005	Pen Gold	4207033	09/11/2016	417727	5334771	SGWK	Silicified greywacke with chlorite and 1% pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20304	1274105	0.122	Pen Gold	4207033	09/11/2016	417718	5334756	VQVV	Smokey quartz vein 1cm wide in pyritic greywacke; 50% quartz	northeast of Jehann Lake	1A2	ultratrace 6
BA20308	1274106	< 0.005	Pen Gold	4207033	09/11/2016	417766	5334790	SGWK	Greywacke with fine-grained pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20314	1274107	< 0.005	Pen Gold	4207033	09/11/2016	417820	5334808	UPYX	Serpentinized pyroxenite	northeast of Jehann Lake	1A2	ultratrace 6
BA20320	1274109	< 0.005	Pen Gold	4207033	11/11/2016	417610	5334792	UUTC	Talc-carbonate altered rock with 1% pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20322	1274110	< 0.005	Pen Gold	4207033	11/11/2016	417629	5334825	UPER	Well foliated talc-carbonate; 50% pyrite quartz vein	northeast of Jehann Lake	1A2	ultratrace 6
BA20323	1274111	< 0.005	Pen Gold	4207033	11/11/2016	417549	5334798	SSST	Aphanitic siliceous sediment with minor pyrite including talc-carbonate rock with quartz vein	northeast of Jehann Lake	1A2	ultratrace 6
BA20323	1274112	< 0.005	Pen Gold	4207033	11/11/2016	417551	5334799	SGRA	Fine-grained black argillite	northeast of Jehann Lake	1A2	ultratrace 6
BA20339	1274113	< 0.005	Pen Gold	4207032	11/11/2016	417480	5334905	UUND	Massive anthophyllite alteration; crystals to 2cm	northeast of Jehann Lake	1A2	ultratrace 6
BA20350	1274114	< 0.005	Pen Gold	4207032	11/11/2016	417433	5334751	VVQV	Mafic flow with 2cm smokey quartz vein; 100% quartz	northeast of Jehann Lake	1A2	ultratrace 6

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Point Number	Sample	Au (g/tonne)	Property	Claim	Date Taken	Easting	Northing	RcodeNew	Comments	Occurrence or Area	Assay Code1	Assay Code2
BA20354	1274115	< 0.005	Pen Gold	4207032	11/11/2016	417335	5334726	SGRA	Black argillite with trace pyrite; quartz vein; well foliated	northeast of Jehann Lake	1A2	ultratrace 6
BA20360	1274116	0.068	Pen Gold	4207032	13/11/2016	416296	5334915	VVQV	1cm wide foliation- parallel smokey quartz vein in conglomerate	northwest of Jehann Lake	1A2	ultratrace 6
BA20364	1274117	< 0.005	Pen Gold	4207916	13/11/2016	415773	5334885	SSTS	Coarse quartz-rich sandstone; Krist-like; weak ankerite alteration	northwest of Jehann Lake	1A2	ultratrace 6
BA20365	1274118	< 0.005	Pen Gold	4207916	13/11/2016	415790	5334896	SCON	Polymictic pebble conglomerate with syenite pebbles; moderately foliated at 240	northwest of Jehann Lake	1A2	ultratrace 6
BA20367	1274119	0.006	Pen Gold	4207916	13/11/2016	415815	5334908	SCON	Conglomerate with 20% grey quartz and 1-2% fine to coarse-grained pyrite; ankerite	northwest of Jehann Lake	1A2	ultratrace 6
BA20372	1274120	< 0.005	Pen Gold	4207032	14/11/2016	416073	5334896	SAST	Sandstone underlying pebble conglomerate; trace pyrite	northwest of Jehann Lake	1A2	ultratrace 6
BA20372	1274121	< 0.005	Pen Gold	4207032	14/11/2016	416062	5334904	SAST	Green chloritic sandstone above conglomerate; rusty; weak ankerite; pyrite	northwest of Jehann Lake	1A2	ultratrace 6
BA20378	1274122	< 0.005	Pen Gold	4207916	14/11/2016	415865	5334882	SGWA	Very fine-grained siliceous wacke-argillite; trace pyrite	northwest of Jehann Lake	1A2	ultratrace 6
BA20380	1274123	< 0.005	Pen Gold	4207916	14/11/2016	415845	5334893	SSST	Fine-grained wacke with minor pyrite	northwest of Jehann Lake	1A2	ultratrace 6
BA20380	1274124	< 0.005	Pen Gold	4207916	14/11/2016	415838	5334899	SSST	2 inch wide quartz vein in siliceous wacke; 40% quartz	northwest of Jehann Lake	1A2	ultratrace 6
BA20382	1274125	< 0.005	Pen Gold	4207032	14/11/2016	416123	5334946	SSST	Fine-grained sediment with 1% pyrite; weak ankerite; weakly foliated; <0.5% pyrite	northwest of Jehann Lake	1A2	ultratrace 6
BA20388	1274126	< 0.005	Pen Gold	4207032	14/11/2016	416322	5334954	SSST	Thinly laminated wacke; graded bedding; slump folds; 1% pyrite	northwest of Jehann Lake	1A2	ultratrace 6
BA20389	1274128	0.005	Pen Gold	4207032	15/11/2016	416584	5335292	SARG	Very fine-grained argillite with trace pyrite; moderately foliated	north of Jehann Lake	1A2	ultratrace 6
BA20391	1274129	< 0.005	Pen Gold	4207032	15/11/2016	416904	5335333	SAST	Fine-grained sandstone with ankerite; calcite; trace pyrite	north of Jehann Lake	1A2	ultratrace 6
BA20392	1274130	< 0.005	Pen Gold	4207032	15/11/2016	416890	5335362	SSST	Wacke with disseminated fine pyrite	north of Jehann Lake	1A2	ultratrace 6
BA20406	1274131	< 0.005	Pen Gold	4207032	15/11/2016	416641	5335097	SAST	Sandstone with small mafic fragments and minor pyrite	north of Jehann Lake	1A2	ultratrace 6
BA20420	1274132	< 0.005	Pen Gold	4207032	16/11/2016	417396	5335049	UPER	Talcose altered peridotite/komatiite with much calcite	northeast of Jehann Lake	1A2	ultratrace 6
BA20423	1274133	< 0.005	Pen Gold	4207032	16/11/2016	417340	5335018	MUND	Mafic flow with intense pervasive carbonate alteration; moderately foliated	northeast of Jehann Lake	1A2	ultratrace 6
BA20424	1274134	< 0.005	Pen Gold	4207032	16/11/2016	417319	5334983	UUND	Carbonate-altered ultramafic	northeast of Jehann Lake	1A2	ultratrace 6
BA20426	1274135	< 0.005	Pen Gold	4207032	16/11/2016	417330	5334949	UPYX	Altered pyroxenite or peridotite with trace disseminated pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20434	1274136	< 0.005	Pen Gold	4207032	16/11/2016	417313	5334934	BFPF	Glomeroporphyritic gabbro; trace pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20437	1274138	< 0.005	Pen Gold	4207032	16/11/2016	417294	5334904	BFPF	Foliated plag-phyric gabbro at contact	northeast of Jehann Lake	1A2	ultratrace 6
BA20440	1274139	< 0.005	Pen Gold	4207033	17/11/2016	417850	5334742	BGBR	Fine-grained weakly foliated gabbro; melanocratic	northeast of Jehann Lake	1A2	ultratrace 6
BA20442	1274140	< 0.005	Pen Gold	4207033	17/11/2016	417878	5334766	BGBR	Medium-grained gabbro with minor pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20444	1274141	< 0.005	Pen Gold	4207033	17/11/2016	417889	5334779	BGBR	Fuchsite-carbonate altered gabbro	northeast of Jehann Lake	1A2	ultratrace 6
BA20448	1274142	< 0.005	Pen Gold	4207033	17/11/2016	417890	5334890	BQDI	Quartz gabbro with pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20451	1274143	< 0.005	Pen Gold	4207033	17/11/2016	417913	5335025	BGBR	Foliated fine-grained gabbro; carbonate and trace pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20458	1274144	< 0.005	Pen Gold	4207033	17/11/2016	417897	5335115	BGBR	Fine-grained gabbro (?) with minor disseminated pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20459	1274145	< 0.005	Pen Gold	4207033	17/11/2016	417856	5335097	UPER	Fine-grained green-black serpentinized peridotite; magnetic attraction	northeast of Jehann Lake	1A2	ultratrace 6
BA20461	1274146	< 0.005	Pen Gold	4207033	17/11/2016	417827	5334923	BGBR	Rusty fine-grained altered gabbro; heavy iron oxides-limonite	northeast of Jehann Lake	1A2	ultratrace 6
BA20462	1274147	0.048	Pen Gold	4207033	17/11/2016	417838	5334873	VQVV	Quartz vein and calcite 3 inches wide; 60% quartz; trace pyrite; rare tourmaline; minor chlorite	northeast of Jehann Lake	1A2	ultratrace 6
BA20462	1274148	< 0.005	Pen Gold	4207033	17/11/2016	417842	5334871	VQVV	Quartz vein; 50% quartz; rare pyrite; rare tourmaline	northeast of Jehann Lake	1A2	ultratrace 6
BA20462	1274149	< 0.005	Pen Gold	4207033	17/11/2016	417843	5334872	VQVV	Quartz vein in coarse-grained gabbro; 50% quartz	northeast of Jehann Lake	1A2	ultratrace 6
BA20462	1274150	0.021	Pen Gold	4207033	17/11/2016	417839	5334870	VQVV	Quartz vein and calcite 3 inches wide; 60% quartz; trace pyrite; rare tourmaline; minor chlorite, split sample from sample 1274147	northeast of Jehann Lake	1A2	ultratrace 6
BA20463	1132701	< 0.005	Pen Gold	4207033	18/11/2016	417807	5334860	BQDI	Quartz gabbro; foliated; moderate ankerite	northeast of Jehann Lake	1A2	ultratrace 6
BA20464	1132702	< 0.005	Pen Gold	4207033	18/11/2016	417881	5334896	VQVV	Quartz vein in foliated altered quartz gabbro; 100% quartz; rusty no sulphides	northeast of Jehann Lake	1A2	ultratrace 6
BA20464	1132703	< 0.005	Pen Gold	4207033	18/11/2016	417881	5334896	BQDI	Quartz gabbro; wallrock to quartz vein of previous sample; minor pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20466	1132704	< 0.005	Pen Gold	4207033	18/11/2016	417792	5334950	MUND	Fault crenulations; chloritic schist with trace pyrite	northeast of Jehann Lake	1A2	ultratrace 6
BA20474	1132705	< 0.005	Pen Gold	4207033	18/11/2016	417893	5334905	BGBR	Fine-grained melanocratic gabbro with disseminated pyrrhotite and chalcopyrite (?)	northeast of Jehann Lake	1A2	ultratrace 6

Appendix III: Pen Gold Geologist and Prospector Point Identifiers and Ranges

Appendix III - Pen Gold 2016 Geologist and Prospector Point Identifiers and Ranges

Point ID and Range	Geologist-Prospector
DG10368-DG10500	Dave Gliddon
PP11410-PP12011	Pat Pope
MS13183-MS13213	Mary Stalker
BB14221-BB14426	Bob Bailey
DH15677-DH16908	Dave Healey
YV16076-YV16084	Yvan Veronneau
PH18001-PH18212	Peter Harvey
BA20017-BA20474	Brian Atkinson

Appendix IV: Pen Gold Project Rock Types

Appendix IV - Pen Gold Project Rock Types

CLASS	rkname	rkcode
Misc. and Structural Codes	Casing	XCAS
Misc. and Structural Codes	Overburden	XOVB
Misc. and Structural Codes	Lost Core	XXLC
Misc. and Structural Codes	Ground Core	XXGC
Misc. and Structural Codes	Not Logged	XXNL
Misc. and Structural Codes	Void	XXVD
Misc. and Structural Codes	Fault Zone	XXFZ
Misc. and Structural Codes	Fault Gouge	XXFG
Misc. and Structural Codes	Mylonite	XMYL
Misc. and Structural Codes	Cataclastite	XCTC
Ultramafic Volcanic Rocks	Undifferentiated Ultramafic Volcanic	KUND
Ultramafic Volcanic Rocks	Massive Ultramafic Volcanic	KMAS
Ultramafic Volcanic Rocks	Spinifex Ultramafic Volcanic	KSPX
Ultramafic Volcanic Rocks	Polyhedral Jointing Ultramafic Volcanic	KPYJ
Ultramafic Volcanic Rocks	Brecciated Ultramafic Volcanic	KBRC
Ultramafic Volcanic Rocks	Carb Rock	KKCB
Ultramafic Volcanic Rocks	Fuchsitic Carb Rock	KFCB
Ultramafic Volcanic Rocks	Chloritic Carb Rock	KCCB
Ultramafic Volcanic Rocks	Biotite Carb Rock	KBCB
Ultramafic Volcanic Rocks	Grey Alteration in Carb Rock	KGCB
Ultramafic Volcanic Rocks	Talc Chlorite Schist	KTCS
Mafic Volcanic Rocks	Undifferentiated Mafic Volcanic	MUND
Mafic Volcanic Rocks	Massive Mafic Volcanic	MMAS
Mafic Volcanic Rocks	Amygdaloidal Mafic Volcanic	MAMG
Mafic Volcanic Rocks	Pillowed Mafic Volcanic	MPLW
Mafic Volcanic Rocks	Pillowed Amygdaloidal Mafic Vocanic	MPAM
Mafic Volcanic Rocks	Pillow Breccia Mafic Volcanic	MPLB
Mafic Volcanic Rocks	Variolitic Mafic Volcanic	MVAR
Mafic Volcanic Rocks	Brecciated Mafic Volcanic	MBRC
Mafic Volcanic Rocks	Mafic Tuff	MTUF
Mafic Volcanic Rocks	Chlorite Clots Mafic Volcanic	MCLC
Mafic Volcanic Rocks	Amphibolite Mafic Volcanic	MAMP
Mafic Volcanic Rocks	Feldspar Porphyritic Mafic Volcanic	MFPO
Intermediate Volcanic Rocks	Undifferentiated Intermediate Volcanic	IUND
Intermediate Volcanic Rocks	Massive Intermediate Volcanic	IMAS

Appendix IV - Pen Gold Project Rock Types

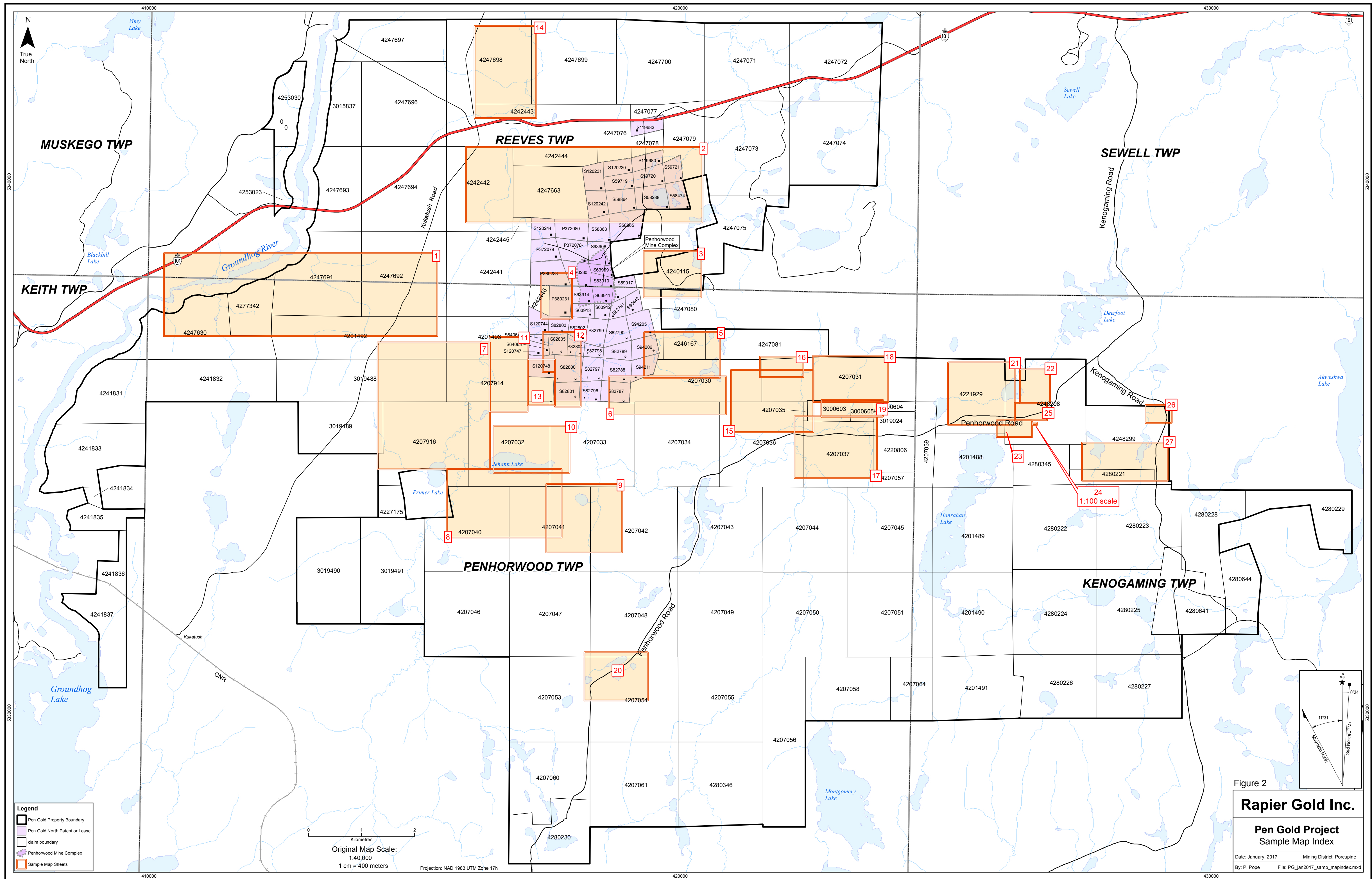
CLASS	rkname	rkcode
Intermediate Volcanic Rocks	Amygdaloidal Intermediate Volcanic	IAMG
Intermediate Volcanic Rocks	Pillowed Intermediate Volcanic	IPLW
Intermediate Volcanic Rocks	Pillowed Amygdaloidal Intermediate Volcanic	IPAM
Intermediate Volcanic Rocks	Pillow Breccia Intermediate Volcanic	IPLB
Intermediate Volcanic Rocks	Spherulitic Intermediate Volcanic	ISPH
Intermediate Volcanic Rocks	Brecciated Intermediate Volcanic	IBRC
Intermediate Volcanic Rocks	Intermediate Tuff	ITUF
Intermediate Volcanic Rocks	Intermedaite Agglomerate	IAGL
Intermediate Volcanic Rocks	Intermediate Dacite	IDAC
Felsic Volcanic Rocks	Undifferentiated Felsic Volcanic	FUND
Felsic Volcanic Rocks	Massive Felsic Volcanic	FMAS
Felsic Volcanic Rocks	Spherulitic Felsic Volcanic	FSPH
Felsic Volcanic Rocks	Brecciated Felsic Volcanic	FBRC
Felsic Volcanic Rocks	Felsic Tuff	FTUF
Felsic Volcanic Rocks	Felsic Agglomerate	FAGL
Clastic Sedimentary Rocks	Undifferentiated Clastic Sedimentary	SUND
Clastic Sedimentary Rocks	Greywacke	SGWK
Clastic Sedimentary Rocks	Siltstone	SSST
Clastic Sedimentary Rocks	Argillite	SARG
Clastic Sedimentary Rocks	Graphitic Argillite	SGRA
Clastic Sedimentary Rocks	Greywacke and Argillite Layered	SGWA
Clastic Sedimentary Rocks	Arkosic Sandstone	SAST
Clastic Sedimentary Rocks	Conglomerate	SCON
Chemical Sedimentary Rocks	Undifferentiated Iron Formation	CUIF
Chemical Sedimentary Rocks	Magnetic Iron Formation	CMIF
Chemical Sedimentary Rocks	Graphite Iron Formation	CGIF
Chemical Sedimentary Rocks	Sulphide Iron Formation	CSIF
Chemical Sedimentary Rocks	Carbonate Iron Formation	CCIB
Chemical Sedimentary Rocks	Chert	CCRT
Ultramafic Cumulate Rocks	Undifferentiated Ultramafic Cumulate	UUND
Ultramafic Cumulate Rocks	Dunite	UDUN
Ultramafic Cumulate Rocks	Peridotite	UPER
Ultramafic Cumulate Rocks	Pyroxenite	UPYX
Ultramafic Cumulate Rocks	Talc Carbonate	UUTC
Ultramafic Cumulate Rocks	Chloritic Talc Carbonate	UCTC

Appendix IV - Pen Gold Project Rock Types

CLASS	rkname	rkcode
Ultramafic Cumulate Rocks	Serpentine	USRP
Mafic Intrusive Rocks	Undifferentiated Mafic Intrusive	BUND
Mafic Intrusive Rocks	Gabbro	BGBR
Mafic Intrusive Rocks	Diorite	BDIO
Mafic Intrusive Rocks	Quartz Diorite	BQDI
Mafic Intrusive Rocks	Mafic Feldspar Porphyry	BPFP
Early Felsic to Intermediate Intrusive Rocks	Undifferentiated Early Felsic to Intermediate Intrusive	PUND
Early Felsic to Intermediate Intrusive Rocks	Porphyry undifferentiated	PPOR
Early Felsic to Intermediate Intrusive Rocks	Quartz Porphyry	PPQP
Early Felsic to Intermediate Intrusive Rocks	Feldspar Porphyry	PPFP
Early Felsic to Intermediate Intrusive Rocks	Quartz Feldspar Porphyry	PQFP
Early Felsic to Intermediate Intrusive Rocks	Syenite	PSYN
Late Felsic Intrusive Rocks	Undifferentiated Late Felsic Intrusive	GUND
Late Felsic Intrusive Rocks	Granite	GGRN
Late Felsic Intrusive Rocks	Granodiorite	GGRD
Late Felsic Intrusive Rocks	Aplite	PAPL
Late Felsic Intrusive Rocks	Pegmatite	GPEG
Late Intermediate to Ultramafic Intrusive Rocks	Intermediate Dike	LITM
Late Intermediate to Ultramafic Intrusive Rocks	Mafic Dike	LLMD
Late Intermediate to Ultramafic Intrusive Rocks	Ultramafic Dike	LUMD
Late Intermediate to Ultramafic Intrusive Rocks	Lamprophyre	LLMP
Late Mafic Intrusive Rocks	Diabase	DDDB
Late Mafic Intrusive Rocks	Matachewan Diabase	DMDB
Late Mafic Intrusive Rocks	Abitibi Diabase	DADB
Carbonatite	Undifferentiated	YUND
Carbonatite	Carbonate Rich Dike	YCBI
Carbonatite	Lamproite	YLPT
Veins	Undifferentiated Vein	VUND
Veins	Quartz Vein	VVQV
Veins	Quartz Carbonate Vein	VQCV
Veins	Quartz Fuchsite Vein	VQFV
Veins	Quartz Tourmaline Vein	VQTV
Veins	Carbonate Vein	VVCV

Appendix V: Grab Sample Maps

Grab Sample Map Index	1:40,000 scale
Grab Sample Location - Sheet 1	1:5,000 scale
Grab Sample Location - Sheet 2	1:5,000 scale
Grab Sample Location - Sheet 3	1:2,500 scale
Grab Sample Location - Sheet 4	1:2,500 scale
Grab Sample Location - Sheet 5	1:2,500 scale
Grab Sample Location - Sheet 6	1:2,500 scale
Grab Sample Location - Sheet 7	1:2,500 scale
Grab Sample Location - Sheet 8	1:2,500 scale
Grab Sample Location - Sheet 9	1:2,500 scale
Grab Sample Location - Sheet 10	1:2,500 scale
Grab Sample Location - Sheet 11	1:2,500 scale
Grab Sample Location - Sheet 12	1:2,500 scale
Grab Sample Location - Sheet 13	1:1,000 scale
Grab Sample Location - Sheet 14	1:5,000 scale
Grab Sample Location - Sheet 15	1:2,500 scale
Grab Sample Location - Sheet 16	1:1,000 scale
Grab Sample Location - Sheet 17	1:2,500 scale
Grab Sample Location - Sheet 18	1:2,500 scale
Grab Sample Location - Sheet 19	1:1,000 scale
Grab Sample Location - Sheet 20	1:2,500 scale
Grab Sample Location - Sheet 21	1:2,500 scale
Grab Sample Location - Sheet 22	1:2,500 scale
Grab Sample Location - Sheet 23	1:1,000 scale
Grab Sample Location - Sheet 24	1:100 scale
Grab Sample Location - Sheet 25	1:1,000 scale
Grab Sample Location - Sheet 26	1:1,000 scale
Grab Sample Location - Sheet 27	1:2,500 scale



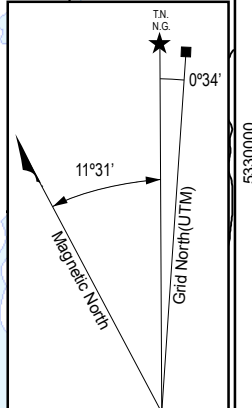
Legend

- Pen Gold Property Boundary
- Pen Gold North Patent or Lease
- claim boundary
- Penhorwood Mine Complex
- Sample Map Sheets

Original Map Scale:
1:40,000
1 cm = 400 meters
Projection: NAD 1983 UTM Zone 17N

Figure 2
Rapier Gold Inc.
Pen Gold Project
Sample Map Index

Date: January, 2017 Mining District: Porcupine
By: P. Pope File: PG_jan2017_samp_mapindex.mxd



Appendix VI: Certificates of Analyses

Pen Gold 2016 - List of Grab Sample Shipments and Certificates

Shipment Waybill - Gold Fire Assay	Gold - Fire Assay Certificate	Shipment Waybill - Trace Element UT-6	Trace Element UT-6 Certificate
PENG-20160812-001	A16-08070cert&res	PENG-20160812-001-UT6	A16-08070cert&res2 Rev.
PENG-20160830-002	A16-08810cert&res	PENG-20160830-002-UT6	A16-08810cert&res2 Rev.
PENG-20160906-003	A16-09027cert&res	PENG-20160906-003-UT6	A16-10617cert&res
PENG-20160913-004	A16-09325cert&res	PENG-20160913-004-UT6	A16-10618cert&res
PENG-20160919-005	A16-09596cert&res	PENG-20160919-005-UT6	A16-10619cert&res
PENG-20160926-006	A16-09921cert&res	PENG-20160926-006-UT6	A16-09921-UT6 cert&res Rev.
PENG-20161007-007	A16-10517cert&res	PENG-20161007-007-UT6	A16-10517-UT6 cert&res Rev.
PENG-20161017-008	A16-10885cert&res	PENG-20161017-008-UT6	A16-10885-UT6 cert&res
PENG-20161029-009	A16-11435cert&res	PENG-20161029-009-UT6	A16-11435-UT6 cert&res Rev.
PENG-20161108-010	A16-11882cert&res	PENG-20161108-010-UT6	A16-11882cert&res2 Rev.
PENG-20161120-013	A16-12462-Au cert&res	PENG-20161120-013-UT6	A16-12462-UT6 cert&res



Date Submitted: 15-Aug-16
Invoice No.: A16-08070
Invoice Date: 29-Aug-16
Your Reference: PENG-20160812-001

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

85 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code Weight Report (kg) Received Weights (no pulps)

REPORT **A16-08070**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé", written over a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

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

Date Submitted: 15-Aug-16
Invoice No.: A16-08070
Invoice Date: 29-Aug-16
Your Reference: PENG-20160812-001

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

85 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

REPORT **A16-08070**

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Notes:

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

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1027232	< 5	2.59	
1027233	< 5	2.68	
1027234	< 5	2.79	
1027235	< 5	2.64	
1027236	< 5	2.13	
1027237	< 5	2.25	
1027238	< 5	2.66	
1027239	< 5	2.98	
1027240	< 5	2.17	
1027241	< 5	2.57	
1027242	< 5	2.16	
1027301	< 5	2.45	
1027302	< 5	2.59	
1027303	< 5	2.18	
1027304	10	2.05	
1027305	< 5	2.20	
1027306	5	2.51	
1027307	< 5	2.57	
1027308	711	2.64	
1027309	6	2.16	
1027310	< 5	2.36	
1027311	< 5	2.21	
1027312	< 5	2.57	
1027313	1090	0.0600	
1027314	< 5	1.26	
1027315	< 5	2.35	
1027316	< 5	2.96	
1027317	6	2.11	
1027318	< 5	3.68	
1027319	< 5	2.50	
1027320	< 5	2.98	
1027321	< 5	2.54	
1477601	< 5	3.21	
1477602	< 5	2.65	
1477603	5660	0.0600	5.78
1477604	< 5	2.15	
1477605	9	3.27	
1477606	17	2.69	
1477607	< 5	2.74	
1477608	6	2.52	
1477609	< 5	2.68	
1477610	< 5	3.51	
1027401	6	3.25	
1027402	108	2.21	
1027403	157	2.97	
1027404	< 5	2.65	
1027405	< 5	2.13	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1027406	< 5	3.55	
1027407	< 5	2.55	
1027408	< 5	2.99	
1027409	< 5	1.25	
1027410	< 5	2.12	
1027411	6	2.02	
1027412	7	1.55	
1027413	6	2.12	
1027414	< 5	2.65	
1027415	1140	0.0600	
1027416	< 5	3.21	
1027417	5	3.46	
1027418	< 5	1.25	
1027419	6	2.88	
1027420	9	2.21	
1027421	< 5	1.30	
1027422	< 5	1.99	
1027423	< 5	3.16	
1027424	< 5	3.24	
1027425	21	3.66	
1027426	5	2.35	
1027427	< 5	1.59	
1027428	< 5	2.57	
1027429	< 5	1.99	
1027430	< 5	2.50	
1027431	1210	0.0600	
1027432	< 5	2.35	
1027433	6	1.22	
1027434	28	3.22	
1027435	18	2.52	
1027436	< 5	2.58	
1027437	5	1.60	
1027438	< 5	2.56	
1027439	< 5	2.85	
1027440	5	2.16	
1027441	< 5	3.52	
1027442	< 5	2.70	
1027443	5	1.59	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
OXN117 Meas		7.53
OXN117 Cert		7.679
OxP91 Meas		14.7
OxP91 Cert		14.82
SF85 Meas	831	
SF85 Cert	848	
SF85 Meas	821	
SF85 Cert	848	
SF85 Meas	835	
SF85 Cert	848	
OxD128 Meas	410	
OxD128 Cert	424.000	
OxD128 Meas	407	
OxD128 Cert	424.000	
1027241 Orig	< 5	
1027241 Dup	< 5	
1027309 Orig	6	
1027309 Dup	6	
1027319 Orig	< 5	
1027319 Dup	< 5	
1027403 Orig	127	
1027403 Dup	186	
1027408 Orig	< 5	
1027408 Split PREP DUP	< 5	
1027413 Orig	5	
1027413 Dup	6	
1027423 Orig	< 5	
1027423 Dup	< 5	
1027438 Orig	6	
1027438 Dup	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank		< 0.03



Date Submitted: 31-Aug-16
Invoice No.: A16-08810
Invoice Date: 08-Sep-16
Your Reference: PENG-20160830-002

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

172 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code Weight Report (kg) Received Weights (no pulps)

REPORT **A16-08810**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is stylized and somewhat cursive.

Emmanuel Esemé , Ph.D.
Quality Control

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

Date Submitted: 31-Aug-16
Invoice No.: A16-08810
Invoice Date: 08-Sep-16
Your Reference: PENG-20160830-002

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

172 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

REPORT **A16-08810**

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Notes:

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

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477611	< 5	1.31	
1477612	< 5	0.376	
1477613	< 5	1.18	
1477614	< 5	0.863	
1477615	< 5	0.537	
1477616	< 5	1.02	
1477617	< 5	1.04	
1477618	< 5	1.29	
1477619	< 5	1.78	
1477620	< 5	1.63	
1477621	< 5	1.26	
1477622	< 5	1.15	
1477623	< 5	1.08	
1477624	< 5	1.38	
1477625	< 5	0.781	
1477626	< 5	0.161	
1477627	22	1.15	
1477628	331	1.08	
1477629	24	2.08	
1477630	< 5	0.809	
1477631	206	2.86	
1477632	< 5	1.39	
1477633	1090	1.11	
1477634	5	0.970	
1477635	565	0.0890	
1477636	< 5	1.50	
1477637	< 5	1.15	
1477638	< 5	1.46	
1477639	< 5	1.62	
1477640	< 5	1.03	
1477641	< 5	1.68	
1477642	< 5	2.17	
1477643	< 5	1.83	
1477644	< 5	2.51	
1477645	< 5	0.753	
1477646	5	1.21	
1477647	48	1.38	
1477648	1440	1.10	
1477649	60	1.13	
1477650	70	1.48	
1477651	15	2.17	
1477652	< 5	1.36	
1477653	5	1.75	
1477654	14	1.71	
1477655	5	1.68	
1477656	< 5	1.31	
1477657	558	0.0900	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477658	< 5	0.967	
1477659	< 5	1.09	
1477660	9	1.28	
1477661	60	1.63	
1477662	149	1.49	
1477663	11	1.11	
1477664	6	0.392	
1477665	6	0.819	
1477666	< 5	0.117	
1477667	38	1.26	
1477668	< 5	0.952	
1477669	6	1.97	
1477670	21	1.68	
1477671	< 5	1.02	
1477672	5	1.18	
1477673	6	0.985	
1477674	7	1.79	
1477675	< 5	0.867	
1477676	9	1.34	
1477677	5590	0.0820	5.81
1477678	10	1.73	
1027243	9	0.416	
1027244	< 5	0.188	
1027245	13	1.14	
1027246	5	0.929	
1027247	543	0.0900	
1027248	< 5	0.597	
1027249	< 5	1.30	
1027250	< 5	1.21	
1027251	5	0.676	
1027252	< 5	1.14	
1027253	1190	0.0900	
1027254	9	0.644	
1027255	< 5	0.924	
1027256	< 5	1.36	
1027257	< 5	1.27	
1027258	< 5	0.834	
1027259	11	1.52	
1027260	< 5	2.12	
1027261	< 5	0.612	
1027262	< 5	0.215	
1027263	8	1.14	
1027264	34	1.39	
1027265	< 5	1.47	
1027266	< 5	0.766	
1027267	5	1.61	
1027268	46	0.887	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1027269	48	1.12	
1027270	12	1.20	
1027271	< 5	2.00	
1027272	8	0.931	
1027273	< 5	2.86	
1027274	25	2.47	
1027322	7	0.341	
1027323	6	0.523	
1027324	< 5	0.356	
1027325	< 5	0.996	
1027326	< 5	0.410	
1027327	< 5	0.313	
1027328	< 5	0.730	
1027329	< 5	0.475	
1027330	7	0.607	
1027331	< 5	0.668	
1027332	< 5	0.941	
1027333	< 5	0.408	
1027334	< 5	0.425	
1027335	< 5	0.356	
1027336	< 5	1.04	
1027337	< 5	1.00	
1027444	< 5	0.727	
1027445	< 5	1.02	
1027446	< 5	0.893	
1027447	12	1.50	
1027448	6	1.28	
1027449	< 5	1.23	
1027450	< 5	1.03	
1027451	< 5	0.997	
1027452	5	0.710	
1027453	< 5	0.744	
1027454	< 5	1.06	
1027455	1260	0.0910	
1027456	< 5	0.965	
1027457	6	0.781	
1027458	< 5	0.773	
1027459	< 5	1.25	
1027460	< 5	0.998	
1027461	5	0.210	
1027462	< 5	0.999	
1027463	36	1.19	
1027464	6	1.08	
1027465	< 5	1.28	
1027466	9	0.850	
1027467	5	1.07	
1027468	6	1.05	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1027469	< 5	0.944	
1027470	18	0.962	
1027471	39	0.959	
1027472	6	1.03	
1027473	< 5	0.868	
1027474	16	0.645	
1027475	12	1.20	
1027476	6	0.496	
1027477	5730	0.0810	5.66
1027478	< 5	0.974	
1027479	< 5	0.989	
1027480	< 5	0.760	
1027481	< 5	1.12	
1027482	< 5	0.854	
1027483	5	0.902	
1027484	5	1.29	
1027485	5	1.40	
1027486	5	1.07	
1027487	8	1.21	
1027488	< 5	0.850	
1477801	< 5	0.522	
1477802	< 5	0.908	
1477803	< 5	0.565	
1477804	< 5	0.779	
1477805	< 5	1.00	
1477806	< 5	0.891	
1477807	6	1.61	
1477808	5	1.34	
1477809	598	0.0900	
1477810	< 5	1.28	
1477811	5	0.928	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
OXN117 Meas		7.39
OXN117 Cert		7.679
OxP91 Meas		14.6
OxP91 Cert		14.82
SF85 Meas	827	
SF85 Cert	848	
SF85 Meas	858	
SF85 Cert	848	
SF85 Meas	861	
SF85 Cert	848	
SF85 Meas	866	
SF85 Cert	848	
SF85 Meas	846	
SF85 Cert	848	
OxD128 Meas	407	
OxD128 Cert	424.000	
OxD128 Meas	432	
OxD128 Cert	424.000	
OxD128 Meas	433	
OxD128 Cert	424.000	
OxD128 Meas	408	
OxD128 Cert	424.000	
OxD128 Meas	415	
OxD128 Cert	424.000	
1477620 Orig	< 5	
1477620 Dup	< 5	
1477630 Orig	< 5	
1477630 Dup	< 5	
1477640 Orig	< 5	
1477640 Dup	< 5	
1477655 Orig	5	
1477655 Dup	5	
1477660 Orig	9	
1477660 Split PREP DUP	5	
1477665 Orig	5	
1477665 Dup	6	
1477675 Orig	5	
1477675 Dup	< 5	
1027254 Orig	8	
1027254 Dup	10	
1027263 Orig	9	
1027263 Dup	7	
1027273 Orig	< 5	
1027273 Dup	< 5	
1027274 Orig	25	
1027274 Split PREP DUP	24	
1027334 Orig	< 5	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
1027334 Dup	< 5	
1027450 Orig	< 5	
1027450 Dup	< 5	
1027460 Orig	< 5	
1027460 Dup	34	
1027475 Orig	9	
1027475 Dup	14	
1027478 Orig	< 5	
1027478 Split PREP DUP	5	
1027485 Orig	5	
1027485 Dup	5	
1477807 Orig	6	
1477807 Dup	6	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank		< 0.03



Date Submitted: 07-Sep-16
Invoice No.: A16-09027
Invoice Date: 19-Sep-16
Your Reference: PENG-20160906-003

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Mary Stalker

CERTIFICATE OF ANALYSIS

140 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

REPORT **A16-09027**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is stylized and written over a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Date Submitted: 07-Sep-16
Invoice No.: A16-09027
Invoice Date: 19-Sep-16
Your Reference: PENG-20160906-003

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Mary Stalker

CERTIFICATE OF ANALYSIS

140 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code Weight Report (kg) Received Weights (no pulps)

REPORT **A16-09027**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

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

CERTIFIED BY:



Emmanuel Esemé , 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	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477679	< 5	2.04	
1477680	< 5	1.90	
1477681	6	1.42	
1477682	5	1.39	
1477683	< 5	0.777	
1477684	< 5	0.373	
1477685	562	0.0870	
1477686	< 5	1.13	
1477687	< 5	1.20	
1477688	< 5	0.891	
1477689	6	0.473	
1477690	< 5	1.20	
1477691	< 5	1.34	
1477692	< 5	0.386	
1477693	6	1.19	
1477694	7	1.30	
1477695	< 5	1.10	
1477696	< 5	1.18	
1477697	156	0.825	
1477698	15	1.28	
1477699	36	1.87	
1477700	41	0.944	
1477701	< 5	0.863	
1477702	< 5	0.956	
1477703	5	1.20	
1477704	< 5	1.30	
1477705	< 5	1.08	
1477706	< 5	1.16	
1477707	1280	0.0880	
1477708	< 5	0.538	
1477709	< 5	1.24	
1477710	< 5	1.33	
1027275	< 5	1.16	
1027276	< 5	1.34	
1027277	< 5	1.67	
1027278	5	1.42	
1027279	< 5	1.69	
1027280	5390	0.0870	5.62
1027281	6	1.21	
1027282	49	1.24	
1027283	< 5	1.81	
1027284	51	2.36	
1027285	13	1.21	
1027286	11	1.40	
1027287	< 5	1.64	
1027288	< 5	0.355	
1027289	< 5	1.24	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1027290	< 5	0.636	
1027291	6	0.703	
1027292	< 5	1.09	
1027293	27	0.214	
1027294	< 5	0.774	
1027295	< 5	0.603	
1027338	< 5	0.641	
1027339	< 5	0.580	
1027340	< 5	0.646	
1027341	< 5	1.10	
1027342	< 5	0.828	
1027343	< 5	0.499	
1027344	< 5	0.498	
1027345	< 5	0.559	
1027346	8	0.615	
1027347	< 5	0.273	
1027348	< 5	0.861	
1027349	8	1.69	
1027350	477	0.0880	
1027351	< 5	1.49	
1027352	5	0.568	
1027353	< 5	0.417	
1027354	< 5	0.403	
1027355	< 5	0.162	
1027356	< 5	0.756	
1027357	< 5	0.745	
1027358	< 5	0.249	
1027359	< 5	0.204	
1027360	< 5	0.336	
1027361	< 5	0.585	
1027362	< 5	0.698	
1027363	1300	0.0880	
1027364	< 5	0.188	
1027365	5	0.548	
1027366	< 5	0.680	
1027367	< 5	0.517	
1027368	< 5	0.411	
1027369	< 5	0.647	
1027370	< 5	0.524	
1027371	< 5	0.535	
1027489	< 5	1.02	
1027490	< 5	0.946	
1027491	< 5	1.63	
1027492	7	1.22	
1027493	34	1.23	
1027494	< 5	1.29	
1027495	< 5	0.991	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1027496	< 5	1.30	
1027497	6	1.10	
1027498	5	0.833	
1027499	< 5	0.694	
1027500	96	1.99	
1477951	318	2.16	
1477952	74	1.07	
1477953	85	1.43	
1477954	< 5	1.21	
1477955	6	1.35	
1477956	161	2.08	
1477957	29	1.28	
1477958	13	1.30	
1477959	20	1.05	
1477960	< 5	0.958	
1477961	5	0.893	
1477962	6	0.761	
1477963	17	0.805	
1477964	5	0.675	
1477965	8	1.51	
1477966	< 5	0.771	
1477967	< 5	0.874	
1477968	< 5	0.900	
1477969	< 5	0.879	
1477970	< 5	1.02	
1477971	< 5	0.961	
1477972	6	1.32	
1477973	6	1.12	
1477974	< 5	1.01	
1477975	5	1.17	
1477976	< 5	1.23	
1477977	14	0.997	
1477978	< 5	1.02	
1477979	5	1.28	
1477980	10	1.76	
1477981	< 5	1.01	
1477982	< 5	1.18	
1477983	282	1.53	
1477984	125	1.64	
1477985	335	1.25	
1477986	530	1.11	
1477987	91	0.960	
1477988	5	0.656	
1477501	7	0.898	
1477502	< 5	0.632	
1477503	< 5	0.988	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
OXN117 Meas		7.76
OXN117 Cert		7.679
OxP91 Meas		15.0
OxP91 Cert		14.82
SF85 Meas	854	
SF85 Cert	848	
SF85 Meas	852	
SF85 Cert	848	
SF85 Meas	837	
SF85 Cert	848	
SF85 Meas	824	
SF85 Cert	848	
SF85 Meas	812	
SF85 Cert	848	
OxD128 Meas	407	
OxD128 Cert	424.000	
OxD128 Meas	425	
OxD128 Cert	424.000	
OxD128 Meas	410	
OxD128 Cert	424.000	
OxD128 Meas	407	
OxD128 Cert	424.000	
OxD128 Meas	406	
OxD128 Cert	424.000	
1477688 Orig	< 5	
1477688 Dup	< 5	
1477698 Orig	20	
1477698 Dup	9	
1477708 Orig	< 5	
1477708 Dup	< 5	
1027287 Orig	< 5	
1027287 Dup	< 5	
1027292 Orig	< 5	
1027292 Split PREP DUP	< 5	
1027339 Orig	< 5	
1027339 Dup	< 5	
1027349 Orig	7	
1027349 Dup	8	
1027364 Orig	< 5	
1027364 Dup	< 5	
1027490 Orig	< 5	
1027490 Dup	< 5	
1027500 Orig	94	
1027500 Dup	98	
1477951 Orig	318	
1477951 Split PREP DUP	366	
1477964 Orig	5	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
1477964 Dup	5	
1477974 Orig	6	
1477974 Dup	< 5	
1477984 Orig	124	
1477984 Dup	125	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank		< 0.03



Date Submitted: 14-Sep-16
Invoice No.: A16-09325
Invoice Date: 30-Sep-16
Your Reference: PENG-20160913-004

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

68 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

REPORT **A16-09325**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to read "Elitsa Hrischeva".

Elitsa Hrischeva, Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Date Submitted: 14-Sep-16
Invoice No.: A16-09325
Invoice Date: 30-Sep-16
Your Reference: PENG-20160913-004

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

68 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code Weight Report (kg) Received Weights (no pulps)

REPORT **A16-09325**

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Notes:

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

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	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477711	22	0.638	
1477712	< 5	1.18	
1477713	11	1.47	
1477714	< 5	0.889	
1477715	< 5	0.743	
1477716	< 5	1.40	
1477717	< 5	0.902	
1477718	< 5	0.845	
1477719	< 5	0.622	
1477720	< 5	1.05	
1477721	< 5	0.769	
1477722	< 5	1.55	
1477723	< 5	0.898	
1477724	5	1.18	
1477725	< 5	0.978	
1477726	< 5	0.744	
1027296	6	1.05	
1027297	6	0.852	
1027298	119	1.40	
1027299	< 5	0.641	
1027300	< 5	1.21	
1477901	< 5	0.538	
1477902	< 5	1.65	
1477903	< 5	1.40	
1477904	44	0.579	
1477905	< 5	1.26	
1027372	< 5	0.526	
1027373	21	0.379	
1027374	< 5	0.948	
1027375	< 5	0.963	
1027376	< 5	1.30	
1027377	< 5	0.956	
1027378	< 5	1.36	
1027379	< 5	0.718	
1027380	< 5	0.659	
1027381	7	0.901	
1027382	585	0.108	
1027383	< 5	0.435	
1027384	< 5	0.686	
1027385	< 5	0.374	
1027386	< 5	1.08	
1027387	< 5	0.569	
1477989	130	1.09	
1477990	5880	0.107	6.03
1477991	< 5	1.29	
1477992	< 5	1.19	
1477993	< 5	1.30	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477994	< 5	1.07	
1477995	< 5	1.25	
1477996	< 5	1.34	
1477997	< 5	1.70	
1477998	5	1.21	
1477999	< 5	1.39	
1478000	704	1.48	
1276554	< 5	1.21	
1276555	< 5	1.41	
1276556	< 5	1.37	
1276557	< 5	1.10	
1276558	< 5	1.77	
1276559	1210	0.108	
1276560	< 5	1.12	
1276561	< 5	1.04	
1276562	< 5	1.29	
1276563	< 5	0.558	
1276564	< 5	1.32	
1276565	< 5	1.15	
1276566	7	0.893	
1276567	38	0.926	



Date Submitted: 20-Sep-16
Invoice No.: A16-09596
Invoice Date: 28-Sep-16
Your Reference: PENG-20160919-005

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

43 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

Code Weight Rpt (kg)-Timmins Received Weights

REPORT **A16-09596**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is stylized with a large, looped 'E' and a long horizontal stroke at the end.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight
Unit Symbol	ppb	Kg
Lower Limit	5	
Method Code	FA-AA	none
1477727	24	0.626
1477728	< 5	0.921
1477729	< 5	1.49
1477730	571	0.516
1477731	< 5	0.617
1477732	< 5	1.86
1477733	< 5	1.25
1477734	< 5	1.03
1477735	1150	0.106
1477736	6	0.624
1477737	< 5	0.813
1477738	< 5	0.872
1477906	5	1.62
1477907	< 5	0.991
1477908	6	1.21
1477909	8	0.531
1477910	5	1.12
1477911	7	1.40
1477912	6	1.57
1477913	< 5	0.880
1477914	< 5	1.22
1477915	7	0.582
1477916	564	0.108
1477917	< 5	0.777
1027388	< 5	0.666
1027389	< 5	0.477
1027390	< 5	0.793
1027391	< 5	0.635
1027392	< 5	0.430
1027393	5	0.685
1027394	< 5	0.477
1027395	< 5	0.400
1027396	< 5	0.660
1027397	< 5	0.821
1027398	< 5	0.630
1027399	< 5	0.525
1027400	8	0.310
1477551	6	0.748
1477552	< 5	1.07
1477553	< 5	0.855
1477554	< 5	0.818
1477812	6	1.69
1477813	< 5	0.900

Analyte Symbol	Au
Unit Symbol	ppb
Lower Limit	5
Method Code	FA-AA
SF85 Meas	829
SF85 Cert	848
SF85 Meas	849
SF85 Cert	848
SF85 Meas	840
SF85 Cert	848
SF85 Meas	829
SF85 Cert	848
OxD128 Meas	430
OxD128 Cert	424.000
OxD128 Meas	428
OxD128 Cert	424.000
OxD128 Meas	423
OxD128 Cert	424.000
OxD128 Meas	423
OxD128 Cert	424.000
1477737 Orig	< 5
1477737 Dup	< 5
1477914 Orig	< 5
1477914 Dup	< 5
1027394 Orig	< 5
1027394 Dup	< 5
1477553 Orig	< 5
1477553 Dup	< 5
1477812 Orig	6
1477812 Split PREP DUP	< 5
Method Blank	< 5
Method Blank	< 5
Method Blank	< 5
Method Blank	< 5
Method Blank	< 5
Method Blank	< 5
Method Blank	< 5



Date Submitted: 28-Sep-16
Invoice No.: A16-09921
Invoice Date: 08-Oct-16
Your Reference: PENG-20160926-006

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

78 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

Code Weight Rpt (kg)-Timmins Received Weights

REPORT **A16-09921**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé", written over a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477739	< 5	0.608	
1477740	< 5	0.693	
1477741	9	1.10	
1477742	< 5	1.04	
1477743	< 5	1.19	
1477744	< 5	0.977	
1477745	7	1.49	
1477746	< 5	1.30	
1477747	6	0.796	
1477748	8	1.33	
1477749	5	1.15	
1477750	5	1.24	
1477751	5	1.38	
1477752	< 5	1.50	
1477753	< 5	0.920	
1477754	< 5	1.21	
1477755	7	0.942	
1477756	5	1.08	
1477757	5	1.29	
1477758	< 5	0.423	
1477918	< 5	1.15	
1477919	5	0.743	
1477920	5	1.22	
1477921	7	1.99	
1477922	9	1.27	
1477923	21	1.25	
1477924	10	1.13	
1477925	< 5	0.874	
1477926	7	1.12	
1477927	6	1.21	
1477928	13	1.06	
1477929	5	0.986	
1477930	5	1.21	
1477931	< 5	0.888	
1477932	5	0.970	
1477933	< 5	1.36	
1477934	6	0.397	
1477935	6	0.200	
1477936	1110	0.0900	
1477937	6	0.771	
1477555	< 5	0.572	
1477556	5	0.599	
1477557	5	0.675	
1477558	8	0.487	
1477559	5	0.526	
1477560	5	0.185	
1477561	7	0.328	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477562	5	0.444	
1477563	646	0.0890	
1477564	6	0.572	
1477565	5	0.456	
1477566	5	0.463	
1477567	6	0.514	
1477568	6	0.745	
1477569	6	0.790	
1477570	7	0.886	
1477571	5	0.584	
1477572	6	1.02	
1477573	5	0.731	
1477574	5	0.637	
1477575	5	0.773	
1276568	67	1.40	
1276569	21	1.22	
1276570	29	1.06	
1276571	16	1.21	
1276572	7	1.35	
1276573	176	1.48	
1276574	334	1.38	
1276575	19	0.787	
1276576	9	0.839	
1276577	5	0.788	
1477814	6	0.239	
1477815	5	0.811	
1477816	5	1.47	
1477817	6040	0.0900	5.99
1477818	6	0.930	
1477819	6	1.14	
1477504	< 5	1.71	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
OXN117 Meas		7.64
OXN117 Cert		7.679
OxP91 Meas		14.5
OxP91 Cert		14.82
SF85 Meas	877	
SF85 Cert	848	
SF85 Meas	828	
SF85 Cert	848	
SF85 Meas	817	
SF85 Cert	848	
OxD128 Meas	420	
OxD128 Cert	424.000	
OxD128 Meas	406	
OxD128 Cert	424.000	
OxD128 Meas	411	
OxD128 Cert	424.000	
1477748 Orig	8	
1477748 Dup	8	
1477758 Orig	< 5	
1477758 Dup	< 5	
1477927 Orig	6	
1477927 Dup	5	
1477559 Orig	5	
1477559 Dup	5	
1477564 Orig	6	
1477564 Split PREP DUP	< 5	
1477569 Orig	5	
1477569 Dup	6	
1276571 Orig	17	
1276571 Dup	14	
Method Blank	5	
Method Blank	< 5	
Method Blank	5	
Method Blank	5	
Method Blank	5	
Method Blank	5	
Method Blank	5	
Method Blank		< 0.03
Method Blank		< 0.03



Date Submitted: 12-Oct-16
Invoice No.: A16-10517
Invoice Date: 26-Oct-16
Your Reference: PENG-20161007-007

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

184 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

Code Weight Rpt (kg)-Timmins Received Weights

REPORT **A16-10517**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is stylized with a large, looped initial 'E' and a long horizontal stroke at the end.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477759	446	1.03	
1477760	703	1.34	
1477761	735	1.74	
1477762	718	1.59	
1477763	37	1.57	
1477764	558	1.47	
1477765	1330	0.0920	
1477766	393	1.05	
1477767	13	0.352	
1477768	5	0.957	
1477769	7	1.41	
1477770	< 5	1.27	
1477771	< 5	1.22	
1477772	6	0.886	
1477773	< 5	1.26	
1477774	581	0.0930	
1477775	14	1.30	
1477776	< 5	1.09	
1477777	< 5	1.24	
1477778	< 5	0.521	
1477779	24	0.533	
1477780	< 5	0.595	
1477781	< 5	0.590	
1477782	< 5	0.788	
1477783	< 5	0.612	
1477784	< 5	0.371	
1477785	< 5	0.979	
1477786	< 5	1.13	
1477787	< 5	1.35	
1477788	< 5	1.23	
1477789	< 5	0.691	
1477790	< 5	0.367	
1477791	< 5	1.41	
1477792	< 5	0.825	
1477793	< 5	1.31	
1477794	6	1.08	
1477795	7	0.810	
1477796	6	1.44	
1477797	< 5	1.33	
1477798	7	0.861	
1477799	8	1.22	
1477800	6	0.442	
1470501	12	0.609	
1470502	< 5	0.953	
1470503	6	0.976	
1470504	6640	0.0930	6.34
1470505	5	1.01	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1470506	5	0.662	
1470507	340	1.67	
1470508	5	0.879	
1470509	8	1.23	
1470510	12	1.34	
1470511	5	0.835	
1470512	18	0.794	
1470513	5	0.488	
1470514	9	1.94	
1470515	6	0.833	
1470516	8	1.08	
1470517	10	0.747	
1470518	8	0.857	
1470519	9	1.16	
1470520	17	1.25	
1470521	9	1.21	
1470522	5	0.858	
1470523	17	1.15	
1470524	< 5	0.984	
1470525	8	0.997	
1470526	< 5	1.09	
1470527	5	1.09	
1470528	< 5	0.700	
1470529	5	1.71	
1477938	22	1.49	
1477939	6	2.22	
1477940	6	2.38	
1477941	8	2.86	
1477942	11	0.764	
1477943	< 5	1.96	
1477944	55	1.59	
1477945	< 5	1.67	
1477946	< 5	1.75	
1477947	6	1.15	
1477948	31	1.26	
1477949	10	0.789	
1477950	29	2.47	
1470601	194	0.874	
1470602	26	1.03	
1470603	6	0.695	
1470604	6	0.928	
1470605	598	0.0910	
1470606	17	1.20	
1470607	8	0.916	
1470608	< 5	0.963	
1470609	6	1.17	
1470610	8	1.16	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1470611	5	1.03	
1470612	5	1.22	
1470613	5	2.02	
1470614	16	1.88	
1470615	8	0.927	
1477576	5	0.889	
1477577	6200	0.0910	6.21
1477578	5	0.618	
1477579	5	0.381	
1477580	5	0.768	
1477581	< 5	0.651	
1477582	< 5	0.840	
1477583	< 5	0.425	
1477584	< 5	0.630	
1477585	< 5	0.611	
1477586	< 5	0.558	
1477587	< 5	0.190	
1477588	< 5	0.542	
1477589	< 5	0.460	
1477590	< 5	0.733	
1477591	< 5	0.779	
1477592	< 5	0.594	
1477593	< 5	1.03	
1477594	< 5	0.551	
1477595	< 5	1.26	
1477596	< 5	0.597	
1477597	< 5	0.582	
1477598	< 5	0.131	
1477599	9	0.385	
1477600	< 5	0.765	
1470751	< 5	0.988	
1470752	< 5	1.40	
1470753	< 5	1.12	
1470754	< 5	1.01	
1470755	< 5	0.440	
1276578	50	1.56	
1276579	8	1.64	
1276580	70	1.21	
1276581	53	1.33	
1276582	12	1.10	
1276583	38	1.42	
1276584	111	1.87	
1276585	5	1.23	
1276586	572	0.0910	
1276587	< 5	1.72	
1276588	< 5	1.30	
1276589	< 5	0.942	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1276590	< 5	0.735	
1276591	< 5	0.743	
1276592	< 5	0.694	
1276593	28	0.566	
1276594	< 5	1.28	
1276595	5	0.804	
1276596	< 5	1.23	
1276597	5	0.883	
1276598	< 5	0.921	
1276599	25	1.43	
1276600	< 5	1.06	
1470701	< 5	1.00	
1470702	17	0.883	
1470703	6	1.35	
1470704	< 5	0.679	
1470705	6	1.36	
1470706	38	1.08	
1470707	56	1.10	
1470708	14	1.22	
1470709	6250	0.0930	6.43
1470710	7	1.08	
1470711	33	1.11	
1470712	5	1.33	
1470713	507	1.03	
1470714	27	1.41	
1470715	6	1.15	
1470716	6	1.32	
1470717	7	1.30	
1470718	13	1.24	
1470719	6	1.29	
1470720	7	1.53	
1470721	< 5	1.07	
1470722	131	1.44	
1470723	< 5	0.879	
1470724	< 5	1.41	
1470725	5	1.06	
1470726	< 5	1.07	
1470727	6	1.33	
1470728	11	0.572	
1470729	11	1.14	
1470730	8	1.27	
1470731	< 5	0.538	
1470732	< 5	0.988	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
OREAS203 Meas	854	
OREAS203 Cert	871.000	
OREAS203 Meas	856	
OREAS203 Cert	871.000	
OREAS203 Meas	844	
OREAS203 Cert	871.000	
OREAS203 Meas	875	
OREAS203 Cert	871.000	
OREAS203 Meas	876	
OREAS203 Cert	871.000	
OREAS203 Meas	882	
OREAS203 Cert	871.000	
OXN117 Meas		7.86
OXN117 Cert		7.679
OxP91 Meas		15.3
OxP91 Cert		14.82
OxD128 Meas	406	
OxD128 Cert	424.000	
OxD128 Meas	413	
OxD128 Cert	424.000	
OxD128 Meas	403	
OxD128 Cert	424.000	
OxD128 Meas	438	
OxD128 Cert	424.000	
OxD128 Meas	413	
OxD128 Cert	424.000	
OxD128 Meas	423	
OxD128 Cert	424.000	
1477768 Orig	5	
1477768 Dup	5	
1477778 Orig	< 5	
1477778 Dup	< 5	
1477788 Orig	< 5	
1477788 Dup	< 5	
1470503 Orig	6	
1470503 Dup	5	
1470508 Orig	5	
1470508 Split PREP DUP	6	
1470513 Orig	5	
1470513 Dup	5	
1470523 Orig	15	
1470523 Dup	18	
1477945 Orig	< 5	
1477945 Dup	< 5	
1470606 Orig	16	
1470606 Dup	18	
1470615 Orig	7	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
1470615 Dup	8	
1477576 Orig	5	
1477576 Split PREP DUP	< 5	
1477589 Orig	< 5	
1477589 Dup	< 5	
1477599 Orig	8	
1477599 Dup	9	
1276581 Orig	52	
1276581 Dup	53	
1276596 Orig	< 5	
1276596 Dup	< 5	
1276598 Orig	< 5	
1276598 Split PREP DUP	6	
1470706 Orig	38	
1470706 Dup	37	
1470716 Orig	6	
1470716 Dup	6	
1470730 Orig	7	
1470730 Dup	8	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank		< 0.03



Date Submitted: 18-Oct-16
Invoice No.: A16-10885
Invoice Date: 28-Oct-16
Your Reference: PENG-20161017-008

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

101 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

Code Weight Rpt (kg)-Timmins Received Weights

REPORT **A16-10885**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is written in a cursive, somewhat stylized font.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1470530	5	0.624	
1470531	< 5	0.614	
1470532	< 5	0.731	
1470533	6	1.39	
1470534	9	0.605	
1470535	< 5	1.02	
1470536	< 5	0.993	
1470537	< 5	1.93	
1470538	30	0.927	
1470539	< 5	0.981	
1470540	571	0.124	
1470541	39	1.06	
1470542	45	0.893	
1470543	< 5	0.697	
1470544	< 5	1.32	
1470545	< 5	1.17	
1470546	< 5	1.15	
1470547	< 5	1.11	
1470548	90	1.60	
1470549	139	1.29	
1470550	67	0.912	
1470551	< 5	1.12	
1470552	6	1.31	
1470553	< 5	0.513	
1470554	8	1.43	
1470616	< 5	1.07	
1470617	< 5	0.626	
1470618	< 5	1.67	
1470619	19	0.755	
1470620	< 5	1.41	
1470621	< 5	1.48	
1470622	< 5	1.64	
1470623	12	1.50	
1470624	113	2.87	
1470625	< 5	1.10	
1470626	< 5	0.574	
1470627	18	1.40	
1470628	< 5	0.975	
1470629	< 5	1.27	
1470756	< 5	1.19	
1470757	523	0.124	
1470758	< 5	0.694	
1470759	< 5	0.770	
1470760	< 5	0.705	
1470761	< 5	0.324	
1470762	41	0.453	
1470763	< 5	0.814	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1470764	7	0.733	
1470765	61	0.453	
1470766	< 5	0.227	
1470767	< 5	0.532	
1470768	< 5	0.399	
1470769	< 5	0.347	
1470770	< 5	0.695	
1470771	19	0.462	
1470772	< 5	0.320	
1470773	< 5	0.378	
1470774	< 5	0.477	
1470775	< 5	0.216	
1470776	< 5	0.152	
1470777	< 5	0.534	
1470778	< 5	0.516	
1470779	< 5	0.528	
1470780	< 5	0.495	
1470781	5660	0.0960	5.70
1470782	< 5	0.556	
1470783	7	0.785	
1470784	< 5	0.640	
1477505	57	0.233	
1477506	7	0.268	
1477507	< 5	0.397	
1477508	< 5	0.780	
1477509	< 5	0.936	
1477510	57	1.64	
1477511	45	0.789	
1477512	236	1.89	
1477513	< 5	2.32	
1477514	7	1.94	
1477515	< 5	0.363	
1477516	24	0.474	
1477517	< 5	0.365	
1477518	< 5	0.470	
1477519	< 5	0.459	
1477520	< 5	0.399	
1477521	1410	0.0990	
1477522	< 5	1.21	
1477523	2120	2.13	
1477524	10	0.826	
1477525	9	1.01	
1477526	< 5	0.729	
1477851	< 5	2.01	
1477852	593	0.0990	
1477853	11	0.717	
1477854	35	1.11	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA-GRA
1477855	< 5	0.614	
1477856	< 5	1.49	
1477857	169	2.02	
1477858	< 5	2.19	
1477859	< 5	1.26	
1477860	< 5	0.491	
1477861	< 5	1.28	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA-GRA
OREAS203 Meas	878	
OREAS203 Cert	871.000	
OREAS203 Meas	861	
OREAS203 Cert	871.000	
OREAS203 Meas	843	
OREAS203 Cert	871.000	
OXN117 Meas		7.78
OXN117 Cert		7.679
OxP91 Meas		15.1
OxP91 Cert		14.82
OxD128 Meas	414	
OxD128 Cert	424.000	
OxD128 Meas	416	
OxD128 Cert	424.000	
OxD128 Meas	413	
OxD128 Cert	424.000	
1470539 Orig	< 5	
1470539 Dup	< 5	
1470549 Orig	252	
1470549 Dup	25	
1470620 Orig	< 5	
1470620 Dup	12	
1470761 Orig	< 5	
1470761 Dup	< 5	
1470766 Orig	< 5	
1470766 Split PREP DUP	< 5	
1470771 Orig	18	
1470771 Dup	20	
1470781 Orig	5330	
1470781 Dup	5990	
1477515 Orig	< 5	
1477515 Dup	< 5	
1477525 Orig	9	
1477525 Dup	8	
1477859 Orig	< 5	
1477859 Split PREP DUP	< 5	
1477859 Orig	< 5	
1477859 Dup	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank		< 0.03



Date Submitted: 01-Nov-16
Invoice No.: A16-11435
Invoice Date: 24-Nov-16
Your Reference: PENG-20161029-009

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

156 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

Code Weight Rpt (kg)-Timmins Received Weights

REPORT **A16-11435**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to read "Emmanuel Esemé". The signature is stylized with loops and is positioned above a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470555	< 5	0.966	
1470556	< 5	0.982	
1470557	< 5	1.21	
1470558	< 5	1.56	
1470559	< 5	1.52	
1470560	< 5	1.40	
1470561	< 5	1.18	
1470562	< 5	1.36	
1470563	< 5	1.07	
1470564	1340	0.0870	
1470565	< 5	1.32	
1470566	< 5	0.530	
1470567	< 5	1.01	
1470568	24	1.21	
1470569	< 5	0.643	
1470570	< 5	1.57	
1470571	< 5	0.758	
1470572	< 5	1.17	
1470573	< 5	1.50	
1470574	< 5	0.939	
1470575	< 5	1.01	
1470576	< 5	0.676	
1470577	< 5	1.03	
1470578	5900	0.0870	5.80
1470579	< 5	1.11	
1470580	< 5	1.15	
1470581	< 5	0.783	
1470582	< 5	0.199	
1470583	< 5	0.656	
1470584	< 5	0.499	
1470585	< 5	1.01	
1470586	< 5	0.372	
1470587	< 5	0.782	
1470588	< 5	0.973	
1470589	< 5	1.16	
1470590	< 5	1.01	
1470591	< 5	0.786	
1470592	< 5	1.08	
1470593	< 5	1.53	
1470594	< 5	0.865	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470595	< 5	0.599	
1470596	< 5	1.09	
1470597	< 5	0.502	
1470598	7	1.84	
1470599	< 5	1.98	
1470600	< 5	0.715	
1470901	< 5	0.668	
1470902	< 5	0.890	
1470903	< 5	0.807	
1470904	< 5	0.501	
1470905	5	0.648	
1470906	< 5	0.961	
1470907	5	1.17	
1470908	1160	0.0900	
1470909	6	1.10	
1470910	5	0.883	
1470911	< 5	1.68	
1470912	< 5	0.718	
1470913	< 5	1.57	
1470914	< 5	1.48	
1470630	13	1.67	
1470631	< 5	2.00	
1470632	< 5	1.58	
1470633	< 5	0.989	
1470634	< 5	2.16	
1470635	< 5	1.69	
1470636	< 5	1.15	
1470637	< 5	1.39	
1470638	< 5	1.44	
1470639	11	0.821	
1470640	< 5	0.937	
1470641	< 5	1.54	
1470642	< 5	1.86	
1470643	641	0.0900	
1470644	< 5	1.25	
1470645	6	1.23	
1470785	< 5	0.335	
1470786	< 5	0.570	
1470787	< 5	0.578	
1470788	6	0.178	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470789	6	0.769	
1470790	243	0.383	
1470791	< 5	0.626	
1470792	10	0.670	
1470793	22	0.259	
1470794	< 5	0.906	
1470795	106	0.860	
1470796	6	0.430	
1470797	63	1.13	
1470798	8	1.22	
1470799	< 5	1.11	
1470800	21	0.352	
1470801	95	0.598	
1470802	125	0.677	
1470803	52	0.644	
1470804	< 5	0.788	
1470805	< 5	0.608	
1470806	< 5	1.00	
1470807	< 5	0.810	
1470808	< 5	0.712	
1470809	< 5	0.463	
1470810	< 5	0.765	
1470811	< 5	0.453	
1470812	< 5	0.744	
1470813	1240	0.0890	
1470814	< 5	0.464	
1470815	< 5	0.638	
1470816	5	0.522	
1470817	< 5	0.531	
1470818	< 5	0.660	
1470819	7	0.678	
1470820	< 5	1.43	
1470821	6	0.721	
1470822	< 5	0.720	
1470823	< 5	0.856	
1470824	9	0.579	
1470825	9	0.422	
1470826	7	0.368	
1470827	5	0.346	
1470828	5700	0.0890	6.30

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470829	5	1.01	
1470830	7	0.575	
1470831	7	1.06	
1470832	< 5	1.18	
1470833	< 5	0.130	
1470834	< 5	0.0920	
1274051	5	0.801	
1274052	< 5	0.878	
1274053	< 5	1.56	
1274054	< 5	0.708	
1274055	6	0.912	
1274056	< 5	0.747	
1274057	< 5	0.951	
1274058	11	0.486	
1274059	< 5	0.208	
1274060	645	0.0910	
1274061	< 5	0.730	
1274062	< 5	0.885	
1274063	6	0.814	
1274064	< 5	0.975	
1274065	< 5	1.35	
1274066	< 5	1.52	
1274067	< 5	1.08	
1274068	5	1.63	
1274069	< 5	0.775	
1274070	< 5	1.60	
1274071	< 5	1.36	
1274072	< 5	1.24	
1274073	8	1.06	
1274074	< 5	0.617	
1274075	< 5	1.96	
1274076	< 5	0.814	
1274077	5	0.990	
1274078	< 5	1.59	
1274079	< 5	1.50	
1477527	215	0.729	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
OREAS203 Meas	887	
OREAS203 Cert	871.000	
OREAS203 Meas	887	
OREAS203 Cert	871.000	
OREAS203 Meas	880	
OREAS203 Cert	871.000	
OREAS203 Meas	896	
OREAS203 Cert	871.000	
OREAS203 Meas	884	
OREAS203 Cert	871.000	
OREAS203 Meas	882	
OREAS203 Cert	871.000	
OXN117 Meas		7.86
OXN117 Cert		7.679
OxP116 Meas		15.0
OxP116 Cert		14.92
OxD128 Meas	426	
OxD128 Cert	424.000	
OxD128 Meas	429	
OxD128 Cert	424.000	
OxD128 Meas	407	
OxD128 Cert	424.000	
OxD128 Meas	413	
OxD128 Cert	424.000	
OREAS 251 Meas	516	
OREAS 251 Cert	504.00	
1470564 Orig	1340	
1470564 Dup	1330	
1470574 Orig	< 5	
1470574 Dup	< 5	
1470584 Orig	< 5	
1470584 Dup	< 5	
1470599 Orig	< 5	
1470599 Dup	5	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
1470904 Orig	< 5	
1470904 Split PREP DUP	< 5	
1470909 Orig	6	
1470909 Dup	6	
1470634 Orig	< 5	
1470634 Dup	< 5	
1470788 Orig	6	
1470788 Dup	6	
1470798 Orig	14	
1470798 Dup	14	
1470808 Orig	< 5	
1470808 Split PREP DUP	< 5	
1470808 Orig	< 5	
1470808 Dup	< 5	
1470808 Orig	< 5	
1470808 Split PREP DUP	< 5	
1470823 Orig	< 5	
1470823 Dup	< 5	
1470833 Orig	< 5	
1470833 Dup	8	
1274059 Orig	< 5	
1274059 Dup	5	
1274074 Orig	< 5	
1274074 Split PREP DUP	< 5	
1274074 Orig	< 5	
1274074 Dup	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank		< 0.03

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
Method Blank	< 5	
Method Blank	< 5	



Date Submitted: 09-Nov-16
Invoice No.: A16-11882
Invoice Date: 25-Nov-16
Your Reference: PENG-20161108-010

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

195 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

Code Weight Rpt (kg)-Timmins Received Weights

REPORT **A16-11882**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is written over a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470915	< 5	0.601	
1470916	< 5	0.755	
1470917	< 5	0.635	
1470918	< 5	1.38	
1470919	< 5	0.862	
1470920	12	1.46	
1470921	10	1.46	
1470922	43	1.28	
1470923	< 5	0.989	
1470924	9	2.08	
1470925	< 5	1.24	
1470926	< 5	0.697	
1470927	< 5	0.429	
1470928	5930	0.106	6.25
1470929	8	1.09	
1470930	< 5	0.883	
1470931	20	1.13	
1470932	45	1.50	
1470933	11	2.33	
1470934	< 5	1.14	
1470935	23	0.958	
1470936	< 5	1.37	
1470937	13	1.70	
1470938	< 5	0.572	
1470939	620	1.22	
1470940	25	0.688	
1470941	5	0.424	
1470942	121	0.502	
1470943	7	0.795	
1470944	< 5	1.21	
1470945	17	1.27	
1470946	19	0.883	
1470947	6	0.561	
1470948	< 5	1.24	
1470949	< 5	1.30	
1470950	7	0.735	
1470951	< 5	1.83	
1470952	< 5	1.01	
1470953	< 5	1.38	
1470954	1260	0.105	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470955	< 5	1.29	
1470956	< 5	1.01	
1470957	< 5	0.853	
1470958	< 5	0.517	
1470959	< 5	0.521	
1470960	< 5	0.564	
1470961	< 5	1.46	
1470962	13	0.881	
1470963	6	1.60	
1470964	< 5	1.36	
1470965	< 5	1.23	
1470966	< 5	1.17	
1470967	< 5	1.09	
1470968	< 5	1.51	
1470969	< 5	1.17	
1470970	< 5	0.942	
1470646	41	0.891	
1470647	< 5	1.19	
1470648	14	1.08	
1470649	16	1.14	
1470650	18	1.13	
1470651	19	1.78	
1470652	5	0.859	
1470653	22	1.08	
1470654	34	1.08	
1470655	27	1.55	
1470656	< 5	0.541	
1470657	< 5	1.86	
1470658	< 5	1.34	
1470659	558	0.106	
1470660	16	1.14	
1470661	7	1.23	
1470662	< 5	1.36	
1470663	< 5	1.55	
1470664	8	1.20	
1470665	12	1.19	
1470666	< 5	1.76	
1470667	5	1.34	
1470668	< 5	1.01	
1470669	10	1.27	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470670	5	1.41	
1470671	< 5	1.62	
1470672	< 5	0.648	
1470673	< 5	1.47	
1470674	< 5	0.783	
1470675	< 5	0.908	
1470676	< 5	1.21	
1470677	< 5	1.04	
1470678	< 5	1.06	
1470679	1300	0.105	
1470680	8	1.40	
1470681	< 5	1.08	
1470682	10	0.673	
1470683	37	1.34	
1470835	16	0.628	
1470836	< 5	0.552	
1470837	5	1.28	
1470838	< 5	0.678	
1470839	7	0.504	
1470840	15	0.445	
1470841	< 5	0.407	
1470842	< 5	0.111	
1470843	16	0.914	
1470844	21	0.900	
1470845	< 5	0.711	
1470846	< 5	0.367	
1470847	< 5	0.965	
1470848	7	0.672	
1470849	< 5	0.449	
1470850	< 5	0.566	
1470851	< 5	0.446	
1470852	< 5	0.708	
1470853	< 5	1.06	
1470854	< 5	0.382	
1470855	< 5	0.650	
1470856	566	0.106	
1470857	< 5	1.12	
1470858	< 5	0.466	
1470859	< 5	1.03	
1470860	< 5	0.495	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470861	< 5	0.725	
1470862	< 5	0.336	
1470863	46	1.59	
1470864	< 5	0.628	
1274001	< 5	1.16	
1274002	< 5	1.70	
1274003	566	0.106	
1274004	< 5	0.936	
1274005	< 5	0.851	
1274006	5	1.02	
1274007	< 5	0.690	
1274008	432	0.613	
1274009	< 5	0.666	
1274010	5	1.07	
1274011	< 5	0.729	
1274012	< 5	0.919	
1274013	< 5	1.02	
1274014	7	1.04	
1274015	< 5	0.852	
1274016	< 5	0.999	
1274017	13	0.985	
1274018	< 5	0.777	
1274019	< 5	1.17	
1274020	< 5	1.63	
1274021	< 5	0.917	
1274022	< 5	0.447	
1274023	< 5	0.635	
1274024	< 5	1.20	
1274025	< 5	0.461	
1274026	< 5	0.979	
1274027	< 5	0.730	
1274028	< 5	0.611	
1274029	< 5	0.583	
1274030	1100	0.105	
1274031	< 5	1.13	
1274032	< 5	0.727	
1274033	< 5	1.03	
1274034	< 5	1.24	
1274035	< 5	0.300	
1274036	< 5	1.05	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1274037	< 5	0.181	
1274038	< 5	1.41	
1274039	< 5	0.789	
1274040	< 5	0.832	
1274041	< 5	1.72	
1274042	< 5	0.505	
1274043	< 5	1.50	
1274044	8	1.38	
1274045	< 5	1.22	
1274046	< 5	1.11	
1274047	< 5	0.638	
1274048	< 5	0.879	
1274049	< 5	1.05	
1274050	< 5	0.303	
1274080	< 5	1.39	
1274081	< 5	0.963	
1274082	6300	0.107	6.35
1274083	< 5	1.79	
1274084	< 5	0.863	
1274085	< 5	1.28	
1274086	24	0.700	
1274087	< 5	1.16	
1274088	< 5	0.914	
1274089	< 5	1.73	
1274090	< 5	1.63	
1274091	< 5	1.02	
1274092	586	0.105	
1274093	< 5	0.619	
1274094	< 5	1.16	
1274095	< 5	0.982	
1274096	6	0.884	
1274097	8	1.32	
1274098	< 5	0.514	
1274099	< 5	0.807	
1274100	6	0.577	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
OREAS203 Meas	884	
OREAS203 Cert	871.000	
OREAS203 Meas	842	
OREAS203 Cert	871.000	
OREAS203 Meas	905	
OREAS203 Cert	871.000	
OREAS203 Meas	848	
OREAS203 Cert	871.000	
OREAS203 Meas	892	
OREAS203 Cert	871.000	
OREAS203 Meas	890	
OREAS203 Cert	871.000	
OXN117 Meas		7.54
OXN117 Cert		7.679
OxP116 Meas		14.9
OxP116 Cert		14.92
OREAS 251 Meas	523	
OREAS 251 Cert	504.00	
OREAS 251 Meas	494	
OREAS 251 Cert	504.00	
OREAS 251 Meas	521	
OREAS 251 Cert	504.00	
OREAS 251 Meas	486	
OREAS 251 Cert	504.00	
OREAS 251 Meas	494	
OREAS 251 Cert	504.00	
OREAS 251 Meas	492	
OREAS 251 Cert	504.00	
1470924 Orig	8	
1470924 Dup	10	
1470934 Orig	< 5	
1470934 Dup	< 5	
1470944 Orig	< 5	
1470944 Dup	< 5	
1470959 Orig	< 5	
1470959 Dup	< 5	
1470964 Orig	< 5	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
1470964 Split PREP DUP	< 5	
1470969 Orig	< 5	
1470969 Dup	< 5	
1470654 Orig	27	
1470654 Dup	41	
1470668 Orig	< 5	
1470668 Dup	< 5	
1470678 Orig	< 5	
1470678 Dup	< 5	
1470839 Orig	7	
1470839 Split PREP DUP	8	
1470839 Orig	7	
1470839 Dup	7	
1470853 Orig	< 5	
1470853 Dup	< 5	
1470863 Orig	46	
1470863 Dup	46	
1274009 Orig	< 5	
1274009 Dup	< 5	
1274024 Orig	< 5	
1274024 Split PREP DUP	< 5	
1274024 Orig	< 5	
1274024 Dup	< 5	
1274034 Orig	< 5	
1274034 Dup	< 5	
1274044 Orig	7	
1274044 Dup	8	
1274087 Orig	< 5	
1274087 Dup	10	
1274097 Orig	6	
1274097 Dup	9	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank		< 0.03



Date Submitted: 22-Nov-16
Invoice No.: A16-12462-Au
Invoice Date: 13-Dec-16
Your Reference: PENG-20161120-013

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

206 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Rapier Timmins Au - Fire Assay AA (QOP Fire Assay)

Code Weight Rpt (kg)-Timmins Received Weights

REPORT **A16-12462-Au**

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Notes:

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

CERTIFIED BY:

A handwritten signature in black ink, appearing to read "Emmanuel Esemé". The signature is stylized with loops and is positioned above a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1752 Riverside Drive, Timmins, Ontario, Canada, P4R 1N1
TELEPHONE +705 264-0123 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Timmins@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470971	< 5	0.895	
1470972	< 5	1.41	
1470973	105	1.15	
1470974	5	0.743	
1470975	4740	1.33	
1470976	< 5	1.16	
1470977	< 5	1.03	
1470978	< 5	1.51	
1470979	< 5	1.58	
1470980	< 5	1.25	
1470981	< 5	1.23	
1470982	< 5	0.761	
1470983	< 5	1.03	
1470984	< 5	0.498	
1470985	< 5	1.17	
1470986	< 5	1.43	
1470987	1310	0.0960	
1470988	< 5	0.894	
1470989	< 5	1.33	
1470990	< 5	1.56	
1470991	< 5	1.47	
1470992	< 5	1.41	
1470993	< 5	1.24	
1470994	< 5	1.89	
1470995	< 5	1.38	
1470996	5	1.57	
1470997	< 5	0.869	
1470998	5	1.08	
1470999	19	0.824	
1471000	< 5	0.691	
1274201	< 5	1.27	
1274202	< 5	0.562	
1274203	< 5	1.39	
1274204	< 5	1.09	
1274205	183	1.95	
1274206	620	0.108	
1274207	< 5	1.27	
1274208	< 5	2.17	
1274209	36	1.10	
1274210	< 5	1.10	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1274211	< 5	0.999	
1274212	< 5	0.845	
1274213	13	1.03	
1274214	< 5	1.35	
1274215	< 5	1.03	
1274216	< 5	1.11	
1274217	< 5	1.34	
1274218	< 5	1.53	
1274219	< 5	0.951	
1274220	< 5	1.38	
1274221	< 5	1.67	
1274222	< 5	1.19	
1274223	< 5	1.33	
1274224	< 5	0.846	
1274225	63	0.771	
1274226	11	1.21	
1274227	> 5000	0.103	5.77
1274228	8	1.83	
1274229	< 5	1.03	
1274230	< 5	0.831	
1274231	< 5	1.00	
1274232	< 5	1.51	
1274233	< 5	2.42	
1274234	< 5	1.05	
1274235	< 5	1.42	
1274236	< 5	1.49	
1274237	< 5	0.619	
1274238	< 5	1.20	
1274239	< 5	1.52	
1274240	< 5	1.28	
1274241	12	0.765	
1274242	< 5	1.36	
1274243	< 5	0.355	
1274244	< 5	0.927	
1274245	< 5	1.22	
1274246	< 5	0.915	
1274247	19	1.39	
1274248	< 5	1.15	
1274249	< 5	1.24	
1274250	6	1.53	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1274251	6	0.715	
1274252	< 5	0.710	
1274253	< 5	0.399	
1274254	< 5	1.28	
1274255	5	1.22	
1274256	< 5	1.36	
1274257	13	1.12	
1274258	552	0.0370	
1274259	38	1.19	
1274260	6	1.98	
1274261	5	2.04	
1470684	< 5	0.646	
1470685	< 5	0.876	
1470686	< 5	0.809	
1470687	< 5	1.08	
1470688	< 5	1.68	
1470689	6	2.01	
1470690	< 5	1.02	
1470691	< 5	1.15	
1470692	< 5	1.00	
1470693	< 5	1.20	
1470694	< 5	0.341	
1470695	< 5	2.04	
1470696	< 5	1.80	
1470697	< 5	1.80	
1470698	< 5	1.40	
1470699	5	1.16	
1470700	< 5	0.924	
1274151	< 5	1.23	
1274152	< 5	0.938	
1274153	< 5	0.732	
1274154	< 5	0.334	
1274155	< 5	2.29	
1470865	< 5	0.0560	
1470866	< 5	0.152	
1470867	< 5	1.05	
1470868	< 5	0.592	
1470869	< 5	0.199	
1470870	< 5	0.273	
1470871	< 5	0.697	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1470872	< 5	0.100	
1470873	< 5	0.876	
1470874	< 5	0.885	
1470875	< 5	0.677	
1470876	< 5	0.821	
1470877	< 5	0.253	
1470878	< 5	0.602	
1470879	1240	0.0610	
1470880	< 5	0.387	
1470881	82	0.441	
1470882	51	0.323	
1470883	< 5	0.639	
1470884	< 5	0.158	
1470885	< 5	0.486	
1470886	< 5	0.502	
1470887	< 5	0.440	
1470888	< 5	0.551	
1470889	< 5	0.468	
1470890	< 5	0.476	
1470891	< 5	0.613	
1470892	< 5	0.833	
1470893	< 5	0.573	
1470894	< 5	0.131	
1470895	6	0.326	
1470896	< 5	0.530	
1470897	< 5	0.578	
1470898	< 5	0.327	
1470899	< 5	0.337	
1470900	< 5	0.236	
1274101	< 5	0.767	
1274102	59	1.11	
1274103	< 5	0.524	
1274104	5	0.962	
1274105	122	0.435	
1274106	< 5	1.32	
1274107	< 5	0.827	
1274108	1270	0.0820	
1274109	< 5	1.26	
1274110	< 5	0.778	
1274111	< 5	0.500	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1274112	< 5	1.22	
1274113	< 5	0.970	
1274114	< 5	1.10	
1274115	< 5	1.20	
1274116	68	0.165	
1274117	< 5	0.437	
1274118	< 5	0.654	
1274119	6	0.234	
1274120	< 5	1.06	
1274121	< 5	1.01	
1274122	< 5	0.859	
1274123	< 5	0.855	
1274124	< 5	2.02	
1274125	< 5	0.635	
1274126	< 5	0.943	
1274127	> 5000	0.111	6.15
1274128	5	0.634	
1274129	< 5	0.909	
1274130	< 5	1.45	
1274131	< 5	1.47	
1274132	< 5	0.991	
1274133	< 5	0.987	
1274134	< 5	1.57	
1274135	< 5	1.10	
1274136	< 5	1.12	
1274137	< 5	0.448	
1274138	< 5	0.785	
1274139	< 5	1.14	
1274140	< 5	1.62	
1274141	< 5	0.813	
1274142	< 5	0.895	
1274143	< 5	1.19	
1274144	< 5	1.18	
1274145	< 5	0.811	
1274146	< 5	0.889	
1274147	48	1.36	
1274148	< 5	1.38	
1274149	< 5	1.12	
1274150	21	1.35	
1132701	< 5	0.843	

Analyte Symbol	Au	Received Weight	Au
Unit Symbol	ppb	Kg	g/tonne
Lower Limit	5		0.03
Method Code	FA-AA	none	FA- GRA
1132702	< 5	0.794	
1132703	< 5	1.19	
1132704	< 5	1.13	
1132705	< 5	1.13	
1477528	< 5	0.559	
1477529	5	0.428	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
OxK110 Meas		3.64
OxK110 Cert		3.602
OXN117 Meas		7.67
OXN117 Cert		7.679
OREAS 251(FA-Anaster) Meas	504	
OREAS 251(FA-Anaster) Cert	504	
OREAS 251(FA-Anaster) Meas	524	
OREAS 251(FA-Anaster) Cert	504	
OREAS 251(FA-Anaster) Meas	515	
OREAS 251(FA-Anaster) Cert	504	
OREAS 251(FA-Anaster) Meas	516	
OREAS 251(FA-Anaster) Cert	504	
OREAS 251(FA-Anaster) Meas	527	
OREAS 251(FA-Anaster) Cert	504	
OREAS 251(FA-Anaster) Meas	518	
OREAS 251(FA-Anaster) Cert	504	
OREAS 16A (FA-Ancaster) Meas	1700	
OREAS 16A (FA-Ancaster) Cert	1810	
OREAS 16A (FA-Ancaster)	1860	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
Meas		
OREAS 16A (FA-Ancaster) Cert	1810	
OREAS 16A (FA-Ancaster) Meas	1850	
OREAS 16A (FA-Ancaster) Cert	1810	
OREAS 16A (FA-Ancaster) Meas	1860	
OREAS 16A (FA-Ancaster) Cert	1810	
OREAS 16A (FA-Ancaster) Meas	1780	
OREAS 16A (FA-Ancaster) Cert	1810	
OREAS 16A (FA-Ancaster) Meas	1760	
OREAS 16A (FA-Ancaster) Cert	1810	
OREAS 16A (FA-Ancaster) Meas	1810	
OREAS 16A (FA-Ancaster) Cert	1810	
OREAS 251 Meas	508	
OREAS 251 Cert	504.00	
1470975 Orig		4.22
1470975 Dup		3.69
1470980 Orig	< 5	
1470980 Dup	< 5	
1470990 Orig	< 5	
1470990 Dup	< 5	
1471000 Orig	< 5	
1471000 Dup	< 5	
1274215 Orig	< 5	
1274215 Dup	< 5	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
1274220 Orig	< 5	
1274220 Split PREP DUP	< 5	
1274224 Orig	< 5	
1274224 Dup	6	
1274234 Orig	< 5	
1274234 Dup	< 5	
1274249 Orig	< 5	
1274249 Dup	< 5	
1274259 Orig	38	
1274259 Dup	38	
1470691 Orig	< 5	
1470691 Dup	< 5	
1470692 Orig	< 5	
1470692 Split PREP DUP	< 5	
1274155 Orig	< 5	
1274155 Dup	< 5	
1470874 Orig	< 5	
1470874 Dup	< 5	
1470887 Orig	< 5	
1470887 Dup	< 5	
1274101 Orig	< 5	
1274101 Dup	< 5	
1274106 Orig	< 5	
1274106 Split PREP DUP	< 5	
1274109 Orig	< 5	
1274109 Dup	< 5	
1274118 Orig	< 5	
1274118 Dup	< 5	
1274133 Orig	< 5	
1274133 Dup	< 5	
1274143 Orig	< 5	
1274143 Dup	< 5	
1132701 Orig	< 5	
1132701 Split PREP DUP	< 5	
1132702 Orig	< 5	
1132702 Dup	< 5	
Method Blank	< 5	
Method Blank	< 5	

Analyte Symbol	Au	Au
Unit Symbol	ppb	g/tonne
Lower Limit	5	0.03
Method Code	FA-AA	FA- GRA
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank	< 5	
Method Blank		< 0.03
Method Blank	< 5	



Date Submitted: 15-Aug-16
Invoice No.: A16-08070 (i)
Invoice Date: 09-Nov-16
Your Reference: PENG-20160812-001-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

77 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-08070 (i)**

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Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is written over a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-08070

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027232	7.0	2.85	2.65	7.99	0.10	3.56	< 0.1	92	51.6	724	4.03	1.5	< 10	42.2	1.6	0.7	0.6	< 0.05	< 0.05	16.3	0.74	0.04	< 0.1
1027233	7.6	> 3.00	2.41	7.89	0.08	3.17	< 0.1	88	82.4	874	5.04	0.9	< 10	60.8	2.0	0.6	0.7	< 0.05	0.10	27.0	1.01	0.05	< 0.1
1027234	5.9	2.12	1.81	6.37	0.22	3.72	< 0.1	195	24.1	1340	9.43	2.2	< 10	1.5	3.5	0.5	1.2	< 0.05	1.00	43.4	1.01	< 0.02	0.2
1027235	6.0	1.91	2.33	6.28	0.22	4.38	< 0.1	411	9.1	1500	10.9	1.7	< 10	11.1	2.8	0.6	1.0	< 0.05	0.52	52.7	0.79	< 0.02	0.6
1027236	1.0	< 0.01	19.7	0.64	< 0.01	0.27	< 0.1	< 1	3070	958	4.74	< 0.1	< 10	2210	0.1	< 0.1	< 0.1	< 0.05	0.12	110	< 0.05	< 0.02	0.4
1027237	1.2	< 0.01	20.6	0.84	< 0.01	0.06	< 0.1	< 1	3670	747	4.71	< 0.1	< 10	2250	0.2	< 0.1	< 0.1	< 0.05	0.14	112	< 0.05	< 0.02	0.4
1027238	7.6	1.34	3.17	6.35	0.37	7.41	< 0.1	643	19.8	1360	10.5	2.4	< 10	41.7	2.3	0.5	0.8	< 0.05	0.53	45.5	0.90	0.02	0.3
1027239	12.6	2.41	1.35	5.76	1.72	0.30	0.5	143	86.0	680	6.40	3.4	40	22.6	1.2	0.6	0.4	0.68	0.52	11.0	0.67	0.03	0.3
1027240	10.5	2.37	1.06	2.68	1.38	0.06	0.3	174	99.3	531	6.56	3.6	30	11.0	0.4	0.6	0.1	0.63	0.46	6.7	0.20	0.05	0.6
1027241	17.6	0.06	1.37	> 10.0	3.14	0.09	< 0.1	112	70.8	177	3.55	3.5	10	23.1	0.8	0.7	0.3	0.17	3.70	8.3	0.53	0.07	0.3
1027242	0.9	0.01	0.16	0.24	0.02	0.70	< 0.1	12	33.4	321	0.71	< 0.1	30	2.0	0.2	< 0.1	< 0.1	< 0.05	0.08	3.2	0.07	0.02	< 0.1
1027301	3.8	1.57	0.40	2.86	0.12	1.25	0.2	41	219	949	2.27	< 0.1	< 10	60.2	0.8	0.2	0.3	< 0.05	0.32	13.9	0.88	< 0.02	0.2
1027302	35.6	1.70	2.25	7.26	1.77	4.83	0.2	141	168	2230	4.95	0.8	< 10	111	0.6	0.6	0.2	< 0.05	1.28	39.4	0.47	0.09	0.3
1027303	32.1	0.91	7.64	5.39	0.02	5.06	0.1	181	2840	2100	8.54	0.5	10	1010	0.4	0.2	0.1	< 0.05	0.61	101	0.24	0.21	0.5
1027304	18.7	0.99	5.15	3.05	0.97	14.4	< 0.1	76	1510	3500	7.63	0.4	< 10	797	0.9	0.2	0.3	< 0.05	42.1	60.7	0.66	0.03	0.3
1027305	37.3	1.91	4.55	5.34	1.89	3.26	< 0.1	171	2840	1770	8.63	0.8	< 10	963	0.4	0.2	0.1	< 0.05	84.7	78.8	0.25	0.04	0.6
1027308	49.3	2.74	3.40	8.26	0.78	3.02	0.2	111	210	1180	4.85	2.8	< 10	208	1.1	0.9	0.4	0.07	2.09	34.8	0.99	0.30	< 0.1
1027309	38.5	> 3.00	1.80	> 10.0	0.35	0.47	< 0.1	124	75.5	281	3.32	4.3	20	69.3	1.3	0.9	0.5	< 0.05	0.92	16.1	1.18	0.06	< 0.1
1027310	22.9	1.73	1.31	5.86	0.30	2.63	< 0.1	135	167	879	2.90	0.8	< 10	117	0.6	0.3	0.2	< 0.05	0.41	29.8	0.35	0.03	0.2
1027311	19.0	0.76	1.10	4.10	1.04	0.95	0.2	140	188	674	2.80	0.8	< 10	115	0.3	0.5	0.1	< 0.05	1.05	26.6	0.20	0.03	0.2
1027312	1.9	0.07	0.14	0.69	0.14	0.96	< 0.1	22	56.7	251	0.94	< 0.1	< 10	13.1	0.1	< 0.1	< 0.1	< 0.05	0.22	5.3	0.07	0.03	0.2
1027313	11.1	1.87	3.75	8.51	1.27	5.01	1.1	134	198	1120	4.98	1.4	40	154	2.1	0.8	0.7	0.47	1.23	27.1	0.78	0.35	0.3
1027314	11.0	< 0.01	7.70	3.86	< 0.01	6.13	< 0.1	101	1580	1540	8.13	0.6	< 10	725	0.3	< 0.1	0.1	0.05	0.11	60.9	0.27	0.20	1.0
1027315	14.0	< 0.01	5.76	5.40	< 0.01	1.15	< 0.1	131	2610	751	11.8	0.8	< 10	1010	0.5	< 0.1	0.2	< 0.05	0.09	112	0.21	0.38	2.5
1027316	32.7	2.99	2.82	7.47	0.36	4.81	0.2	176	200	1620	5.77	4.2	40	136	1.4	0.6	0.5	0.05	0.56	35.4	2.67	0.06	0.2
1027317	43.0	2.10	2.97	8.86	0.92	4.23	0.1	144	201	797	4.63	0.8	20	265	0.6	0.3	0.2	< 0.05	1.00	49.9	0.53	< 0.02	0.2
1027318	53.5	2.65	2.74	> 10.0	1.01	1.89	0.1	266	290	697	6.98	1.7	20	213	0.6	0.4	0.2	< 0.05	1.06	53.0	0.65	0.09	0.6
1027319	31.6	> 3.00	2.38	8.10	0.64	2.06	0.3	125	154	3240	5.35	0.8	< 10	126	0.6	0.5	0.2	< 0.05	0.67	44.6	0.62	0.02	0.2
1027320	6.7	2.46	3.76	3.94	0.52	12.7	< 0.1	107	1600	1850	5.61	0.4	< 10	579	0.5	0.1	0.2	< 0.05	20.4	64.7	0.34	0.02	0.2
1027321	20.0	1.67	6.80	3.60	0.02	2.43	0.4	128	3360	3210	7.36	0.4	20	1270	0.5	0.1	0.2	< 0.05	0.34	122	0.46	0.07	0.3
1477601	1.2	0.29	0.30	0.77	0.05	1.38	< 0.1	22	43.6	261	1.00	0.1	< 10	5.0	0.2	< 0.1	< 0.1	< 0.05	0.11	4.6	0.05	< 0.02	< 0.1
1477602	1.6	2.84	0.86	6.67	0.56	2.61	< 0.1	52	23.5	1160	10.4	3.7	< 10	3.3	4.9	0.3	1.8	< 0.05	3.36	32.9	1.63	0.03	3.5
1477604	3.0	2.20	1.61	6.60	0.37	4.07	< 0.1	92	9.0	1560	11.3	1.8	< 10	1.7	3.3	0.5	1.2	< 0.05	2.55	35.9	1.11	< 0.02	< 0.1
1477605	0.9	< 0.01	19.2	0.65	< 0.01	0.05	0.2	15	807	1110	6.40	< 0.1	< 10	1900	0.1	< 0.1	< 0.1	< 0.05	0.14	97.2	< 0.05	< 0.02	< 0.1
1477606	10.1	1.69	1.26	8.25	2.33	0.12	0.3	127	101	674	9.28	2.3	70	8.9	1.4	0.7	0.5	1.63	0.85	3.6	1.28	0.05	0.3
1477608	14.1	2.63	2.25	8.80	1.99	0.32	0.6	134	115	922	8.58	3.0	20	47.4	1.5	0.6	0.5	0.78	0.62	20.7	1.38	< 0.02	0.2
1477609	11.7	0.16	2.18	7.26	3.23	4.42	< 0.1	83	289	1600	3.84	2.3	20	135	1.0	0.4	0.3	0.07	2.76	22.9	0.74	0.03	< 0.1
1477610	0.7	0.14	0.13	0.43	0.03	0.03	< 0.1	10	32.7	95	0.67	< 0.1	< 10	2.6	0.2	< 0.1	< 0.1	< 0.05	< 0.05	1.6	0.12	< 0.02	< 0.1
1027401	14.7	> 3.00	0.55	6.73	1.31	0.54	< 0.1	47	47.8	402	2.38	2.7	< 10	29.0	0.5	1.1	0.2	< 0.05	2.30	9.2	0.56	0.08	0.1
1027402	13.0	> 3.00	0.57	7.76	2.07	0.49	< 0.1	58	48.5	233	1.81	3.5	< 10	26.5	0.4	1.2	0.2	0.05	2.82	5.7	0.54	2.65	0.2
1027403	24.6	2.52	1.31	9.80	2.40	0.64	< 0.1	92	106	318	2.96	3.9	< 10	54.7	1.0	1.5	0.4	1.87	3.78	7.4	1.73	6.81	0.1
1027404	29.0	1.68	1.54	9.80	2.47	1.11	< 0.1	138	95.4	468	3.81	3.9	40	47.1	1.3	1.3	0.5	< 0.05	4.51	9.3	1.04	0.24	0.2

Results

Activation Laboratories Ltd.

Report: A16-08070

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027405	29.0	2.24	1.88	9.00	2.58	1.42	< 0.1	134	103	497	4.27	2.2	30	80.6	1.4	1.3	0.6	< 0.05	3.47	22.5	1.43	0.24	0.2
1027406	25.9	1.82	1.50	> 10.0	2.70	1.07	< 0.1	130	93.0	411	3.66	2.3	20	58.5	1.4	1.2	0.5	< 0.05	3.44	18.4	1.17	0.31	0.2
1027408	18.1	> 3.00	2.02	7.85	1.55	1.87	0.1	96	104	447	3.64	2.6	< 10	64.7	1.2	1.1	0.5	< 0.05	4.15	18.2	1.41	0.14	0.3
1027409	11.3	> 3.00	1.16	6.43	0.31	3.68	0.1	77	89.9	764	2.99	3.1	10	51.6	1.1	0.7	0.4	< 0.05	0.93	19.3	1.18	0.16	0.3
1027410	17.0	> 3.00	1.11	8.72	1.43	1.56	< 0.1	54	36.0	388	2.52	3.3	< 10	30.1	0.7	1.3	0.3	< 0.05	2.20	8.8	0.88	0.05	< 0.1
1027411	4.5	2.53	0.22	5.76	1.16	0.34	< 0.1	37	47.7	222	1.81	1.5	30	16.3	0.4	0.9	0.2	0.09	1.53	5.2	0.54	0.11	0.1
1027412	8.4	> 3.00	0.45	9.81	2.21	0.75	0.1	61	42.6	463	2.75	3.8	20	33.6	0.7	1.6	0.3	< 0.05	2.50	9.2	0.93	0.23	< 0.1
1027413	8.0	> 3.00	0.25	6.47	1.29	1.00	0.8	43	44.0	469	3.35	1.7	< 10	22.3	0.6	0.9	0.2	< 0.05	2.23	14.3	1.01	0.45	0.3
1027414	11.9	> 3.00	0.68	7.87	1.55	0.67	< 0.1	43	37.6	236	1.75	2.9	10	17.4	0.4	1.3	0.2	< 0.05	1.48	5.6	0.55	0.05	0.1
1027415	9.8	2.04	3.86	8.49	1.35	5.49	1.2	147	168	1140	5.07	1.6	< 10	165	2.2	0.8	0.8	0.42	1.30	28.2	0.83	0.34	0.5
1027416	20.4	1.84	1.77	5.69	0.82	1.16	< 0.1	68	135	513	3.18	2.4	< 10	124	1.1	0.5	0.4	< 0.05	0.68	17.3	0.81	0.08	0.1
1027417	15.4	> 3.00	0.76	8.04	2.19	0.27	< 0.1	59	75.4	246	2.57	3.2	10	29.4	0.6	1.5	0.2	< 0.05	1.80	10.3	0.64	0.03	0.2
1027418	37.5	2.35	4.23	7.45	0.53	3.74	< 0.1	95	212	819	5.92	2.5	< 10	179	1.0	0.7	0.4	< 0.05	1.95	32.6	1.32	0.02	< 0.1
1027419	10.9	> 3.00	0.92	5.67	1.24	1.54	< 0.1	51	51.6	326	2.06	2.6	20	25.0	0.4	1.4	0.2	0.16	3.40	9.6	0.42	0.06	0.2
1027420	38.0	1.38	2.99	8.66	2.41	1.72	< 0.1	133	591	692	4.86	2.9	20	333	1.1	0.9	0.4	0.07	2.08	42.8	0.67	0.25	0.2
1027421	11.3	> 3.00	0.68	8.38	2.03	1.34	< 0.1	55	41.5	410	2.48	3.2	< 10	30.7	0.7	1.4	0.3	< 0.05	2.05	9.7	0.93	0.04	0.1
1027422	24.5	1.30	2.08	8.74	2.40	0.63	< 0.1	106	177	529	4.21	2.8	10	154	1.1	1.0	0.4	< 0.05	3.35	27.7	1.04	0.24	0.2
1027423	21.2	2.28	1.68	8.89	2.56	0.91	< 0.1	121	99.5	403	3.37	2.8	< 10	84.3	1.0	1.1	0.4	< 0.05	2.73	15.1	1.13	0.06	0.2
1027424	15.1	> 3.00	1.06	7.63	1.18	0.52	< 0.1	50	34.4	219	2.55	3.1	< 10	26.9	0.5	1.0	0.2	< 0.05	1.22	8.6	0.86	0.08	0.1
1027425	13.2	> 3.00	0.94	8.04	1.19	1.61	< 0.1	43	39.8	480	2.58	3.1	< 10	27.3	0.7	1.0	0.3	< 0.05	2.25	9.6	0.88	0.10	< 0.1
1027427	15.5	> 3.00	0.95	7.92	1.52	1.36	< 0.1	53	36.0	386	2.73	3.3	< 10	27.7	0.7	1.2	0.3	0.11	2.56	9.1	0.91	0.04	< 0.1
1027429	13.7	> 3.00	1.11	8.28	1.81	2.29	< 0.1	54	35.8	471	2.53	3.2	40	27.3	0.7	1.2	0.3	0.05	2.14	9.2	0.94	0.07	0.1
1027430	16.0	> 3.00	0.74	8.82	2.62	1.20	< 0.1	58	37.0	401	2.76	3.5	20	28.4	0.7	1.6	0.3	< 0.05	6.13	9.3	0.96	0.04	0.1
1027432	12.8	> 3.00	0.80	6.36	1.67	0.67	< 0.1	55	53.2	384	2.44	3.3	< 10	30.4	0.5	1.3	0.2	< 0.05	1.85	8.9	0.67	0.05	0.2
1027433	13.2	> 3.00	1.08	8.26	2.27	2.10	< 0.1	53	38.5	430	2.69	3.1	10	23.7	0.9	1.4	0.4	< 0.05	2.22	9.5	1.19	0.11	0.2
1027434	13.1	> 3.00	1.08	7.73	2.54	0.54	< 0.1	55	35.2	260	2.32	3.1	< 10	26.4	0.5	1.4	0.2	< 0.05	3.28	11.4	0.66	0.21	< 0.1
1027435	12.4	> 3.00	1.12	8.28	2.44	0.83	< 0.1	56	29.9	302	2.42	3.1	< 10	26.5	0.6	1.5	0.2	< 0.05	2.91	11.0	0.73	0.13	< 0.1
1027436	10.5	> 3.00	0.65	7.56	1.41	0.47	< 0.1	49	32.7	359	1.87	2.4	< 10	20.2	0.5	1.2	0.2	< 0.05	1.79	6.9	0.63	0.11	0.1
1027437	15.3	> 3.00	1.15	7.02	1.77	1.72	< 0.1	50	39.1	407	2.56	3.3	< 10	28.8	0.7	1.2	0.3	< 0.05	2.87	10.4	0.95	0.14	< 0.1
1027438	20.2	> 3.00	1.03	8.69	2.96	1.40	< 0.1	59	35.1	358	2.72	3.2	< 10	30.1	0.6	1.4	0.2	< 0.05	2.58	9.5	0.89	0.04	0.1
1027439	12.1	> 3.00	1.14	8.80	2.09	0.97	< 0.1	54	33.2	296	2.75	3.1	30	26.8	0.7	1.4	0.3	< 0.05	1.98	9.7	0.84	0.07	< 0.1
1027440	10.4	> 3.00	0.86	7.53	1.66	0.93	< 0.1	57	33.1	418	2.62	3.3	10	26.4	0.6	1.4	0.2	< 0.05	1.51	10.9	0.92	0.13	< 0.1
1027441	10.0	> 3.00	0.94	8.23	1.77	0.98	< 0.1	45	40.9	350	2.72	2.8	10	29.9	0.7	1.4	0.3	< 0.05	2.17	11.2	0.85	0.06	< 0.1
1027442	10.0	> 3.00	1.10	9.77	1.51	1.36	< 0.1	52	36.5	419	2.50	3.3	< 10	26.6	0.8	1.1	0.3	< 0.05	1.22	8.6	0.95	0.04	0.2
1027443	13.2	> 3.00	0.94	5.56	1.83	1.10	< 0.1	50	48.9	416	2.13	2.9	< 10	24.8	0.6	1.1	0.2	< 0.05	1.63	8.7	0.68	0.09	0.1

Results

Activation Laboratories Ltd.

Report: A16-08070

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027232	72.0	14.4	14.4	2.6	16.8	138	51	0.6	0.20	< 0.1	< 1	0.2	< 0.1	61	13.8	31.6	3.8	14.4	3.2	3.3	0.5	2.9	42.2
1027233	89.0	16.8	13.2	2.2	20.7	105	31	0.9	0.15	< 0.1	< 1	< 0.1	< 0.1	32	13.9	33.0	4.3	16.6	3.8	4.2	0.6	3.7	69.7
1027234	66.1	17.5	< 0.1	8.3	32.8	74.9	85	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	92	7.0	18.6	2.8	12.0	3.7	5.1	0.8	5.6	43.4
1027235	91.6	16.9	< 0.1	3.4	26.2	64.6	63	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	53	6.2	16.3	2.1	9.5	3.1	4.0	0.7	4.5	55.8
1027236	42.9	1.7	11.4	0.8	1.0	3.4	2	< 0.1	0.29	< 0.1	< 1	2.2	< 0.1	18	0.2	0.6	< 0.1	0.3	< 0.1	0.1	< 0.1	0.2	7.2
1027237	55.1	2.1	24.1	1.1	1.4	2.4	2	< 0.1	0.32	< 0.1	< 1	2.3	< 0.1	17	0.5	1.1	0.1	0.6	0.1	0.2	< 0.1	0.2	18.8
1027238	50.5	19.3	< 0.1	10.0	21.7	137	86	1.9	0.16	< 0.1	< 1	0.1	< 0.1	142	6.0	15.4	2.1	8.9	2.4	3.4	0.6	3.7	30.2
1027239	585	14.6	4.6	29.0	10.2	36.5	150	1.8	0.45	< 0.1	2	< 0.1	< 0.1	326	7.0	19.8	2.5	10.4	2.6	2.6	0.4	1.9	112
1027240	557	14.8	18.9	16.9	2.6	26.1	156	9.1	0.87	< 0.1	10	0.3	< 0.1	229	1.3	4.5	0.5	2.2	0.7	0.7	0.1	0.6	115
1027241	62.6	13.1	1.5	73.3	7.0	16.0	151	5.1	1.00	< 0.1	2	0.2	< 0.1	1210	7.1	16.9	2.0	7.5	1.8	1.7	0.2	1.3	57.5
1027242	8.7	1.1	69.9	0.9	2.2	6.3	2	< 0.1	1.01	< 0.1	< 1	0.3	< 0.1	17	1.0	2.3	0.2	0.9	0.2	0.3	< 0.1	0.4	8.4
1027301	29.1	2.6	5.2	4.6	9.1	38.9	4	0.5	0.99	< 0.1	< 1	0.3	< 0.1	147	2.9	8.1	1.2	5.6	1.8	2.0	0.3	1.7	37.7
1027302	71.3	12.4	19.8	30.4	5.8	302	31	0.1	0.19	< 0.1	< 1	< 0.1	< 0.1	555	2.4	6.9	1.1	5.0	1.6	1.6	0.2	1.2	78.8
1027303	78.4	12.2	95.6	1.0	3.6	51.5	20	0.7	0.50	< 0.1	< 1	0.1	< 0.1	51	1.4	3.3	0.4	1.8	0.5	0.7	0.1	0.6	45.9
1027304	60.8	4.9	11.2	68.3	9.2	121	22	0.5	0.26	< 0.1	< 1	0.7	< 0.1	232	0.9	2.7	0.4	2.2	0.9	1.4	0.2	1.6	21.8
1027305	94.3	7.4	2.3	128	3.4	13.7	28	0.5	0.91	< 0.1	< 1	0.1	< 0.1	621	0.9	2.6	0.4	1.7	0.5	0.7	0.1	0.7	119
1027308	88.8	16.6	89.1	23.5	11.2	509	112	2.7	0.25	< 0.1	< 1	0.1	0.1	114	15.7	38.6	5.0	20.2	4.3	3.6	0.5	2.2	11.3
1027309	30.0	21.7	7.2	11.4	13.2	330	174	0.3	0.84	< 0.1	< 1	< 0.1	< 0.1	209	24.2	59.7	6.8	25.4	4.9	3.9	0.5	2.5	8.1
1027310	81.0	9.7	22.7	8.4	6.2	142	30	0.5	0.47	< 0.1	< 1	< 0.1	< 0.1	99	1.5	4.2	0.5	2.6	0.8	1.1	0.2	1.2	14.7
1027311	75.3	10.2	11.9	19.9	2.4	107	29	1.2	1.20	< 0.1	1	0.3	< 0.1	304	0.7	2.8	0.3	1.3	0.4	0.5	< 0.1	0.5	26.6
1027312	10.4	1.6	2.7	4.2	1.7	23.9	3	< 0.1	1.10	< 0.1	< 1	0.2	< 0.1	43	0.4	1.1	0.1	0.5	0.2	0.3	< 0.1	0.3	18.3
1027313	298	13.2	18.8	36.3	21.6	371	37	6.0	5.33	< 0.1	2	0.9	< 0.1	485	14.3	31.4	3.9	14.6	3.3	3.5	0.5	3.4	181
1027314	63.9	8.5	34.1	0.2	2.6	42.4	19	0.4	0.41	< 0.1	< 1	0.1	< 0.1	12	1.4	3.5	0.5	2.5	0.8	0.7	< 0.1	0.5	142
1027315	73.1	11.1	1.6	< 0.2	4.3	8.7	26	0.6	0.32	< 0.1	< 1	< 0.1	< 0.1	4	2.1	5.3	0.8	3.4	0.9	0.9	0.1	0.8	341
1027316	119	15.8	16.2	10.8	15.1	295	173	2.5	0.57	< 0.1	< 1	0.1	0.1	122	43.5	102	12.6	47.0	8.8	6.9	0.8	3.2	45.5
1027317	78.4	16.6	86.8	20.1	5.5	144	30	< 0.1	0.16	< 0.1	< 1	< 0.1	< 0.1	338	2.1	6.0	0.9	4.2	1.4	1.5	0.2	1.2	100
1027318	152	21.6	31.8	17.9	5.0	226	63	0.8	0.39	< 0.1	< 1	< 0.1	< 0.1	380	1.8	5.8	0.8	3.8	1.2	1.2	0.2	1.0	142
1027319	98.7	12.5	24.7	15.0	5.8	223	32	< 0.1	0.18	< 0.1	< 1	< 0.1	< 0.1	231	2.3	7.3	1.0	4.7	1.6	1.8	0.2	1.3	56.9
1027320	54.6	6.0	< 0.1	34.3	5.2	99.7	12	< 0.1	0.18	< 0.1	< 1	< 0.1	< 0.1	157	0.6	1.6	0.3	1.3	0.5	0.8	0.1	0.9	42.6
1027321	99.9	9.3	126	< 0.2	3.9	27.5	12	0.6	1.86	< 0.1	< 1	0.5	0.1	135	1.6	4.8	0.6	2.4	0.7	0.9	0.1	0.8	9.8
1477601	11.7	1.9	14.4	1.2	2.0	10.0	6	0.2	1.03	< 0.1	< 1	0.2	< 0.1	19	0.5	1.2	0.2	0.7	0.2	0.3	< 0.1	0.3	5.0
1477602	77.1	18.8	< 0.1	16.1	49.3	127	151	6.9	1.04	0.1	1	0.2	< 0.1	310	13.6	32.3	4.3	18.4	5.4	7.3	1.2	8.1	291
1477604	73.5	19.7	< 0.1	14.2	33.5	107	78	< 0.1	< 0.05	0.1	< 1	< 0.1	< 0.1	230	7.1	19.3	2.6	11.7	3.5	4.9	0.8	5.4	3.9
1477605	48.1	1.1	10.5	0.7	1.1	1.9	3	0.1	0.72	< 0.1	< 1	1.8	< 0.1	22	0.6	1.4	0.1	0.5	0.1	0.2	< 0.1	0.2	7.9
1477606	476	17.9	94.9	43.6	12.5	43.5	121	< 0.1	0.15	< 0.1	2	< 0.1	< 0.1	415	13.0	32.1	4.1	15.8	3.8	3.6	0.5	2.4	121
1477608	504	19.6	6.2	33.1	13.9	35.9	136	1.6	0.10	< 0.1	5	< 0.1	< 0.1	314	10.9	30.0	4.0	16.4	4.0	3.8	0.5	2.7	130
1477609	91.2	10.7	73.5	64.1	9.1	91.6	99	0.1	0.29	< 0.1	< 1	< 0.1	< 0.1	947	8.7	19.1	2.3	8.7	2.0	2.0	0.3	1.6	9.9
1477610	4.1	1.2	16.9	0.9	2.2	2.6	3	< 0.1	0.92	< 0.1	< 1	0.2	< 0.1	6	0.8	1.9	0.2	0.9	0.3	0.4	< 0.1	0.4	4.2
1027401	77.7	17.0	0.5	34.0	5.3	252	113	6.1	0.48	< 0.1	1	0.4	< 0.1	427	10.3	27.5	2.7	10.4	2.1	1.8	0.2	1.0	19.4
1027402	43.6	20.3	28.8	54.3	5.4	330	139	4.1	0.92	< 0.1	< 1	0.3	0.5	352	11.4	28.2	3.1	12.2	2.5	2.0	0.2	1.0	7.4
1027403	78.8	21.2	35.4	74.0	12.1	365	173	0.2	6.87	< 0.1	< 1	< 0.1	< 0.1	556	42.0	96.3	10.8	39.3	7.5	5.7	0.6	2.6	3.0
1027404	73.3	22.5	22.7	95.5	13.8	425	180	0.5	0.80	< 0.1	< 1	< 0.1	0.1	660	27.5	61.3	7.0	24.0	4.2	3.4	0.4	2.3	20.1

Results

Activation Laboratories Ltd.

Report: A16-08070

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027405	90.6	19.2	10.2	74.2	15.9	712	98	< 0.1	1.69	< 0.1	1	< 0.1	< 0.1	1180	32.8	77.5	9.3	33.8	5.8	4.7	0.6	2.9	49.5
1027406	73.7	18.9	8.7	77.0	15.0	455	101	< 0.1	0.49	< 0.1	< 1	< 0.1	< 0.1	818	26.5	62.6	7.2	26.6	4.9	4.0	0.5	2.6	44.9
1027408	74.6	17.2	10.5	21.4	13.5	640	116	2.1	1.03	< 0.1	< 1	< 0.1	< 0.1	586	30.8	76.1	8.7	32.0	5.8	4.4	0.5	2.4	41.9
1027409	58.5	13.4	< 0.1	11.9	13.2	512	138	3.7	1.50	< 0.1	< 1	0.3	< 0.1	170	26.9	60.2	7.9	29.7	5.5	4.2	0.5	2.3	61.8
1027410	82.9	19.7	< 0.1	48.0	7.7	605	135	5.2	0.33	< 0.1	< 1	5.4	< 0.1	544	18.5	41.5	5.0	18.2	3.4	2.8	0.3	1.5	8.3
1027411	27.8	12.6	27.1	38.6	4.6	259	71	4.3	0.95	< 0.1	< 1	0.5	< 0.1	409	9.7	23.2	2.7	9.8	2.0	1.6	0.2	0.9	8.6
1027412	48.3	22.2	32.0	70.8	8.5	492	155	6.8	0.50	< 0.1	1	0.4	< 0.1	701	19.0	45.9	5.0	18.6	3.7	3.0	0.3	1.6	11.8
1027413	348	13.4	39.2	40.5	7.5	320	87	4.8	2.00	< 0.1	< 1	0.4	< 0.1	451	12.9	30.8	3.6	14.5	3.2	2.8	0.3	1.4	122
1027414	43.4	19.0	< 0.1	40.7	5.0	484	120	0.2	0.25	< 0.1	< 1	< 0.1	< 0.1	623	9.8	23.1	2.6	9.6	1.9	1.7	0.2	0.9	25.9
1027415	307	14.2	23.1	37.2	22.9	397	46	8.2	6.11	< 0.1	2	2.0	< 0.1	522	14.8	32.9	4.0	15.2	3.6	3.6	0.5	3.5	193
1027416	79.8	11.9	20.7	21.6	11.5	254	109	4.1	0.83	< 0.1	< 1	< 0.1	< 0.1	171	18.8	42.0	4.8	17.8	3.1	2.7	0.3	1.8	10.5
1027417	68.2	22.0	1.4	57.6	7.1	326	133	0.6	0.23	< 0.1	1	< 0.1	< 0.1	765	11.3	27.3	2.9	10.9	2.1	1.9	0.2	1.2	9.4
1027418	146	18.1	< 0.1	23.0	12.0	533	118	0.2	0.06	< 0.1	< 1	< 0.1	< 0.1	177	34.3	72.2	8.4	30.8	5.6	4.4	0.5	2.3	6.7
1027419	37.0	16.4	< 0.1	34.6	4.8	542	112	6.1	0.61	< 0.1	2	0.6	< 0.1	362	6.4	21.6	1.9	6.9	1.4	1.3	0.2	0.9	73.5
1027420	98.1	19.4	50.3	63.4	11.7	236	124	1.9	1.42	< 0.1	1	1.0	< 0.1	510	13.1	30.6	3.8	13.9	2.6	2.5	0.3	1.9	78.2
1027421	60.9	19.9	0.6	60.7	8.0	464	139	4.5	0.52	< 0.1	1	0.1	< 0.1	715	18.4	43.3	4.8	18.4	3.7	2.9	0.3	1.5	24.8
1027422	97.7	19.0	< 0.1	80.9	12.3	233	116	0.3	1.04	< 0.1	1	< 0.1	< 0.1	771	22.0	51.4	6.1	22.0	3.8	3.3	0.4	2.2	57.0
1027423	70.0	20.8	6.5	74.2	10.9	370	128	< 0.1	0.11	< 0.1	< 1	< 0.1	< 0.1	804	26.6	60.7	7.1	25.5	4.8	3.6	0.4	2.2	50.0
1027424	64.4	19.4	3.6	36.0	6.5	282	129	0.7	0.28	< 0.1	< 1	< 0.1	< 0.1	394	19.2	44.1	5.0	18.9	3.6	2.8	0.3	1.3	7.5
1027425	84.3	17.2	< 0.1	29.8	8.1	543	132	4.2	0.58	< 0.1	1	0.4	< 0.1	437	18.2	41.5	4.8	18.1	3.5	2.8	0.3	1.5	25.6
1027427	77.8	19.3	1.9	45.5	8.0	594	136	5.3	0.40	< 0.1	1	0.6	< 0.1	572	19.5	46.6	5.1	18.7	3.6	2.9	0.3	1.5	47.5
1027429	75.7	19.4	< 0.1	46.2	8.4	635	138	4.3	0.40	< 0.1	1	0.3	< 0.1	587	20.3	44.2	5.4	19.7	3.8	3.1	0.4	1.6	20.9
1027430	58.9	20.1	< 0.1	82.6	8.2	522	147	2.6	0.28	< 0.1	< 1	< 0.1	< 0.1	864	21.4	47.4	5.6	20.3	3.9	3.0	0.4	1.6	9.6
1027432	55.4	19.0	< 0.1	40.5	5.9	487	146	9.0	0.52	< 0.1	1	0.4	< 0.1	629	11.5	32.4	3.4	12.5	2.4	2.1	0.3	1.1	6.6
1027433	63.3	19.9	< 0.1	67.3	10.8	611	135	1.4	0.36	< 0.1	1	< 0.1	< 0.1	828	22.9	52.1	6.2	23.4	4.2	3.6	0.4	2.0	32.3
1027434	74.6	20.0	4.6	78.9	6.2	285	132	3.6	0.66	< 0.1	1	0.2	< 0.1	819	11.8	30.7	3.3	11.9	2.4	2.0	0.2	1.2	11.1
1027435	70.6	20.1	2.7	75.9	7.0	328	128	4.5	0.34	< 0.1	1	0.2	< 0.1	762	14.5	34.1	3.9	14.3	2.8	2.3	0.3	1.3	12.7
1027436	44.0	17.3	2.8	41.8	5.6	376	108	1.9	0.59	< 0.1	1	0.2	< 0.1	478	10.1	23.4	2.8	10.3	2.0	1.8	0.2	1.1	13.8
1027437	72.3	18.5	2.4	54.8	8.1	458	136	3.9	0.54	< 0.1	< 1	0.2	< 0.1	602	20.3	45.8	5.4	19.8	3.7	3.1	0.4	1.6	11.7
1027438	75.9	21.4	< 0.1	82.0	6.8	362	132	1.1	0.23	< 0.1	1	< 0.1	< 0.1	863	19.0	42.9	4.9	18.8	3.4	2.8	0.3	1.3	65.6
1027439	67.4	20.5	< 0.1	62.5	8.6	546	132	1.3	0.35	< 0.1	< 1	< 0.1	< 0.1	636	16.3	37.8	4.3	16.2	3.1	2.6	0.3	1.6	3.8
1027440	66.2	20.0	0.1	51.5	7.4	562	131	2.5	0.72	< 0.1	1	0.3	< 0.1	614	18.6	43.4	5.3	18.8	3.8	2.9	0.3	1.4	10.1
1027441	71.6	21.7	< 0.1	50.7	7.7	692	119	0.1	0.07	< 0.1	< 1	< 0.1	< 0.1	631	16.8	39.3	4.6	16.8	3.3	2.7	0.3	1.5	11.6
1027442	66.3	18.3	< 0.1	46.1	9.4	353	139	5.8	0.29	< 0.1	1	0.4	< 0.1	540	19.7	45.8	5.4	19.8	3.6	3.1	0.4	1.7	21.0
1027443	93.9	17.0	< 0.1	49.1	6.1	411	123	7.6	0.27	< 0.1	< 1	0.6	< 0.1	582	9.4	30.0	2.9	11.2	2.2	1.9	0.2	1.2	21.0

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1027232	0.1	0.2	1.5	0.1	0.1	< 0.1	< 0.001	< 0.05	4.6	15	1.6	0.4	0.379	0.062	0.22
1027233	0.2	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	6.3	19	1.2	0.3	0.553	0.084	0.12
1027234	0.1	0.5	3.8	0.5	< 0.1	< 0.1	0.002	< 0.05	1.2	37	1.2	0.3	0.299	0.062	0.20
1027235	< 0.1	0.4	3.0	0.3	< 0.1	< 0.1	0.002	< 0.05	1.2	47	0.8	0.2	0.501	0.041	0.45
1027236	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.5	0.001	< 0.05	1.4	7	< 0.1	< 0.1	0.0228	0.004	< 0.01
1027237	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.9	< 0.001	< 0.05	2.5	8	0.2	< 0.1	0.0247	0.004	< 0.01
1027238	0.4	0.3	2.5	0.3	< 0.1	0.2	0.001	< 0.05	1.8	43	0.9	0.3	0.830	0.047	0.67
1027239	0.2	0.2	1.8	0.2	< 0.1	< 0.1	< 0.001	1.58	12.9	24	0.7	0.2	0.685	0.121	0.08
1027240	0.3	< 0.1	0.6	< 0.1	0.6	0.3	< 0.001	1.34	57.7	15	< 0.1	0.1	0.822	0.094	0.08
1027241	0.2	0.1	1.2	0.2	0.3	0.3	< 0.001	0.74	4.6	19	1.7	0.5	0.369	0.046	0.28
1027242	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	3	< 0.1	< 0.1	0.0103	0.006	< 0.01
1027301	< 0.1	< 0.1	0.7	< 0.1	< 0.1	0.4	< 0.001	< 0.05	2.4	10	0.2	< 0.1	0.106	0.344	0.01
1027302	0.3	< 0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	0.13	5.5	32	0.2	< 0.1	0.444	0.031	0.21
1027303	0.2	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.9	35	0.2	< 0.1	0.314	0.013	0.18
1027304	0.2	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.52	1.2	20	< 0.1	< 0.1	0.174	0.009	0.06
1027305	0.3	< 0.1	0.5	< 0.1	< 0.1	< 0.1	0.004	1.16	0.7	37	0.1	< 0.1	0.319	0.013	0.19
1027308	0.4	0.2	1.2	0.1	0.1	5.3	< 0.001	0.07	9.4	20	2.5	0.8	0.431	0.081	< 0.01
1027309	0.1	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	< 0.05	7.3	17	6.0	1.7	0.374	0.082	0.01
1027310	0.1	< 0.1	0.7	< 0.1	< 0.1	1.6	< 0.001	< 0.05	3.7	21	0.2	< 0.1	0.256	0.014	0.02
1027311	0.5	< 0.1	0.4	< 0.1	< 0.1	6.1	< 0.001	0.09	2.6	19	0.1	< 0.1	0.257	0.015	0.01
1027312	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.5	< 0.001	< 0.05	2.3	3	< 0.1	< 0.1	0.0310	0.007	0.08
1027313	0.1	0.3	2.4	0.3	0.2	11.2	0.002	0.23	57.5	20	4.8	1.6	0.295	0.044	0.12
1027314	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.5	25	< 0.1	< 0.1	0.117	0.019	0.51
1027315	< 0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.1	0.002	< 0.05	0.9	34	0.1	< 0.1	0.222	0.010	2.50
1027316	0.2	0.2	1.4	0.2	0.1	1.8	< 0.001	< 0.05	4.8	27	3.9	0.8	0.489	0.210	0.12
1027317	0.4	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.07	2.1	41	0.2	< 0.1	0.361	0.025	0.04
1027318	0.7	< 0.1	0.8	0.1	< 0.1	0.2	0.001	0.09	3.5	55	0.3	0.4	0.610	0.027	0.14
1027319	0.4	< 0.1	0.7	< 0.1	< 0.1	0.6	< 0.001	< 0.05	6.4	28	0.2	< 0.1	0.393	0.084	0.03
1027320	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.21	1.2	25	< 0.1	< 0.1	0.211	0.011	0.02
1027321	0.9	< 0.1	0.5	< 0.1	< 0.1	0.2	0.003	< 0.05	2.6	25	0.1	< 0.1	0.199	0.019	0.01
1477601	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	4	< 0.1	< 0.1	0.0544	0.004	< 0.01
1477602	< 0.1	0.7	5.2	0.6	0.3	0.3	0.001	< 0.05	1.5	31	1.5	0.4	0.637	0.080	1.62
1477604	0.3	0.5	3.4	0.4	< 0.1	< 0.1	< 0.001	< 0.05	2.4	39	0.9	0.3	0.409	0.052	< 0.01
1477605	0.1	< 0.1	0.1	< 0.1	< 0.1	0.4	< 0.001	< 0.05	1.5	10	< 0.1	< 0.1	0.0364	0.009	< 0.01
1477606	0.2	0.2	1.8	0.2	< 0.1	< 0.1	< 0.001	2.21	419	27	1.0	0.3	0.301	0.100	0.18
1477608	0.4	0.2	1.9	0.2	< 0.1	< 0.1	< 0.001	1.62	10.6	28	0.9	0.3	0.570	0.108	0.53
1477609	0.3	0.1	1.2	0.1	< 0.1	< 0.1	< 0.001	0.54	5.5	18	1.3	0.3	0.228	0.036	0.03
1477610	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	2	< 0.1	< 0.1	0.0178	0.007	< 0.01
1027401	< 0.1	< 0.1	0.5	< 0.1	0.3	2.7	< 0.001	0.09	6.9	5	1.8	0.5	0.216	0.041	0.02
1027402	< 0.1	< 0.1	0.5	< 0.1	< 0.1	0.6	< 0.001	0.27	16.2	6	2.0	0.5	0.247	0.052	< 0.01
1027403	0.1	0.1	1.1	0.1	< 0.1	< 0.1	< 0.001	0.39	36.8	15	5.3	1.6	0.376	0.074	< 0.01
1027404	0.2	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	0.50	12.9	18	6.5	1.5	0.442	0.079	0.04

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1027405	0.3	0.2	1.4	0.1	< 0.1	< 0.1	0.002	0.29	10.7	21	6.1	1.6	0.387	0.086	0.21
1027406	0.4	0.2	1.5	0.2	< 0.1	< 0.1	< 0.001	0.29	9.3	20	5.0	1.3	0.428	0.079	0.12
1027408	0.5	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	8.9	13	4.8	1.4	0.359	0.089	0.19
1027409	0.2	0.2	1.2	0.1	< 0.1	< 0.1	0.002	0.06	9.5	11	4.4	1.3	0.299	0.094	0.33
1027410	0.1	< 0.1	0.7	< 0.1	0.2	3.6	< 0.001	0.12	7.9	6	3.3	0.9	0.182	0.059	< 0.01
1027411	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.5	< 0.001	0.09	6.1	4	2.2	0.6	0.181	0.036	0.11
1027412	0.2	< 0.1	0.7	< 0.1	0.1	1.2	< 0.001	0.24	8.5	6	3.6	1.1	0.277	0.062	0.20
1027413	0.1	< 0.1	0.5	< 0.1	0.2	1.9	< 0.001	0.11	9.4	4	2.4	0.9	0.175	0.187	0.09
1027414	0.4	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	0.09	8.3	5	2.3	0.8	0.151	0.036	0.02
1027415	0.3	0.3	2.5	0.3	0.5	15.7	0.002	0.22	51.8	21	4.8	1.8	0.303	0.045	0.13
1027416	0.2	0.2	1.1	0.1	0.2	0.5	< 0.001	< 0.05	5.0	16	2.9	0.9	0.405	0.091	0.03
1027417	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.18	7.8	7	3.1	0.9	0.268	0.057	< 0.01
1027418	0.3	0.1	1.0	0.1	< 0.1	0.2	< 0.001	0.09	9.8	19	4.8	1.0	0.257	0.100	< 0.01
1027419	0.1	< 0.1	0.4	< 0.1	0.3	1.2	< 0.001	0.22	13.6	4	1.3	0.6	0.196	0.045	0.07
1027420	0.1	0.2	1.2	0.1	< 0.1	1.1	< 0.001	0.24	12.2	20	2.4	0.7	0.238	0.052	0.12
1027421	0.1	< 0.1	0.7	< 0.1	< 0.1	1.4	< 0.001	0.20	7.4	6	3.0	0.8	0.263	0.056	< 0.01
1027422	0.2	0.2	1.2	0.1	< 0.1	< 0.1	< 0.001	0.37	19.4	18	4.3	1.1	0.311	0.056	0.20
1027423	0.2	0.1	1.1	0.1	< 0.1	< 0.1	< 0.001	0.31	8.6	18	4.9	1.3	0.420	0.078	0.05
1027424	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.06	9.3	6	3.2	0.9	0.244	0.057	0.01
1027425	0.3	< 0.1	0.7	< 0.1	0.1	0.9	< 0.001	< 0.05	9.1	6	2.8	0.9	0.193	0.055	0.02
1027427	0.2	< 0.1	0.7	< 0.1	0.2	0.4	< 0.001	0.13	10.9	6	3.1	0.9	0.186	0.060	< 0.01
1027429	0.2	< 0.1	0.7	< 0.1	0.1	0.5	< 0.001	0.11	10.4	6	2.9	0.9	0.196	0.059	< 0.01
1027430	0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.31	7.3	6	3.7	1.0	0.261	0.059	< 0.01
1027432	0.2	< 0.1	0.6	< 0.1	0.5	0.8	< 0.001	0.11	7.7	6	2.1	1.0	0.254	0.057	< 0.01
1027433	0.1	0.1	0.9	< 0.1	< 0.1	< 0.1	< 0.001	0.20	10.7	6	3.8	1.1	0.274	0.071	0.01
1027434	0.1	< 0.1	0.5	< 0.1	< 0.1	0.9	< 0.001	0.28	7.0	6	2.9	0.6	0.236	0.060	0.06
1027435	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.8	< 0.001	0.25	6.8	6	3.0	0.7	0.242	0.057	0.06
1027436	0.1	< 0.1	0.5	< 0.1	< 0.1	0.2	< 0.001	0.08	8.6	6	2.4	0.9	0.221	0.035	0.03
1027437	0.2	< 0.1	0.7	< 0.1	0.1	0.8	< 0.001	0.16	6.8	6	3.4	0.8	0.199	0.060	< 0.01
1027438	0.4	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.25	5.2	7	3.4	0.9	0.237	0.060	0.03
1027439	0.4	0.1	0.7	< 0.1	< 0.1	0.2	< 0.001	0.20	7.4	6	3.2	1.0	0.253	0.060	0.03
1027440	0.2	< 0.1	0.6	< 0.1	< 0.1	0.3	< 0.001	0.14	7.7	6	3.1	0.9	0.217	0.060	0.06
1027441	0.3	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.16	8.9	6	3.0	1.0	0.216	0.057	0.02
1027442	0.1	0.1	0.7	< 0.1	0.2	0.6	< 0.001	0.08	6.7	6	3.7	1.1	0.213	0.059	< 0.01
1027443	0.1	< 0.1	0.6	< 0.1	0.4	0.7	< 0.001	0.21	10.0	6	1.7	1.0	0.236	0.057	< 0.01

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	9.6	0.06	0.34	4.17	0.05	0.81	2.4	79	15.1	790	22.2	0.9	2910	37.7		1.0		32.6	2.74	6.7	0.66	1360	16.8
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	8.6	0.46	1.87	7.12	3.18	1.03	0.4	93	56.2	151	3.04	1.4	< 10	41.8		1.8		3.54	2.64	13.7	1.41	19.5	6.2
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	26.6	1.48	1.16	8.75	2.57	1.08		69	66.9	871	4.78	1.3	50	37.1	3.4	2.4	1.2		4.10	18.2	1.56		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	29.8	0.10	0.68	2.09	1.90	0.22	< 0.1	149	59.0	978	5.18	2.5	60	24.7		1.0		0.05	3.96	12.6	0.69	0.19	0.6
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	3.6							159	258					269						54.2	0.56		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	124						0.4	233	86.4			3.4		90.5	3.4	2.6	1.3		8.28	21.3	1.88	0.73	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	16.5	0.09	0.27	7.83	0.45	0.19		163	568	464	13.7	3.6		238	1.3	0.6	0.5		3.61	29.0	0.58	0.39	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	13.0						5.1	27	50.5			1.4	1250	52.4	2.7	5.7	1.0		1.69	12.5	1.41	1.13	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
1027232 Orig	6.8	2.85	2.59	8.02	0.10	3.48	< 0.1	97	55.5	702	3.96	1.6	< 10	41.9	1.6	0.7	0.6	0.08	0.06	16.2	0.73	0.04	< 0.1
1027232 Dup	7.2	2.86	2.70	7.96	0.10	3.63	< 0.1	88	47.7	746	4.10	1.3	< 10	42.6	1.6	0.7	0.6	< 0.05	< 0.05	16.5	0.75	0.04	< 0.1
1477610 Orig	0.7	0.15	0.14	0.46	0.03	0.04	< 0.1	10	34.2	93	0.70	< 0.1	20	2.8	0.2	< 0.1	< 0.1	< 0.05	< 0.05	1.7	0.11	< 0.02	< 0.1
1477610 Dup	0.6	0.14	0.13	0.40	0.02	0.03	< 0.1	10	31.1	97	0.64	< 0.1	< 10	2.4	0.2	< 0.1	< 0.1	< 0.05	< 0.05	1.4	0.12	< 0.02	< 0.1
1027408 Orig	18.1	> 3.00	2.02	7.85	1.55	1.87	0.1	96	104	447	3.64	2.6	< 10	64.7	1.2	1.1	0.5	< 0.05	4.15	18.2	1.41	0.14	0.3
1027408 Split PREP DUP	16.5	> 3.00	2.10	8.47	1.53	1.87	< 0.1	102	116	458	3.83	2.6	< 10	64.3	1.2	1.0	0.5	< 0.05	4.20	18.7	1.62	0.13	0.2
1027410 Orig	17.1	> 3.00	1.11	8.66	1.45	1.56	< 0.1	54	37.6	391	2.54	3.2	< 10	30.7	0.7	1.3	0.3	< 0.05	2.23	9.1	0.88	0.05	< 0.1
1027410 Dup	16.9	> 3.00	1.10	8.78	1.40	1.57	< 0.1	54	34.4	385	2.51	3.3	< 10	29.5	0.7	1.3	0.3	< 0.05	2.16	8.5	0.88	0.05	< 0.1
1027412 Orig	8.5	> 3.00	0.46	9.71	2.19	0.78	0.1	62	39.2	469	2.79	3.7	20	33.9	0.7	1.5	0.3	< 0.05	2.49	9.2	0.96	0.22	0.2
1027412 Dup	8.4	> 3.00	0.43	9.91	2.22	0.71	0.1	59	46.0	458	2.72	3.8	20	33.3	0.7	1.6	0.3	< 0.05	2.50	9.2	0.90	0.24	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	1	4.3	11	< 0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	1	4.3	11	< 0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	0.2
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	694	10.3	462	3.4	30.1	298	40	0.7	18.3	0.8	26	14.8	5.9	1070	7.9	16.4		8.5	2.8	4.1	0.7	4.5	1070
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	77.2	17.7	124	128	15.5	224	53	11.7	342	0.2	8	5.0	1.0	123	59.9	118		41.9	7.0	5.4	0.6	2.8	6490
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	108	20.4	< 0.1	111		175	52	< 0.1			< 1	< 0.1		593	42.4	97.3		40.6	8.4	7.7	1.1	6.3	33.1
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	126	28.8	248	67.1	11.8	40.3	92	1.5	0.62	< 0.1	< 1	0.9	< 0.1	1360	11.7	32.9		11.3	2.5	2.4	0.3	2.1	70.6
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	65.2	13.5		3.7	17.7	148	46	1.9				0.8		99	3.8			4.8					106
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
SBC-1 Meas	201	23.6	26.6	133	34.7	183	136	12.3	2.33		3	1.1		691	50.9	112	13.0	48.3	10.1	9.0	1.2	6.5	32.6
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	45.6	21.1	9.2	41.0	12.0	30.2	151	0.6	0.46	< 0.1	< 1	< 0.1		173	16.9	38.3	3.9	13.8	2.8	2.6	0.4	2.3	389
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas	802	16.1		105	27.9	149	77	6.5	12.9					901	48.1	109	11.5	39.6	6.8	6.3	0.9	4.9	261
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
1027232 Orig	71.0	14.1	14.4	2.6	16.6	135	50	0.9	0.15	< 0.1	1	0.2	< 0.1	60	13.5	31.2	3.8	14.2	3.1	3.3	0.5	2.8	44.3
1027232 Dup	73.0	14.7	14.4	2.7	17.0	141	52	0.3	0.25	< 0.1	< 1	0.1	< 0.1	63	14.2	32.0	3.9	14.5	3.2	3.4	0.5	2.9	40.1
1477610 Orig	3.9	1.2	17.2	0.9	2.1	2.6	3	< 0.1	0.94	< 0.1	< 1	0.2	< 0.1	7	0.9	2.1	0.2	0.9	0.3	0.4	< 0.1	0.4	4.4
1477610 Dup	4.2	1.1	16.6	0.8	2.2	2.5	3	< 0.1	0.91	< 0.1	< 1	0.2	< 0.1	6	0.7	1.7	0.2	0.9	0.3	0.4	< 0.1	0.4	3.9
1027408 Orig	74.6	17.2	10.5	21.4	13.5	640	116	2.1	1.03	< 0.1	< 1	< 0.1	< 0.1	586	30.8	76.1	8.7	32.0	5.8	4.4	0.5	2.4	41.9
1027408 Split PREP DUP	74.6	16.7	11.9	24.4	14.6	638	116	2.6	1.28	< 0.1	1	0.2	< 0.1	572	36.8	88.7	10.2	38.1	6.5	5.1	0.6	2.7	39.6
1027410 Orig	82.0	19.9	< 0.1	48.4	7.8	615	135	5.5	0.35	< 0.1	1	5.6	< 0.1	544	18.6	41.9	5.0	18.3	3.4	2.8	0.3	1.5	8.3
1027410 Dup	83.8	19.5	< 0.1	47.6	7.6	595	135	4.9	0.31	< 0.1	< 1	5.3	< 0.1	545	18.3	41.1	5.0	18.1	3.4	2.9	0.3	1.5	8.2
1027412 Orig	48.8	22.3	31.4	69.9	8.6	489	150	6.9	0.52	< 0.1	1	0.5	< 0.1	699	19.4	45.8	5.1	19.0	3.8	3.0	0.4	1.6	12.4
1027412 Dup	47.7	22.1	32.6	71.7	8.4	495	160	6.8	0.47	< 0.1	1	0.3	< 0.1	704	18.7	46.1	5.0	18.3	3.5	2.9	0.3	1.5	11.1
Method Blank	0.7	0.2	< 0.1	< 0.2	< 0.1	< 0.2	< 1	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Method Blank	0.7	0.2	< 0.1	< 0.2	< 0.1	< 0.2	< 1	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.3	2.3	0.2	< 0.1	128		0.29	740	1	2.6	31.0	0.0318	0.056	0.24
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	2330			
DH-1a Cert											910	2629			
GXR-4 Meas		0.2	1.1	0.1	0.7	38.1		3.26	52.6	8	19.2	5.9	0.290	0.133	1.79
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.5	3.6		< 0.1	< 0.1		0.56	26.3	16	12.0	3.1	0.305	0.056	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			1.7	0.2	< 0.1	0.3		2.09	101	27	4.5	1.5		0.035	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			2.1						6.4	31			0.281		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.5	3.6	0.4	0.8	1.3		0.85	38.2	22	15.6	11.7	0.480		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.6	0.2	< 0.1	0.1		0.17	22.7	55	14.4	2.8	0.485	0.036	0.05
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
SdAR-M2 (U.S.G.S.) Meas		0.4	3.0	0.3	0.3	0.2			837	4	14.2	3.3			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
1027232 Orig	0.1	0.2	1.5	0.1	0.2	0.2	< 0.001	< 0.05	4.5	15	1.5	0.4	0.386	0.062	0.22
1027232 Dup	0.1	0.2	1.5	0.1	0.1	< 0.1	< 0.001	< 0.05	4.7	15	1.6	0.4	0.372	0.062	0.21
1477610 Orig	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.9	2	< 0.1	< 0.1	0.0180	0.007	< 0.01
1477610 Dup	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	2	< 0.1	< 0.1	0.0176	0.007	< 0.01
1027408 Orig	0.5	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	8.9	13	4.8	1.4	0.359	0.089	0.19
1027408 Split PREP DUP	0.2	0.2	1.2	0.1	< 0.1	0.1	< 0.001	< 0.05	8.5	12	5.8	1.6	0.344	0.084	0.17
1027410 Orig	0.1	< 0.1	0.7	< 0.1	0.3	3.8	< 0.001	0.11	8.0	6	3.3	0.9	0.177	0.059	0.01
1027410 Dup	0.1	< 0.1	0.6	< 0.1	0.2	3.5	< 0.001	0.12	7.7	6	3.3	0.9	0.187	0.059	< 0.01
1027412 Orig	0.2	0.1	0.7	< 0.1	0.2	1.2	< 0.001	0.24	8.6	7	3.7	1.1	0.284	0.062	0.20
1027412 Dup	0.2	< 0.1	0.7	< 0.1	0.1	1.2	< 0.001	0.24	8.3	6	3.6	1.1	0.271	0.061	0.20
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01



Date Submitted: 31-Aug-16
Invoice No.: A16-08810-TD
Invoice Date: 08-Nov-16
Your Reference: PENG-20160830-002-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

158 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-08810-TD**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is written in a cursive style with a large, stylized initial "E".

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477611	5.0	0.10	0.74	2.79	0.86	1.05	< 0.1	84	99.9	829	3.45	0.2	60	17.1	0.3	0.2	0.1	0.23	0.19	16.8	0.22	0.04	< 0.1
1477612	3.5	0.08	0.44	4.25	1.57	0.42	< 0.1	111	116	679	2.56	0.2	50	29.9	0.4	0.4	0.1	0.14	0.27	28.4	0.25	0.05	0.3
1477613	11.4	0.18	2.78	7.02	2.04	4.75	< 0.1	165	172	1310	6.56	1.2	40	49.4	0.6	0.5	0.2	0.12	0.46	31.2	0.33	0.03	0.3
1477614	1.5	0.03	0.25	0.79	0.27	0.42	< 0.1	25	62.4	373	1.25	0.1	40	14.4	0.1	< 0.1	< 0.1	0.10	0.06	6.7	0.10	0.03	0.1
1477615	4.8	0.12	0.81	2.60	1.00	1.05	0.1	82	62.4	951	3.27	0.4	40	39.7	0.3	0.3	< 0.1	0.10	0.31	21.0	0.17	0.03	0.2
1477616	13.3	0.46	3.08	7.28	1.81	4.61	0.1	226	47.2	1860	8.77	1.3	50	84.0	0.6	0.3	0.2	0.11	0.39	44.2	0.39	0.03	0.6
1477617	3.8	0.02	0.93	1.71	0.56	3.32	0.3	55	29.9	1250	2.71	< 0.1	40	18.7	0.2	0.2	< 0.1	0.07	0.09	8.8	0.28	0.02	< 0.1
1477618	8.3	0.12	2.62	4.67	3.66	7.70	< 0.1	200	69.2	1250	5.47	1.0	20	35.3	0.5	0.9	0.2	0.11	0.43	24.1	0.40	0.02	0.1
1477619	15.8	0.29	2.96	3.72	0.50	4.12	< 0.1	196	21.5	1370	9.28	0.4	120	44.2	0.4	0.3	0.2	2.02	0.10	33.4	0.35	0.03	0.2
1477620	5.1	0.20	0.93	1.76	0.42	2.80	0.1	74	94.9	1150	3.19	< 0.1	80	34.6	2.0	0.2	0.8	0.57	0.47	15.4	2.69	0.03	0.2
1477621	8.6	0.06	4.29	5.09	1.49	6.95	< 0.1	74	803	1600	3.49	0.2	60	610	0.3	0.2	< 0.1	0.29	0.17	50.1	0.28	0.03	0.2
1477622	12.2	< 0.01	4.20	4.01	0.01	9.15	< 0.1	110	1870	2040	6.82	0.6	40	858	0.6	0.1	0.2	0.18	< 0.05	58.2	0.35	0.04	0.6
1477623	3.5	0.25	0.61	1.69	0.23	0.74	< 0.1	66	52.7	632	2.67	0.3	60	10.1	0.3	0.2	< 0.1	0.14	0.14	8.7	0.15	0.03	< 0.1
1477624	0.5	0.05	0.05	0.25	0.01	0.05	< 0.1	14	51.4	140	0.48	< 0.1	30	1.9	< 0.1	< 0.1	< 0.1	0.20	< 0.05	1.1	< 0.05	< 0.02	< 0.1
1477627	2.1	0.42	0.20	0.97	0.15	0.23	< 0.1	19	66.0	189	1.58	0.3	30	4.9	0.2	0.1	< 0.1	0.28	0.07	5.6	0.10	6.54	0.2
1477628	1.4	0.71	0.22	1.45	0.16	0.27	< 0.1	17	68.3	191	1.55	0.2	30	4.2	< 0.1	0.2	< 0.1	0.82	0.10	4.8	< 0.05	0.29	< 0.1
1477629	1.3	0.08	0.08	0.30	0.06	0.12	< 0.1	7	79.7	144	1.01	< 0.1	90	3.2	< 0.1	< 0.1	< 0.1	0.78	0.08	2.9	< 0.05	0.75	0.1
1477630	2.2	0.80	0.17	2.03	0.14	0.68	< 0.1	54	37.9	255	1.98	0.6	80	2.5	0.6	0.1	0.2	0.36	0.09	5.3	0.15	0.47	0.4
1477631	1.3	< 0.01	0.40	1.11	0.11	0.52	< 0.1	39	28.5	3490	9.38	0.4	60	16.2	0.2	0.2	< 0.1	0.51	1.77	0.6	0.10	0.34	0.6
1477632	0.6	0.05	0.02	0.25	0.10	0.03	< 0.1	3	42.6	92	0.43	0.1	50	1.8	< 0.1	< 0.1	< 0.1	0.23	0.23	0.3	< 0.05	0.02	< 0.1
1477633	15.4	> 3.00	1.74	6.99	0.98	3.17	< 0.1	313	22.9	1220	9.19	2.3	50	23.9	1.9	0.8	0.6	5.08	2.35	45.3	0.61	2.75	0.7
1477634	5.3	0.13	0.25	1.76	0.38	0.47	< 0.1	20	49.0	653	1.72	0.2	30	9.3	0.2	< 0.1	< 0.1	1.05	0.56	3.6	0.35	0.16	< 0.1
1477636	15.7	2.09	0.67	8.41	1.27	2.65	< 0.1	76	36.1	1040	2.53	2.2	40	29.3	0.8	0.7	0.3	0.41	1.09	12.7	0.65	0.43	0.2
1477637	22.7	0.61	0.55	9.93	3.34	2.18	< 0.1	99	44.9	467	2.63	3.6	40	43.5	0.8	0.7	0.3	0.34	3.00	14.4	0.50	0.15	0.7
1477638	19.0	1.00	0.57	8.37	2.20	1.52	< 0.1	80	59.0	544	3.44	2.8	170	36.1	0.7	0.6	0.2	0.76	2.01	11.5	0.52	0.21	1.3
1477639	14.7	1.48	0.62	8.78	1.19	4.82	< 0.1	79	54.1	1900	3.44	3.1	70	46.4	1.0	0.8	0.4	0.44	1.43	15.1	1.17	0.56	0.6
1477640	1.0	0.04	0.05	0.13	0.03	0.04	< 0.1	3	59.4	76	0.49	< 0.1	50	4.5	< 0.1	< 0.1	< 0.1	0.23	< 0.05	0.4	< 0.05	1.61	0.2
1477641	6.6	2.96	0.29	6.21	0.56	0.83	< 0.1	24	44.6	164	1.27	1.7	60	15.0	0.2	0.9	< 0.1	0.22	0.45	4.1	0.27	3.71	0.2
1477642	18.4	0.77	1.33	5.39	0.57	2.65	< 0.1	61	74.9	2790	6.82	1.7	50	51.9	0.7	0.4	0.3	0.21	1.30	23.0	0.61	0.29	0.7
1477643	22.2	2.41	0.56	7.17	1.56	2.21	< 0.1	97	78.6	1220	3.85	3.9	60	82.4	0.9	0.6	0.3	0.37	1.72	28.4	0.71	0.18	1.2
1477644	13.6	2.54	0.75	8.20	0.87	3.80	0.2	86	53.6	1110	5.23	3.4	50	73.7	1.0	0.6	0.3	0.64	0.94	27.4	0.81	0.58	1.6
1477645	11.5	1.93	0.75	6.44	0.72	3.26	< 0.1	79	66.5	803	3.09	1.8	30	36.5	0.8	0.5	0.3	0.25	0.88	10.9	0.65	0.22	0.2
1477646	8.1	0.31	0.46	4.46	1.56	1.31	< 0.1	56	69.7	504	1.80	< 0.1	40	18.2	0.6	0.2	0.2	0.16	1.44	6.5	0.45	0.23	0.2
1477647	9.2	2.84	0.50	7.93	1.86	2.42	0.1	129	61.6	699	3.24	3.0	110	36.4	0.9	1.1	0.3	0.94	1.92	11.0	0.60	0.40	0.6
1477648	0.7	1.77	0.06	3.03	0.22	0.07	< 0.1	24	79.1	80	1.24	0.8	90	3.2	0.2	0.2	< 0.1	10.7	0.14	0.9	0.10	10.2	0.4
1477649	8.7	1.67	2.64	7.04	1.13	4.28	0.1	167	78.6	904	5.04	0.8	60	89.1	0.9	0.6	0.3	2.00	1.09	28.6	0.29	0.84	0.6
1477650	5.4	2.28	1.93	6.62	0.70	6.41	< 0.1	158	28.6	1090	6.72	1.2	50	41.3	1.2	1.0	0.4	0.67	0.25	31.2	0.49	4.76	1.5
1477651	5.1	> 3.00	1.03	6.69	0.22	3.29	< 0.1	81	20.9	622	6.84	3.6	50	12.1	3.1	1.2	1.1	0.56	0.25	34.5	0.90	2.39	1.3
1477652	< 0.5	< 0.01	0.32	0.36	0.04	0.20	< 0.1	9	43.0	1140	10.9	0.2	50	7.9	0.2	0.2	< 0.1	0.24	0.11	2.1	0.14	0.28	0.7
1477653	11.9	2.11	0.32	9.03	1.64	2.59	< 0.1	111	62.4	339	3.67	3.8	100	55.3	0.8	0.6	0.3	0.75	1.70	17.2	0.51	0.67	0.5
1477654	7.0	0.54	0.16	4.34	1.72	0.22	0.2	46	63.5	408	2.52	1.4	80	20.8	0.4	0.5	0.1	0.36	1.34	9.9	0.18	1.46	0.2
1477655	3.4	2.45	0.17	4.18	0.17	0.66	< 0.1	12	37.8	202	1.16	1.1	60	10.8	0.2	0.6	< 0.1	0.20	0.23	4.6	0.19	3.18	0.3

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477656	10.0	1.98	2.89	7.28	0.02	3.81	< 0.1	214	107	1730	6.74	0.5	50	60.9	1.5	0.4	0.5	0.16	0.06	27.6	0.64	0.03	0.2
1477658	6.4	0.83	2.78	6.11	1.91	3.45	< 0.1	168	110	1170	5.43	0.6	60	59.0	1.2	0.1	0.4	0.10	0.23	24.7	0.36	0.03	0.1
1477659	10.3	1.98	3.86	7.67	0.39	4.29	< 0.1	199	95.7	1510	7.20	0.6	50	121	1.5	< 0.1	0.5	0.08	0.20	36.8	0.52	0.04	0.1
1477660	0.6	0.13	0.02	0.34	0.11	0.03	< 0.1	3	84.1	133	0.61	< 0.1	50	3.6	< 0.1	0.1	< 0.1	0.10	0.21	1.8	< 0.05	0.17	< 0.1
1477661	1.1	0.04	0.04	1.24	0.64	0.02	< 0.1	6	68.1	67	0.87	0.2	80	9.3	< 0.1	0.3	< 0.1	1.37	0.31	3.5	0.09	0.85	0.2
1477662	1.8	0.04	0.08	1.80	0.92	0.02	< 0.1	11	75.0	77	1.21	0.5	90	9.8	< 0.1	0.4	< 0.1	0.91	0.28	3.1	0.09	1.06	0.4
1477663	3.2	0.32	0.11	2.02	0.86	0.15	0.1	15	64.1	223	1.02	0.2	80	9.8	0.2	0.6	< 0.1	0.44	0.36	3.7	0.23	1.01	0.2
1477664	4.0	1.21	0.23	3.05	0.73	0.13	< 0.1	23	57.7	456	1.55	0.2	70	11.6	0.2	0.6	< 0.1	0.26	0.50	6.9	0.30	0.23	0.3
1477665	20.3	1.82	3.71	7.94	0.07	3.68	0.2	204	176	1630	7.20	0.4	50	108	0.6	0.2	0.2	0.18	0.45	44.3	0.26	0.05	0.9
1477667	2.2	< 0.01	18.9	0.35	< 0.01	0.86	< 0.1	6	456	1220	4.87	< 0.1	40	2740	< 0.1	< 0.1	< 0.1	0.11	< 0.05	96.9	< 0.05	< 0.02	0.2
1477668	14.6	0.01	7.31	3.65	< 0.01	7.23	0.2	103	715	1890	5.89	0.5	40	537	0.3	0.1	< 0.1	0.12	0.07	45.2	0.22	< 0.02	0.1
1477669	7.3	0.09	4.17	2.38	0.80	10.9	0.2	62	1090	3570	5.41	0.1	30	581	0.6	0.3	0.2	0.54	0.83	43.7	0.33	0.03	0.2
1477670	3.2	< 0.01	17.0	0.58	< 0.01	1.00	< 0.1	8	541	1250	5.43	< 0.1	70	2700	< 0.1	< 0.1	< 0.1	0.56	< 0.05	91.2	< 0.05	0.09	0.2
1477671	3.4	< 0.01	18.1	0.46	< 0.01	1.86	< 0.1	< 1	888	1150	4.90	< 0.1	60	2850	< 0.1	< 0.1	< 0.1	0.31	< 0.05	94.0	< 0.05	0.11	0.2
1477672	4.3	0.01	19.1	0.58	< 0.01	0.87	< 0.1	4	548	1120	5.25	0.1	60	1950	< 0.1	< 0.1	< 0.1	0.18	< 0.05	63.5	< 0.05	0.40	0.2
1477673	3.3	0.03	20.2	0.57	< 0.01	0.50	< 0.1	< 1	4700	1110	5.24	< 0.1	50	1840	< 0.1	0.1	< 0.1	0.14	< 0.05	74.8	< 0.05	0.68	0.4
1477674	2.4	0.05	20.3	0.57	< 0.01	0.49	< 0.1	< 1	4910	1330	5.12	< 0.1	50	2410	< 0.1	0.1	< 0.1	0.11	< 0.05	107	< 0.05	0.65	0.4
1477675	4.4	< 0.01	18.4	0.77	< 0.01	1.08	< 0.1	15	710	963	4.79	< 0.1	50	2650	< 0.1	< 0.1	< 0.1	0.09	< 0.05	88.3	< 0.05	0.07	0.2
1477676	3.5	0.03	20.5	0.48	< 0.01	1.55	< 0.1	5	632	1100	5.33	< 0.1	50	2430	< 0.1	< 0.1	< 0.1	0.07	< 0.05	89.7	< 0.05	0.57	0.3
1477677	13.1	1.22	0.90	7.17	1.70	1.67	7.9	99	54.4	816	6.57	1.1	140	48.4	1.2	0.9	0.5	19.8	1.41	15.1	0.66	4.09	2.3
1477678	3.0	0.02	18.2	0.40	< 0.01	3.99	< 0.1	< 1	1010	1540	5.17	< 0.1	30	2580	< 0.1	< 0.1	< 0.1	0.07	< 0.05	93.7	< 0.05	0.72	0.3
1027243	2.1	0.03	0.38	0.91	0.26	0.32	< 0.1	23	31.0	579	2.20	< 0.1	40	25.1	0.2	< 0.1	< 0.1	0.06	0.09	6.5	0.09	0.02	< 0.1
1027245	8.2	0.04	2.72	3.71	1.42	7.27	< 0.1	129	31.5	1850	5.81	0.9	80	30.7	0.5	0.4	0.2	0.55	0.34	22.0	0.43	0.03	0.1
1027246	14.9	0.53	3.02	7.60	2.28	5.17	0.2	220	41.4	1540	7.16	1.0	80	86.4	0.6	0.6	0.2	0.30	0.46	38.8	0.34	0.02	0.4
1027248	< 0.5	0.05	0.11	0.35	0.09	0.29	< 0.1	12	14.2	271	0.98	< 0.1	70	10.1	< 0.1	< 0.1	< 0.1	0.17	< 0.05	4.2	0.05	< 0.02	0.2
1027249	6.9	2.22	1.93	8.95	1.53	4.01	< 0.1	190	28.9	1750	8.28	1.6	50	16.6	0.8	0.6	0.3	0.13	0.23	37.1	0.64	< 0.02	0.2
1027250	< 0.5	0.03	0.01	0.09	0.02	0.08	< 0.1	3	13.7	121	0.61	< 0.1	50	2.3	0.1	< 0.1	< 0.1	0.08	< 0.05	1.3	0.14	< 0.02	< 0.1
1027251	1.4	0.08	0.23	1.35	0.22	0.15	< 0.1	44	27.6	394	1.72	0.2	40	14.3	0.2	0.1	< 0.1	0.07	0.07	6.9	0.15	< 0.02	0.2
1027252	2.6	0.02	1.77	1.83	0.74	5.27	< 0.1	52	21.8	1200	4.58	< 0.1	50	15.4	0.3	0.2	0.1	0.06	0.12	7.8	0.31	< 0.02	< 0.1
1027254	13.2	< 0.01	6.38	3.68	< 0.01	7.58	1.1	58	3440	2920	7.98	0.4	50	1980	0.3	0.2	0.1	0.09	< 0.05	123	0.20	0.06	1.6
1027255	8.5	2.60	1.02	7.61	1.18	2.41	< 0.1	56	32.8	583	3.03	2.1	40	39.3	0.8	0.5	0.3	0.06	0.47	11.1	0.66	0.09	0.3
1027256	10.4	1.84	2.38	8.43	1.43	5.55	0.2	243	13.6	2060	12.3	2.8	70	46.7	4.4	1.3	1.5	0.60	2.52	50.8	1.59	0.09	0.7
1027257	11.1	1.94	2.47	7.97	1.24	5.71	0.2	245	14.1	2240	12.6	1.9	60	50.4	3.9	1.1	1.4	0.31	2.09	53.7	1.43	0.08	0.6
1027258	11.3	1.83	2.35	8.07	1.28	5.62	0.3	238	15.0	2290	12.5	2.6	50	50.3	4.3	1.2	1.5	0.23	2.54	51.9	1.56	0.09	0.8
1027259	7.7	> 3.00	1.67	7.17	1.28	5.60	4.5	78	60.3	2080	3.99	2.3	60	64.6	0.9	0.6	0.3	0.31	0.25	13.6	0.59	0.87	0.5
1027261	12.1	0.57	2.15	5.35	1.76	3.35	0.1	89	184	887	3.94	0.2	30	112	0.8	0.5	0.3	0.25	0.62	16.1	0.60	0.37	0.3
1027262	< 0.5	0.01	< 0.01	0.04	0.01	0.04	< 0.1	1	18.4	155	0.90	< 0.1	90	2.1	< 0.1	< 0.1	< 0.1	0.49	< 0.05	0.6	< 0.05	0.03	< 0.1
1027263	13.0	1.91	1.85	8.78	1.24	4.01	0.1	60	91.3	817	4.35	1.1	70	89.5	1.3	0.6	0.5	0.44	0.89	18.1	0.79	0.09	0.3
1027264	0.6	< 0.01	2.80	1.22	0.16	0.01	< 0.1	< 1	> 5000	1850	38.8	0.3	60	455	0.1	0.1	< 0.1	0.57	8.66	62.0	0.06	2.06	4.4
1027265	11.2	2.75	0.50	7.19	1.75	0.66	< 0.1	31	31.9	206	1.63	1.8	40	20.5	0.3	1.3	0.1	0.19	0.53	6.0	0.29	0.08	< 0.1
1027266	< 0.5	0.07	0.02	0.18	0.02	0.40	< 0.1	2	15.5	170	0.59	< 0.1	40	1.9	< 0.1	< 0.1	< 0.1	0.13	< 0.05	1.5	< 0.05	0.12	< 0.1
1027267	13.7	> 3.00	0.78	9.03	1.11	2.20	< 0.1	37	22.9	412	2.38	2.9	40	29.8	0.4	0.7	0.2	0.21	0.59	9.0	0.46	0.24	0.4

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027268	< 0.5	< 0.01	2.11	0.31	< 0.01	0.33	< 0.1	4	9.9	4050	49.0	0.2	40	30.3	0.3	0.2	< 0.1	0.22	< 0.05	61.0	0.09	0.23	1.4
1027269	9.0	1.52	3.96	7.94	0.05	7.72	0.2	205	181	1540	7.58	0.6	40	131	1.2	0.6	0.4	0.21	0.47	38.2	0.54	0.04	0.4
1027270	13.9	0.39	3.48	8.01	0.31	5.24	0.4	270	110	4590	14.5	0.4	90	168	2.6	0.5	0.9	0.68	0.34	84.6	1.11	0.06	1.8
1027271	1.6	0.06	0.18	2.26	0.03	2.32	< 0.1	59	23.9	327	1.37	< 0.1	60	18.7	0.2	< 0.1	< 0.1	0.25	0.13	6.3	0.15	0.02	< 0.1
1027272	8.5	1.42	4.25	> 10.0	0.10	8.40	0.1	221	255	2050	8.25	0.4	50	180	1.6	0.3	0.6	0.18	0.07	44.9	0.51	0.02	0.2
1027273	29.3	0.31	2.57	9.30	1.33	5.93	0.1	183	107	3600	12.4	0.2	40	84.9	3.3	0.4	1.1	0.15	2.25	55.5	1.03	0.04	0.7
1027274	6.1	0.12	0.85	4.92	1.37	0.16	0.2	53	40.3	414	21.9	3.0	40	225	1.3	0.2	0.5	0.93	0.75	230	0.69	1.04	7.7
1027322	2.6	2.66	0.17	3.94	0.03	0.50	0.2	51	991	2230	2.26	0.3	30	263	0.3	< 0.1	0.1	0.27	0.30	42.8	0.15	0.04	0.1
1027323	13.1	> 3.00	2.62	7.35	0.04	4.01	0.4	176	3100	4490	8.85	0.7	30	1110	0.4	0.3	0.1	0.15	1.88	101	0.30	0.03	0.4
1027324	28.5	1.40	5.01	5.18	0.05	3.18	0.4	130	1910	3510	6.76	0.5	30	1320	0.3	0.2	0.1	0.12	1.15	78.2	0.30	0.07	0.2
1027325	20.7	1.54	6.38	6.96	0.26	5.66	< 0.1	219	2600	1870	10.1	0.6	30	805	0.4	0.2	0.2	0.11	12.0	88.9	0.22	0.04	0.5
1027326	18.6	> 3.00	3.91	8.35	0.04	3.16	0.3	168	2960	2240	8.18	0.5	80	737	0.4	0.2	0.1	0.57	0.49	85.7	0.20	0.05	0.4
1027328	22.5	0.92	3.00	4.01	0.04	2.25	0.2	82	1870	2260	5.27	0.4	70	703	0.4	0.2	0.1	0.26	0.39	47.8	0.17	0.03	0.1
1027329	23.1	1.63	3.93	> 10.0	0.02	6.13	0.1	154	245	2170	6.61	0.3	50	175	1.5	0.3	0.5	0.17	0.22	50.9	0.68	0.03	0.4
1027330	15.4	1.49	2.61	> 10.0	0.04	7.81	0.4	222	250	2160	6.42	0.4	60	304	1.5	0.3	0.5	0.14	0.16	53.4	0.76	0.03	0.3
1027331	17.1	1.19	4.21	> 10.0	0.05	8.02	0.2	138	168	2230	8.33	0.2	40	111	1.7	0.3	0.6	0.15	0.29	54.0	0.77	0.03	0.8
1027332	22.0	1.76	4.90	> 10.0	0.39	7.81	< 0.1	207	167	1700	8.67	0.5	30	138	1.8	0.3	0.6	0.12	4.75	54.1	0.71	< 0.02	0.3
1027333	30.0	2.62	4.98	> 10.0	0.11	4.55	< 0.1	278	162	1480	9.46	0.6	40	107	1.9	0.4	0.7	0.09	1.32	57.4	0.84	< 0.02	0.2
1027334	24.0	1.01	3.99	6.63	0.17	2.35	0.1	169	75.4	2100	7.35	0.4	30	60.4	1.2	0.6	0.5	0.07	1.11	40.2	0.51	0.04	0.2
1027335	37.0	1.75	4.50	> 10.0	0.17	1.61	< 0.1	396	208	1740	13.3	0.4	30	52.0	2.3	0.4	0.8	0.13	1.68	57.0	0.83	0.08	3.5
1027336	163	2.39	1.54	7.60	2.31	4.86	< 0.1	232	167	808	2.69	1.3	90	87.2	0.6	0.6	0.2	0.51	1.41	20.8	0.37	0.04	0.6
1027337	87.9	1.90	2.67	> 10.0	0.32	10.0	0.1	165	102	1450	4.91	0.2	60	138	0.9	0.3	0.3	0.23	0.35	35.4	0.45	0.03	0.9
1027444	17.3	2.72	1.71	8.39	0.10	7.21	0.1	170	232	2240	4.79	0.5	40	137	0.5	0.2	0.2	0.14	0.10	32.9	0.43	< 0.02	0.2
1027445	8.7	2.74	1.97	7.88	0.75	4.55	< 0.1	236	317	1360	3.29	0.9	50	152	0.4	0.3	0.1	0.30	0.86	36.7	0.31	0.03	1.3
1027446	1.3	0.02	0.18	0.51	0.01	0.86	< 0.1	15	24.8	366	1.14	< 0.1	100	9.5	< 0.1	< 0.1	< 0.1	0.59	0.07	4.4	< 0.05	0.02	0.3
1027447	23.1	1.47	1.44	6.69	0.25	0.73	< 0.1	148	66.7	901	6.56	0.8	60	78.0	0.4	0.6	0.2	0.29	0.24	29.4	0.46	0.03	0.3
1027448	13.5	2.58	2.29	7.22	0.41	6.95	< 0.1	65	68.6	1220	5.45	0.6	60	80.3	0.6	0.5	0.2	0.22	0.28	25.1	0.67	0.08	0.6
1027449	14.7	1.62	0.73	7.74	2.51	0.11	< 0.1	50	25.4	408	2.14	0.4	50	25.4	0.3	1.3	0.1	0.19	1.25	6.3	0.47	0.05	0.3
1027450	16.4	> 3.00	0.83	> 10.0	2.81	0.93	< 0.1	57	30.6	484	2.72	2.7	50	28.1	0.5	1.9	0.2	0.13	2.69	7.7	0.49	0.03	0.4
1027451	14.2	> 3.00	1.04	> 10.0	1.37	1.13	0.1	50	28.9	527	2.82	3.0	40	34.3	0.5	1.3	0.2	0.16	1.36	10.4	0.68	0.03	0.4
1027452	17.7	> 3.00	1.03	> 10.0	2.37	1.01	< 0.1	52	26.9	597	2.72	2.6	30	34.1	0.7	1.7	0.3	0.21	2.14	10.1	0.74	0.09	0.4
1027453	23.7	> 3.00	0.96	> 10.0	1.79	1.00	< 0.1	55	31.8	395	2.45	3.0	90	29.4	0.5	1.7	0.2	0.57	4.32	9.7	0.73	0.08	0.3
1027454	19.5	> 3.00	0.85	9.72	1.85	1.60	< 0.1	50	27.5	424	2.47	2.7	50	30.2	0.5	1.4	0.2	0.30	2.89	9.0	0.71	0.06	0.2
1027456	10.4	2.63	0.15	7.48	1.72	0.09	< 0.1	44	23.0	1510	2.27	0.4	70	16.0	0.4	1.1	0.1	0.22	2.46	9.1	0.33	0.20	0.4
1027457	21.1	> 3.00	0.70	> 10.0	2.06	0.18	< 0.1	51	28.0	312	2.39	2.4	40	29.6	0.4	1.5	0.2	0.11	4.43	7.9	0.52	0.12	0.3
1027458	18.3	> 3.00	0.53	> 10.0	1.76	0.31	< 0.1	44	30.2	402	2.65	2.8	40	34.1	0.5	1.4	0.2	0.10	2.97	10.8	0.40	0.06	0.3
1027459	16.9	2.16	0.69	6.89	1.51	0.54	< 0.1	40	25.7	322	1.90	0.7	30	23.7	0.3	1.1	0.1	0.11	2.35	6.8	0.34	0.04	0.1
1027460	33.7	> 3.00	1.55	9.73	1.69	2.31	< 0.1	104	126	905	4.69	2.5	30	91.8	1.2	1.1	0.4	0.14	5.34	24.3	1.52	0.21	0.7
1027462	20.4	> 3.00	0.85	9.50	1.90	1.03	< 0.1	68	35.6	433	2.57	2.9	80	39.9	0.5	1.8	0.2	0.54	3.14	20.0	0.65	0.22	0.6
1027463	9.1	0.91	0.25	3.80	1.30	1.17	< 0.1	34	16.5	438	1.37	0.2	60	12.6	0.3	0.8	0.1	0.26	1.18	3.8	0.39	0.04	0.2
1027464	16.1	> 3.00	0.59	9.03	1.68	0.53	< 0.1	51	42.1	440	2.46	2.9	70	34.2	0.5	1.3	0.2	0.23	2.04	9.1	0.53	0.09	0.3
1027465	15.6	> 3.00	0.87	> 10.0	1.52	1.35	< 0.1	49	32.0	535	2.51	2.9	30	33.4	0.6	1.3	0.2	0.15	1.55	8.1	0.76	0.02	0.3

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027466	17.1	> 3.00	1.18	9.01	1.77	1.40	< 0.1	44	28.2	577	2.78	2.3	370	29.4	0.6	1.2	0.2	2.71	2.52	11.5	0.61	0.12	0.2
1027467	16.8	> 3.00	0.95	9.81	1.42	1.40	< 0.1	44	33.2	457	2.49	2.8	40	31.3	0.6	1.2	0.2	0.78	1.48	9.4	0.66	0.07	0.2
1027468	16.5	> 3.00	1.05	> 10.0	1.66	0.71	< 0.1	52	33.7	423	2.80	2.8	30	33.7	0.6	1.5	0.2	0.32	1.48	10.8	0.78	0.03	0.3
1027469	15.2	> 3.00	0.84	8.39	2.11	0.72	< 0.1	45	30.6	422	2.23	2.2	70	27.8	0.5	1.3	0.2	0.61	2.09	9.2	0.53	0.11	0.1
1027470	12.3	> 3.00	0.95	9.97	1.35	1.22	< 0.1	51	32.3	474	2.61	2.9	60	31.5	0.6	1.0	0.2	0.38	1.51	9.9	0.71	0.05	0.3
1027471	15.6	> 3.00	0.80	> 10.0	1.79	0.50	< 0.1	54	35.1	537	2.83	2.9	50	36.7	0.5	1.5	0.2	0.24	1.40	10.4	0.71	0.06	0.2
1027472	16.0	> 3.00	1.00	> 10.0	1.44	1.06	< 0.1	53	30.4	424	2.73	2.9	50	34.3	0.7	1.5	0.3	0.18	2.18	10.0	0.80	0.11	0.3
1027473	12.6	> 3.00	0.93	> 10.0	1.79	1.76	< 0.1	48	27.0	503	2.53	2.7	40	30.8	0.7	1.3	0.3	0.18	1.67	9.3	0.81	0.06	0.3
1027474	7.6	> 3.00	0.95	8.38	1.50	1.66	0.1	52	38.5	542	2.48	3.1	50	30.6	0.5	1.3	0.2	0.20	0.87	9.0	0.49	0.04	0.3
1027475	15.6	> 3.00	0.93	9.26	1.79	1.32	< 0.1	51	51.2	443	2.48	2.8	40	30.2	0.5	1.4	0.2	0.16	2.13	8.4	0.52	0.06	0.3
1027476	16.6	> 3.00	0.75	9.64	2.27	0.43	< 0.1	55	28.9	392	2.07	2.7	40	23.3	0.4	1.7	0.1	0.08	2.47	8.9	0.32	0.08	0.1
1027478	< 0.5	0.02	0.10	0.09	0.02	0.14	< 0.1	3	16.9	157	0.94	< 0.1	30	2.8	< 0.1	< 0.1	< 0.1	0.06	0.06	2.3	< 0.05	0.34	0.1
1027479	11.2	1.85	3.17	7.56	0.10	3.66	< 0.1	117	20.3	1420	7.88	0.3	80	31.3	1.4	0.3	0.5	0.61	0.56	38.4	0.57	0.03	0.3
1027480	11.3	1.85	4.61	9.95	0.05	6.43	0.2	224	68.5	1700	8.30	0.6	80	77.7	1.6	0.3	0.5	0.32	0.10	49.8	0.55	0.03	0.5
1027481	9.8	2.11	3.30	8.67	1.02	5.56	0.1	267	102	1960	9.85	2.4	60	90.0	2.5	0.6	0.9	0.22	0.99	44.4	0.81	0.04	0.8
1027482	14.3	2.54	1.81	9.91	1.00	1.66	< 0.1	157	538	1490	5.42	0.3	40	116	2.0	0.4	0.7	0.21	0.54	39.1	0.79	0.02	0.6
1027483	20.2	> 3.00	0.94	9.05	2.66	4.22	0.1	92	60.1	1290	3.87	3.2	30	29.4	1.1	0.8	0.4	0.23	0.85	10.6	0.70	0.28	0.4
1027484	30.8	1.76	2.13	> 10.0	2.31	2.02	0.2	108	39.0	1710	5.91	3.7	50	68.6	1.6	0.8	0.7	0.23	1.58	18.4	2.73	0.25	0.6
1027485	19.5	> 3.00	0.69	> 10.0	1.05	2.40	< 0.1	80	42.4	925	4.29	3.7	40	59.5	1.1	1.0	0.4	0.24	1.64	20.8	0.95	1.20	1.5
1027486	22.5	2.30	0.32	9.95	1.49	2.10	< 0.1	93	44.1	427	3.32	3.3	50	49.9	0.6	0.7	0.2	0.43	0.98	16.4	0.51	0.22	1.2
1027487	22.9	2.10	0.31	9.79	1.79	1.19	< 0.1	91	36.9	345	3.42	3.3	50	53.9	0.7	0.6	0.2	0.35	1.20	17.6	0.39	0.15	1.8
1027488	23.9	1.95	0.28	> 10.0	2.69	1.89	< 0.1	106	50.5	856	3.56	3.9	40	21.9	0.7	0.8	0.2	0.33	2.07	13.8	0.51	0.18	0.8
1477801	32.1	1.84	2.04	9.23	1.72	0.19	< 0.1	59	160	555	4.90	1.8	40	98.8	0.9	0.8	0.3	0.17	3.19	24.1	0.54	0.08	0.4
1477802	7.8	> 3.00	0.88	9.85	0.19	2.61	< 0.1	55	57.4	595	2.34	1.4	30	45.3	0.5	0.7	0.2	0.11	0.50	10.1	0.50	0.09	0.3
1477803	26.6	3.00	4.19	> 10.0	0.11	1.78	< 0.1	92	186	965	6.32	1.1	20	263	1.1	0.6	0.4	0.10	0.48	35.2	0.89	0.04	0.4
1477804	20.8	1.74	3.27	> 10.0	1.50	5.30	< 0.1	74	207	1280	7.43	0.7	60	251	1.3	0.9	0.5	0.37	2.43	47.1	0.98	0.05	0.4
1477805	17.9	> 3.00	2.93	> 10.0	0.77	2.80	< 0.1	43	212	799	4.56	0.8	50	181	0.9	1.1	0.3	0.32	2.02	25.8	0.82	0.05	0.3
1477806	10.3	2.49	3.63	7.69	0.82	4.19	< 0.1	89	293	931	4.29	1.1	40	191	0.8	0.9	0.3	0.23	1.47	27.6	0.80	0.06	0.4
1477807	23.6	0.94	2.35	8.95	2.22	1.05	< 0.1	108	325	548	5.26	1.5	40	110	1.5	0.7	0.5	2.31	8.85	25.2	0.79	0.39	0.7
1477808	19.0	2.95	3.44	9.87	1.43	3.29	< 0.1	49	198	1040	5.51	1.1	40	158	1.1	1.0	0.4	0.59	1.89	29.2	0.89	0.05	0.5
1477810	20.7	0.28	3.68	> 10.0	1.38	6.31	0.1	65	223	1510	9.75	0.4	40	249	1.6	0.7	0.6	0.33	2.73	57.6	1.16	0.06	1.0
1477811	18.4	> 3.00	2.49	> 10.0	1.38	2.65	< 0.1	44	158	757	4.26	1.2	30	174	1.0	1.0	0.4	0.20	4.34	21.4	0.85	0.05	0.2

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477611	42.4	5.6	33.4	14.8	3.3	17.6	16	0.9	0.54	< 0.1	< 1	0.2	< 0.1	120	2.2	5.4	0.7	3.9	0.9	0.8	0.1	0.7	19.2
1477612	24.2	8.4	51.1	27.1	3.5	22.4	10	0.6	1.12	< 0.1	< 1	0.2	< 0.1	231	2.3	5.6	0.7	3.7	0.8	0.8	0.1	0.7	42.6
1477613	101	11.7	40.6	38.0	5.5	75.7	58	0.2	0.38	< 0.1	< 1	< 0.1	< 0.1	262	3.2	8.1	1.1	6.1	1.4	1.3	0.2	1.1	12.4
1477614	13.3	1.8	18.1	6.0	1.2	6.1	5	0.1	0.57	< 0.1	< 1	0.2	< 0.1	36	0.5	1.4	0.2	1.1	0.3	0.3	< 0.1	0.2	11.6
1477615	33.0	5.4	47.3	27.8	2.5	14.0	21	0.5	0.52	< 0.1	< 1	0.2	< 0.1	130	0.9	2.5	0.3	1.9	0.5	0.5	< 0.1	0.5	16.1
1477616	98.4	18.0	58.0	35.6	5.8	38.6	58	1.7	1.28	< 0.1	< 1	0.2	< 0.1	142	2.4	6.2	0.9	5.2	1.4	1.2	0.2	1.0	138
1477617	20.9	3.4	12.7	10.3	2.8	23.3	4	0.2	0.53	< 0.1	< 1	0.2	< 0.1	174	1.3	3.0	0.4	2.2	0.5	0.5	< 0.1	0.5	12.6
1477618	23.8	9.1	37.8	36.4	4.0	48.9	36	1.5	0.45	< 0.1	< 1	0.1	< 0.1	271	2.1	5.7	0.8	4.3	1.2	1.2	0.2	0.9	12.5
1477619	96.8	14.3	32.6	1.9	3.8	40.1	18	0.8	0.45	< 0.1	< 1	0.2	0.2	133	1.4	4.0	0.6	3.4	0.8	0.8	0.1	0.8	32.3
1477620	30.9	4.1	22.9	22.5	22.3	52.8	3	0.8	0.28	< 0.1	< 1	< 0.1	< 0.1	99	48.1	120	16.3	82.2	12.2	7.8	0.9	5.0	19.8
1477621	33.0	4.7	107	25.6	2.8	39.3	8	0.2	0.44	< 0.1	< 1	0.4	< 0.1	327	1.7	3.1	0.3	1.7	0.4	0.5	< 0.1	0.5	106
1477622	84.8	7.9	30.3	0.2	5.0	41.3	26	0.5	0.47	< 0.1	< 1	< 0.1	< 0.1	41	1.8	4.4	0.6	3.5	0.8	0.9	0.1	1.0	77.1
1477623	30.1	4.6	9.8	5.8	2.5	13.4	15	0.6	1.50	< 0.1	< 1	0.2	< 0.1	81	1.4	3.5	0.4	2.2	0.5	0.5	< 0.1	0.5	33.5
1477624	6.1	0.7	1.8	0.3	0.5	4.2	< 1	< 0.1	0.28	< 0.1	< 1	0.2	< 0.1	3	0.2	0.4	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	2.7
1477627	12.6	2.8	1.1	2.6	2.4	5.1	12	0.7	115	< 0.1	< 1	0.1	3.7	24	0.7	1.9	0.3	1.5	0.4	0.4	< 0.1	0.5	11.6
1477628	11.2	3.1	2.1	2.8	0.9	6.9	8	0.2	4.47	< 0.1	< 1	0.1	1.4	32	0.3	0.7	< 0.1	0.5	0.1	0.1	< 0.1	0.1	16.0
1477629	12.7	1.1	1.1	1.3	0.6	2.0	3	0.2	34.2	< 0.1	< 1	0.1	0.8	10	0.2	0.6	< 0.1	0.4	0.1	0.1	< 0.1	0.1	5.0
1477630	10.9	4.6	0.8	2.5	6.3	34.3	28	0.9	3.42	< 0.1	< 1	0.1	0.2	32	2.0	5.3	0.7	3.6	0.8	0.8	0.1	1.0	14.4
1477631	31.3	4.0	1.0	8.9	2.3	46.5	20	0.9	3.17	< 0.1	< 1	0.2	0.9	61	1.8	3.2	0.3	1.3	0.2	0.2	< 0.1	0.2	30.9
1477632	17.3	0.7	1.1	2.8	0.2	7.7	7	< 0.1	0.30	< 0.1	< 1	0.1	< 0.1	32	< 0.1	0.6	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.9
1477633	82.6	17.7	4.5	29.9	18.4	85.0	113	3.6	1.39	< 0.1	< 1	0.1	7.7	87	6.4	15.4	1.9	10.1	2.1	2.4	0.4	3.0	42.2
1477634	51.2	3.7	1.3	10.6	2.9	27.3	7	1.1	2.36	< 0.1	< 1	0.1	0.2	119	4.4	10.7	1.2	5.8	0.9	0.7	< 0.1	0.5	20.5
1477636	89.9	15.6	1.1	25.0	8.3	378	117	0.7	0.47	< 0.1	< 1	< 0.1	< 0.1	656	8.2	20.5	2.5	12.3	2.0	1.6	0.2	1.4	14.4
1477637	81.1	19.0	0.2	84.1	7.5	282	197	6.8	0.72	< 0.1	1	0.1	0.2	1170	9.7	22.0	2.6	12.0	1.8	1.3	0.2	1.2	57.6
1477638	69.4	15.3	2.0	57.5	6.9	330	159	4.9	2.79	< 0.1	2	0.1	0.5	839	7.7	18.0	2.0	9.4	1.5	1.1	0.2	1.1	39.4
1477639	107	18.1	1.1	35.0	12.0	526	168	2.4	4.96	< 0.1	< 1	0.1	0.1	352	21.0	49.2	6.1	29.4	4.3	3.0	0.4	2.2	25.6
1477640	7.2	0.8	0.8	0.7	0.3	8.8	2	0.1	34.9	< 0.1	< 1	< 0.1	< 0.1	11	0.9	2.5	0.2	1.1	0.2	0.1	< 0.1	< 0.1	4.4
1477641	35.2	12.7	0.8	20.0	2.5	368	84	2.2	215	< 0.1	< 1	0.1	0.1	372	4.2	9.5	1.1	5.3	0.9	0.6	< 0.1	0.4	6.1
1477642	185	12.1	1.7	17.1	8.3	317	98	4.3	5.06	< 0.1	1	0.1	< 0.1	214	12.4	28.3	3.3	15.9	2.4	1.8	0.2	1.4	112
1477643	171	17.6	2.0	33.3	9.3	343	211	8.8	3.31	< 0.1	1	0.2	0.4	217	11.2	37.8	3.6	17.6	2.9	2.1	0.3	1.7	37.5
1477644	259	16.5	2.6	27.0	11.8	415	213	7.2	3.86	< 0.1	1	0.2	0.6	73	19.6	41.6	4.8	21.7	3.1	2.2	0.3	1.8	38.4
1477645	62.7	14.9	0.2	18.3	9.0	386	101	2.5	0.72	< 0.1	< 1	< 0.1	< 0.1	211	12.9	30.2	3.6	17.4	2.8	1.9	0.3	1.5	8.6
1477646	40.1	9.5	0.4	43.7	6.2	106	4	1.4	1.38	< 0.1	< 1	< 0.1	< 0.1	601	10.2	24.1	2.9	13.6	2.0	1.4	0.2	1.1	13.0
1477647	49.2	18.2	1.9	60.1	10.0	159	174	5.7	3.20	< 0.1	1	0.1	0.6	264	13.0	28.9	3.4	15.9	2.6	2.0	0.3	1.7	12.7
1477648	8.7	8.2	0.7	4.4	2.3	30.2	51	1.9	2.91	< 0.1	< 1	0.1	12.1	53	0.9	2.5	0.3	1.3	0.3	0.3	< 0.1	0.4	13.8
1477649	64.6	14.5	1.9	33.1	9.2	117	41	1.4	4.92	< 0.1	< 1	0.2	0.9	353	2.2	5.6	0.7	3.8	0.9	1.1	0.2	1.4	44.5
1477650	68.7	14.1	2.0	15.2	12.8	364	64	2.3	75.8	< 0.1	< 1	< 0.1	0.2	138	4.8	11.5	1.5	7.5	1.5	1.8	0.3	2.1	63.8
1477651	54.9	13.4	1.4	5.0	30.9	186	178	8.2	29.9	< 0.1	1	0.1	0.2	64	11.8	28.8	3.6	18.7	3.7	4.2	0.7	5.1	158
1477652	56.7	2.0	0.9	1.5	2.3	6.0	8	0.3	4.27	< 0.1	< 1	0.1	0.1	19	2.3	4.1	0.4	1.7	0.3	0.3	< 0.1	0.3	7.6
1477653	99.8	19.2	3.0	54.1	8.0	560	211	8.2	2.74	< 0.1	1	0.2	0.3	479	10.4	24.4	2.7	12.5	1.9	1.5	0.2	1.3	24.1
1477654	144	9.0	5.0	47.6	3.7	71.1	76	3.4	4.29	< 0.1	< 1	0.2	0.3	365	3.6	11.2	0.9	4.4	0.7	0.6	< 0.1	0.6	23.9
1477655	29.5	8.5	0.7	5.4	2.0	228	59	2.1	49.7	< 0.1	< 1	0.1	< 0.1	117	4.7	9.5	1.2	5.3	0.8	0.5	< 0.1	0.4	4.8

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477656	107	11.8	0.8	0.4	15.6	54.0	24	0.4	0.11	0.1	< 1	< 0.1	< 0.1	22	3.6	9.7	1.4	8.3	1.9	2.3	0.4	2.6	25.7
1477658	75.6	8.8	0.3	26.8	11.6	65.3	25	< 0.1	0.07	< 0.1	< 1	< 0.1	< 0.1	445	1.2	3.6	0.6	3.7	1.0	1.3	0.2	1.9	15.5
1477659	97.5	12.4	< 0.1	6.8	15.2	72.0	21	< 0.1	0.11	< 0.1	< 1	< 0.1	< 0.1	114	1.7	5.2	0.8	5.0	1.5	1.8	0.3	2.4	19.1
1477660	15.2	1.2	2.5	2.7	0.5	43.0	3	0.1	9.13	< 0.1	< 1	0.7	< 0.1	125	0.9	2.0	0.2	1.0	0.2	0.1	< 0.1	< 0.1	4.5
1477661	22.2	2.8	15.4	13.3	0.7	42.6	10	0.2	9.33	< 0.1	< 1	8.7	< 0.1	231	3.3	7.0	0.8	3.5	0.5	0.3	< 0.1	0.1	122
1477662	13.5	4.2	18.5	18.7	0.9	31.8	24	0.7	16.9	< 0.1	< 1	1.7	0.3	283	2.6	5.3	0.6	2.7	0.4	0.3	< 0.1	0.2	227
1477663	27.4	5.2	10.5	18.7	2.3	73.9	17	0.6	2.47	< 0.1	< 1	0.7	0.1	568	7.2	16.0	1.8	8.0	1.2	0.7	< 0.1	0.4	81.8
1477664	21.5	7.2	3.6	17.5	3.0	162	3	1.1	6.75	< 0.1	< 1	0.9	0.1	665	8.3	19.8	2.0	9.5	1.3	0.9	0.1	0.6	12.8
1477665	113	12.6	8.2	2.7	6.4	74.0	20	0.1	0.23	< 0.1	< 1	0.2	< 0.1	84	1.1	3.5	0.5	3.4	0.9	1.1	0.2	1.2	126
1477667	55.7	0.8	7.2	0.2	0.6	12.1	1	< 0.1	0.58	< 0.1	< 1	0.7	< 0.1	4	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	1.8
1477668	61.3	6.2	3.0	< 0.2	2.7	77.9	21	1.1	0.32	< 0.1	< 1	0.3	< 0.1	15	0.9	2.4	0.4	2.3	0.6	0.6	< 0.1	0.5	4.2
1477669	165	3.7	43.0	24.9	6.0	209	5	0.1	1.16	< 0.1	< 1	0.3	< 0.1	319	0.7	1.8	0.3	2.0	0.6	0.8	0.1	1.0	28.4
1477670	53.6	1.1	672	< 0.2	0.6	28.1	3	< 0.1	1.07	< 0.1	< 1	1.0	0.1	8	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	7.7
1477671	48.6	0.9	153	< 0.2	0.6	35.8	2	< 0.1	0.72	< 0.1	< 1	0.4	0.1	< 1	0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	2.2
1477672	59.4	1.1	697	< 0.2	0.5	21.2	6	0.2	0.99	< 0.1	< 1	0.8	< 0.1	2	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	1.4
1477673	148	1.5	1420	< 0.2	0.6	15.1	5	< 0.1	0.73	< 0.1	< 1	1.5	0.2	2	0.3	0.3	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1	2.5
1477674	209	1.4	2190	< 0.2	0.8	15.9	6	< 0.1	0.56	< 0.1	< 1	3.2	0.1	< 1	0.2	0.5	< 0.1	0.4	< 0.1	< 0.1	< 0.1	0.1	1.3
1477675	42.4	1.5	186	< 0.2	0.8	9.3	1	< 0.1	0.47	< 0.1	< 1	1.0	< 0.1	2	0.2	0.5	< 0.1	0.5	0.1	0.1	< 0.1	0.1	36.9
1477676	55.7	0.9	2160	< 0.2	0.7	14.1	3	< 0.1	0.45	< 0.1	< 1	2.1	0.1	3	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	2.1
1477677	1630	12.6	342	44.9	13.0	141	53	5.2	18.1	0.1	3	4.3	< 0.1	41	8.0	20.8	2.9	14.6	2.7	2.4	0.3	2.3	666
1477678	111	0.8	2000	< 0.2	0.8	22.7	3	< 0.1	0.45	< 0.1	< 1	2.4	0.1	8	0.2	0.4	< 0.1	0.3	< 0.1	< 0.1	< 0.1	0.1	1.7
1027243	16.9	2.1	34.4	7.1	1.6	4.8	3	0.1	0.70	< 0.1	< 1	0.2	< 0.1	49	0.6	1.5	0.2	1.1	0.2	0.3	< 0.1	0.3	7.6
1027245	42.3	7.8	39.1	26.3	5.3	65.7	43	0.4	0.25	< 0.1	< 1	0.1	0.1	152	2.7	6.6	0.9	5.2	1.2	1.1	0.2	1.0	10.6
1027246	69.3	13.7	63.5	41.8	6.4	52.7	50	1.0	0.33	< 0.1	< 1	< 0.1	< 0.1	261	2.2	5.9	0.8	4.7	1.1	1.1	0.2	1.1	161
1027248	6.9	0.9	11.4	1.6	0.9	4.6	1	< 0.1	0.58	< 0.1	< 1	0.2	< 0.1	13	0.3	0.7	< 0.1	0.6	0.1	0.1	< 0.1	0.2	34.6
1027249	43.8	16.3	20.4	28.7	8.2	89.6	89	0.5	< 0.05	< 0.1	< 1	< 0.1	< 0.1	159	5.8	15.4	2.1	11.7	2.5	2.1	0.3	1.4	3.0
1027250	5.9	0.4	6.3	0.3	1.5	2.3	1	< 0.1	0.65	< 0.1	< 1	0.2	< 0.1	4	1.1	2.7	0.4	2.0	0.4	0.4	< 0.1	0.3	1.6
1027251	14.3	2.9	17.3	5.3	2.6	10.7	9	0.2	2.19	< 0.1	< 1	0.2	< 0.1	61	1.0	2.7	0.4	2.1	0.5	0.5	< 0.1	0.5	16.2
1027252	34.0	4.1	12.0	12.9	3.6	54.9	1	< 0.1	0.54	< 0.1	< 1	0.1	< 0.1	135	1.5	3.7	0.5	2.8	0.6	0.7	< 0.1	0.6	7.3
1027254	155	7.7	378	< 0.2	2.8	42.1	20	0.4	0.77	< 0.1	< 1	0.5	0.2	74	1.0	2.7	0.4	2.2	0.6	0.7	0.1	0.6	166
1027255	66.1	11.8	2.8	26.8	8.6	309	118	0.3	0.29	< 0.1	< 1	< 0.1	< 0.1	406	13.2	31.3	3.8	17.9	2.5	1.9	0.3	1.5	8.8
1027256	198	19.9	< 0.1	52.8	44.9	183	153	< 0.1	0.09	0.1	< 1	< 0.1	0.2	606	25.2	55.0	7.0	35.4	6.9	6.9	1.1	7.4	182
1027257	189	19.6	0.2	54.9	40.1	165	102	< 0.1	< 0.05	0.1	< 1	< 0.1	< 0.1	504	21.6	47.6	6.1	30.7	6.0	6.0	1.0	6.7	175
1027258	208	20.0	0.8	56.7	44.5	159	147	0.1	0.11	0.1	< 1	< 0.1	< 0.1	548	24.8	53.7	6.7	34.6	6.6	6.7	1.0	7.4	180
1027259	1320	13.0	1.3	26.0	10.5	153	130	1.2	105	< 0.1	< 1	< 0.1	< 0.1	294	11.6	26.1	3.0	14.5	2.4	2.0	0.3	1.8	52.0
1027261	77.9	10.1	6.1	38.3	8.6	168	20	0.6	2.46	< 0.1	< 1	< 0.1	< 0.1	519	10.3	25.8	3.3	16.6	2.5	1.8	0.2	1.5	86.3
1027262	6.1	0.4	3.1	0.3	< 0.1	2.3	< 1	< 0.1	0.99	< 0.1	< 1	0.3	0.2	5	0.1	0.3	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	4.5
1027263	103	16.1	1.3	31.8	14.9	365	61	0.7	0.10	< 0.1	< 1	< 0.1	< 0.1	410	17.3	36.6	4.3	20.5	3.2	2.8	0.4	2.4	244
1027264	598	4.4	122	12.0	1.4	4.8	16	0.3	2.31	< 0.1	2	0.3	0.7	32	0.8	1.8	0.2	1.2	0.2	0.2	< 0.1	0.2	54.1
1027265	44.3	13.4	3.6	30.8	3.4	297	87	1.7	0.59	< 0.1	< 1	0.1	< 0.1	915	5.7	13.3	1.5	7.3	1.2	0.9	0.1	0.6	9.7
1027266	4.9	0.5	1.2	0.4	0.4	10.1	2	0.3	31.1	< 0.1	< 1	0.1	< 0.1	9	0.4	1.2	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.1	6.2
1027267	58.7	17.1	1.5	31.3	4.9	356	158	4.6	35.9	< 0.1	< 1	0.1	< 0.1	524	11.1	24.0	2.6	11.7	1.7	1.3	0.2	0.9	69.1

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027268	32.8	1.3	76.2	0.4	3.9	1.5	14	0.4	3.82	< 0.1	< 1	2.1	0.6	11	1.9	3.3	0.4	1.8	0.3	0.3	< 0.1	0.4	31.9
1027269	107	13.2	13.4	0.3	10.3	472	23	9.0	0.64	< 0.1	< 1	3.8	< 0.1	21	7.0	18.3	2.4	11.9	2.0	1.9	0.3	2.0	61.9
1027270	317	15.1	3.1	4.2	24.7	32.8	11	1.7	0.51	< 0.1	< 1	1.9	0.2	85	4.4	11.0	1.7	10.6	2.7	3.5	0.6	4.3	411
1027271	9.9	5.2	7.2	0.9	2.1	24.0	3	< 0.1	0.66	< 0.1	< 1	0.4	0.1	4	0.2	0.5	< 0.1	0.4	0.1	0.2	< 0.1	0.3	17.5
1027272	110	14.4	< 0.1	1.9	15.5	92.6	13	< 0.1	0.06	< 0.1	< 1	< 0.1	< 0.1	30	2.0	6.0	0.9	6.0	1.6	2.1	0.3	2.6	39.4
1027273	231	18.8	5.9	29.6	32.8	62.0	8	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	404	5.0	14.6	2.3	14.3	3.7	4.6	0.8	5.6	96.0
1027274	129	9.9	1.0	33.6	13.0	14.8	154	2.8	3.88	< 0.1	1	0.1	1.1	48	5.3	16.3	2.3	12.8	2.8	2.8	0.4	2.7	1210
1027322	94.4	4.4	36.5	1.4	3.1	7.3	13	0.3	0.44	< 0.1	< 1	0.4	< 0.1	81	0.6	2.0	0.2	1.5	0.4	0.5	< 0.1	0.6	53.4
1027323	251	10.9	71.3	3.8	3.8	22.5	28	1.2	0.36	< 0.1	< 1	0.2	< 0.1	164	0.9	2.5	0.4	2.3	0.6	0.7	0.1	0.7	52.9
1027324	202	8.2	86.3	2.4	2.7	21.9	21	0.6	0.79	< 0.1	< 1	0.2	< 0.1	170	0.8	2.4	0.3	1.7	0.4	0.5	< 0.1	0.5	6.5
1027325	116	13.1	3.2	15.4	3.7	27.0	23	1.2	0.25	< 0.1	< 1	0.2	< 0.1	136	1.0	2.9	0.5	3.2	0.9	0.9	0.1	0.8	47.8
1027326	179	12.5	4.7	0.6	3.2	18.3	19	< 0.1	0.13	< 0.1	< 1	< 0.1	< 0.1	71	0.9	2.7	0.4	2.8	0.7	0.8	0.1	0.7	71.1
1027328	156	5.6	7.0	1.1	3.1	13.7	17	0.6	0.51	< 0.1	< 1	0.3	< 0.1	90	0.8	2.3	0.3	2.2	0.6	0.7	< 0.1	0.6	17.8
1027329	104	16.5	1.0	0.4	14.7	88.5	13	< 0.1	0.15	< 0.1	< 1	< 0.1	< 0.1	25	2.6	7.6	1.2	7.5	2.0	2.3	0.4	2.7	73.6
1027330	132	17.0	3.2	0.9	14.5	119	10	0.7	0.09	< 0.1	< 1	0.2	< 0.1	37	2.6	7.2	1.1	6.7	1.8	2.2	0.4	2.6	90.1
1027331	117	19.4	< 0.1	0.6	16.7	108	7	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	60	3.0	8.9	1.4	8.7	2.2	2.6	0.4	3.1	248
1027332	122	16.8	< 0.1	11.7	17.7	129	19	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	251	3.0	8.8	1.4	8.8	2.3	2.7	0.4	3.1	121
1027333	143	19.9	< 0.1	3.2	18.4	78.1	26	0.5	0.09	< 0.1	< 1	< 0.1	< 0.1	95	3.5	10.5	1.6	10.3	2.6	3.0	0.5	3.4	95.7
1027334	130	13.3	11.3	5.1	12.7	63.3	21	0.2	0.18	< 0.1	< 1	< 0.1	< 0.1	166	2.5	7.8	1.1	6.9	1.8	2.2	0.4	2.4	38.3
1027335	153	21.8	1.7	5.4	23.2	73.6	18	3.0	0.75	< 0.1	< 1	< 0.1	< 0.1	206	3.5	10.3	1.6	9.9	2.6	3.3	0.5	4.0	418
1027336	67.8	23.3	10.5	38.0	5.3	255	67	2.5	0.18	< 0.1	1	0.2	0.2	2390	1.0	3.1	0.4	2.8	0.7	0.8	0.1	1.0	87.8
1027337	74.3	17.1	4.4	3.7	10.2	208	11	0.8	0.67	< 0.1	< 1	0.4	< 0.1	142	1.5	4.7	0.7	4.7	1.2	1.5	0.2	1.7	90.6
1027444	69.0	9.4	1.8	1.2	4.7	55.4	25	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	36	2.0	5.6	0.9	5.6	1.4	1.3	0.2	0.9	93.6
1027445	47.5	12.8	87.9	12.4	3.5	60.3	40	1.8	0.28	< 0.1	< 1	0.1	0.1	268	1.4	4.6	0.6	4.2	1.0	0.9	0.1	0.7	69.4
1027446	15.0	0.9	3.7	0.2	0.9	4.6	< 1	< 0.1	0.45	< 0.1	< 1	0.1	0.1	5	0.2	0.4	< 0.1	0.4	< 0.1	0.1	< 0.1	0.1	39.7
1027447	71.1	14.1	1.1	6.1	4.6	127	42	< 0.1	0.07	< 0.1	< 1	< 0.1	< 0.1	74	4.0	11.3	1.5	8.4	1.8	1.4	0.2	1.0	32.2
1027448	42.0	10.7	1.4	8.9	6.0	185	32	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	96	5.6	15.4	2.1	11.6	2.3	2.0	0.2	1.3	21.9
1027449	66.3	17.3	1.6	59.9	4.2	140	38	2.7	0.81	< 0.1	< 1	0.1	< 0.1	833	11.3	25.6	3.2	15.2	2.3	1.5	0.2	0.9	17.6
1027450	74.2	24.1	1.4	81.3	5.9	352	148	1.3	0.43	< 0.1	< 1	0.2	< 0.1	1230	10.6	25.9	3.0	14.2	2.3	1.6	0.2	1.1	9.5
1027451	109	21.4	1.7	38.9	6.7	390	168	6.2	0.41	< 0.1	< 1	0.4	< 0.1	715	15.2	35.2	4.1	19.5	3.1	2.0	0.2	1.2	29.0
1027452	107	23.6	6.8	69.7	8.5	512	139	0.7	0.25	< 0.1	< 1	< 0.1	< 0.1	1150	18.0	40.3	4.7	22.9	3.4	2.3	0.3	1.5	18.7
1027453	87.1	24.0	1.8	59.2	6.6	497	158	0.8	0.24	< 0.1	< 1	< 0.1	0.1	1070	15.9	36.7	4.3	20.5	3.2	2.1	0.2	1.2	10.7
1027454	77.6	20.4	6.2	55.8	6.9	489	146	4.9	0.29	< 0.1	< 1	0.5	< 0.1	758	15.5	35.2	4.2	20.5	3.2	2.2	0.3	1.3	9.3
1027456	57.5	16.4	11.6	49.4	4.9	191	33	4.0	0.96	< 0.1	< 1	0.5	< 0.1	717	7.1	22.6	1.9	9.1	1.5	1.1	0.1	0.8	12.6
1027457	65.8	22.6	7.9	64.1	5.3	308	140	0.2	0.31	< 0.1	< 1	< 0.1	< 0.1	799	12.0	29.3	3.3	16.0	2.4	1.7	0.2	1.0	6.4
1027458	100	21.2	1.6	51.7	5.8	453	148	0.8	0.38	< 0.1	< 1	< 0.1	< 0.1	752	9.1	22.8	2.2	10.3	1.8	1.3	0.2	1.0	10.0
1027459	53.1	16.8	7.8	42.7	4.3	175	50	2.7	0.43	< 0.1	< 1	0.2	< 0.1	694	7.4	17.1	2.1	9.8	1.6	1.1	0.1	0.7	6.7
1027460	77.2	19.7	1.3	52.3	13.9	681	141	4.3	0.80	< 0.1	1	0.2	< 0.1	976	30.4	70.2	8.8	43.4	6.3	3.9	0.5	2.5	84.5
1027462	56.6	21.8	3.1	62.5	5.9	435	157	7.2	0.35	< 0.1	1	0.2	< 0.1	1190	15.3	36.1	4.2	19.9	2.9	1.9	0.2	1.1	10.3
1027463	30.4	11.9	2.2	34.3	4.5	115	10	1.9	0.43	< 0.1	< 1	0.2	< 0.1	558	8.1	18.9	2.2	10.7	1.7	1.2	0.1	0.8	9.3
1027464	88.2	21.3	3.8	46.0	5.7	385	160	8.1	0.28	< 0.1	1	< 0.1	< 0.1	700	11.9	32.9	3.3	16.0	2.5	1.7	0.2	1.1	24.8
1027465	93.7	20.7	0.6	44.6	8.2	454	155	5.2	0.28	< 0.1	< 1	< 0.1	< 0.1	781	16.5	37.0	4.5	21.5	3.3	2.3	0.3	1.5	12.7

Results

Activation Laboratories Ltd.

Report: A16-08810

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027466	87.2	18.3	16.2	53.9	7.2	425	120	4.1	0.31	< 0.1	< 1	0.1	< 0.1	627	13.6	31.0	3.7	17.9	2.8	1.9	0.2	1.2	39.8
1027467	73.9	19.1	3.2	38.8	7.2	497	152	4.2	0.47	< 0.1	< 1	0.1	< 0.1	614	15.3	34.6	4.2	19.8	3.0	2.0	0.2	1.2	12.3
1027468	74.6	22.2	0.9	45.1	8.0	407	156	1.5	0.20	< 0.1	< 1	< 0.1	< 0.1	793	16.6	40.0	4.6	22.0	3.6	2.3	0.3	1.5	10.4
1027469	58.2	19.3	1.5	64.0	5.9	289	121	3.6	0.26	< 0.1	< 1	0.1	0.1	842	11.5	25.2	3.2	15.0	2.3	1.6	0.2	1.0	4.4
1027470	77.3	20.7	1.3	33.8	7.8	426	151	9.9	0.53	< 0.1	1	0.3	< 0.1	575	14.7	35.4	4.2	20.2	3.2	2.2	0.3	1.5	15.0
1027471	92.5	22.2	2.2	50.8	6.6	554	157	6.3	0.50	< 0.1	< 1	0.4	< 0.1	720	14.7	36.0	4.2	20.5	3.2	2.2	0.3	1.3	16.9
1027472	108	21.9	2.0	48.0	9.1	569	152	5.8	0.43	< 0.1	< 1	0.3	< 0.1	563	16.6	38.1	4.5	21.3	3.6	2.4	0.3	1.6	15.3
1027473	76.8	20.2	1.0	53.8	8.6	574	145	5.4	0.25	< 0.1	< 1	0.3	< 0.1	774	18.5	42.5	5.1	24.5	3.8	2.6	0.3	1.6	23.8
1027474	74.0	21.8	0.5	21.7	5.6	506	171	10.1	0.44	< 0.1	1	0.3	< 0.1	998	7.5	28.3	2.2	10.9	1.9	1.4	0.2	1.0	9.9
1027475	99.3	20.8	0.9	58.8	6.8	573	148	7.5	0.79	< 0.1	< 1	0.4	< 0.1	860	11.8	29.2	3.3	15.4	2.3	1.7	0.2	1.2	11.8
1027476	75.1	24.3	1.5	69.2	5.3	303	144	0.8	0.21	< 0.1	< 1	< 0.1	< 0.1	1220	5.7	14.8	1.7	7.8	1.3	1.0	0.1	0.8	9.0
1027478	6.9	0.7	11.5	0.7	0.3	4.4	3	0.5	0.76	< 0.1	< 1	0.1	0.4	15	0.8	1.7	0.2	0.8	0.1	< 0.1	< 0.1	< 0.1	6.4
1027479	110	14.4	1.6	3.1	15.2	123	16	< 0.1	< 0.05	< 0.1	< 1	< 0.1	0.1	40	4.5	12.0	1.6	9.1	2.1	2.3	0.4	2.5	22.1
1027480	124	16.5	0.1	0.9	16.9	174	25	0.9	0.16	< 0.1	< 1	< 0.1	< 0.1	20	4.2	11.0	1.5	8.4	2.0	2.3	0.4	2.7	34.4
1027481	136	15.6	0.2	33.1	26.5	155	130	1.7	0.45	< 0.1	< 1	< 0.1	< 0.1	424	9.3	22.5	2.9	15.7	3.2	3.6	0.6	4.2	150
1027482	90.3	17.3	0.4	31.5	21.3	107	19	0.3	0.05	< 0.1	< 1	< 0.1	< 0.1	731	3.5	10.1	1.5	9.1	2.3	2.8	0.4	3.4	48.5
1027483	96.1	17.3	0.3	46.2	11.8	393	181	6.0	0.52	< 0.1	2	< 0.1	< 0.1	685	14.0	32.9	4.0	18.7	3.1	2.4	0.3	2.1	59.8
1027484	273	21.0	9.4	48.0	21.4	377	224	7.1	0.75	< 0.1	1	0.2	< 0.1	837	77.2	181	21.4	106	15.0	8.5	0.9	4.2	43.7
1027485	75.9	18.0	1.3	30.7	12.5	565	223	8.2	4.96	< 0.1	1	0.3	0.5	274	20.9	49.1	5.9	28.1	4.1	2.8	0.4	2.1	17.1
1027486	67.3	17.6	5.6	36.0	6.6	330	188	7.7	1.42	< 0.1	1	0.1	0.6	280	10.8	24.6	2.8	12.4	1.8	1.2	0.2	1.0	28.0
1027487	54.0	16.6	3.7	44.5	6.6	295	195	7.3	1.27	< 0.1	1	0.2	0.8	191	11.2	21.5	2.2	9.0	1.2	0.9	0.1	0.9	28.2
1027488	53.8	21.0	2.6	64.8	7.0	575	196	8.6	2.11	< 0.1	1	0.1	0.3	642	18.1	40.7	4.4	18.1	2.3	1.4	0.2	1.2	18.7
1477801	126	17.4	1.9	51.7	9.6	155	104	0.2	0.06	< 0.1	< 1	< 0.1	< 0.1	484	7.8	20.3	2.3	11.2	2.1	1.9	0.3	1.7	22.0
1477802	65.8	21.8	1.8	6.4	6.1	627	78	0.5	0.08	< 0.1	< 1	< 0.1	< 0.1	75	7.4	16.9	2.1	10.3	2.0	1.4	0.2	1.1	18.3
1477803	153	19.2	1.3	5.9	13.4	313	83	0.9	0.09	< 0.1	< 1	< 0.1	< 0.1	53	13.5	31.4	4.2	21.2	3.7	2.9	0.4	2.3	31.5
1477804	142	18.9	0.9	41.2	14.7	648	36	0.5	0.07	< 0.1	< 1	< 0.1	< 0.1	459	15.5	37.3	4.8	25.4	4.1	3.2	0.4	2.6	53.3
1477805	111	20.1	0.8	22.0	10.9	415	47	0.6	0.06	< 0.1	< 1	< 0.1	< 0.1	328	11.3	27.1	3.5	18.0	3.1	2.4	0.3	1.9	65.9
1477806	108	14.2	1.2	17.5	9.4	344	58	5.4	1.04	< 0.1	< 1	0.2	< 0.1	436	16.1	38.2	4.8	24.3	4.0	2.5	0.3	1.7	34.0
1477807	141	17.7	7.8	65.6	16.5	156	86	0.2	0.28	< 0.1	< 1	< 0.1	< 0.1	1040	11.7	27.9	3.4	16.6	2.9	2.6	0.4	2.6	31.7
1477808	138	19.9	0.8	31.8	13.2	220	60	0.5	0.48	< 0.1	< 1	< 0.1	< 0.1	751	11.2	27.4	3.7	19.4	3.8	2.9	0.4	2.3	75.1
1477810	162	21.6	0.8	38.9	17.5	755	17	< 0.1	0.07	< 0.1	< 1	< 0.1	< 0.1	642	9.4	24.4	3.5	19.8	4.0	3.5	0.5	3.1	154
1477811	96.9	19.0	0.6	44.6	11.9	289	188	2.3	0.06	< 0.1	< 1	< 0.1	< 0.1	388	11.4	28.1	3.7	19.4	3.3	2.6	0.3	2.1	53.8

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477611	< 0.1	< 0.1	0.4	< 0.1	< 0.1	1.6	< 0.001	0.11	1.4	17	0.3	< 0.1	0.196	0.037	0.02
1477612	< 0.1	< 0.1	0.5	< 0.1	< 0.1	3.0	< 0.001	0.20	1.1	23	0.3	< 0.1	0.243	0.027	0.03
1477613	< 0.1	< 0.1	0.7	< 0.1	< 0.1	0.3	< 0.001	0.26	1.1	36	0.5	< 0.1	0.324	0.023	0.01
1477614	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.5	< 0.001	< 0.05	0.6	7	0.1	< 0.1	0.0626	0.010	< 0.01
1477615	< 0.1	< 0.1	0.3	< 0.1	< 0.1	1.1	< 0.001	0.14	1.5	20	0.2	< 0.1	0.162	0.006	0.01
1477616	< 0.1	< 0.1	0.8	0.1	0.1	1.8	0.002	0.23	0.9	36	0.5	0.7	0.327	0.020	0.03
1477617	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.9	< 0.001	0.05	< 0.5	6	< 0.1	< 0.1	0.0433	0.003	< 0.01
1477618	< 0.1	< 0.1	0.6	< 0.1	< 0.1	3.9	< 0.001	0.19	0.7	27	0.3	< 0.1	0.298	0.018	0.02
1477619	< 0.1	< 0.1	0.5	< 0.1	< 0.1	4.6	< 0.001	0.10	0.6	12	0.3	< 0.1	0.127	0.123	< 0.01
1477620	< 0.1	0.2	1.4	0.1	< 0.1	0.4	< 0.001	0.11	1.6	7	9.0	0.4	0.0950	0.551	< 0.01
1477621	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.5	< 0.001	0.16	0.9	37	0.6	< 0.1	0.0936	0.017	< 0.01
1477622	< 0.1	< 0.1	0.7	< 0.1	< 0.1	0.6	< 0.001	< 0.05	1.6	26	0.3	< 0.1	0.142	0.015	0.07
1477623	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.3	< 0.001	< 0.05	1.0	10	0.1	0.1	0.118	0.014	0.02
1477624	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	2	< 0.1	< 0.1	0.0112	0.003	< 0.01
1477627	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.4	0.009	< 0.05	< 0.5	5	0.2	< 0.1	0.0878	0.032	0.37
1477628	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.4	< 0.001	< 0.05	0.6	4	0.1	< 0.1	0.0506	0.006	0.26
1477629	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.001	< 0.05	< 0.5	2	< 0.1	< 0.1	0.0252	0.008	0.15
1477630	< 0.1	< 0.1	0.7	< 0.1	< 0.1	0.5	< 0.001	< 0.05	1.4	8	0.4	0.1	0.173	0.017	0.20
1477631	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.6	< 0.001	0.46	1.7	2	0.4	0.1	0.0800	0.031	0.32
1477632	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.4	< 1	< 0.1	< 0.1	0.0141	0.002	< 0.01
1477633	< 0.1	0.3	2.0	0.2	0.2	1.7	< 0.001	0.19	3.0	33	1.1	0.3	0.648	0.045	4.60
1477634	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	3.2	5	0.4	0.1	0.118	0.022	0.24
1477636	< 0.1	0.1	0.9	0.1	< 0.1	0.1	< 0.001	0.10	7.0	10	1.7	0.4	0.266	0.052	0.16
1477637	< 0.1	0.1	0.9	0.1	0.3	0.4	< 0.001	0.43	10.2	14	2.7	0.7	0.416	0.082	0.53
1477638	< 0.1	0.1	0.8	< 0.1	0.2	24.6	< 0.001	0.30	13.4	12	2.1	0.4	0.292	0.054	0.51
1477639	< 0.1	0.1	1.0	0.1	0.1	1.1	0.003	0.23	13.4	14	2.8	0.8	0.358	0.107	0.25
1477640	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.001	< 0.05	1.1	1	0.2	< 0.1	0.0298	0.014	0.01
1477641	< 0.1	< 0.1	0.2	< 0.1	0.1	0.4	0.009	0.10	6.9	3	1.4	0.7	0.128	0.023	0.12
1477642	< 0.1	0.1	0.8	< 0.1	0.2	0.5	< 0.001	0.10	3.8	9	1.7	0.5	0.250	0.057	0.52
1477643	< 0.1	0.1	0.9	0.1	0.5	0.8	0.001	0.37	16.2	11	1.9	0.4	0.430	0.098	2.01
1477644	< 0.1	0.1	1.1	0.1	0.4	0.6	< 0.001	0.25	19.8	12	2.2	0.7	0.363	0.080	3.17
1477645	< 0.1	0.1	0.8	< 0.1	< 0.1	0.3	< 0.001	0.07	4.4	12	1.5	0.4	0.284	0.070	0.09
1477646	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.3	< 0.001	0.15	2.8	8	1.2	0.3	0.239	0.035	0.02
1477647	< 0.1	0.1	1.1	0.1	0.3	4.2	< 0.001	0.24	3.6	13	2.0	0.4	0.320	0.060	1.41
1477648	< 0.1	< 0.1	0.3	< 0.1	< 0.1	1.3	< 0.001	< 0.05	11.2	4	0.7	0.2	0.124	0.023	0.16
1477649	< 0.1	0.1	0.9	0.1	< 0.1	1.0	< 0.001	0.12	4.2	26	0.5	0.1	0.236	0.030	0.40
1477650	0.1	0.2	1.3	0.1	< 0.1	0.6	0.003	0.07	4.6	29	0.7	0.2	0.347	0.032	1.35
1477651	< 0.1	0.4	3.3	0.4	0.3	1.1	0.002	< 0.05	4.5	21	2.0	0.6	0.416	0.081	2.92
1477652	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	0.9	2	0.1	< 0.1	0.0293	0.035	0.23
1477653	< 0.1	0.1	1.0	0.1	0.4	0.8	< 0.001	0.82	9.2	16	2.8	0.7	0.412	0.088	1.12
1477654	< 0.1	< 0.1	0.4	< 0.1	0.1	1.3	< 0.001	0.37	2.7	7	1.2	0.4	0.190	0.044	0.38
1477655	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.9	0.002	< 0.05	5.0	2	1.0	0.4	0.0827	0.018	0.39

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477656	0.1	0.2	1.5	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	63	0.3	< 0.1	0.269	0.013	0.02
1477658	0.1	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	0.13	1.5	45	0.1	< 0.1	0.225	0.011	< 0.01
1477659	< 0.1	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.5	54	0.2	< 0.1	0.208	0.014	< 0.01
1477660	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	3.7	3	0.1	0.4	0.0207	0.005	0.04
1477661	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.001	0.06	5.1	< 1	0.4	0.2	0.0234	0.004	0.34
1477662	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.2	< 0.001	0.09	5.9	< 1	0.8	0.2	0.0368	0.008	0.42
1477663	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.6	< 0.001	0.07	7.2	2	1.2	0.3	0.0458	0.017	0.06
1477664	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.4	< 0.001	0.08	8.8	3	1.4	0.5	0.0865	0.033	0.06
1477665	0.2	< 0.1	0.7	< 0.1	< 0.1	0.2	< 0.001	< 0.05	2.0	40	0.4	< 0.1	0.303	0.018	0.17
1477667	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	6	< 0.1	< 0.1	0.0252	0.001	< 0.01
1477668	0.2	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	21	0.1	< 0.1	0.106	0.008	< 0.01
1477669	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.2	< 0.001	0.30	2.3	18	< 0.1	< 0.1	0.0585	0.006	0.08
1477670	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.001	< 0.05	0.6	7	< 0.1	< 0.1	0.0139	0.001	< 0.01
1477671	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	1.0	6	0.1	< 0.1	0.0101	< 0.001	< 0.01
1477672	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.6	< 0.001	< 0.05	< 0.5	7	0.2	< 0.1	0.0110	< 0.001	< 0.01
1477673	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.9	< 0.001	< 0.05	0.5	5	< 0.1	< 0.1	0.0158	0.001	0.01
1477674	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.5	< 0.001	< 0.05	0.6	6	< 0.1	< 0.1	0.0190	< 0.001	0.06
1477675	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.3	< 0.001	< 0.05	< 0.5	8	< 0.1	< 0.1	0.0334	0.003	0.05
1477676	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.7	< 0.001	< 0.05	< 0.5	6	< 0.1	< 0.1	0.0154	< 0.001	0.05
1477677	< 0.1	0.2	1.3	0.2	0.2	8.9	0.004	0.61	587	16	1.5	0.8	0.319	0.055	2.87
1477678	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.2	< 0.001	< 0.05	< 0.5	5	< 0.1	< 0.1	0.0151	< 0.001	0.03
1027243	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.8	< 0.001	< 0.05	0.7	5	< 0.1	2.0	0.0265	0.006	< 0.01
1027245	< 0.1	< 0.1	0.7	< 0.1	< 0.1	1.5	< 0.001	0.16	0.8	21	0.3	< 0.1	0.253	0.018	0.01
1027246	0.2	0.1	0.8	0.1	< 0.1	1.1	< 0.001	0.25	0.7	37	0.3	< 0.1	0.313	0.021	0.06
1027248	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	4	< 0.1	< 0.1	0.0354	0.002	< 0.01
1027249	< 0.1	0.1	1.0	0.1	< 0.1	0.1	< 0.001	0.13	0.8	38	0.6	0.1	0.347	0.034	< 0.01
1027250	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	2	< 0.1	< 0.1	0.0204	0.027	< 0.01
1027251	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.2	0.007	< 0.05	< 0.5	7	< 0.1	< 0.1	0.0662	0.031	0.01
1027252	< 0.1	< 0.1	0.3	< 0.1	< 0.1	1.1	< 0.001	0.05	0.7	9	< 0.1	< 0.1	0.0089	0.006	< 0.01
1027254	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.5	< 0.001	< 0.05	4.5	22	0.1	< 0.1	0.0936	0.012	0.10
1027255	< 0.1	0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	0.08	3.8	10	1.9	0.5	0.244	0.064	< 0.01
1027256	< 0.1	0.6	4.8	0.5	< 0.1	< 0.1	0.002	0.24	10.0	40	5.9	1.4	0.245	0.067	0.10
1027257	< 0.1	0.6	4.3	0.5	< 0.1	< 0.1	0.001	0.22	8.9	42	5.0	1.2	0.237	0.063	0.09
1027258	< 0.1	0.6	4.8	0.6	< 0.1	< 0.1	0.001	0.24	10.4	40	5.7	1.4	0.312	0.071	0.11
1027259	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.130	0.10	317	12	1.8	0.8	0.273	0.057	0.17
1027261	< 0.1	0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	0.15	4.3	16	1.4	0.4	0.334	0.074	0.08
1027262	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	< 1	< 0.1	< 0.1	0.0165	0.001	< 0.01
1027263	< 0.1	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	0.11	6.0	16	2.0	0.5	0.238	0.086	0.02
1027264	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	0.003	< 0.05	44.7	7	0.2	0.1	0.0655	0.003	15.9
1027265	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	0.16	5.0	4	1.6	4.9	0.134	0.027	0.19
1027266	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	< 1	< 0.1	< 0.1	0.0172	0.002	0.05
1027267	< 0.1	< 0.1	0.4	< 0.1	0.2	0.2	< 0.001	0.17	5.9	6	1.8	0.5	0.232	0.048	0.31

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1027268	0.1	< 0.1	0.3	< 0.1	< 0.1	0.2	0.001	< 0.05	9.4	< 1	0.3	0.1	0.0175	0.012	14.1
1027269	< 0.1	0.2	1.2	0.1	0.4	0.5	< 0.001	< 0.05	9.1	27	0.5	0.1	0.404	0.026	0.25
1027270	< 0.1	0.4	2.8	0.3	< 0.1	0.1	< 0.001	< 0.05	1.1	38	0.2	0.7	0.379	0.025	0.28
1027271	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	5	< 0.1	< 0.1	0.0408	0.003	0.01
1027272	< 0.1	0.2	1.7	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.6	48	0.2	< 0.1	0.267	0.016	0.04
1027273	< 0.1	0.5	3.4	0.4	< 0.1	< 0.1	0.001	0.12	0.9	55	0.4	0.1	0.258	0.046	0.31
1027274	< 0.1	0.2	1.5	0.2	0.2	0.2	0.004	0.17	3.6	12	1.7	0.7	0.123	0.016	11.9
1027322	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.6	11	0.1	< 0.1	0.141	0.020	0.17
1027323	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.3	43	0.1	< 0.1	0.374	0.031	0.04
1027324	0.2	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.6	27	0.2	10.9	0.203	0.039	0.02
1027325	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.14	1.3	39	< 0.1	< 0.1	0.313	0.012	0.15
1027326	0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.3	45	0.1	< 0.1	0.271	0.017	0.12
1027328	< 0.1	< 0.1	0.5	< 0.1	< 0.1	0.1	< 0.001	< 0.05	2.8	21	0.1	< 0.1	0.187	0.019	< 0.01
1027329	< 0.1	0.2	1.5	0.2	< 0.1	< 0.1	0.002	< 0.05	1.8	43	0.2	0.2	0.296	0.025	0.07
1027330	0.4	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.7	49	0.2	0.3	0.422	0.021	0.03
1027331	< 0.1	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.0	48	0.2	< 0.1	0.146	0.029	0.20
1027332	< 0.1	0.2	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	43	0.2	< 0.1	0.307	0.023	0.04
1027333	0.2	0.3	1.9	0.2	< 0.1	< 0.1	< 0.001	< 0.05	0.6	49	0.3	< 0.1	0.472	0.027	< 0.01
1027334	0.3	0.2	1.2	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.8	31	0.4	0.1	0.381	0.038	< 0.01
1027335	0.5	0.3	2.3	0.2	0.1	< 0.1	< 0.001	< 0.05	1.6	62	0.3	0.1	0.822	0.050	0.08
1027336	1.1	< 0.1	0.7	< 0.1	0.1	0.2	< 0.001	0.26	2.4	27	0.2	< 0.1	0.500	0.017	0.06
1027337	< 0.1	0.1	0.9	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	24	0.1	< 0.1	0.172	0.016	0.07
1027444	< 0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.5	33	0.2	< 0.1	0.267	0.013	0.03
1027445	0.3	< 0.1	0.5	< 0.1	0.1	2.1	< 0.001	0.19	0.5	42	0.3	< 0.1	0.479	0.021	< 0.01
1027446	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.5	4	< 0.1	< 0.1	0.0417	0.005	0.02
1027447	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.05	1.1	25	0.4	0.1	0.425	0.043	0.08
1027448	< 0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.07	1.5	24	0.5	1.5	0.264	0.036	0.38
1027449	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.8	< 0.001	0.24	7.1	6	2.2	0.4	0.196	0.032	0.01
1027450	< 0.1	< 0.1	0.5	< 0.1	< 0.1	0.6	< 0.001	0.34	6.4	7	2.7	0.8	0.236	0.055	< 0.01
1027451	< 0.1	< 0.1	0.6	< 0.1	0.2	0.9	< 0.001	0.15	6.5	7	3.1	0.8	0.214	0.063	< 0.01
1027452	0.2	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.28	7.6	7	3.0	0.9	0.239	0.061	0.02
1027453	< 0.1	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.28	7.7	7	3.0	1.0	0.249	0.055	0.04
1027454	< 0.1	< 0.1	0.6	< 0.1	0.1	0.5	< 0.001	0.24	6.5	7	2.8	0.8	0.259	0.059	0.02
1027456	< 0.1	< 0.1	0.4	< 0.1	< 0.1	3.3	< 0.001	0.20	9.7	5	1.8	0.5	0.170	0.037	< 0.01
1027457	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.25	5.8	7	2.8	0.8	0.225	0.045	0.01
1027458	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.20	6.6	6	2.9	0.8	0.204	0.050	< 0.01
1027459	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.9	< 0.001	0.16	7.2	5	1.6	0.4	0.172	0.037	< 0.01
1027460	0.3	0.2	1.2	0.1	< 0.1	0.4	< 0.001	0.36	7.9	18	5.3	1.4	0.367	0.096	0.28
1027462	< 0.1	< 0.1	0.5	< 0.1	< 0.1	6.3	< 0.001	0.34	10.1	7	2.8	0.8	0.262	0.061	0.25
1027463	< 0.1	< 0.1	0.3	< 0.1	< 0.1	3.1	< 0.001	0.12	4.8	3	0.9	0.3	0.103	0.109	< 0.01
1027464	< 0.1	< 0.1	0.5	< 0.1	0.3	6.9	< 0.001	0.22	10.8	6	2.6	0.8	0.258	0.062	< 0.01
1027465	< 0.1	< 0.1	0.6	< 0.1	< 0.1	1.5	< 0.001	0.18	7.2	7	2.8	0.8	0.265	0.058	0.02

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1027466	< 0.1	< 0.1	0.6	< 0.1	< 0.1	1.0	< 0.001	0.24	8.3	6	2.4	0.5	0.238	0.051	< 0.01
1027467	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.6	< 0.001	0.18	7.7	7	2.8	0.7	0.281	0.059	0.03
1027468	< 0.1	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.18	5.3	7	3.1	0.8	0.245	0.065	< 0.01
1027469	0.1	< 0.1	0.5	< 0.1	< 0.1	0.7	< 0.001	0.27	5.0	6	2.4	0.5	0.239	0.053	0.01
1027470	< 0.1	< 0.1	0.6	< 0.1	0.4	3.4	< 0.001	0.18	6.3	6	2.5	0.8	0.282	0.061	0.02
1027471	< 0.1	< 0.1	0.5	< 0.1	0.3	0.5	< 0.001	0.23	7.4	6	2.7	0.7	0.208	0.061	0.01
1027472	< 0.1	< 0.1	0.7	< 0.1	0.2	0.2	< 0.001	0.24	7.1	8	3.1	0.8	0.215	0.061	0.02
1027473	< 0.1	< 0.1	0.7	< 0.1	0.2	0.4	< 0.001	0.21	6.3	6	3.0	0.8	0.217	0.057	< 0.01
1027474	< 0.1	< 0.1	0.5	< 0.1	0.4	4.8	< 0.001	0.07	13.3	5	1.5	0.7	0.264	0.050	< 0.01
1027475	< 0.1	< 0.1	0.5	< 0.1	0.3	0.6	< 0.001	0.27	7.4	6	2.4	0.8	0.270	0.057	0.01
1027476	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	0.27	5.8	6	1.7	0.6	0.226	0.041	0.02
1027478	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.0	< 0.001	< 0.05	0.6	< 1	0.2	< 0.1	0.0629	0.003	< 0.01
1027479	< 0.1	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.5	39	0.5	0.1	0.207	0.029	0.07
1027480	0.3	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.3	43	0.6	0.1	0.347	0.022	0.02
1027481	0.1	0.4	2.7	0.3	< 0.1	< 0.1	< 0.001	0.12	3.2	47	1.5	0.4	0.562	0.050	0.07
1027482	< 0.1	0.3	2.0	0.2	< 0.1	< 0.1	< 0.001	0.08	1.6	54	0.3	0.2	0.323	0.041	0.02
1027483	0.3	0.1	1.1	0.1	0.2	0.8	< 0.001	0.34	6.1	15	1.9	0.7	0.378	0.071	0.10
1027484	< 0.1	0.2	1.4	0.2	0.2	0.9	< 0.001	0.14	8.8	15	11.9	2.0	0.478	0.236	0.13
1027485	< 0.1	0.1	1.1	0.1	0.4	0.8	< 0.001	0.18	9.7	13	2.7	0.6	0.481	0.112	1.60
1027486	< 0.1	< 0.1	0.8	< 0.1	0.4	0.4	< 0.001	0.31	8.7	13	2.5	0.5	0.416	0.090	1.54
1027487	< 0.1	< 0.1	0.9	0.1	0.4	0.3	< 0.001	0.39	9.1	15	2.4	0.6	0.430	0.084	2.09
1027488	< 0.1	0.1	0.9	0.1	0.4	0.6	< 0.001	1.32	7.2	15	2.8	0.5	0.471	0.095	0.86
1477801	< 0.1	0.1	1.1	0.1	< 0.1	< 0.1	< 0.001	0.25	5.0	21	1.8	0.6	0.145	0.041	0.07
1477802	0.4	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	11.7	9	1.2	1.6	0.251	0.042	< 0.01
1477803	< 0.1	0.2	1.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.5	20	1.8	0.5	0.360	0.055	< 0.01
1477804	< 0.1	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	0.14	6.3	28	1.7	0.4	0.231	0.098	< 0.01
1477805	< 0.1	0.1	0.9	< 0.1	< 0.1	< 0.1	< 0.001	0.08	5.1	19	1.7	0.5	0.221	0.056	< 0.01
1477806	< 0.1	0.1	0.8	< 0.1	0.3	0.4	< 0.001	0.07	4.6	16	2.2	0.7	0.345	0.063	< 0.01
1477807	< 0.1	0.2	1.5	0.2	< 0.1	< 0.1	< 0.001	0.34	5.8	23	1.9	0.4	0.374	0.047	0.22
1477808	< 0.1	0.1	1.1	0.1	< 0.1	< 0.1	0.005	0.09	5.4	17	1.5	0.4	0.220	0.049	0.02
1477810	< 0.1	0.2	1.5	0.2	< 0.1	< 0.1	< 0.001	0.14	6.6	27	1.1	1.3	0.169	0.059	0.24
1477811	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.15	3.9	20	1.6	0.5	0.369	0.070	< 0.01

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	8.1	0.05	0.22	2.76	0.05	0.91	2.8	81	17.6	1020	24.3	0.4	3420	163		0.9		35.0	2.62	7.8	0.48	1340	20.8
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
GXR-1 Meas	0.7	< 0.01	0.02	0.27	< 0.01	0.09	0.3	7	0.7	82	2.07	< 0.1	300	4.9		< 0.1		1.48	0.28	0.7	0.06	175	5.0
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	11.4	0.57	1.81	8.33	3.87	1.04	0.5	93	45.9	181	3.22	1.1	270	53.7		2.1		3.92	2.57	14.3	1.19	19.5	8.3
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
GXR-4 Meas	0.5	0.03	0.08	0.49	0.23	0.06	< 0.1	6	3.4	13	0.20	< 0.1	50	4.0		0.1		0.27	0.29	1.0	0.13	1.94	4.5
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.0	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	36.6	1.64	0.99	7.86	1.94	0.85		98	72.2	1070	4.62	1.6	50	44.6	2.3	2.8	0.8		3.09	17.1	0.86		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
SDC-1 Meas	32.3	1.46	0.95	9.72	2.23	0.96		54	52.5	978	4.46	1.0	80	43.6	2.9	2.6	1.0		3.76	16.5	1.23		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	37.8	0.11	0.68	7.11	2.26	0.18	0.1	93	52.7	1240	5.74	1.4	100	32.7		1.2		0.35	3.98	13.8	0.52	0.20	0.9
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
GXR-6 Meas	4.1	0.01	0.08	2.08	0.23	0.02	< 0.1	13	5.9	126	0.60	0.2	30	3.9		0.1		< 0.05	0.57	1.6	0.07	0.03	3.9
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	5.2							152	302												57.4	0.45	
DNC-1a Cert	5.2							148	270												57	0.59	
DNC-1a Meas	4.6							145	172												55.9	0.50	
DNC-1a Cert	5.2							148	270												57	0.59	
SBC-1 Meas	174						0.4	230	88.0			2.9		113	2.9	3.4	1.1		7.94	22.5	1.52	0.72	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
SBC-1 Meas	163						0.5	228	87.6			3.2		112	3.1	3.6	1.1		8.41	22.4	1.59	0.72	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	22.5	0.11	0.21	> 10.0	0.49	0.20		81	529	592	14.7	1.1		302	1.2	0.8	0.4		3.77	29.8	0.50	0.43	
OREAS 45d (4-Acid) Cert	21.50	0.101	0.245	8.150	0.412	0.185		235.0	549.0	490.000	14.520	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	18.4						5.1	26	36.1			1.3	990	62.4	2.3	7.0	0.8		1.60	12.6	1.05	1.06	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
SdAR-M2 (U.S.G.S.) Meas	15.6						5.4	22	38.8			3.2	830	61.7	2.3	6.2	0.8		1.72	12.2	1.09	1.03	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
1477611 Orig	4.8	0.10	0.71	2.65	0.82	1.01	< 0.1	81	78.4	809	3.39	0.2	70	16.5	0.3	0.2	0.1	0.27	0.19	16.5	0.21	0.05	0.2
1477611 Dup	5.1	0.10	0.78	2.93	0.91	1.09	< 0.1	87	121	850	3.50	0.2	60	17.7	0.4	0.3	0.1	0.19	0.19	17.2	0.23	0.04	< 0.1
1477652 Orig	< 0.5	< 0.01	0.32	0.37	0.05	0.21	< 0.1	9	43.6	1160	11.0	0.2	50	8.2	0.2	0.2	< 0.1	0.29	0.11	2.2	0.15	0.27	0.7
1477652 Dup	< 0.5	< 0.01	0.32	0.35	0.04	0.19	< 0.1	9	42.5	1120	10.8	0.2	50	7.5	0.2	0.2	< 0.1	0.20	0.11	1.9	0.14	0.28	0.6

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477654 Orig	6.8	0.51	0.15	4.13	1.65	0.22	0.2	45	53.6	395	2.42	1.3	80	20.1	0.4	0.4	0.1	0.43	1.30	9.7	0.18	1.43	0.2
1477654 Dup	7.2	0.57	0.16	4.55	1.79	0.22	0.2	47	73.4	421	2.61	1.4	80	21.6	0.4	0.5	0.1	0.30	1.37	10.2	0.19	1.49	0.2
1027259 Orig	7.8	> 3.00	1.70	7.24	1.29	5.66	4.5	79	60.1	2130	4.11	2.4	60	66.4	1.0	0.6	0.3	0.31	0.28	13.9	0.60	0.89	0.5
1027259 Dup	7.7	> 3.00	1.63	7.10	1.26	5.55	4.5	78	60.5	2040	3.87	2.3	50	62.8	0.9	0.6	0.3	0.31	0.23	13.4	0.59	0.86	0.4
1027265 Orig	11.4	2.70	0.51	6.87	1.77	0.66	< 0.1	30	32.7	202	1.62	1.9	40	20.4	0.3	1.3	0.1	0.23	0.51	6.0	0.31	0.08	0.2
1027265 Dup	11.1	2.81	0.50	7.52	1.74	0.66	< 0.1	31	31.1	210	1.63	1.8	40	20.6	0.3	1.2	0.1	0.16	0.54	6.1	0.28	0.08	< 0.1
1027450 Orig	15.7	> 3.00	0.82	9.79	2.69	0.90	< 0.1	56	28.5	457	2.66	2.7	40	27.2	0.5	1.8	0.2	0.15	2.56	7.4	0.48	0.03	0.4
1027450 Dup	17.1	> 3.00	0.85	> 10.0	2.93	0.96	< 0.1	58	32.7	510	2.78	2.8	50	29.0	0.5	1.9	0.2	0.11	2.82	8.0	0.51	0.03	0.4
1027462 Orig	20.6	> 3.00	0.86	9.37	1.94	1.03	< 0.1	69	36.6	454	2.64	3.0	80	41.0	0.5	1.9	0.2	0.70	3.16	20.4	0.66	0.22	0.6
1027462 Dup	20.3	> 3.00	0.84	9.62	1.87	1.04	< 0.1	66	34.5	412	2.50	2.9	80	38.7	0.5	1.8	0.2	0.39	3.12	19.5	0.64	0.21	0.7
1027464 Orig	16.2	> 3.00	0.58	8.09	1.65	0.46	< 0.1	52	43.4	440	2.43	3.1	80	33.9	0.4	1.2	0.2	0.25	2.01	9.2	0.46	0.09	0.3
1027464 Dup	16.1	> 3.00	0.60	9.97	1.72	0.60	< 0.1	51	40.9	439	2.49	2.8	70	34.4	0.5	1.3	0.2	0.21	2.07	9.1	0.61	0.09	0.2
1477804 Orig	20.4	1.70	3.21	> 10.0	1.46	5.19	0.1	68	197	1270	7.36	0.6	40	248	1.3	0.8	0.5	0.11	2.41	46.9	0.96	0.05	0.4
1477804 Dup	21.1	1.77	3.33	> 10.0	1.53	5.41	< 0.1	79	217	1300	7.50	0.7	80	254	1.3	0.9	0.5	0.62	2.46	47.3	1.00	0.05	0.4
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	2.9	9	< 0.01	< 0.1	50	< 0.5	< 0.1	< 0.1	< 0.1		< 0.05	< 0.1	< 0.05	0.04	0.3
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	6.3	30	< 0.01	< 0.1	70	< 0.5	< 0.1	< 0.1	< 0.1	0.10	< 0.05	< 0.1	< 0.05	0.02	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	1	5.3	30	0.01	< 0.1	40	< 0.5	< 0.1	< 0.1	< 0.1	0.19	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	8.5	16	< 0.01	< 0.1	80	< 0.5	< 0.1	< 0.1	< 0.1		< 0.05	< 0.1	< 0.05	0.02	0.1

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	930	10.7	442	2.6	28.5	292	26	0.7	22.9	0.8	29	21.2	8.7	808	6.7	14.4		9.7	2.6	3.5	0.6	4.2	1070
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
GXR-1 Meas	72.6	0.8	34.2	< 0.2	2.6	27.3	< 1	< 0.1	20.8	< 0.1	3	2.9	0.6	95	0.7	1.6		1.1	0.4	0.4	< 0.1	0.5	97.8
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	101	16.7	119	123	13.9	207	51	11.9	399	0.2	8	4.5	1.1	102	50.6	99.3		49.1	6.3	4.0	0.5	2.5	6320
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
GXR-4 Meas	6.0	1.3	9.7	13.8	1.5	23.0	4	0.8	353	< 0.1	< 1	0.5	< 0.1	23	5.6	10.8		5.1	0.7	0.4	< 0.1	0.3	485
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	137	20.5	1.6	56.6		139	75	23.5			3	0.5		627	17.5	52.5		27.8	5.0	4.1	0.6	4.1	32.6
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
SDC-1 Meas	133	20.4	< 0.1	94.3		166	51	0.2			< 1	< 0.1		719	35.4	79.0		45.4	7.7	5.9	0.8	5.4	31.4
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	174	30.1	229	74.5	12.5	36.6	70	0.5	0.31	< 0.1	< 1	0.3	< 0.1	1440	11.4	32.6		14.5	2.6	2.0	0.3	2.1	72.5
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
GXR-6 Meas	16.5	2.6	24.9	10.8	1.7	5.3	11	< 0.1		< 0.1	< 1	< 0.1	< 0.1	215	1.8	5.1		2.2	0.4	0.3	< 0.1	0.3	7.7
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50		0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	92.5	13.1		3.2	15.9	138	49	2.4					0.8	122	3.3			5.7					103
DNC-1a Cert	70	15		5	18.0	144	38.0	3					0.96	118	3.6			5.20					100
DNC-1a Meas	90.4	13.0		3.6	16.7	147	52	2.1					0.7	129	3.5			5.9					101
DNC-1a Cert	70	15		5	18.0	144	38.0	3					0.96	118	3.6			5.20					100
SBC-1 Meas	265	25.9	26.3	128	30.5	172	154	13.0	3.08		3	0.9		898	43.0	93.3	11.3	54.4	9.3	7.0	1.0	5.8	36.7
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
SBC-1 Meas	270	25.9	29.4	140	33.0	181	166	16.7	2.94		4	1.2		914	45.9	100	12.1	57.6	9.9	7.3	1.0	6.0	39.5
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	60.5	20.4	7.1	39.8	11.3	31.5	60	0.7		< 0.1	< 1	< 0.1		223	15.6	35.2	3.6	16.8	2.8	2.2	0.3	2.1	363
OREAS 45d (4-Acid) Cert	45.7	21.20	13.80	42.1	9.53	31.30	141	14.50		0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371.0
SdAR-M2 (U.S.G.S.) Meas	952	18.6		106	24.1	135	86	6.0	14.8					1110	38.2	84.3	9.4	42.6	6.2	4.6	0.7	4.2	234
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.0000
SdAR-M2 (U.S.G.S.) Meas	941	17.8		137	24.8	142	145	6.4	10.6					1190	38.7	87.1	9.6	43.1	6.5	4.6	0.7	4.2	229
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.0000
1477611 Orig	36.4	5.4	33.2	14.2	3.1	16.9	12	0.9	0.58	< 0.1	< 1	0.2	< 0.1	115	2.1	5.1	0.6	3.7	0.9	0.8	0.1	0.6	18.4
1477611 Dup	48.4	5.8	33.5	15.4	3.4	18.4	21	0.9	0.49	< 0.1	< 1	0.2	< 0.1	125	2.3	5.7	0.7	4.1	0.9	0.9	0.1	0.7	19.9

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477652 Orig	57.0	2.0	0.9	1.5	2.3	6.0	7	0.4	4.49	< 0.1	1	0.1	0.1	20	2.3	4.1	0.4	1.7	0.3	0.3	< 0.1	0.3	7.7
1477652 Dup	56.4	2.0	0.9	1.4	2.2	6.0	8	0.3	4.05	< 0.1	< 1	0.1	0.1	19	2.3	4.1	0.4	1.6	0.3	0.3	< 0.1	0.3	7.4
1477654 Orig	138	8.6	4.7	46.7	3.6	69.8	71	3.3	5.54	< 0.1	< 1	0.2	0.3	358	3.5	11.0	0.9	4.3	0.7	0.6	< 0.1	0.6	23.3
1477654 Dup	150	9.3	5.3	48.5	3.8	72.4	81	3.4	3.04	< 0.1	< 1	0.2	0.3	372	3.7	11.4	0.9	4.6	0.8	0.6	< 0.1	0.6	24.5
1027259 Orig	1350	13.3	1.6	26.9	10.8	157	137	1.6	114	< 0.1	1	< 0.1	< 0.1	302	11.6	26.3	3.1	14.7	2.4	2.1	0.3	1.8	54.0
1027259 Dup	1300	12.8	0.9	25.0	10.1	148	124	0.8	97.3	< 0.1	< 1	< 0.1	< 0.1	285	11.6	25.9	3.0	14.3	2.3	1.9	0.3	1.7	50.1
1027265 Orig	43.8	13.0	3.7	30.4	3.4	290	86	1.5	0.60	< 0.1	< 1	0.1	< 0.1	913	5.7	13.3	1.5	7.2	1.2	0.9	0.1	0.6	11.5
1027265 Dup	44.8	13.8	3.6	31.2	3.5	303	87	1.9	0.58	< 0.1	< 1	0.1	< 0.1	918	5.7	13.3	1.6	7.3	1.2	0.9	0.1	0.6	8.0
1027450 Orig	72.6	23.4	1.3	77.4	5.6	338	143	1.9	0.48	< 0.1	< 1	0.2	< 0.1	1180	10.2	24.9	2.8	13.5	2.2	1.5	0.2	1.0	11.3
1027450 Dup	75.8	24.8	1.5	85.3	6.1	366	153	0.7	0.39	< 0.1	< 1	0.2	< 0.1	1270	11.0	26.8	3.1	14.8	2.4	1.7	0.2	1.1	7.6
1027462 Orig	57.7	22.4	4.0	62.4	5.9	440	157	8.3	0.45	< 0.1	1	0.3	0.1	1210	15.5	36.5	4.3	20.3	2.8	1.9	0.2	1.1	10.2
1027462 Dup	55.5	21.2	2.3	62.6	5.8	431	156	6.1	0.25	< 0.1	1	0.2	< 0.1	1180	15.1	35.7	4.1	19.6	2.9	1.9	0.2	1.1	10.3
1027464 Orig	89.4	21.3	4.3	43.9	4.9	376	161	9.9	0.28	< 0.1	1	0.3	< 0.1	707	10.1	30.9	2.9	13.6	2.2	1.4	0.2	0.9	24.9
1027464 Dup	87.1	21.4	3.4	48.2	6.4	394	159	6.2	0.29	< 0.1	1	< 0.1	< 0.1	693	13.7	35.0	3.8	18.4	2.8	2.0	0.2	1.2	24.7
1477804 Orig	140	18.7	1.0	40.6	14.5	640	34	0.5	0.08	< 0.1	< 1	< 0.1	< 0.1	448	15.2	36.7	4.8	25.0	4.0	3.1	0.4	2.6	52.8
1477804 Dup	145	19.0	0.7	41.7	14.9	656	38	0.5	0.07	< 0.1	< 1	< 0.1	0.1	469	15.8	37.8	4.9	25.8	4.1	3.2	0.4	2.7	53.8
Method Blank	1.4	0.1	0.6	< 0.2	< 0.1	< 0.2	< 1	< 0.1	0.15	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.5
Method Blank	1.8	0.1	2.4	< 0.2	< 0.1	< 0.2	< 1	< 0.1	0.15	< 0.1	< 1	0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3
Method Blank	3.2	0.1	4.9	< 0.2	< 0.1	< 0.2	< 1	< 0.1		< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.0
Method Blank	1.9	0.1	< 0.1	< 0.2	< 0.1	< 0.2	< 1	< 0.1		< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.6

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.3	2.1	0.2	< 0.1	113		0.34	676	2	2.4	28.1	0.0341	0.061	0.23
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
GXR-1 Meas		< 0.1	0.3	< 0.1	< 0.1	12.1		< 0.05	91.7	2	0.3	3.7	0.0320	0.059	0.22
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	1840			
DH-1a Cert											910	2629			
DH-1a Meas											> 500	1870			
DH-1a Cert											910	2629			
GXR-4 Meas		0.1	1.0	0.1	0.5	31.9		2.98	48.9	9	16.5	5.1	0.290	0.130	1.59
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
GXR-4 Meas		< 0.1	0.1	< 0.1	< 0.1	2.2		0.25	4.6	10	1.2	0.5	0.308	0.143	1.73
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.3	2.5		1.1	0.9		0.52	22.7	17	9.7	2.2	0.260	0.055	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
SDC-1 Meas		0.4	3.0		< 0.1	< 0.1		0.54	24.3		10.8	3.5			
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00		12.00	3.10			
GXR-6 Meas			1.6	0.2	< 0.1	< 0.1		2.07	98.3	30	4.9	1.3		0.033	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
GXR-6 Meas			0.2	< 0.1	< 0.1	< 0.1		0.28	16.0	35	0.9	0.2		0.037	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			1.8						6.9	34			0.304		
DNC-1a Cert			2.0						6.3	31			0.29		
DNC-1a Meas			1.8						7.2	35			0.295		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.4	3.2	0.4	0.5	1.3		0.87	34.9	25	14.1	5.1	0.505		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
SBC-1 Meas		0.4	3.3	0.4	0.6	1.3		0.86	37.3	25	14.7	5.2	0.504		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.4	0.2	< 0.1	0.2		0.25	21.3	60	13.5	2.5	0.191	0.035	0.05
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
SdAR-M2 (U.S.G.S.) Meas		0.3	2.5	0.3	0.2	0.3			712	5	11.9	2.1			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
SdAR-M2 (U.S.G.S.) Meas		0.3	2.6	0.3	0.2	0.2			698		11.8	2.1			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808		14.2	2.53			
1477611 Orig	< 0.1	< 0.1	0.4	< 0.1	< 0.1	1.8	< 0.001	0.11	1.7	17	0.3	< 0.1	0.203	0.039	0.03
1477611 Dup	< 0.1	< 0.1	0.4	< 0.1	< 0.1	1.5	< 0.001	0.11	1.2	16	0.3	< 0.1	0.188	0.035	0.01
1477652 Orig	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.1	< 0.001	< 0.05	0.9	2	0.2	< 0.1	0.0382	0.035	0.27
1477652 Dup	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.2	< 0.001	< 0.05	0.9	1	0.1	< 0.1	0.0204	0.036	0.19

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477654 Orig	< 0.1	< 0.1	0.4	< 0.1	0.1	1.2	< 0.001	0.36	2.7	8	1.2	0.3	0.196	0.044	0.39
1477654 Dup	< 0.1	< 0.1	0.4	< 0.1	0.2	1.4	< 0.001	0.38	2.8	7	1.2	0.4	0.184	0.044	0.36
1027259 Orig	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.131	0.10	326	12	1.8	0.8	0.281	0.057	0.17
1027259 Dup	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.130	0.10	308	12	1.7	0.7	0.265	0.056	0.17
1027265 Orig	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	0.16	5.0	4	1.6	6.1	0.131	0.027	0.30
1027265 Dup	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.2	< 0.001	0.16	5.0	4	1.6	3.6	0.137	0.028	0.07
1027450 Orig	< 0.1	< 0.1	0.5	< 0.1	< 0.1	1.0	< 0.001	0.33	6.3	7	2.6	0.7	0.247	0.055	< 0.01
1027450 Dup	0.2	< 0.1	0.5	< 0.1	< 0.1	0.3	< 0.001	0.36	6.5	7	2.7	0.8	0.225	0.055	< 0.01
1027462 Orig	0.1	< 0.1	0.5	< 0.1	0.3	7.6	< 0.001	0.35	10.3	7	2.9	0.8	0.272	0.061	0.25
1027462 Dup	< 0.1	< 0.1	0.5	< 0.1	< 0.1	4.9	< 0.001	0.33	10.0	7	2.8	0.8	0.252	0.060	0.25
1027464 Orig	< 0.1	< 0.1	0.5	< 0.1	0.4	8.7	< 0.001	0.22	10.9	5	2.3	0.8	0.266	0.064	< 0.01
1027464 Dup	< 0.1	< 0.1	0.5	< 0.1	0.1	5.1	< 0.001	0.22	10.8	6	2.8	0.8	0.251	0.059	0.01
1477804 Orig	< 0.1	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	0.13	6.1	28	1.7	0.4	0.218	0.098	< 0.01
1477804 Dup	< 0.1	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	0.16	6.5	28	1.8	0.4	0.244	0.099	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	0.05	0.8	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.5	< 1	< 0.1	< 0.1	0.0005	< 0.001	< 0.01



Date Submitted: 13-Oct-16
Invoice No.: A16-10617
Invoice Date: 22-Nov-16
Your Reference: PENG-20160906-003-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

131 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-10617**

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Notes:

CERTIFIED BY:

A handwritten signature in black ink, consisting of several loops and a vertical line, positioned above a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477679	9.2	> 3.00	0.94	8.87	2.50	1.51	< 0.1	52	29.7	407	2.29	0.7	160	18.8	0.6	2.1	0.2	4.41	1.31	8.0	0.82	0.12	0.1
1477680	35.6	2.05	3.45	9.49	3.70	5.24	0.2	73	61.1	973	4.72	3.5	70	146	1.2	2.2	0.5	0.76	3.17	19.1	2.34	0.10	0.3
1477681	57.1	0.02	4.28	3.70	0.22	3.53	0.2	6	4600	1210	5.67	0.5	220	2300	0.5	0.4	0.2	2.23	0.52	146	0.21	0.04	0.6
1477682	2.9	0.04	22.4	0.36	< 0.01	1.50	< 0.1	< 1	4340	1020	5.74	< 0.1	< 10	2010	< 0.1	< 0.1	< 0.1	0.23	< 0.05	88.2	< 0.05	0.50	0.4
1477683	10.8	1.82	2.89	8.25	0.03	7.65	< 0.1	246	374	1810	7.68	0.6	10	140	1.9	0.2	0.7	0.12	0.05	43.4	0.65	0.03	0.7
1477684	22.9	0.28	6.23	2.45	0.04	1.33	< 0.1	108	2090	842	5.55	0.3	< 10	630	0.4	0.3	0.1	0.09	0.62	47.5	0.15	0.07	0.2
1477686	0.7	0.02	0.09	0.11	0.02	0.06	< 0.1	< 1	48.7	117	0.97	< 0.1	< 10	18.1	< 0.1	< 0.1	< 0.1	< 0.05	0.08	2.3	< 0.05	< 0.02	< 0.1
1477687	21.1	0.07	6.76	1.53	0.04	4.02	0.1	67	1030	726	4.33	0.2	50	506	0.3	0.2	< 0.1	0.14	0.64	41.5	0.13	0.07	0.1
1477688	2.5	0.02	0.86	0.16	< 0.01	1.06	< 0.1	3	64.9	183	1.09	< 0.1	30	31.3	< 0.1	< 0.1	< 0.1	0.06	0.10	3.1	< 0.05	< 0.02	< 0.1
1477689	12.7	0.01	7.48	1.42	0.05	5.39	< 0.1	72	1040	1040	4.49	0.3	20	820	0.3	0.1	0.1	0.07	0.57	63.1	0.20	0.02	0.2
1477690	21.8	< 0.01	8.65	1.61	0.05	13.3	< 0.1	66	621	1600	4.69	0.3	< 10	494	0.8	0.2	0.3	0.16	0.73	35.7	0.24	0.02	< 0.1
1477691	0.5	> 3.00	0.60	6.52	0.07	1.28	< 0.1	3	23.7	144	0.90	2.1	< 10	4.5	0.2	0.7	< 0.1	0.10	< 0.05	1.8	0.21	0.03	0.1
1477692	14.7	0.04	1.80	3.11	< 0.01	24.6	< 0.1	98	96.8	3300	7.65	0.4	< 10	56.0	4.7	< 0.1	1.5	< 0.05	0.09	17.8	1.46	< 0.02	< 0.1
1477693	5.0	0.09	3.25	2.12	0.02	1.51	< 0.1	27	21.6	> 10000	42.7	0.8	< 10	13.6	0.9	0.8	0.3	0.20	0.07	2.9	0.42	0.14	0.2
1477694	4.0	0.02	17.9	0.38	< 0.01	0.90	< 0.1	34	713	804	5.21	< 0.1	< 10	1800	< 0.1	< 0.1	< 0.1	0.05	< 0.05	86.5	< 0.05	0.71	0.2
1477695	35.4	0.04	5.56	5.39	0.68	8.19	< 0.1	76	54.9	1340	4.75	0.2	< 10	104	0.3	0.2	0.1	< 0.05	0.77	34.8	0.10	0.05	0.2
1477696	4.6	0.14	0.46	1.76	0.06	3.16	< 0.1	74	38.8	888	2.24	< 0.1	60	19.0	0.4	0.4	0.1	0.08	0.44	5.8	0.26	0.05	< 0.1
1477697	23.8	0.86	3.81	5.56	0.21	1.42	0.9	121	294	836	7.48	0.3	130	150	1.9	0.2	0.7	1.74	0.43	33.4	0.31	< 0.02	1.1
1477698	< 0.5	0.01	0.03	0.07	< 0.01	0.28	0.1	2	9.4	88	0.58	< 0.1	260	3.3	< 0.1	< 0.1	< 0.1	1.27	0.07	0.7	< 0.05	< 0.02	0.5
1477699	6.4	0.15	0.93	1.28	0.03	0.33	0.9	36	79.8	301	2.56	< 0.1	120	35.1	0.3	< 0.1	0.1	2.36	0.12	9.9	0.06	< 0.02	1.2
1477700	1.6	0.12	0.40	0.90	0.02	0.85	1.0	35	22.7	222	1.41	< 0.1	100	14.1	< 0.1	< 0.1	< 0.1	2.23	0.18	2.3	< 0.05	0.17	0.5
1477701	4.7	0.17	0.66	0.94	0.02	0.28	< 0.1	28	42.2	409	1.93	< 0.1	< 10	17.8	0.2	< 0.1	< 0.1	0.24	0.21	5.8	0.08	< 0.02	< 0.1
1477702	4.4	0.03	0.85	0.85	< 0.01	0.03	< 0.1	20	30.1	246	1.93	< 0.1	< 10	21.4	< 0.1	< 0.1	< 0.1	0.07	0.18	5.0	< 0.05	< 0.02	< 0.1
1477703	2.1	0.06	0.31	0.48	0.07	0.15	0.2	17	34.6	225	1.45	< 0.1	< 10	11.6	< 0.1	< 0.1	< 0.1	0.10	0.21	3.2	< 0.05	< 0.02	< 0.1
1477704	< 0.5	0.02	0.03	0.12	< 0.01	0.04	< 0.1	3	20.5	79	0.50	< 0.1	40	1.3	< 0.1	< 0.1	< 0.1	0.11	0.11	0.3	< 0.05	< 0.02	< 0.1
1477705	14.6	1.05	4.49	6.52	0.10	7.39	< 0.1	239	181	1350	8.70	0.5	10	126	2.1	0.2	0.7	0.12	1.66	41.6	0.69	< 0.02	0.3
1477706	18.0	0.05	2.39	8.16	1.27	3.00	0.1	300	346	1990	12.9	0.3	< 10	76.5	2.3	0.2	0.8	0.17	0.84	36.9	0.93	0.22	1.3
1477708	9.8	1.10	1.13	2.27	0.03	0.32	< 0.1	28	96.5	291	2.24	0.1	< 10	31.7	0.2	0.2	< 0.1	0.07	0.20	6.4	0.09	< 0.02	< 0.1
1477709	21.3	0.98	2.25	7.11	0.92	3.84	< 0.1	171	27.1	2700	13.1	0.9	< 10	37.2	2.0	0.6	0.9	0.09	1.49	49.2	1.31	0.15	0.3
1477710	13.9	0.06	1.89	5.48	1.43	1.87	< 0.1	363	33.1	1980	15.1	2.1	< 10	29.8	1.4	0.8	0.6	0.33	1.81	56.6	0.76	0.05	1.5
1027275	22.1	2.05	1.15	6.43	0.19	3.60	< 0.1	70	29.3	1220	6.04	3.0	< 10	23.8	1.2	0.5	0.4	0.20	1.09	10.0	0.48	0.11	0.2
1027276	6.3	0.25	2.24	4.20	0.17	3.45	< 0.1	47	29.5	> 10000	24.1	1.7	< 10	26.7	1.2	0.6	0.4	0.25	1.14	9.3	0.51	0.10	0.3
1027277	21.6	1.33	0.89	7.49	1.87	3.50	< 0.1	74	38.0	538	3.80	3.2	< 10	33.5	0.9	0.8	0.3	0.24	1.50	11.4	0.72	0.67	0.4
1027278	15.2	> 3.00	4.12	6.52	0.10	4.16	< 0.1	244	202	1450	8.72	0.9	40	67.6	2.7	0.6	0.9	0.09	0.95	45.2	0.84	0.02	0.3
1027279	3.0	0.60	2.26	3.42	1.45	4.22	< 0.1	43	298	363	1.52	0.3	20	43.3	0.5	0.1	0.2	< 0.05	0.55	3.9	0.33	< 0.02	0.2
1027281	21.0	0.99	4.68	6.89	1.93	5.09	< 0.1	104	175	878	4.43	0.6	10	61.4	0.5	0.3	0.2	< 0.05	0.73	25.7	0.48	< 0.02	0.3
1027282	11.0	0.11	3.77	6.10	2.58	6.18	< 0.1	117	175	748	5.81	1.0	10	129	0.6	0.3	0.2	0.09	1.12	52.0	0.52	0.04	0.6
1027283	5.1	0.02	7.19	1.03	0.32	16.3	0.1	65	30.8	1410	5.92	0.2	10	28.1	0.4	< 0.1	0.1	< 0.05	0.13	5.3	0.51	0.02	0.2
1027284	11.1	0.04	6.35	2.88	1.10	12.2	< 0.1	97	120	1390	6.29	0.9	< 10	127	0.5	0.2	0.2	0.10	0.42	81.9	0.39	0.37	1.1
1027285	4.3	0.04	5.81	1.88	0.88	14.1	< 0.1	63	118	1330	4.87	0.5	60	46.8	0.4	0.1	0.1	0.11	0.31	20.5	0.35	0.05	0.4
1027286	17.9	0.45	2.60	8.43	0.09	7.72	0.1	258	310	2060	9.66	0.4	< 10	121	2.1	0.2	0.7	0.12	2.63	41.6	0.75	< 0.02	0.3
1027287	26.8	1.51	3.68	6.59	1.34	5.07	< 0.1	145	201	877	9.31	0.5	< 10	65.0	3.1	0.4	1.1	0.06	8.44	39.9	0.96	< 0.02	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027288	9.6	1.24	1.93	3.90	0.35	3.58	< 0.1	71	129	370	1.63	0.5	< 10	55.8	1.1	0.3	0.4	< 0.05	0.38	5.5	0.48	0.15	0.1
1027289	31.0	2.74	4.88	8.55	0.05	1.07	< 0.1	248	346	606	10.7	1.1	< 10	60.8	2.9	0.6	1.0	0.08	0.14	34.5	0.78	0.03	0.3
1027290	11.4	2.07	4.40	7.22	0.31	6.48	< 0.1	244	256	1310	8.95	1.3	< 10	60.8	2.6	0.4	0.9	0.05	0.22	40.0	0.85	< 0.02	0.3
1027291	10.2	0.99	2.03	3.37	0.02	1.52	< 0.1	94	127	526	5.04	0.6	< 10	36.7	1.2	0.1	0.4	0.07	0.09	34.3	0.41	< 0.02	0.4
1027292	9.9	0.86	2.00	5.37	0.06	13.3	< 0.1	131	183	1770	4.82	0.3	< 10	74.8	1.3	0.3	0.4	< 0.05	0.14	21.0	0.62	< 0.02	< 0.1
1027293	10.0	1.13	1.56	5.64	0.04	4.09	< 0.1	218	320	1470	5.73	0.3	30	91.4	1.2	0.3	0.4	0.11	0.16	30.9	0.42	< 0.02	0.6
1027294	0.8	0.08	0.08	1.05	0.03	1.26	< 0.1	31	21.0	311	1.25	< 0.1	30	3.9	0.1	< 0.1	< 0.1	0.05	0.14	1.9	0.11	< 0.02	< 0.1
1027295	2.1	0.23	0.52	1.20	0.03	1.01	< 0.1	41	47.9	382	2.05	0.1	20	22.5	0.2	< 0.1	< 0.1	< 0.05	0.18	5.9	0.14	< 0.02	< 0.1
1027338	84.1	2.30	2.47	9.71	0.37	7.03	< 0.1	85	100	1510	5.47	0.5	< 10	144	1.3	0.5	0.5	0.08	0.53	48.6	0.86	0.02	0.4
1027339	29.0	1.09	1.61	6.53	1.51	4.01	< 0.1	69	72.1	1230	4.73	2.3	10	50.5	1.1	1.1	0.4	0.07	2.33	16.7	1.01	0.11	0.2
1027340	10.6	1.10	2.07	5.83	0.19	2.69	0.1	116	55.3	1810	6.23	2.2	< 10	31.1	4.1	0.6	1.4	< 0.05	1.22	22.8	0.96	0.03	< 0.1
1027341	10.6	0.38	2.03	5.47	0.18	6.25	0.5	135	78.3	1260	6.91	0.7	< 10	47.9	3.2	0.3	1.1	0.06	1.64	46.2	1.26	0.04	0.4
1027342	10.3	0.35	2.43	5.95	0.15	3.43	< 0.1	213	55.4	1470	10.5	0.6	< 10	19.5	2.2	0.3	0.8	0.12	2.10	30.1	1.24	0.06	0.4
1027343	6.8	0.11	0.68	1.27	0.05	2.55	0.2	24	28.1	1850	2.18	< 0.1	50	23.3	0.5	< 0.1	0.2	0.14	0.15	8.8	0.30	0.03	0.1
1027344	43.7	0.43	4.66	7.83	0.02	1.48	< 0.1	216	181	3100	13.8	0.3	20	100	1.6	0.2	0.6	0.11	0.26	39.4	0.64	0.03	0.4
1027346	45.2	1.90	3.10	7.40	0.04	5.78	0.1	228	198	1610	6.41	0.3	10	130	1.5	0.4	0.5	0.12	0.23	34.1	0.67	0.02	0.2
1027347	16.2	0.46	1.64	3.15	0.06	0.80	< 0.1	73	90.0	659	3.93	0.2	2150	38.6	0.6	0.1	0.2	8.64	0.09	14.9	0.45	0.04	0.2
1027348	32.2	0.72	3.48	7.46	< 0.01	8.35	0.2	154	128	4320	11.6	0.2	280	94.5	1.7	0.3	0.6	1.17	0.12	34.4	0.70	0.03	0.5
1027349	35.7	0.12	4.28	6.83	< 0.01	0.76	< 0.1	146	139	3110	18.0	0.2	2930	39.2	1.3	< 0.1	0.5	4.78	0.07	25.1	0.46	0.12	1.8
1027351	36.5	0.27	3.97	7.68	0.02	2.09	< 0.1	188	148	2690	17.6	0.3	50	52.9	1.7	< 0.1	0.6	0.60	0.25	24.9	0.78	0.14	1.1
1027352	73.0	0.98	4.74	8.18	0.24	4.69	0.1	159	160	1240	7.14	0.6	< 10	178	0.8	0.3	0.3	0.15	0.42	39.7	0.59	< 0.02	0.2
1027353	32.5	0.50	1.14	4.40	0.51	1.38	< 0.1	77	123	650	3.13	0.5	< 10	77.0	0.4	0.4	0.2	0.11	0.95	17.8	0.20	0.06	0.2
1027354	54.9	0.35	4.64	8.16	0.20	3.26	0.1	226	191	1700	8.92	0.8	40	184	0.6	0.2	0.2	0.11	0.46	70.5	0.25	0.10	0.2
1027355	10.6	0.21	2.17	9.01	0.02	8.48	0.2	301	206	1610	10.0	0.8	10	53.2	2.3	< 0.1	0.8	0.11	0.30	34.7	1.01	0.10	1.0
1027356	25.0	0.63	3.14	7.82	0.04	6.17	0.2	153	184	3770	14.8	0.4	< 10	117	1.9	0.2	0.6	0.23	0.11	38.5	0.69	0.06	0.8
1027358	9.7	0.37	1.30	6.99	0.02	6.45	0.1	161	184	1230	5.84	0.6	< 10	38.1	1.8	0.1	0.7	0.08	0.13	22.3	0.75	0.08	0.5
1027359	10.7	1.57	1.95	5.21	< 0.01	3.32	< 0.1	234	185	1470	6.26	0.3	< 10	60.2	1.4	0.3	0.5	0.10	0.11	32.3	0.44	0.03	0.3
1027360	22.1	1.93	3.08	8.76	0.03	2.86	< 0.1	299	320	1910	9.43	0.8	< 10	61.1	2.3	0.4	0.8	0.09	0.08	41.0	0.96	0.07	0.5
1027361	30.1	1.57	3.86	9.54	0.61	1.34	< 0.1	161	158	2010	12.9	0.7	30	73.2	1.8	0.8	0.7	0.08	0.71	35.0	0.67	0.10	0.9
1027362	23.0	1.15	2.78	8.39	0.03	8.94	< 0.1	87	112	1740	6.32	0.2	300	136	1.5	0.3	0.5	2.95	0.16	47.1	0.65	0.04	0.3
1027364	35.6	0.25	3.94	6.68	0.89	2.43	0.1	98	449	1250	6.27	1.3	< 10	210	1.2	0.1	0.5	0.21	1.27	32.9	1.69	0.03	0.1
1027365	13.4	> 3.00	3.74	7.28	0.14	4.58	< 0.1	226	76.3	1240	8.41	2.0	500	95.2	1.8	0.6	0.6	1.85	0.59	46.2	0.80	0.06	0.3
1027366	8.9	1.55	4.70	4.95	0.18	2.45	0.1	103	2520	2140	15.9	0.4	50	1120	0.4	0.2	0.1	0.33	4.84	110	0.16	0.06	2.9
1027367	11.8	1.79	8.28	4.61	0.03	4.49	< 0.1	210	2230	1970	9.36	0.5	< 10	641	0.8	0.2	0.3	0.09	0.94	78.8	0.22	0.02	0.5
1027368	17.2	0.06	10.6	7.12	< 0.01	1.44	< 0.1	241	3750	2260	16.1	0.9	< 10	660	0.3	< 0.1	0.1	0.13	0.18	124	0.21	0.06	1.3
1027369	7.1	0.03	12.9	3.54	< 0.01	4.72	0.1	161	1960	1330	7.88	0.4	< 10	1020	0.5	0.1	0.2	0.10	0.21	75.0	0.11	< 0.02	0.3
1027370	10.5	2.50	3.72	7.13	0.09	6.52	< 0.1	172	90.5	1280	8.51	2.0	40	94.0	1.8	0.6	0.6	0.08	0.30	44.7	0.74	0.06	0.2
1027371	5.0	0.02	15.6	2.23	< 0.01	0.97	0.2	113	1140	2200	7.56	0.2	10	853	0.5	< 0.1	0.2	0.06	0.07	85.4	0.20	< 0.02	0.3
1027489	15.3	1.73	1.40	7.87	0.61	4.69	< 0.1	74	32.3	1900	6.54	2.5	< 10	43.0	1.0	0.8	0.4	0.11	2.04	18.8	0.71	1.18	0.3
1027491	17.8	1.93	1.34	8.17	0.49	5.01	< 0.1	70	29.6	2380	6.70	2.8	< 10	32.6	1.0	1.0	0.4	0.15	1.37	15.8	0.73	1.28	0.3
1027492	18.2	> 3.00	0.60	9.81	2.22	2.88	6.1	86	52.7	1290	4.82	4.9	50	32.6	1.0	1.2	0.3	0.69	1.66	20.3	0.77	0.24	0.5
1027493	4.1	0.16	0.05	2.48	1.05	0.03	< 0.1	36	31.9	67	2.47	2.1	< 10	8.5	0.4	0.1	0.1	0.91	0.73	4.6	0.11	0.20	2.2

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027494	16.0	1.52	0.78	7.93	1.42	3.48	< 0.1	97	46.8	3560	9.34	3.0	< 10	36.4	0.8	1.4	0.3	0.63	4.41	23.5	0.76	1.32	0.9
1027495	1.7	0.05	0.08	0.21	0.03	0.02	< 0.1	4	21.2	191	0.55	0.1	< 10	0.5	0.1	< 0.1	< 0.1	0.12	0.06	0.3	< 0.05	0.05	1.4
1027496	10.1	1.98	0.70	7.18	1.57	1.59	< 0.1	38	34.9	3630	6.52	2.7	50	35.7	0.7	0.9	0.2	0.37	1.60	14.0	0.58	0.12	0.2
1027497	23.5	> 3.00	0.89	7.51	0.80	2.38	< 0.1	66	38.5	788	4.68	3.2	20	30.8	1.3	0.8	0.5	0.32	1.08	22.4	0.98	0.68	0.5
1027498	14.3	2.94	0.40	7.61	2.72	0.68	< 0.1	81	46.8	120	3.99	4.0	20	41.5	1.0	0.9	0.4	0.29	1.56	32.0	0.84	0.49	1.2
1027499	10.3	2.78	0.48	7.11	1.83	0.91	< 0.1	67	43.9	274	4.11	3.9	< 10	21.2	0.7	0.7	0.2	0.26	1.50	12.0	0.66	0.68	0.2
1027500	22.3	1.62	1.65	6.48	2.32	1.57	< 0.1	78	11.5	584	7.62	5.3	< 10	0.8	4.4	1.5	1.5	0.65	8.60	22.7	1.43	0.47	0.8
1477951	8.1	1.77	0.58	3.47	0.58	0.66	< 0.1	56	31.5	282	4.46	2.9	< 10	3.7	2.1	0.8	0.7	0.91	1.00	9.9	0.60	0.59	0.4
1477952	13.4	2.82	1.78	5.57	0.52	0.99	< 0.1	98	30.1	733	7.25	1.6	< 10	13.4	1.5	0.5	0.5	0.70	0.73	29.3	0.43	0.54	1.1
1477953	9.5	1.21	0.98	2.73	0.42	1.14	< 0.1	83	36.2	591	5.32	1.1	< 10	10.5	0.8	0.2	0.3	0.84	1.08	20.6	0.25	1.33	0.6
1477954	9.6	0.63	2.60	1.78	0.12	2.05	< 0.1	71	298	616	3.70	0.2	< 10	69.1	0.6	0.5	0.3	0.14	0.42	22.0	0.64	0.06	0.2
1477955	3.3	1.26	1.04	2.95	0.31	2.20	< 0.1	103	34.7	541	4.39	0.8	40	6.3	1.0	0.7	0.3	0.12	1.38	8.6	0.38	0.45	0.3
1477956	12.0	> 3.00	2.57	6.70	0.82	3.31	< 0.1	173	11.1	1000	8.96	2.3	20	21.1	2.1	1.0	0.7	0.86	0.57	50.3	0.49	1.24	0.9
1477957	11.9	2.31	2.19	5.77	2.10	1.92	0.2	165	16.6	776	7.79	2.1	10	16.5	1.8	1.0	0.6	0.50	0.56	27.6	0.56	1.54	0.9
1477958	10.8	1.07	1.97	4.10	0.71	3.27	< 0.1	145	34.0	743	5.18	1.1	< 10	20.9	1.2	0.6	0.4	0.17	0.83	22.8	0.40	0.45	0.5
1477959	11.6	> 3.00	0.91	7.74	1.23	1.93	0.1	39	35.7	506	2.49	3.2	< 10	29.4	0.7	1.1	0.3	0.20	1.22	13.8	0.98	0.20	0.2
1477960	37.2	0.95	2.33	8.34	3.69	3.49	0.2	71	61.7	911	4.12	3.9	< 10	138	1.2	2.2	0.5	0.27	3.58	24.8	2.45	0.14	0.2
1477961	16.2	> 3.00	0.99	7.99	1.57	0.43	< 0.1	42	25.6	287	2.53	3.1	< 10	22.0	0.7	1.4	0.3	0.09	2.17	9.3	0.57	0.05	0.2
1477962	11.0	> 3.00	0.78	7.64	1.41	1.09	< 0.1	39	36.5	381	2.49	2.9	< 10	22.3	0.6	1.3	0.2	0.11	1.63	7.7	0.91	0.04	0.1
1477963	8.1	2.03	0.62	4.44	0.98	0.47	0.1	24	32.7	658	2.61	1.5	< 10	14.4	0.4	0.7	0.2	0.14	1.76	9.0	0.47	0.07	0.2
1477964	10.7	> 3.00	0.63	8.03	1.57	0.45	< 0.1	39	26.0	446	2.21	3.0	60	17.1	0.6	1.3	0.2	14.2	2.28	10.3	0.70	0.05	0.2
1477965	6.6	1.62	0.56	3.72	0.84	0.30	< 0.1	19	20.0	327	1.76	< 0.1	< 10	9.6	0.3	0.6	0.1	0.46	0.84	5.1	0.51	0.06	< 0.1
1477966	11.3	> 3.00	1.02	8.29	1.18	0.50	< 0.1	36	21.5	328	2.70	2.5	10	21.0	0.8	1.4	0.3	0.08	1.22	8.2	0.80	0.04	0.1
1477967	17.4	> 3.00	0.95	6.86	1.85	1.08	< 0.1	41	30.7	282	2.58	2.6	< 10	19.6	0.5	1.6	0.2	0.18	2.71	6.4	0.60	0.13	0.3
1477968	14.6	> 3.00	0.99	8.30	2.51	0.60	< 0.1	51	31.3	455	2.80	3.2	40	19.8	0.9	1.8	0.3	0.10	2.36	8.6	0.95	0.21	0.2
1477969	12.4	> 3.00	0.71	8.43	1.86	0.30	< 0.1	43	20.8	235	2.80	3.1	20	19.2	0.8	1.7	0.3	< 0.05	1.90	8.5	0.92	0.06	0.2
1477970	11.6	> 3.00	1.03	7.83	1.57	1.53	< 0.1	41	29.3	385	2.68	3.0	10	20.9	0.7	1.3	0.3	0.11	1.53	8.6	0.89	0.03	0.2
1477971	9.6	> 3.00	0.98	7.92	1.04	0.30	< 0.1	34	20.4	321	2.71	2.9	< 10	20.1	0.8	1.2	0.3	< 0.05	1.09	8.8	0.60	0.03	0.1
1477972	3.2	2.74	0.49	4.96	1.04	1.20	< 0.1	24	21.9	371	1.66	1.8	< 10	12.3	0.4	0.8	0.2	5.03	1.24	5.8	0.54	0.10	0.1
1477973	4.9	> 3.00	0.55	7.74	2.11	1.73	< 0.1	37	26.8	612	2.36	2.8	< 10	16.5	0.6	1.5	0.2	0.42	1.50	8.4	0.87	0.07	0.1
1477974	4.6	> 3.00	0.30	7.79	1.45	0.63	< 0.1	36	28.7	389	2.58	3.1	20	18.2	0.6	1.2	0.2	0.23	0.74	9.9	0.90	0.09	0.4
1477975	5.6	> 3.00	0.58	7.71	1.80	1.64	< 0.1	38	24.6	435	2.44	2.9	40	19.3	0.7	1.4	0.3	0.22	1.60	9.0	0.89	0.14	0.1
1477976	19.5	> 3.00	0.93	7.52	1.48	1.66	< 0.1	37	22.0	385	2.48	2.8	50	18.7	0.7	1.4	0.3	0.12	2.88	7.3	0.89	0.05	0.1
1477977	10.7	> 3.00	0.93	8.07	1.02	0.27	< 0.1	43	25.7	254	2.50	3.1	< 10	18.1	0.5	1.1	0.2	0.11	0.97	8.4	0.84	0.23	0.2
1477978	19.0	> 3.00	1.05	8.68	1.69	0.58	< 0.1	42	26.4	245	2.63	3.2	< 10	21.6	0.7	1.6	0.3	0.06	1.71	8.6	0.96	0.05	0.2
1477979	12.2	1.25	2.28	5.10	0.28	4.73	< 0.1	255	21.5	970	7.36	1.4	< 10	18.7	1.6	0.5	0.5	0.08	0.29	28.8	0.43	0.74	0.4
1477980	15.4	> 3.00	3.56	7.15	0.90	5.01	< 0.1	210	16.8	1230	8.37	1.7	20	38.7	1.9	1.7	0.7	0.15	1.60	43.6	0.69	0.64	0.7
1477981	6.3	1.26	1.26	2.97	0.35	2.06	< 0.1	83	19.9	451	3.15	0.7	< 10	12.9	0.8	0.4	0.3	0.06	0.40	12.5	0.32	0.18	0.1
1477982	10.4	> 3.00	3.63	7.05	0.70	5.94	< 0.1	227	20.9	1130	7.49	1.3	30	36.7	1.8	1.0	0.6	0.09	0.59	35.3	0.68	0.29	0.3
1477983	3.5	1.90	0.70	2.89	0.35	0.47	< 0.1	110	14.6	255	4.61	1.0	< 10	4.3	0.2	0.4	< 0.1	1.19	0.69	6.7	0.08	1.05	0.3
1477984	11.1	> 3.00	1.89	5.77	0.69	2.84	< 0.1	298	17.0	845	8.60	2.1	< 10	8.4	1.8	0.8	0.6	0.93	1.91	31.6	0.53	1.19	0.5
1477985	13.8	2.59	1.71	4.81	0.72	1.06	< 0.1	245	19.2	625	7.42	1.6	< 10	6.8	0.7	0.8	0.2	1.39	1.82	16.1	0.24	1.44	0.3

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477986	16.9	> 3.00	2.20	6.37	0.97	2.56	< 0.1	337	14.6	984	9.84	2.2	< 10	15.8	2.1	0.9	0.7	2.35	2.65	44.2	0.73	1.82	0.5
1477987	11.7	> 3.00	2.14	6.75	0.69	2.51	< 0.1	133	11.1	582	6.14	1.4	< 10	18.9	1.4	1.2	0.5	0.62	2.51	25.4	0.40	0.60	0.3
1477501	29.2	2.50	1.72	7.51	0.88	0.79	< 0.1	103	127	1720	7.63	1.1	< 10	89.9	0.8	0.6	0.2	0.11	2.22	53.1	0.64	0.05	0.2
1477502	12.7	0.82	0.94	3.46	0.36	0.10	< 0.1	133	84.1	1100	4.22	0.7	40	41.3	0.6	0.3	0.2	0.09	0.56	21.8	0.42	0.04	0.2
1477503	5.6	1.07	1.16	2.83	0.01	0.47	< 0.1	101	95.4	462	3.85	0.3	30	37.2	1.0	0.2	0.3	< 0.05	0.20	17.4	0.27	< 0.02	0.2

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477679	14.6	25.3	15.6	37.8	5.9	437	55	1.6	1.00	< 0.1	< 1	0.6	< 0.1	1340	14.5	32.4	3.8	15.6	2.9	2.5	0.3	1.4	23.5
1477680	106	24.8	14.6	72.8	12.6	382	180	3.1	0.63	< 0.1	1	0.6	< 0.1	1090	45.2	123	12.2	52.1	9.4	7.0	0.7	3.1	18.1
1477681	187	8.6	180	6.8	3.5	80.8	17	0.3	0.55	< 0.1	< 1	0.3	< 0.1	115	0.6	1.9	0.3	1.8	0.7	0.8	0.1	0.8	30.5
1477682	134	1.2	2110	< 0.2	0.5	27.6	4	< 0.1	0.40	< 0.1	< 1	1.9	0.1	2	0.2	0.4	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	1.9
1477683	66.6	17.2	20.6	< 0.2	15.2	90.6	16	0.1	0.08	< 0.1	< 1	0.6	< 0.1	10	2.0	6.0	1.0	5.3	1.8	2.5	0.4	3.1	82.0
1477684	125	5.8	272	1.5	2.7	20.8	13	0.3	0.74	< 0.1	< 1	0.5	< 0.1	23	0.8	1.7	0.3	1.3	0.4	0.5	< 0.1	0.6	14.6
1477686	0.5	0.5	22.6	0.5	0.1	3.1	< 1	< 0.1	0.69	< 0.1	< 1	0.6	< 0.1	5	< 0.1	0.2	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.5
1477687	34.3	3.8	101	1.1	2.2	65.5	7	0.1	0.51	< 0.1	< 1	0.5	< 0.1	5	0.3	1.0	0.2	0.8	0.3	0.4	< 0.1	0.5	30.7
1477688	2.2	0.6	23.2	0.3	0.6	24.6	< 1	< 0.1	0.42	< 0.1	< 1	0.7	< 0.1	3	0.1	0.4	< 0.1	0.3	0.1	0.1	< 0.1	0.2	3.9
1477689	22.6	4.1	20.6	1.3	2.5	117	11	0.2	0.45	< 0.1	< 1	0.6	< 0.1	238	0.4	1.3	0.2	1.0	0.4	0.5	< 0.1	0.6	16.0
1477690	30.0	4.0	72.8	1.6	5.9	281	11	0.1	0.18	< 0.1	< 1	0.4	< 0.1	8	1.2	3.3	0.5	2.6	0.9	1.1	0.2	1.3	13.6
1477691	< 0.2	11.2	12.7	0.8	1.7	177	82	2.3	0.90	< 0.1	< 1	0.6	< 0.1	144	5.0	11.3	1.3	5.4	0.9	0.7	< 0.1	0.4	30.5
1477692	40.8	7.0	22.2	0.3	31.9	52.3	14	0.3	0.17	< 0.1	< 1	0.7	< 0.1	7	3.9	13.6	2.3	13.7	5.1	5.7	1.0	7.0	42.1
1477693	56.1	6.4	7.1	0.2	9.8	5.8	30	2.4	1.14	< 0.1	< 1	0.1	< 0.1	14	3.7	9.2	1.1	4.6	0.9	1.1	0.2	1.1	9.4
1477694	39.6	1.0	2290	< 0.2	0.6	18.1	3	< 0.1	0.47	< 0.1	< 1	1.6	1.5	9	0.2	0.4	< 0.1	0.3	< 0.1	0.1	< 0.1	0.1	8.2
1477695	29.2	9.0	15.0	25.7	2.3	51.6	7	0.3	6.81	< 0.1	< 1	1.3	< 0.1	93	0.3	1.0	0.1	0.6	0.3	0.4	< 0.1	0.5	19.3
1477696	13.7	6.1	10.1	2.2	3.2	31.9	2	0.2	0.47	< 0.1	< 1	1.1	2.5	14	0.5	1.4	0.2	1.2	0.4	0.5	< 0.1	0.7	10.3
1477697	66.5	13.0	14.0	4.6	14.0	37.0	9	< 0.1	0.07	0.1	< 1	< 0.1	< 0.1	120	1.2	4.2	0.7	3.9	1.5	2.2	0.4	3.0	1640
1477698	1.1	0.4	11.0	< 0.2	0.1	1.0	< 1	< 0.1	0.43	< 0.1	< 1	0.5	0.1	3	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	398
1477699	22.6	3.1	17.6	0.7	2.5	7.0	3	0.4	0.78	< 0.1	< 1	0.8	0.2	9	0.4	1.1	0.2	1.0	0.3	0.4	< 0.1	0.6	2090
1477700	18.6	1.9	15.4	0.8	0.2	10.6	< 1	< 0.1	0.60	< 0.1	< 1	1.8	0.5	7	0.2	0.3	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	531
1477701	13.0	2.3	9.3	0.8	1.7	4.3	< 1	0.2	0.60	< 0.1	< 1	0.3	< 0.1	11	0.3	0.9	0.1	0.7	0.2	0.3	< 0.1	0.4	5.3
1477702	12.9	2.3	9.7	< 0.2	0.1	1.6	< 1	< 0.1	0.33	< 0.1	< 1	0.4	< 0.1	5	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.2
1477703	6.5	1.7	10.1	1.8	0.7	3.1	1	< 0.1	0.40	< 0.1	< 1	0.3	< 0.1	49	0.1	0.3	< 0.1	0.3	< 0.1	0.1	< 0.1	0.2	101
1477704	< 0.2	0.4	8.4	< 0.2	< 0.1	2.2	< 1	< 0.1	0.67	< 0.1	< 1	0.3	< 0.1	4	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.1
1477705	72.6	15.0	25.1	4.8	15.4	121	13	1.0	0.33	< 0.1	< 1	0.2	< 0.1	46	2.1	6.6	1.0	5.8	2.1	2.8	0.5	3.4	63.9
1477706	221	21.5	11.4	24.1	16.3	47.3	9	1.9	0.48	0.2	3	0.2	0.3	553	2.2	6.6	1.0	5.7	2.0	2.8	0.5	3.5	174
1477708	21.3	5.3	10.6	0.8	1.3	33.6	10	0.6	0.63	< 0.1	< 1	0.7	< 0.1	18	1.4	3.4	0.4	1.7	0.4	0.3	< 0.1	0.3	4.0
1477709	139	21.6	8.3	25.0	16.1	47.9	34	0.1	< 0.05	< 0.1	< 1	< 0.1	0.3	344	5.2	15.8	2.4	13.1	4.5	5.2	0.8	5.0	62.3
1477710	98.9	23.1	14.4	18.2	9.3	27.3	79	2.5	0.23	< 0.1	1	0.2	< 0.1	689	1.8	6.6	1.1	6.3	2.3	3.0	0.5	3.2	268
1027275	123	16.0	8.5	5.6	9.1	315	147	5.6	1.08	< 0.1	< 1	0.1	< 0.1	111	8.0	20.3	2.5	10.7	2.1	2.0	0.3	1.8	14.6
1027276	409	11.3	7.9	5.1	10.3	34.7	67	3.8	6.89	< 0.1	< 1	< 0.1	0.4	32	9.1	20.8	2.4	10.0	1.9	1.9	0.3	1.8	14.5
1027277	51.0	19.9	8.8	38.9	7.1	210	145	6.4	1.79	< 0.1	1	0.1	0.3	437	12.3	29.7	3.3	13.6	2.5	2.2	0.3	1.6	37.9
1027278	40.6	15.1	14.1	3.5	20.4	74.0	34	0.6	0.28	< 0.1	< 1	0.5	< 0.1	38	5.4	13.9	1.9	10.6	3.1	3.9	0.6	4.6	61.3
1027279	2.9	7.4	31.0	32.1	3.3	98.4	10	< 0.1	0.06	< 0.1	< 1	< 0.1	< 0.1	196	1.6	4.8	0.7	3.5	1.2	1.1	0.2	0.9	2.7
1027281	12.9	15.1	24.3	46.4	4.0	87.6	24	0.2	< 0.05	< 0.1	< 1	0.4	< 0.1	317	2.8	7.5	1.2	6.7	2.0	1.7	0.2	1.1	8.2
1027282	18.5	14.4	102	59.4	4.6	110	42	0.1	0.06	< 0.1	< 1	0.4	< 0.1	291	3.4	9.2	1.3	7.0	2.0	1.6	0.2	1.1	22.8
1027283	10.6	2.3	15.8	8.0	3.0	232	8	0.3	0.55	< 0.1	< 1	0.5	< 0.1	67	0.7	2.0	0.3	2.1	0.8	0.9	0.1	0.7	4.7
1027284	11.2	6.7	60.7	26.7	4.7	164	31	1.6	0.28	< 0.1	< 1	1.2	< 0.1	173	1.9	5.9	0.9	5.1	1.5	1.3	0.2	0.9	8.2
1027285	8.8	4.3	24.1	21.8	2.8	178	22	0.8	0.30	< 0.1	< 1	0.7	< 0.1	151	1.0	2.6	0.4	2.1	0.8	0.8	0.1	0.7	9.0
1027286	73.1	17.1	25.1	5.5	15.1	140	8	0.3	0.12	< 0.1	< 1	0.5	< 0.1	41	2.0	6.4	1.0	5.6	2.0	2.7	0.5	3.4	126
1027287	29.8	17.3	14.4	53.3	22.3	59.3	21	< 0.1	0.28	< 0.1	< 1	< 0.1	< 0.1	325	4.8	14.0	2.1	11.2	3.4	4.4	0.7	5.1	24.5

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027288	7.7	9.8	8.8	10.1	8.4	74.5	20	< 0.1	0.11	< 0.1	< 1	0.3	< 0.1	96	2.4	5.4	0.9	4.5	1.3	1.7	0.3	1.9	7.7
1027289	27.1	17.5	14.8	0.8	22.1	53.0	43	1.2	0.27	< 0.1	< 1	0.1	< 0.1	17	3.8	10.2	1.5	7.8	2.7	3.7	0.6	4.7	14.4
1027290	29.2	16.3	27.8	8.2	19.6	107	52	1.3	0.16	< 0.1	< 1	0.4	< 0.1	67	3.4	11.0	1.6	8.5	2.8	3.6	0.6	4.2	22.9
1027291	13.8	7.0	21.0	0.4	9.0	14.9	22	1.2	0.48	< 0.1	< 1	0.5	< 0.1	7	3.2	8.1	1.2	6.5	2.0	2.0	0.3	2.0	36.1
1027292	39.3	12.6	10.3	1.2	9.4	77.1	11	< 0.1	< 0.05	< 0.1	< 1	0.2	< 0.1	26	1.6	4.9	0.7	3.7	1.2	1.7	0.3	2.0	20.5
1027293	40.3	15.1	17.0	0.4	9.0	68.8	9	1.2	0.57	< 0.1	< 1	0.2	< 0.1	20	1.3	4.2	0.6	3.3	1.2	1.6	0.3	2.0	26.0
1027294	3.1	3.7	9.0	0.8	0.9	13.6	4	0.2	0.68	< 0.1	< 1	0.2	< 0.1	8	0.3	0.7	< 0.1	0.3	< 0.1	0.1	< 0.1	0.1	9.7
1027295	12.2	3.6	9.6	0.9	1.9	10.6	3	0.2	0.55	< 0.1	< 1	0.3	< 0.1	8	0.4	1.1	0.1	0.7	0.2	0.3	< 0.1	0.4	2.5
1027338	57.2	20.5	27.2	7.2	9.8	167	19	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	173	3.1	8.6	1.3	6.8	2.3	2.8	0.4	2.7	96.0
1027339	70.4	19.9	19.4	38.5	8.6	205	94	1.3	1.22	< 0.1	< 1	0.1	< 0.1	542	16.7	42.8	4.8	20.8	3.9	3.4	0.4	2.1	16.5
1027340	93.4	18.2	7.8	10.4	32.4	72.0	69	0.6	0.07	0.1	< 1	< 0.1	< 0.1	118	15.1	40.2	5.1	23.6	6.1	6.6	1.0	7.0	4.4
1027341	101	19.1	14.8	7.5	24.1	70.4	28	< 0.1	0.06	< 0.1	< 1	< 0.1	< 0.1	107	6.8	19.0	2.6	13.1	3.8	4.7	0.8	5.3	95.7
1027342	109	19.2	8.6	11.2	18.0	69.8	21	0.2	0.22	< 0.1	< 1	< 0.1	< 0.1	96	5.3	14.4	1.9	9.5	2.8	3.5	0.6	3.8	106
1027343	27.5	3.4	11.5	1.6	5.6	10.9	9	0.3	0.54	< 0.1	< 1	0.2	< 0.1	86	1.6	4.6	0.7	3.5	1.1	1.4	0.2	1.2	23.0
1027344	107	16.8	8.2	0.9	12.6	40.7	10	0.8	0.32	< 0.1	< 1	0.2	< 0.1	37	3.0	8.4	1.2	6.6	2.1	2.6	0.4	3.0	68.8
1027346	91.2	16.9	29.9	< 0.2	11.1	123	10	1.9	1.14	< 0.1	< 1	0.4	< 0.1	50	2.1	6.2	1.0	5.4	1.8	2.3	0.4	2.6	56.4
1027347	37.7	16.3	15.9	1.6	4.6	83.0	10	0.3	0.67	< 0.1	< 1	2.4	< 0.1	2520	1.0	2.7	0.4	2.0	0.6	0.8	0.1	1.0	6.9
1027348	78.7	15.9	12.8	< 0.2	13.1	80.9	7	1.4	0.43	< 0.1	< 1	0.7	< 0.1	34	3.0	8.6	1.3	6.4	2.0	2.6	0.4	2.9	76.1
1027349	98.9	13.3	9.8	0.3	10.6	21.6	21	3.0	0.81	< 0.1	< 1	3.0	< 0.1	104	2.6	7.3	1.0	5.4	1.7	2.2	0.3	2.3	286
1027351	89.4	15.7	16.6	1.2	12.6	89.5	10	2.8	0.53	< 0.1	< 1	1.1	< 0.1	51	2.9	8.0	1.1	5.9	1.9	2.4	0.4	2.9	143
1027352	67.6	15.3	33.0	5.4	6.6	75.0	24	0.9	0.24	< 0.1	< 1	< 0.1	< 0.1	161	2.3	6.8	0.9	5.4	1.8	2.0	0.3	1.7	58.4
1027353	53.7	10.0	38.8	13.6	3.2	53.3	21	< 0.1	0.39	< 0.1	< 1	0.2	< 0.1	360	0.7	1.9	0.3	1.4	0.4	0.6	0.1	0.7	40.1
1027354	181	17.5	118	5.1	4.8	40.2	31	1.2	0.55	< 0.1	< 1	< 0.1	< 0.1	157	1.2	3.6	0.5	2.6	0.9	1.2	0.2	1.2	16.8
1027355	124	24.0	12.5	1.5	17.9	131	24	1.4	0.52	0.2	< 1	0.3	< 0.1	27	4.4	12.4	1.7	8.9	2.9	3.5	0.6	3.9	155
1027356	185	17.1	9.6	1.0	14.6	43.5	17	5.5	0.40	< 0.1	1	0.6	< 0.1	38	4.5	12.0	1.6	7.6	2.3	2.8	0.5	3.1	94.9
1027358	71.3	23.2	12.2	0.6	14.3	89.8	23	0.3	0.17	< 0.1	< 1	0.4	< 0.1	24	3.4	9.6	1.4	7.0	2.2	2.8	0.5	3.2	64.9
1027359	93.7	13.1	10.8	< 0.2	9.7	57.5	9	2.4	0.67	< 0.1	1	0.8	< 0.1	17	1.6	5.0	0.7	4.1	1.4	1.9	0.3	2.4	24.2
1027360	162	22.5	12.3	0.8	18.0	90.7	21	2.4	0.35	< 0.1	< 1	0.3	< 0.1	21	4.0	11.3	1.6	8.2	2.5	3.3	0.6	3.9	38.0
1027361	81.1	20.7	8.9	14.5	14.1	145	28	0.6	0.23	< 0.1	< 1	< 0.1	< 0.1	338	3.5	10.5	1.4	7.5	2.5	2.9	0.5	3.3	102
1027362	48.8	15.8	19.1	0.3	11.7	205	8	0.3	0.10	< 0.1	< 1	0.2	< 0.1	34	2.2	6.6	1.0	5.6	1.9	2.3	0.4	2.6	63.7
1027364	72.5	16.6	12.7	20.9	10.6	38.4	59	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	464	34.6	78.2	8.9	38.0	6.6	5.0	0.6	2.6	7.7
1027365	66.4	16.3	9.5	3.3	13.8	101	82	0.6	0.49	< 0.1	< 1	0.2	< 0.1	118	9.1	21.2	2.5	11.1	2.6	2.9	0.4	3.0	114
1027366	105	8.5	12.5	10.7	2.8	12.5	15	0.9	0.38	< 0.1	< 1	0.6	0.2	127	0.8	2.1	0.3	1.7	0.6	0.7	0.1	0.7	441
1027367	79.3	9.4	10.2	1.8	6.2	10.3	18	0.7	0.24	< 0.1	< 1	0.3	< 0.1	38	0.6	1.6	0.2	1.4	0.7	1.1	0.2	1.4	24.1
1027368	105	16.3	47.3	0.5	2.1	101	31	1.4	1.54	< 0.1	< 1	13.3	0.2	11	0.6	1.5	0.2	0.9	0.3	0.4	< 0.1	0.5	113
1027369	76.2	8.0	18.3	0.3	3.7	8.6	16	0.3	0.33	< 0.1	< 1	< 0.1	< 0.1	12	0.5	1.4	0.2	1.3	0.5	0.7	0.1	0.9	2.0
1027370	70.2	16.4	8.0	2.0	13.7	174	80	0.2	0.35	< 0.1	< 1	< 0.1	< 0.1	175	8.4	19.6	2.4	10.5	2.6	2.9	0.4	3.0	82.6
1027371	83.3	5.2	8.6	0.2	3.8	5.7	7	0.3	0.28	< 0.1	< 1	0.2	< 0.1	59	1.1	3.1	0.4	1.9	0.7	0.9	0.1	1.0	18.7
1027489	62.5	18.5	7.8	16.3	7.9	343	99	0.6	1.92	< 0.1	< 1	< 0.1	< 0.1	235	11.4	26.9	3.1	13.1	2.5	2.4	0.3	1.9	47.4
1027491	69.0	20.1	9.4	13.3	8.1	416	121	4.1	3.87	< 0.1	< 1	0.1	< 0.1	210	11.7	27.1	3.2	13.3	2.6	2.4	0.3	1.8	34.8
1027492	2530	25.0	9.3	38.3	7.5	366	210	9.7	1.27	0.1	6	0.2	0.2	230	11.0	32.8	3.5	14.9	3.0	2.4	0.3	1.8	193
1027493	54.3	9.7	15.8	19.9	2.3	39.6	97	5.1	1.42	< 0.1	1	0.2	1.5	159	3.2	5.0	0.4	1.4	0.3	0.3	< 0.1	0.5	9.9

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1027494	65.1	20.6	9.4	35.7	5.7	325	118	6.7	11.9	< 0.1	1	0.2	0.3	156	18.4	39.4	4.2	17.1	2.9	2.5	0.3	1.5	44.6
1027495	3.6	2.0	8.0	1.1	0.7	4.4	6	0.1	0.65	< 0.1	< 1	0.1	0.3	6	0.2	0.5	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	1.6
1027496	31.2	20.3	8.9	27.2	5.6	196	122	4.3	0.68	< 0.1	1	0.1	0.3	570	11.4	27.1	3.0	12.3	2.2	1.9	0.2	1.3	11.6
1027497	119	18.7	10.5	18.6	10.5	266	169	6.4	1.19	< 0.1	1	0.2	0.1	209	17.8	45.5	5.0	21.4	3.9	3.4	0.4	2.4	36.3
1027498	27.3	21.4	9.6	59.8	8.3	220	169	8.0	3.14	< 0.1	2	0.3	0.3	295	16.6	40.2	4.6	18.8	3.3	2.8	0.3	1.8	14.9
1027499	20.8	20.1	11.3	41.9	5.1	177	176	7.0	3.58	< 0.1	1	0.2	< 0.1	293	10.1	22.5	2.4	10.0	1.9	1.7	0.2	1.2	16.1
1027500	40.7	22.1	8.8	70.1	32.4	93.9	224	8.1	1.36	< 0.1	2	< 0.1	0.6	318	15.3	38.6	4.8	21.7	5.4	6.3	1.0	6.9	71.6
1477951	15.9	9.9	7.5	13.9	15.7	44.6	124	4.5	3.13	< 0.1	1	0.1	1.1	91	6.5	16.8	2.0	9.1	2.3	2.7	0.4	3.2	11.6
1477952	45.3	14.9	9.7	9.9	11.3	23.8	66	2.7	0.92	< 0.1	< 1	0.1	0.7	108	3.8	10.0	1.3	5.9	1.6	2.1	0.4	2.5	93.7
1477953	26.9	8.9	8.8	10.6	6.0	16.8	46	2.4	58.6	< 0.1	< 1	0.1	1.4	89	2.5	6.2	0.8	3.5	1.0	1.2	0.2	1.3	54.5
1477954	44.0	4.3	9.1	3.4	5.8	24.8	13	0.5	1.44	< 0.1	< 1	0.1	0.1	33	8.7	21.5	2.7	11.9	2.7	2.4	0.3	1.5	17.4
1477955	21.3	9.0	9.1	7.8	7.6	55.1	31	1.4	41.5	< 0.1	< 1	< 0.1	0.1	70	2.2	5.9	0.8	3.8	1.1	1.4	0.2	1.6	19.5
1477956	56.5	19.6	10.3	12.3	15.0	69.8	99	3.5	3.68	< 0.1	< 1	0.2	0.9	105	3.9	11.5	1.4	6.5	1.9	2.3	0.4	3.2	57.0
1477957	43.2	14.4	9.4	37.6	13.3	56.3	87	4.4	339	< 0.1	1	0.1	0.4	93	2.9	9.0	1.2	5.9	1.9	2.3	0.4	2.9	45.7
1477958	38.3	13.0	9.0	18.6	9.1	108	45	1.7	5.99	< 0.1	< 1	0.1	0.2	288	3.4	8.9	1.1	5.2	1.5	1.7	0.3	2.0	32.1
1477959	47.4	20.7	13.9	26.7	6.1	264	130	7.0	0.78	< 0.1	1	0.4	< 0.1	412	16.0	38.2	4.5	19.6	3.8	3.1	0.3	1.6	7.9
1477960	108	27.4	17.5	82.1	11.3	260	175	4.5	0.76	< 0.1	1	0.6	< 0.1	1250	49.0	133	13.1	56.7	10.0	7.5	0.8	3.2	10.8
1477961	66.9	26.2	9.6	42.0	5.7	278	128	2.7	0.36	< 0.1	1	0.4	< 0.1	686	9.3	23.2	2.6	11.0	2.2	2.0	0.2	1.4	15.8
1477962	65.3	24.2	10.9	37.4	5.3	318	120	4.9	0.52	< 0.1	1	< 0.1	< 0.1	539	16.2	38.5	4.6	19.3	3.9	3.0	0.3	1.5	15.7
1477963	45.1	14.1	19.3	29.8	3.6	85.6	62	3.2	0.64	< 0.1	< 1	0.3	< 0.1	288	8.5	20.7	2.4	10.1	2.1	1.7	0.2	0.9	44.8
1477964	40.3	23.8	16.1	40.4	4.9	148	124	6.6	0.62	< 0.1	< 1	1.8	< 0.1	585	12.0	30.9	3.5	14.8	2.9	2.4	0.3	1.3	5.5
1477965	31.7	11.8	17.2	19.8	3.0	89.9	6	1.1	0.71	< 0.1	< 1	0.2	< 0.1	305	5.1	14.4	1.6	7.1	1.6	1.5	0.2	0.8	15.6
1477966	69.4	23.4	9.9	29.8	6.6	301	102	0.2	0.11	< 0.1	< 1	< 0.1	< 0.1	493	12.6	29.7	3.5	14.8	3.0	2.7	0.3	1.7	6.4
1477967	79.1	24.7	22.4	53.5	4.1	351	114	7.5	0.57	< 0.1	1	0.6	< 0.1	684	11.0	29.3	3.1	13.0	2.4	2.0	0.2	1.1	5.3
1477968	88.9	35.2	17.8	60.0	7.4	303	134	1.0	0.35	< 0.1	1	< 0.1	0.1	1100	12.6	32.9	3.7	15.8	3.2	2.8	0.4	1.9	7.2
1477969	56.5	27.7	13.3	53.9	7.0	239	138	0.4	0.29	< 0.1	1	< 0.1	< 0.1	710	16.1	38.2	4.4	19.1	3.6	3.0	0.3	1.7	6.7
1477970	58.8	26.1	9.2	37.6	6.2	383	125	2.8	0.30	< 0.1	< 1	< 0.1	< 0.1	600	15.0	36.1	4.3	18.0	3.7	3.0	0.3	1.6	5.3
1477971	52.6	22.8	9.2	28.2	7.0	321	120	0.2	0.15	< 0.1	< 1	< 0.1	< 0.1	427	8.6	27.0	2.5	11.0	2.4	2.1	0.3	1.7	7.0
1477972	35.3	14.1	21.8	28.3	3.8	171	73	3.7	0.42	< 0.1	< 1	0.4	< 0.1	310	9.5	22.3	2.6	11.2	2.2	1.8	0.2	1.0	11.4
1477973	42.4	24.9	13.4	49.6	5.6	237	119	1.0	0.34	< 0.1	< 1	0.1	< 0.1	670	14.6	35.8	4.2	17.6	3.4	2.8	0.3	1.5	20.6
1477974	40.6	22.1	21.3	32.2	5.3	246	127	4.2	0.41	< 0.1	< 1	0.4	< 0.1	449	16.9	40.0	4.6	19.4	3.6	2.9	0.3	1.4	5.4
1477975	54.7	23.6	15.1	43.4	6.0	326	123	5.0	0.47	< 0.1	1	0.3	< 0.1	596	15.6	37.5	4.3	18.6	3.6	2.9	0.3	1.6	5.7
1477976	35.3	24.4	12.7	38.1	6.3	468	117	1.7	0.43	< 0.1	< 1	0.1	< 0.1	644	14.9	35.5	4.1	17.7	3.4	2.9	0.3	1.6	7.7
1477977	51.5	23.8	27.1	25.1	4.6	219	134	3.9	0.49	< 0.1	< 1	0.5	< 0.1	445	14.4	34.6	4.1	17.6	3.4	2.7	0.3	1.4	4.8
1477978	54.2	26.3	8.8	43.4	6.4	354	135	1.5	0.59	< 0.1	< 1	< 0.1	< 0.1	642	15.8	38.2	4.4	19.5	3.7	3.1	0.4	1.8	21.9
1477979	39.6	15.7	10.2	5.1	11.7	160	58	0.8	0.65	< 0.1	1	0.1	< 0.1	58	4.5	11.8	1.4	6.5	1.7	2.0	0.3	2.5	33.3
1477980	63.7	17.8	9.2	19.4	14.2	179	73	1.1	4.28	< 0.1	1	0.1	< 0.1	75	5.2	13.2	1.7	8.0	2.2	2.7	0.4	3.1	95.6
1477981	19.7	7.8	7.8	7.2	6.3	78.6	27	1.1	40.2	< 0.1	< 1	0.1	< 0.1	88	2.3	6.0	0.8	3.7	1.0	1.2	0.2	1.4	12.1
1477982	48.4	17.1	8.4	12.9	13.5	143	49	1.1	14.8	< 0.1	< 1	< 0.1	< 0.1	161	5.1	13.6	1.7	8.0	2.1	2.7	0.4	3.0	5.2
1477983	18.5	10.8	8.1	8.1	1.8	20.1	42	1.1	3.22	< 0.1	< 1	0.1	2.5	92	1.0	2.0	0.2	1.0	0.2	0.3	< 0.1	0.4	5.2
1477984	55.4	17.5	8.3	17.5	13.5	81.9	84	2.9	3.76	< 0.1	< 1	0.2	1.2	98	4.7	12.2	1.4	6.7	1.8	2.3	0.4	2.9	21.9
1477985	35.3	17.4	7.6	19.1	5.4	32.2	69	0.8	2.42	< 0.1	< 1	< 0.1	0.8	130	1.8	4.7	0.6	2.6	0.7	0.9	0.1	1.1	9.5

Results

Activation Laboratories Ltd.

Report: A16-10617

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477986	53.2	18.7	8.4	25.2	15.9	71.5	94	2.6	1.29	< 0.1	< 1	< 0.1	1.5	61	6.8	16.5	2.0	9.2	2.6	3.1	0.5	3.5	39.3
1477987	35.7	18.8	8.7	17.6	10.0	76.7	54	2.0	2.85	< 0.1	< 1	0.1	0.7	107	3.2	8.1	1.0	4.3	1.1	1.6	0.3	2.1	2.8
1477501	71.7	18.9	7.4	25.2	5.0	22.7	43	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	209	2.6	8.3	1.2	6.9	2.2	2.0	0.2	1.3	74.4
1477502	35.5	9.4	9.5	9.7	4.1	8.3	29	< 0.1	0.77	< 0.1	< 1	< 0.1	< 0.1	80	2.7	9.1	1.0	5.1	1.6	1.4	0.2	1.0	31.5
1477503	92.9	7.1	10.5	1.0	7.8	11.1	9	0.5	1.34	< 0.1	< 1	< 0.1	< 0.1	7	1.1	3.4	0.5	2.7	1.0	1.3	0.2	1.7	12.1

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477679	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.4	< 0.001	0.29	6.4	7	4.5	1.4	0.198	0.066	0.06
1477680	< 0.1	0.2	0.9	0.1	< 0.1	6.3	0.001	0.28	7.6	10	7.2	1.6	0.287	0.120	0.24
1477681	0.1	< 0.1	0.5	< 0.1	< 0.1	0.1	< 0.001	0.07	2.8	28	< 0.1	< 0.1	0.115	0.010	0.11
1477682	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.8	< 0.001	< 0.05	2.7	5	< 0.1	< 0.1	0.0128	0.001	0.06
1477683	0.2	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	3.0	43	0.2	< 0.1	0.414	0.018	0.16
1477684	0.1	< 0.1	0.4	< 0.1	< 0.1	0.2	< 0.001	< 0.05	2.7	15	0.1	< 0.1	0.139	0.004	0.01
1477686	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	< 1	< 0.1	< 0.1	0.0065	0.001	< 0.01
1477687	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.1	13	< 0.1	< 0.1	0.0879	0.001	< 0.01
1477688	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	2	< 0.1	< 0.1	0.0103	0.003	< 0.01
1477689	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.3	12	< 0.1	< 0.1	0.0860	0.004	0.09
1477690	0.3	0.1	0.7	0.1	< 0.1	< 0.1	0.002	< 0.05	5.0	16	< 0.1	< 0.1	0.101	0.006	0.01
1477691	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.9	< 0.001	< 0.05	3.0	1	1.0	0.6	0.0927	0.027	0.03
1477692	0.3	0.7	5.1	0.6	< 0.1	< 0.1	< 0.001	< 0.05	1.1	30	0.1	< 0.1	0.212	0.011	0.05
1477693	0.3	0.1	1.0	0.1	0.1	0.7	< 0.001	< 0.05	1.4	5	0.8	0.6	0.112	0.031	0.48
1477694	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.1	< 0.001	< 0.05	0.8	6	< 0.1	< 0.1	0.0157	0.002	0.07
1477695	0.8	< 0.1	0.4	< 0.1	< 0.1	1.6	0.001	0.16	2.7	26	< 0.1	< 0.1	0.0811	0.005	0.01
1477696	0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.6	11	< 0.1	< 0.1	0.0800	0.006	< 0.01
1477697	< 0.1	0.3	1.9	0.2	< 0.1	< 0.1	< 0.001	< 0.05	6.1	37	0.2	< 0.1	0.290	0.023	0.19
1477698	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	6.0	< 1	< 0.1	< 0.1	0.0072	0.001	0.04
1477699	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.3	< 0.001	< 0.05	2.9	9	< 0.1	< 0.1	0.118	0.005	0.23
1477700	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	12.6	4	< 0.1	< 0.1	0.0156	0.001	0.06
1477701	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.2	6	< 0.1	< 0.1	0.0584	0.007	< 0.01
1477702	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.4	2	< 0.1	< 0.1	0.0033	< 0.001	< 0.01
1477703	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.001	< 0.05	2.5	3	< 0.1	< 0.1	0.0384	0.003	< 0.01
1477704	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.5	< 1	< 0.1	< 0.1	0.0025	< 0.001	< 0.01
1477705	0.6	0.3	2.0	0.2	< 0.1	< 0.1	< 0.001	< 0.05	3.7	46	0.2	< 0.1	0.473	0.022	0.07
1477706	0.8	0.3	2.2	0.3	< 0.1	< 0.1	< 0.001	0.20	6.0	52	0.2	< 0.1	0.524	0.023	0.28
1477708	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.6	5	0.4	0.1	0.0704	0.014	0.01
1477709	0.2	0.3	1.8	0.2	< 0.1	< 0.1	0.001	0.15	2.3	42	0.4	< 0.1	0.393	0.044	0.26
1477710	0.4	0.2	1.5	0.2	< 0.1	0.3	0.002	0.26	2.5	48	0.2	0.1	0.962	0.046	0.54
1027275	< 0.1	0.2	1.2	0.2	0.3	< 0.1	0.001	< 0.05	6.5	12	2.0	8.8	0.378	0.079	1.08
1027276	< 0.1	0.2	1.4	0.2	0.2	0.2	0.004	0.13	2.6	9	1.6	0.4	0.210	0.054	0.67
1027277	< 0.1	0.1	0.9	0.1	0.2	0.7	< 0.001	0.25	7.0	13	2.4	0.5	0.393	0.087	0.60
1027278	0.6	0.4	2.8	0.3	< 0.1	< 0.1	< 0.001	< 0.05	0.8	46	0.3	< 0.1	0.536	0.037	0.11
1027279	0.2	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.19	1.5	26	0.2	< 0.1	0.0788	0.032	< 0.01
1027281	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.28	1.4	43	0.3	< 0.1	0.240	0.039	0.29
1027282	0.3	< 0.1	0.7	0.1	< 0.1	< 0.1	0.001	0.41	4.4	36	0.3	0.1	0.231	0.034	0.17
1027283	< 0.1	< 0.1	0.3	< 0.1	< 0.1	1.0	< 0.001	< 0.05	1.8	8	< 0.1	< 0.1	0.0550	0.008	0.23
1027284	< 0.1	< 0.1	0.5	< 0.1	< 0.1	7.1	0.002	0.17	2.7	22	0.2	< 0.1	0.249	0.021	1.72
1027285	< 0.1	< 0.1	0.4	< 0.1	< 0.1	3.4	< 0.001	0.13	2.2	14	0.1	< 0.1	0.159	0.019	0.78
1027286	0.5	0.3	2.1	0.2	< 0.1	< 0.1	0.001	< 0.05	4.3	48	0.2	< 0.1	0.376	0.018	0.13
1027287	0.4	0.4	2.9	0.4	< 0.1	< 0.1	0.002	0.45	0.6	45	0.4	0.1	0.352	0.031	0.08

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1027288	0.7	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.3	21	0.3	< 0.1	0.209	0.009	< 0.01
1027289	0.3	0.4	2.9	0.4	< 0.1	< 0.1	0.001	< 0.05	1.8	46	0.4	< 0.1	0.538	0.044	0.63
1027290	0.6	0.4	2.6	0.3	< 0.1	< 0.1	0.002	< 0.05	1.5	45	0.3	< 0.1	0.530	0.039	0.08
1027291	< 0.1	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.6	22	0.2	< 0.1	0.333	0.039	0.27
1027292	0.4	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.1	29	0.2	< 0.1	0.241	0.012	< 0.01
1027293	0.3	0.2	1.1	0.1	< 0.1	0.2	< 0.001	< 0.05	1.7	36	0.1	< 0.1	0.381	0.019	0.02
1027294	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	2	< 0.1	< 0.1	0.0171	0.004	< 0.01
1027295	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.2	6	< 0.1	< 0.1	0.0613	0.014	< 0.01
1027338	0.1	0.2	1.2	0.1	< 0.1	< 0.1	0.001	< 0.05	3.7	40	0.2	< 0.1	0.145	0.024	0.15
1027339	0.6	0.1	1.1	0.1	< 0.1	0.5	< 0.001	0.25	6.3	15	2.8	0.8	0.301	0.052	0.02
1027340	0.4	0.6	4.0	0.5	< 0.1	< 0.1	< 0.001	< 0.05	3.1	27	2.7	0.7	0.267	0.026	< 0.01
1027341	0.4	0.5	3.0	0.4	< 0.1	< 0.1	0.001	< 0.05	3.0	43	0.9	0.2	0.335	0.052	0.07
1027342	0.3	0.3	2.0	0.2	< 0.1	< 0.1	0.001	< 0.05	2.8	33	0.6	0.2	0.380	0.041	0.04
1027343	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.9	< 0.001	< 0.05	0.9	4	< 0.1	< 0.1	0.0729	0.013	< 0.01
1027344	0.6	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.9	36	0.3	0.1	0.464	0.024	0.11
1027346	0.4	0.2	1.4	0.2	< 0.1	5.4	< 0.001	< 0.05	10.7	31	0.2	< 0.1	0.536	0.025	0.02
1027347	0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	49.3	14	0.1	< 0.1	0.220	0.017	0.07
1027348	0.5	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.7	30	0.3	0.1	0.407	0.020	0.51
1027349	0.5	0.2	1.1	0.1	0.1	< 0.1	< 0.001	< 0.05	6.5	29	0.4	0.1	0.420	0.034	0.72
1027351	0.7	0.2	1.6	0.2	0.2	< 0.1	0.001	< 0.05	2.1	33	0.3	0.2	0.463	0.028	0.42
1027352	0.6	0.1	0.8	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.6	35	0.2	< 0.1	0.353	0.020	0.02
1027353	0.4	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.11	1.8	20	< 0.1	< 0.1	0.190	0.013	0.03
1027354	0.7	< 0.1	0.6	< 0.1	< 0.1	1.9	< 0.001	< 0.05	2.0	36	0.2	< 0.1	0.313	0.014	0.01
1027355	0.9	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	< 0.05	5.4	48	0.6	0.3	0.502	0.038	0.11
1027356	0.3	0.3	1.7	0.2	0.3	< 0.1	< 0.001	< 0.05	1.8	31	0.6	0.2	0.396	0.014	0.53
1027358	0.3	0.3	1.7	0.2	< 0.1	< 0.1	< 0.001	< 0.05	3.9	43	0.4	0.1	0.420	0.034	0.15
1027359	0.3	0.2	1.3	0.1	0.1	< 0.1	< 0.001	< 0.05	2.0	32	0.1	< 0.1	0.477	0.027	0.05
1027360	1.0	0.3	2.2	0.3	0.1	< 0.1	< 0.001	< 0.05	2.6	50	0.5	0.2	0.642	0.047	0.05
1027361	0.5	0.3	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.9	35	0.5	0.2	0.406	0.027	0.17
1027362	0.5	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.5	33	0.2	4.0	0.463	0.022	0.06
1027364	0.3	0.2	1.0	0.1	< 0.1	< 0.1	< 0.001	0.06	2.4	22	4.0	0.8	0.247	0.120	0.02
1027365	0.5	0.3	1.8	0.2	< 0.1	< 0.1	0.001	< 0.05	2.2	35	2.0	0.5	0.385	0.035	0.07
1027366	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	0.001	0.11	1.5	31	< 0.1	< 0.1	0.320	0.013	3.17
1027367	0.5	0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.5	35	0.1	< 0.1	0.303	0.014	0.09
1027368	0.4	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	125	52	0.1	< 0.1	0.508	0.017	0.10
1027369	0.8	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.6	26	< 0.1	< 0.1	0.157	0.008	< 0.01
1027370	0.4	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.7	35	2.0	0.5	0.350	0.034	0.04
1027371	0.8	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.9	22	< 0.1	< 0.1	0.171	0.024	< 0.01
1027489	0.3	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.06	5.4	14	1.8	0.4	0.291	0.064	0.28
1027491	0.3	0.1	1.0	0.1	0.2	< 0.1	< 0.001	< 0.05	5.8	12	1.8	1.7	0.340	0.063	0.21
1027492	< 0.1	0.1	1.0	0.1	0.6	1.4	< 0.001	0.24	27.9	15	2.4	0.8	0.591	0.122	1.42
1027493	< 0.1	< 0.1	0.5	< 0.1	0.2	0.2	< 0.001	0.49	13.9	9	0.8	0.3	0.369	0.023	1.18

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1027494	< 0.1	0.1	0.9	0.1	0.4	0.4	0.002	0.73	17.1	13	2.6	0.4	0.400	0.100	2.43
1027495	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.4	2	< 0.1	< 0.1	0.0135	0.003	0.02
1027496	0.1	< 0.1	0.7	< 0.1	0.1	0.5	< 0.001	1.55	3.7	6	2.7	0.4	0.365	0.094	0.21
1027497	< 0.1	0.2	1.2	0.2	0.4	0.2	< 0.001	0.27	6.5	11	2.5	0.6	0.381	0.090	1.67
1027498	< 0.1	0.1	1.0	0.1	0.4	0.5	0.002	1.02	6.3	12	2.5	0.6	0.503	0.120	1.37
1027499	< 0.1	< 0.1	0.7	< 0.1	0.3	0.5	0.001	0.89	6.8	11	2.5	0.7	0.419	0.080	1.12
1027500	< 0.1	0.6	4.4	0.6	0.3	6.8	< 0.001	0.42	3.2	22	2.5	0.6	0.662	0.103	1.43
1477951	< 0.1	0.3	2.0	0.3	0.2	4.4	< 0.001	0.07	1.5	11	1.2	0.3	0.376	0.060	2.04
1477952	< 0.1	0.2	1.4	0.2	0.1	2.4	< 0.001	< 0.05	1.1	26	0.8	0.2	0.483	0.053	1.73
1477953	< 0.1	0.1	0.8	< 0.1	0.1	5.6	0.001	< 0.05	1.5	15	0.5	0.6	0.339	0.029	1.24
1477954	0.3	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	13	2.1	0.4	0.180	0.078	0.07
1477955	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.002	< 0.05	2.5	16	0.5	0.1	0.314	0.025	0.13
1477956	< 0.1	0.3	2.1	0.3	0.2	1.4	0.002	0.07	2.7	34	0.8	0.4	0.610	0.056	2.81
1477957	< 0.1	0.3	1.8	0.2	0.1	1.5	0.065	0.22	2.4	30	0.8	0.3	0.573	0.044	2.06
1477958	< 0.1	0.2	1.2	0.2	< 0.1	0.9	0.001	0.10	3.0	23	0.6	0.2	0.335	0.028	0.41
1477959	< 0.1	< 0.1	0.6	< 0.1	0.3	4.9	< 0.001	0.09	6.2	7	3.2	0.9	0.268	0.061	0.41
1477960	0.2	0.2	1.0	0.1	0.2	9.7	< 0.001	0.36	7.6	12	7.9	1.8	0.335	0.121	0.12
1477961	0.3	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.13	3.9	7	3.0	0.8	0.247	0.058	< 0.01
1477962	0.3	< 0.1	0.6	< 0.1	0.1	1.3	< 0.001	0.16	4.1	6	2.8	0.9	0.253	0.058	0.04
1477963	0.3	< 0.1	0.4	< 0.1	< 0.1	1.7	< 0.001	0.12	5.0	4	1.5	0.4	0.149	0.054	0.08
1477964	0.1	< 0.1	0.5	< 0.1	0.3	3.0	< 0.001	0.19	5.0	6	2.8	0.8	0.291	0.061	0.07
1477965	0.2	< 0.1	0.2	< 0.1	< 0.1	1.5	< 0.001	0.06	6.8	3	1.1	0.3	0.123	0.106	0.02
1477966	0.2	0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.11	4.0	7	2.9	0.8	0.230	0.054	< 0.01
1477967	0.2	< 0.1	0.5	< 0.1	0.3	0.7	< 0.001	0.30	9.0	5	2.4	0.8	0.263	0.056	< 0.01
1477968	0.1	0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	0.25	6.3	7	3.3	1.8	0.301	0.063	< 0.01
1477969	0.1	0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	0.21	5.5	7	3.4	0.7	0.283	0.053	< 0.01
1477970	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.17	5.1	6	2.8	0.8	0.248	0.058	< 0.01
1477971	0.1	0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.10	5.3	6	3.0	0.9	0.245	0.057	< 0.01
1477972	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.5	< 0.001	0.16	14.4	4	1.7	0.5	0.172	0.031	0.14
1477973	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.33	5.1	6	2.7	0.8	0.226	0.055	0.10
1477974	0.1	< 0.1	0.5	< 0.1	< 0.1	0.2	< 0.001	0.20	7.2	6	2.9	0.9	0.199	0.052	0.11
1477975	0.1	< 0.1	0.6	< 0.1	< 0.1	0.5	< 0.001	0.24	12.1	6	2.8	0.9	0.238	0.054	0.19
1477976	0.1	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.21	6.5	6	2.7	0.8	0.255	0.054	< 0.01
1477977	0.2	< 0.1	0.5	< 0.1	< 0.1	6.1	< 0.001	0.10	4.7	6	2.8	0.8	0.247	0.051	0.09
1477978	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.3	< 0.001	0.18	5.5	6	3.1	0.9	0.237	0.059	0.01
1477979	0.3	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	4.1	32	0.7	0.2	0.426	0.029	0.51
1477980	< 0.1	0.3	1.9	0.2	< 0.1	< 0.1	0.002	0.09	2.8	38	0.9	0.3	0.433	0.038	2.85
1477981	< 0.1	0.1	0.8	< 0.1	< 0.1	0.2	0.004	< 0.05	1.6	16	0.4	< 0.1	0.251	0.015	0.23
1477982	0.4	0.2	1.7	0.2	< 0.1	< 0.1	0.005	0.06	3.1	37	0.7	0.2	0.390	0.038	0.66
1477983	< 0.1	< 0.1	0.3	< 0.1	< 0.1	1.3	< 0.001	< 0.05	1.4	15	0.4	0.2	0.363	0.022	0.75
1477984	< 0.1	0.3	1.8	0.2	0.1	1.1	0.003	0.07	3.5	30	0.8	0.3	0.632	0.048	3.21
1477985	0.2	0.1	0.8	0.1	< 0.1	< 0.1	< 0.001	0.08	1.9	25	0.7	1.1	0.517	0.027	0.43

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477986	< 0.1	0.3	2.0	0.3	< 0.1	0.9	0.001	0.14	2.6	31	0.9	0.3	0.664	0.047	3.87
1477987	< 0.1	0.2	1.3	0.2	0.1	0.7	0.002	0.08	2.6	27	0.6	0.2	0.385	0.037	2.58
1477501	0.2	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.12	1.3	41	0.2	< 0.1	0.153	0.039	0.02
1477502	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	24	0.3	0.2	0.369	0.017	0.03
1477503	0.1	0.1	0.9	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	19	0.1	< 0.1	0.330	0.013	0.04

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	12.7	0.06	0.34	4.65	0.05	0.96	2.4	65	11.5	839	24.9	0.8	3520	34.2		1.2		30.3	3.00	7.4	0.66	1440	15.2
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	11.2	0.53	1.81	6.79	3.63	1.07	0.6	71	51.2	140	3.16	1.3	110	35.0		2.2		3.53	2.79	12.9	1.37	17.0	5.8
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	32.9	1.50	0.95	6.84	2.58	0.93		53	49.8	782	4.42	1.4	10	28.0	3.1	2.8	1.1		4.00	15.4	1.34		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	36.8	0.10	0.62	> 10.0	1.86	0.19	< 0.1	109	38.9	931	5.53	2.3	60	20.5		1.3		0.28	4.26	12.5	0.67	0.17	0.7
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	4.2							111	206					206						47.0	0.45		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	164						0.4	178	84.7			3.4		74.0	3.4	3.4	1.2		8.73	21.6	1.82	0.79	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	22.2	0.10	0.22	8.15	0.41	0.20		157	562	482	15.0	3.3		203	1.3	0.8	0.5		3.89	29.0	0.57	0.33	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	17.6						4.7	19	33.1			0.8	1130	42.3	2.8	7.3	1.0		1.87	11.8	1.36	0.99	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
1477679 Orig	9.1	> 3.00	0.92	8.59	2.44	1.46	< 0.1	52	28.4	400	2.28	0.6	140	18.3	0.6	2.1	0.2	4.14	1.34	8.0	0.81	0.12	0.1
1477679 Dup	9.3	> 3.00	0.96	9.14	2.56	1.56	< 0.1	52	31.1	415	2.30	0.7	180	19.2	0.6	2.0	0.2	4.68	1.28	8.0	0.82	0.13	0.2
1027284 Orig	11.0	0.04	6.25	2.86	1.07	11.6	< 0.1	98	91.9	1370	6.27	0.8	< 10	126	0.5	0.2	0.2	0.10	0.42	80.8	0.39	0.37	1.1
1027284 Dup	11.2	0.04	6.44	2.89	1.12	12.8	0.1	97	148	1400	6.32	0.9	< 10	128	0.5	0.2	0.2	0.11	0.42	83.0	0.39	0.37	1.2
1027286 Orig	18.0	0.45	2.61	8.65	0.09	7.67	0.1	258	303	2030	9.55	0.4	20	119	2.1	0.2	0.7	0.13	2.59	41.4	0.74	< 0.02	0.3
1027286 Dup	17.8	0.44	2.58	8.22	0.09	7.77	0.1	258	318	2080	9.78	0.4	< 10	124	2.1	0.2	0.7	0.12	2.66	41.7	0.75	0.02	0.4
1027368 Orig	16.8	0.06	10.4	7.08	< 0.01	1.44	< 0.1	235	3480	2230	15.9	0.9	< 10	652	0.3	0.1	0.1	0.17	0.18	122	0.06	0.06	1.3
1027368 Dup	17.5	0.05	10.7	7.17	< 0.01	1.45	< 0.1	246	4020	2290	16.3	0.9	20	668	0.3	< 0.1	0.1	0.09	0.19	125	0.36	0.06	1.2
1027491 Orig	17.7	1.94	1.35	8.25	0.50	5.02	< 0.1	70	31.0	2380	6.69	2.8	< 10	32.2	1.0	1.0	0.4	0.16	1.35	15.7	0.73	1.28	0.3
1027491 Dup	17.8	1.91	1.34	8.09	0.49	5.00	< 0.1	70	28.1	2380	6.72	2.8	< 10	33.0	1.0	1.0	0.4	0.13	1.39	15.9	0.73	1.27	0.2
1477982 Orig	10.3	> 3.00	3.60	7.06	0.69	5.88	< 0.1	226	21.7	1120	7.46	1.4	60	36.7	1.8	1.0	0.6	0.12	0.58	35.4	0.68	0.29	0.3
1477982 Dup	10.5	> 3.00	3.65	7.04	0.71	6.00	< 0.1	228	20.1	1130	7.53	1.1	10	36.6	1.8	1.0	0.6	0.06	0.60	35.2	0.68	0.28	0.3
1477984 Orig	11.1	> 3.00	1.89	5.61	0.69	2.83	< 0.1	299	19.4	864	8.62	2.1	20	8.4	1.8	0.8	0.6	0.96	1.87	31.7	0.50	1.18	0.6
1477984 Dup	11.2	> 3.00	1.89	5.92	0.70	2.84	< 0.1	297	14.6	825	8.58	2.1	< 10	8.3	1.9	0.9	0.6	0.89	1.95	31.5	0.56	1.20	0.5
Method Blank																							
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	2.3	8	< 0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	2.5	11	< 0.01	< 0.1	20	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	0.1

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	687	22.1	391	2.4	23.5	229	33	0.6	16.0	0.7	26	11.0	6.2	1000	6.1	13.3		8.2	2.9	3.9	0.7	4.6	974
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	68.2	19.0	105	101	11.4	159	46	10.6	299	0.2	8	4.2	1.0	365	46.2	96.4		40.9	6.5	5.2	0.6	2.7	6590
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	87.9	24.1	7.6	79.7		120	55	0.9			< 1	< 0.1		541	26.8	68.3		32.3	7.0	6.4	0.9	5.7	24.5
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	113	35.4	226	52.9	9.4	28.6	83	0.8	0.39	< 0.1	< 1	0.6	< 0.1	1180	8.5	26.2		11.2	2.5	2.3	0.3	2.2	60.6
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	52.8	12.7		0.4	10.6	101	37	1.7				0.7		86	2.2			3.6					76.1
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
SBC-1 Meas	181	29.5	32.1	106	25.9	132	131	14.3	2.38		4	1.1		670	39.1	91.5	10.4	45.9	10.4	8.4	1.1	6.4	29.0
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	40.0	21.0	14.5	29.2	9.1	23.5	141	0.6	0.34	< 0.1	< 1	< 0.1		161	12.7	30.7	3.2	13.4	2.8	2.5	0.4	2.3	326
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas	703	22.9		99.6	20.9	105	53	3.7	11.0					879	36.4	86.7	9.0	38.0	7.3	6.1	0.8	5.0	210
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
1477679 Orig	14.6	24.6	13.9	37.9	6.0	436	55	1.7	0.90	< 0.1	< 1	0.6	< 0.1	1350	14.5	32.3	3.7	15.6	2.8	2.5	0.3	1.4	25.0
1477679 Dup	14.6	26.0	17.3	37.7	5.8	439	55	1.5	1.09	< 0.1	< 1	0.6	< 0.1	1340	14.6	32.5	3.8	15.6	3.0	2.6	0.3	1.4	22.0
1027284 Orig	11.4	6.7	60.4	26.7	6.3	162	30	1.5	0.33	< 0.1	< 1	1.1	< 0.1	218	2.0	5.9	0.9	5.2	1.5	1.3	0.2	0.9	8.2
1027284 Dup	11.0	6.6	60.9	26.8	3.2	165	33	1.6	0.23	< 0.1	< 1	1.3	< 0.1	129	1.9	5.8	0.9	5.0	1.5	1.3	0.2	0.9	8.3
1027286 Orig	72.9	17.0	23.9	5.4	15.1	139	9	0.3	0.14	< 0.1	< 1	0.6	< 0.1	40	2.0	6.4	1.0	5.6	2.0	2.7	0.5	3.4	125
1027286 Dup	73.3	17.2	26.2	5.5	15.1	141	7	0.4	0.11	< 0.1	< 1	0.5	< 0.1	41	2.1	6.4	1.0	5.6	2.0	2.7	0.5	3.4	127
1027368 Orig	104	17.7	49.4	0.5	2.1	108	29	1.4	1.15	< 0.1	< 1	12.6	0.2	13	0.4	1.4	0.2	0.8	0.3	0.4	< 0.1	0.5	111
1027368 Dup	105	14.9	45.3	0.5	2.2	93.1	33	1.4	1.92	< 0.1	< 1	14.1	0.1	9	0.7	1.6	0.2	1.0	0.3	0.4	< 0.1	0.5	115
1027491 Orig	69.9	20.1	10.5	13.2	8.0	420	121	4.0	3.86	< 0.1	< 1	0.2	< 0.1	206	11.6	27.3	3.1	13.4	2.6	2.5	0.3	1.8	34.6
1027491 Dup	68.1	20.1	8.3	13.3	8.1	413	122	4.1	3.88	< 0.1	< 1	0.1	< 0.1	214	11.7	27.0	3.2	13.3	2.6	2.4	0.3	1.8	35.1
1477982 Orig	49.7	17.1	8.6	13.0	13.4	142	53	0.9	13.8	< 0.1	< 1	< 0.1	0.1	158	5.2	13.7	1.7	8.1	2.1	2.6	0.4	3.0	5.2
1477982 Dup	47.0	17.0	8.3	12.8	13.6	144	46	1.3	15.7	< 0.1	< 1	< 0.1	< 0.1	163	5.0	13.4	1.7	8.0	2.1	2.7	0.4	3.0	5.2
1477984 Orig	56.8	17.5	8.3	15.3	12.8	82.3	86	3.1	3.87	< 0.1	< 1	0.3	1.3	99	4.0	11.1	1.3	6.0	1.7	2.2	0.4	2.8	22.4
1477984 Dup	54.1	17.5	8.3	19.7	14.1	81.5	83	2.7	3.66	< 0.1	< 1	0.1	1.1	98	5.4	13.3	1.6	7.3	1.9	2.4	0.4	3.0	21.3
Method Blank																							
Method Blank	< 0.2	0.2	6.4	< 0.2	< 0.1	< 0.2	< 1	< 0.1	0.06	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3
Method Blank																							
Method Blank	< 0.2	0.2	7.4	< 0.2	< 0.1	< 0.2	< 1	< 0.1	0.11	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.3	2.1	0.3	< 0.1	132		0.30	730	1	2.3	26.7	0.0316	0.049	0.20
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	2260			
DH-1a Cert											910	2629			
GXR-4 Meas		0.2	1.0	0.1	0.5	37.8		2.78	43.3	8	17.2	4.9	0.297	0.127	1.67
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.4	3.0		< 0.1	< 0.1		0.52	21.1	16	9.5	2.4	0.346	0.056	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			1.6	0.2	< 0.1	< 0.1		1.88	85.3	28	4.0	1.4		0.031	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			1.6						5.0	31			0.276		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.5	3.3	0.5	0.6	1.5		0.80	31.3	22	13.2	4.8	0.492		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.5	0.2	< 0.1	< 0.1		0.20	18.9	52	12.0	2.4	0.431	0.033	0.04
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
SdAR-M2 (U.S.G.S.) Meas		0.4	2.8	0.4	< 0.1	< 0.1			802	4	12.1	2.2			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
1477679 Orig	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.4	< 0.001	0.40	6.6	7	4.4	1.4	0.199	0.067	0.06
1477679 Dup	0.1	< 0.1	0.6	< 0.1	< 0.1	0.3	< 0.001	0.18	6.3	7	4.5	1.4	0.197	0.066	0.06
1027284 Orig	< 0.1	< 0.1	0.6	< 0.1	< 0.1	6.7	0.002	0.17	2.7	22	0.2	< 0.1	0.239	0.021	1.74
1027284 Dup	< 0.1	< 0.1	0.5	< 0.1	< 0.1	7.4	0.002	0.17	2.7	22	0.2	< 0.1	0.260	0.021	1.70
1027286 Orig	0.5	0.3	2.1	0.3	< 0.1	< 0.1	0.001	< 0.05	4.8	48	0.2	< 0.1	0.379	0.018	0.13
1027286 Dup	0.5	0.3	2.1	0.2	< 0.1	< 0.1	0.001	< 0.05	3.8	48	0.2	< 0.1	0.373	0.018	0.13
1027368 Orig	0.3	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	142	51	0.1	< 0.1	0.507	0.017	0.05
1027368 Dup	0.4	< 0.1	0.3	< 0.1	< 0.1	0.2	< 0.001	< 0.05	108	52	0.1	0.1	0.510	0.017	0.14
1027491 Orig	0.3	0.1	1.0	0.1	0.2	< 0.1	0.001	< 0.05	6.2	12	1.8	0.5	0.338	0.063	0.22
1027491 Dup	0.3	0.1	1.0	0.1	0.2	< 0.1	< 0.001	< 0.05	5.4	12	1.8	2.9	0.342	0.063	0.21
1477982 Orig	0.4	0.2	1.7	0.2	< 0.1	< 0.1	0.004	0.06	3.1	37	0.7	0.2	0.436	0.039	0.66
1477982 Dup	0.4	0.2	1.7	0.2	< 0.1	< 0.1	0.005	0.06	3.0	36	0.7	0.2	0.344	0.037	0.65
1477984 Orig	< 0.1	0.3	1.8	0.2	0.2	1.1	0.003	0.07	3.5	30	0.6	0.3	0.629	0.048	3.15
1477984 Dup	< 0.1	0.3	1.8	0.3	0.1	1.0	0.003	0.07	3.5	31	0.9	0.3	0.634	0.048	3.27
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5		< 0.1	< 0.1			
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01



Date Submitted: 13-Oct-16
Invoice No.: A16-10618
Invoice Date: 17-Nov-16
Your Reference: PENG-20160913-004-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

62 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-10618**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, consisting of several loops and a vertical line, positioned above a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-10618

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477711	7.7	1.61	1.86	5.87	1.66	3.30	0.2	55	173	926	4.11	1.1	20	142	0.8	0.9	0.3	0.34	2.51	21.3	0.73	0.33	< 0.1
1477712	2.9	0.24	3.33	3.43	1.10	7.50	0.2	70	102	942	4.32	1.8	10	129	0.8	0.6	0.3	0.06	1.84	22.4	0.63	0.22	< 0.1
1477713	3.5	0.19	4.47	2.71	0.71	10.8	0.2	64	86.7	1310	5.24	1.7	< 10	169	0.8	0.5	0.3	0.12	1.34	28.5	0.76	1.00	< 0.1
1477714	4.2	0.57	0.35	1.23	0.24	0.33	< 0.1	19	58.9	246	1.23	< 0.1	10	21.0	0.3	0.3	0.1	0.14	0.79	5.1	0.38	0.04	< 0.1
1477716	12.0	2.89	1.17	5.59	1.20	1.76	< 0.1	80	119	351	2.55	0.2	< 10	59.5	0.9	1.8	0.4	0.06	2.06	13.6	2.16	0.05	< 0.1
1477717	< 0.5	0.12	0.04	0.31	0.08	0.27	< 0.1	5	53.9	171	0.76	0.1	10	5.1	< 0.1	< 0.1	< 0.1	0.09	0.28	1.3	0.21	< 0.02	< 0.1
1477718	7.2	1.81	2.09	7.04	0.48	1.45	0.2	183	98.0	456	5.01	2.1	< 10	112	0.4	1.7	0.2	< 0.05	1.28	18.5	0.90	0.02	< 0.1
1477719	15.6	0.24	1.45	2.44	0.65	0.74	< 0.1	38	82.2	315	2.28	< 0.1	180	68.2	0.2	0.5	< 0.1	0.43	1.25	10.2	0.24	0.06	< 0.1
1477720	20.1	1.37	3.56	5.41	1.03	6.03	0.1	131	324	894	5.83	2.8	60	242	1.1	0.8	0.4	< 0.05	1.75	39.6	1.12	0.04	< 0.1
1477721	18.0	0.86	3.81	4.19	0.58	6.79	0.2	79	243	1040	5.82	1.8	50	218	0.9	0.5	0.4	< 0.05	1.38	33.5	0.64	0.05	< 0.1
1477722	19.6	2.72	2.45	6.54	0.55	4.00	< 0.1	28	160	768	6.73	1.5	50	143	1.1	1.0	0.4	< 0.05	1.14	32.0	1.11	0.05	< 0.1
1477723	15.7	> 3.00	1.93	7.96	1.03	2.94	0.2	61	196	851	6.01	2.9	20	117	1.4	1.2	0.5	< 0.05	1.92	29.2	1.06	0.08	< 0.1
1477724	20.5	2.67	2.80	7.44	1.19	4.68	0.1	115	307	867	6.27	3.2	30	172	1.4	0.9	0.5	< 0.05	1.92	35.7	1.11	0.10	< 0.1
1477725	22.9	0.51	1.01	> 10.0	3.11	0.75	< 0.1	123	319	842	9.90	4.8	10	206	1.3	1.7	0.5	< 0.05	5.16	49.1	0.97	0.33	0.1
1477726	24.4	2.37	1.40	> 10.0	2.84	0.51	< 0.1	98	184	385	5.36	4.5	20	84.0	1.4	1.5	0.5	< 0.05	4.57	19.9	0.71	0.20	< 0.1
1027296	11.9	0.45	2.71	2.58	0.12	9.07	0.5	62	52.2	2280	7.71	1.0	30	126	0.8	0.2	0.3	0.05	0.21	42.8	0.53	0.03	0.2
1027297	27.1	0.50	2.11	8.36	1.91	0.44	< 0.1	131	142	493	6.98	5.3	< 10	131	1.0	0.8	0.3	0.07	1.66	34.6	0.93	0.47	< 0.1
1027298	12.5	1.29	1.20	7.08	1.88	0.43	0.1	119	158	317	4.51	3.8	< 10	104	0.8	1.2	0.3	< 0.05	1.81	27.6	0.71	2.24	0.5
1027300	13.3	0.67	1.38	4.76	0.96	1.25	< 0.1	77	155	650	4.80	1.4	50	92.7	0.7	0.5	0.2	0.16	0.98	38.4	0.49	0.52	0.2
1477901	6.4	0.51	0.43	3.53	0.90	0.12	< 0.1	77	96.7	441	2.54	1.3	10	29.7	0.3	0.4	0.1	0.06	0.88	9.9	0.25	0.04	0.1
1477902	20.6	2.91	3.96	7.24	0.12	2.68	< 0.1	63	169	844	8.34	0.7	50	177	2.0	0.6	0.8	< 0.05	1.65	40.2	0.93	0.05	< 0.1
1477903	13.2	0.16	1.48	2.73	0.03	0.08	< 0.1	114	55.7	430	6.34	< 0.1	50	82.3	< 0.1	< 0.1	< 0.1	0.09	0.07	35.8	< 0.05	< 0.02	< 0.1
1477904	9.4	0.01	1.09	1.87	< 0.01	0.04	0.1	244	26.6	700	30.0	1.6	50	44.1	1.0	< 0.1	0.3	0.32	0.11	99.5	0.25	4.25	15.4
1477905	3.5	0.20	0.36	0.88	0.03	0.77	< 0.1	28	43.6	388	1.30	0.1	30	21.9	0.1	0.2	< 0.1	0.25	0.15	8.0	0.19	0.10	0.2
1027372	23.7	1.31	9.22	5.19	< 0.01	0.81	0.3	142	1600	2100	9.13	1.8	70	984	0.5	0.2	0.2	0.24	0.07	89.6	0.28	0.05	0.3
1027373	8.1	0.66	3.28	2.01	< 0.01	0.10	< 0.1	33	290	324	3.05	1.5	50	211	0.3	< 0.1	0.1	0.06	0.09	19.2	0.20	0.02	< 0.1
1027374	8.3	> 3.00	2.26	6.00	< 0.01	0.10	0.2	49	149	257	3.30	6.7	50	98.2	1.0	0.2	0.3	< 0.05	0.06	17.7	0.67	0.05	0.3
1027375	3.1	> 3.00	1.64	6.21	0.02	0.05	< 0.1	52	138	92	3.51	3.9	50	18.1	0.6	0.2	0.2	< 0.05	0.12	2.6	0.40	0.29	0.7
1027376	1.3	> 3.00	0.26	6.17	0.02	0.22	0.1	20	25.5	196	2.32	5.5	< 10	11.4	1.1	0.2	0.4	< 0.05	< 0.05	4.0	0.82	0.26	0.4
1027377	3.7	> 3.00	0.61	5.74	0.01	0.15	0.3	22	111	601	2.79	4.6	30	126	0.9	0.2	0.3	< 0.05	0.06	16.7	0.61	0.10	0.4
1027378	19.8	0.35	9.36	3.84	< 0.01	4.16	0.2	94	1660	1170	7.31	0.9	40	736	0.2	0.2	< 0.1	< 0.05	0.09	65.2	0.15	0.06	0.1
1027379	44.6	0.07	13.8	3.52	0.08	1.60	0.1	95	1990	828	7.53	0.4	20	1180	0.2	0.1	< 0.1	< 0.05	4.98	93.1	0.07	< 0.02	< 0.1
1027380	41.2	1.85	9.61	4.00	1.33	5.02	0.2	127	1190	912	7.25	1.4	20	629	1.1	0.3	0.4	< 0.05	16.5	69.1	0.35	0.02	0.1
1027381	10.7	2.17	9.20	4.75	< 0.01	2.41	0.2	142	1530	1310	8.49	1.2	70	760	0.3	0.2	0.1	0.23	0.25	77.1	0.25	0.03	< 0.1
1027383	12.3	1.61	10.6	4.86	0.05	1.35	0.3	132	1560	1550	8.63	1.5	50	747	0.5	0.2	0.2	< 0.05	2.12	78.1	0.17	0.03	< 0.1
1027384	14.2	> 3.00	3.54	6.53	0.05	6.18	< 0.1	187	109	1230	8.42	2.4	50	119	1.8	0.6	0.7	< 0.05	0.71	42.7	0.75	0.07	< 0.1
1027385	18.1	0.02	14.8	4.02	< 0.01	0.55	0.2	138	1700	950	9.16	0.4	40	1180	0.3	0.1	0.1	0.09	0.07	104	0.12	0.02	0.1
1027386	9.0	0.71	5.95	2.38	< 0.01	12.0	< 0.1	80	1350	1800	6.06	0.3	30	873	0.3	< 0.1	0.1	< 0.05	0.10	66.0	0.41	0.08	0.5
1027387	16.4	0.04	10.5	3.13	< 0.01	5.14	< 0.1	96	1680	1120	7.16	0.4	30	1080	0.2	< 0.1	< 0.1	< 0.05	0.10	74.3	0.19	0.03	< 0.1
1477989	25.2	0.39	3.23	> 10.0	3.72	2.49	< 0.1	76	362	187	1.97	0.2	70	257	0.1	0.1	< 0.1	0.39	1.76	23.8	< 0.05	0.04	0.1
1477991	26.0	2.51	3.77	5.70	0.03	4.43	< 0.1	82	251	883	6.12	0.6	60	68.3	1.7	0.3	0.6	0.10	0.37	46.2	0.84	0.04	0.2
1477992	14.3	1.26	2.71	6.51	0.14	7.55	0.1	210	104	2790	8.93	0.8	50	82.1	2.4	0.3	0.8	0.06	0.24	36.4	0.88	0.17	< 0.1

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477993	21.1	2.65	3.86	6.31	0.01	4.13	< 0.1	123	228	906	7.51	1.1	50	61.3	1.8	0.4	0.7	< 0.05	0.09	32.8	0.76	0.03	< 0.1
1477994	4.0	1.73	1.28	3.29	0.05	2.71	0.1	112	101	981	3.52	0.5	40	45.8	1.3	0.2	0.4	< 0.05	0.14	22.0	0.41	0.04	< 0.1
1477995	8.5	1.59	2.34	6.80	0.33	5.97	0.1	701	187	2330	10.0	6.6	< 10	103	3.1	0.5	1.0	< 0.05	0.69	42.2	1.05	0.06	0.8
1477996	18.1	2.79	2.96	5.74	0.31	3.10	0.6	119	402	1420	7.78	2.7	40	557	1.2	0.6	0.5	< 0.05	0.31	59.9	1.26	0.05	0.3
1477997	7.9	1.56	1.66	3.43	0.04	2.20	< 0.1	110	145	720	3.70	0.9	10	43.5	1.3	0.1	0.5	< 0.05	0.18	17.6	0.51	0.02	< 0.1
1477998	1.2	0.01	0.02	0.20	0.08	0.02	< 0.1	9	23.0	140	5.71	0.2	90	2.4	< 0.1	< 0.1	< 0.1	0.37	0.08	0.4	0.06	1.81	0.6
1477999	21.5	1.82	0.37	7.76	2.63	1.02	< 0.1	94	48.1	360	3.57	4.4	40	56.0	1.0	0.7	0.3	< 0.05	2.27	18.8	0.51	0.48	0.7
1478000	22.8	0.12	1.25	3.59	0.48	0.54	0.5	72	37.2	946	22.1	3.0	150	151	0.7	0.3	0.2	4.06	0.92	16.1	0.28	1.85	1.0
1276554	18.3	> 3.00	0.42	7.36	1.00	2.48	0.1	85	49.7	516	4.43	4.2	30	59.7	0.9	0.8	0.3	0.73	1.98	23.4	0.64	0.54	0.6
1276555	7.7	0.27	3.13	3.73	1.33	6.35	0.5	116	1460	1140	5.23	1.2	40	830	0.4	0.2	0.1	0.22	1.07	86.4	0.24	0.09	0.5
1276556	26.1	1.78	2.07	3.90	0.04	6.59	< 0.1	110	115	1070	3.99	1.2	20	50.5	0.6	2.7	0.2	0.07	0.27	16.5	0.72	0.03	< 0.1
1276557	9.0	2.14	3.91	5.33	0.07	5.20	< 0.1	197	214	914	11.7	1.4	30	50.9	3.0	0.4	1.0	0.09	0.17	37.6	0.86	0.08	3.1
1276558	15.8	0.54	4.29	5.27	0.13	6.13	< 0.1	181	206	1620	13.9	1.3	10	179	2.7	0.4	0.9	0.22	0.14	124	1.37	0.05	1.4
1276560	20.1	1.00	2.44	6.13	0.30	3.72	< 0.1	170	105	2430	12.6	0.2	80	62.0	4.2	0.4	1.5	0.34	0.48	47.1	1.39	0.04	0.1
1276561	27.0	1.01	2.25	5.97	1.13	5.95	0.1	401	278	1610	7.37	2.8	< 10	136	1.8	0.4	0.5	< 0.05	0.48	37.3	0.55	0.02	0.6
1276562	14.9	1.63	2.77	6.58	0.01	6.63	< 0.1	214	275	1040	7.11	0.5	40	141	2.0	0.2	0.7	0.11	0.09	37.4	0.63	0.03	0.4
1276564	6.4	0.59	4.68	3.94	1.61	8.09	< 0.1	223	336	506	2.11	1.9	< 10	129	0.5	0.1	0.3	< 0.05	0.67	10.0	0.59	0.03	0.1
1276565	3.8	0.06	4.49	3.06	1.55	8.68	< 0.1	102	257	602	2.06	0.8	< 10	70.1	0.4	0.1	0.1	< 0.05	0.58	7.3	0.49	0.02	< 0.1
1276566	19.0	0.65	4.50	5.74	1.76	5.58	< 0.1	135	184	851	5.20	1.1	< 10	83.7	0.5	0.2	0.2	< 0.05	0.70	27.5	0.60	0.03	0.2
1276567	24.5	1.51	2.07	7.04	1.22	1.16	0.2	139	182	760	8.13	4.4	< 10	124	1.3	0.8	0.5	< 0.05	1.66	44.3	1.00	0.69	0.3

Results

Activation Laboratories Ltd.

Report: A16-10618

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477711	80.0	15.3	< 0.1	46.5	9.2	346	33	< 0.1	0.80	< 0.1	< 1	< 0.1	< 0.1	455	10.3	25.1	3.2	12.3	2.6	2.4	0.3	1.8	347
1477712	72.6	8.9	8.8	32.5	8.2	405	65	0.6	0.91	< 0.1	< 1	0.4	< 0.1	376	8.9	20.9	2.6	10.1	1.8	2.0	0.3	1.6	76.1
1477713	63.9	6.5	7.8	21.1	8.7	524	57	3.6	8.29	< 0.1	< 1	0.9	< 0.1	264	10.4	23.9	2.9	11.7	2.1	2.5	0.3	1.8	219
1477714	18.6	3.4	9.7	12.0	3.5	89.3	2	0.5	2.48	< 0.1	< 1	0.3	< 0.1	159	8.9	21.9	2.4	8.6	1.3	1.3	0.1	0.7	10.7
1477716	33.6	14.9	10.9	40.1	11.0	718	18	1.1	1.65	< 0.1	< 1	0.4	< 0.1	990	54.7	120	14.9	54.6	7.1	6.2	0.6	2.7	2.7
1477717	8.4	3.6	11.0	4.0	1.1	81.4	3	0.3	3.10	< 0.1	< 1	0.3	< 0.1	670	4.1	9.7	1.1	4.0	0.6	0.5	< 0.1	0.3	5.9
1477718	84.4	21.7	10.9	21.2	5.4	> 1000	78	1.4	2.15	< 0.1	< 1	0.3	< 0.1	276	25.3	56.6	6.8	23.8	3.2	2.7	0.3	1.2	7.4
1477719	39.3	7.8	10.8	17.5	2.2	295	3	0.6	2.66	< 0.1	< 1	0.3	0.1	560	6.3	15.0	1.7	6.1	0.8	0.8	< 0.1	0.5	34.0
1477720	72.6	10.9	7.9	27.5	10.2	259	79	4.4	0.88	< 0.1	< 1	0.7	0.1	438	22.3	50.5	6.4	25.0	3.7	3.4	0.4	2.1	30.0
1477721	98.1	8.6	5.9	17.1	8.5	337	57	< 0.1	0.26	< 0.1	< 1	< 0.1	< 0.1	243	10.2	24.3	3.1	11.9	1.9	2.2	0.3	1.8	88.7
1477722	98.0	13.5	7.5	16.2	10.1	381	43	< 0.1	0.19	< 0.1	< 1	< 0.1	< 0.1	277	13.6	34.8	4.8	20.1	3.8	4.0	0.5	2.5	60.7
1477723	129	17.4	9.2	32.0	13.4	421	92	0.3	0.21	< 0.1	< 1	< 0.1	< 0.1	445	16.5	41.4	5.1	19.2	3.2	3.5	0.5	2.7	64.4
1477724	115	16.6	9.5	38.0	13.6	359	99	1.5	0.39	< 0.1	< 1	< 0.1	< 0.1	680	19.1	44.6	5.6	21.6	3.4	3.6	0.5	2.7	110
1477725	119	24.1	13.3	103	12.8	308	155	5.3	5.63	< 0.1	1	0.2	< 0.1	872	15.8	40.9	4.9	18.2	2.6	3.3	0.4	2.7	74.8
1477726	93.9	25.9	14.9	80.0	14.6	266	148	1.7	0.26	< 0.1	< 1	< 0.1	< 0.1	1200	16.6	45.0	4.5	15.5	2.1	2.7	0.4	2.7	25.0
1027296	98.1	6.6	10.3	4.7	7.8	97.4	34	1.3	0.76	< 0.1	< 1	3.7	< 0.1	61	7.6	18.7	2.4	9.1	1.7	2.0	0.3	1.6	179
1027297	105	17.1	27.5	69.1	8.3	177	163	12.4	2.16	< 0.1	2	17.5	0.4	571	15.2	34.8	4.4	16.4	3.1	3.3	0.4	2.0	32.3
1027298	58.5	15.6	18.9	64.6	7.2	195	120	4.6	9.89	< 0.1	2	3.0	2.1	232	11.3	26.4	3.2	12.4	2.5	2.5	0.3	1.7	20.2
1027300	63.4	11.0	17.3	36.0	6.9	59.7	44	3.1	3.02	< 0.1	1	3.4	0.4	286	7.4	17.9	2.2	8.4	1.7	1.9	0.2	1.4	55.7
1477901	38.4	7.8	10.8	26.2	3.0	81.4	45	1.8	2.79	< 0.1	< 1	0.6	< 0.1	256	3.8	8.8	1.0	3.8	0.7	0.8	< 0.1	0.5	10.9
1477902	102	15.8	12.0	7.1	20.1	200	22	< 0.1	0.19	< 0.1	< 1	< 0.1	< 0.1	39	9.4	22.0	2.8	11.6	2.7	3.5	0.5	3.6	51.6
1477903	371	10.6	11.2	1.0	0.5	17.0	2	0.2	1.51	< 0.1	< 1	0.3	< 0.1	13	0.4	1.2	0.1	0.5	< 0.1	0.1	< 0.1	< 0.1	9.5
1477904	144	11.1	122	1.3	8.1	9.1	73	0.6	9.96	0.2	< 1	3.3	5.3	8	3.1	8.6	1.1	5.0	0.9	0.9	0.1	1.1	1000
1477905	10.5	2.1	9.0	1.1	1.4	47.7	3	0.4	1.82	< 0.1	< 1	0.3	0.2	28	1.8	3.5	0.4	1.3	0.2	0.3	< 0.1	0.3	10.9
1027372	104	10.1	71.7	0.3	3.3	8.9	49	0.8	1.94	< 0.1	< 1	0.3	0.2	52	2.8	7.3	1.0	4.4	1.0	1.1	0.1	0.7	96.4
1027373	49.9	4.6	15.2	0.3	2.7	2.5	47	1.7	2.51	< 0.1	< 1	0.3	< 0.1	15	6.4	14.9	1.7	6.3	1.1	0.9	< 0.1	0.5	24.5
1027374	96.4	11.1	10.3	< 0.2	8.7	5.4	213	9.0	2.75	< 0.1	< 1	0.2	< 0.1	10	28.2	63.0	7.5	26.2	3.9	3.3	0.4	1.8	59.1
1027375	63.5	10.7	27.6	0.3	5.9	7.2	131	2.3	2.00	< 0.1	1	0.8	< 0.1	11	14.9	33.1	3.8	13.0	2.1	1.7	0.2	1.0	38.4
1027376	51.8	13.3	11.4	0.3	10.9	11.6	200	8.0	2.12	< 0.1	2	0.2	< 0.1	15	29.0	63.1	7.3	25.9	3.9	3.6	0.4	2.0	37.4
1027377	63.6	9.1	22.8	0.4	9.6	6.6	167	5.6	2.00	< 0.1	1	0.2	< 0.1	17	17.8	40.6	4.7	16.7	2.7	2.7	0.3	1.6	56.9
1027378	95.6	8.2	84.2	< 0.2	2.0	27.6	26	0.7	0.67	< 0.1	< 1	0.1	< 0.1	11	1.7	4.0	0.5	2.2	0.6	0.6	< 0.1	0.4	32.8
1027379	73.5	7.2	10.2	4.6	1.7	4.5	8	0.5	0.26	< 0.1	< 1	0.1	< 0.1	22	0.4	1.7	0.1	0.6	0.2	0.3	< 0.1	0.4	15.5
1027380	69.0	7.8	7.1	67.1	10.2	16.6	36	2.1	1.09	< 0.1	2	4.3	< 0.1	397	2.2	5.6	0.8	3.2	1.0	1.5	0.3	2.0	78.8
1027381	85.0	9.5	7.1	0.5	2.6	19.0	36	1.0	0.82	< 0.1	< 1	0.1	0.1	32	3.0	7.1	0.9	3.3	0.8	0.7	< 0.1	0.6	247
1027383	135	8.4	9.0	3.9	4.4	19.6	47	0.6	0.80	< 0.1	< 1	0.1	< 0.1	84	3.1	7.8	0.9	3.8	0.7	0.9	0.1	0.9	4.7
1027384	89.8	13.4	26.1	4.0	16.3	168	72	2.0	0.62	< 0.1	< 1	0.1	< 0.1	203	11.3	25.0	3.1	11.2	2.1	2.8	0.4	3.0	90.7
1027385	96.0	8.0	9.1	< 0.2	2.6	5.5	7	0.6	0.64	< 0.1	< 1	0.2	< 0.1	30	0.7	2.0	0.3	1.4	0.5	0.5	< 0.1	0.5	14.9
1027386	43.6	4.7	55.0	< 0.2	2.8	82.9	12	0.3	0.84	< 0.1	< 1	0.2	< 0.1	14	0.3	1.0	0.1	0.8	0.3	0.4	< 0.1	0.5	67.0
1027387	67.2	6.4	50.4	< 0.2	1.6	37.3	12	0.2	0.71	< 0.1	< 1	< 0.1	< 0.1	20	1.0	2.9	0.4	2.1	0.5	0.5	< 0.1	0.4	29.3
1477989	15.1	13.4	14.7	86.1	1.1	60.8	6	0.3	0.78	< 0.1	< 1	0.8	0.2	403	0.1	0.3	< 0.1	0.2	< 0.1	0.1	< 0.1	0.2	6.4
1477991	46.3	9.8	31.8	1.4	15.5	100	15	< 0.1	0.28	< 0.1	2	0.3	< 0.1	25	3.2	8.4	1.2	5.3	1.4	2.2	0.4	2.7	35.1
1477992	85.2	18.9	14.7	4.0	22.9	145	18	0.2	0.24	< 0.1	< 1	3.9	< 0.1	34	3.5	10.1	1.6	7.4	2.1	3.2	0.6	4.0	110

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477993	36.1	10.8	17.4	0.6	17.0	52.7	33	< 0.1	0.20	< 0.1	< 1	0.2	< 0.1	16	3.9	11.1	1.7	7.4	2.1	2.9	0.5	3.2	52.9
1477994	80.6	7.2	9.7	1.1	12.1	45.9	11	< 0.1	0.24	< 0.1	< 1	< 0.1	< 0.1	13	1.9	5.5	0.9	3.8	1.1	1.7	0.3	2.1	36.1
1477995	147	16.2	43.8	9.9	27.6	109	169	16.9	1.99	< 0.1	5	5.1	0.1	89	4.3	12.4	1.8	8.7	2.5	3.9	0.7	4.8	96.2
1477996	165	16.3	9.6	9.9	10.7	188	76	6.7	0.48	< 0.1	1	0.6	< 0.1	161	15.4	37.1	4.8	19.3	3.7	3.8	0.4	2.5	144
1477997	29.2	7.1	10.8	1.4	12.6	65.9	24	1.7	0.93	< 0.1	< 1	0.9	< 0.1	19	2.0	5.9	0.9	4.2	1.1	1.8	0.3	2.2	6.6
1477998	9.2	1.1	27.7	2.3	0.6	3.5	8	0.3	4.64	< 0.1	< 1	1.6	0.3	79	0.7	1.7	0.2	0.7	0.1	0.1	< 0.1	0.1	45.1
1477999	60.2	18.4	9.6	69.6	7.8	499	136	7.4	2.56	< 0.1	1	0.2	0.7	264	11.1	26.0	2.5	8.2	1.2	1.5	0.2	1.4	14.0
1478000	668	18.9	25.0	15.3	5.9	24.8	99	3.2	9.70	0.7	3	0.5	0.2	38	8.1	18.6	1.9	6.9	1.0	1.1	0.2	1.1	586
1276554	78.2	16.2	9.2	32.9	8.5	579	133	7.7	2.05	< 0.1	1	0.2	0.4	148	15.0	35.6	4.1	14.4	1.8	1.9	0.2	1.6	38.5
1276555	134	8.5	17.3	37.4	2.8	54.8	35	1.1	0.70	< 0.1	< 1	0.7	< 0.1	406	2.1	5.8	0.9	3.6	0.9	0.8	< 0.1	0.6	88.6
1276556	52.1	8.2	6.7	1.8	5.7	439	32	0.5	0.71	< 0.1	< 1	0.6	< 0.1	85	9.6	21.6	2.6	10.2	1.7	1.9	0.2	1.4	138
1276557	31.1	14.4	38.0	1.4	24.6	75.1	38	2.5	0.49	0.1	< 1	0.5	< 0.1	24	4.7	15.2	2.3	10.2	2.8	4.0	0.6	4.9	160
1276558	41.9	16.4	54.7	1.8	22.5	101	34	3.3	3.27	0.2	1	1.3	< 0.1	29	11.1	27.7	3.7	13.6	2.3	3.5	0.6	4.2	427
1276560	147	18.2	9.6	9.3	36.3	54.3	5	0.1	0.62	0.1	< 1	< 0.1	0.1	206	6.7	19.1	2.9	13.3	3.7	5.4	0.9	7.0	144
1276561	111	11.7	18.3	21.5	14.2	40.1	69	7.7	1.78	< 0.1	1	0.9	0.2	444	1.9	5.8	0.9	4.2	1.2	1.8	0.3	2.6	152
1276562	70.0	12.4	16.0	0.3	16.4	87.7	8	1.7	0.47	< 0.1	< 1	0.4	< 0.1	9	2.4	7.1	1.1	5.4	1.5	2.5	0.4	3.2	98.6
1276564	14.2	7.2	138	47.0	4.2	207	39	5.8	1.22	< 0.1	1	4.8	< 0.1	269	2.7	7.5	1.1	4.9	1.3	1.4	0.2	1.2	1.0
1276565	9.6	5.8	47.3	44.0	3.4	176	21	1.2	0.86	< 0.1	< 1	1.2	< 0.1	246	2.2	6.6	1.0	4.3	1.1	1.1	0.1	0.8	1.8
1276566	24.2	11.3	22.1	50.7	4.3	135	28	0.4	0.13	< 0.1	< 1	0.5	< 0.1	320	3.1	8.8	1.3	6.2	1.6	1.5	0.2	1.1	22.1
1276567	146	18.8	14.8	47.2	11.2	137	144	7.4	2.08	< 0.1	2	3.4	0.2	500	13.8	33.6	4.2	16.1	2.9	3.6	0.5	2.7	15.1

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477711	< 0.1	0.1	0.9	0.1	< 0.1	0.4	< 0.001	0.25	19.9	12	1.5	0.5	0.227	0.053	0.05
1477712	0.1	0.1	0.8	< 0.1	< 0.1	0.3	< 0.001	0.16	5.0	9	1.2	0.4	0.287	0.055	0.01
1477713	< 0.1	0.1	0.8	< 0.1	0.1	0.6	0.001	0.11	5.7	7	1.2	0.3	0.259	0.092	0.09
1477714	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.4	< 0.001	0.08	5.1	3	1.0	0.3	0.0787	0.044	0.06
1477716	< 0.1	< 0.1	0.7	< 0.1	< 0.1	0.8	< 0.001	0.20	12.3	10	5.3	1.1	0.188	0.155	0.27
1477717	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.001	< 0.05	3.9	< 1	0.4	< 0.1	0.0222	0.007	0.03
1477718	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.5	< 0.001	0.11	14.7	8	2.8	0.6	0.151	0.076	< 0.01
1477719	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.3	< 0.001	0.17	6.8	4	0.8	0.2	0.0730	0.033	0.02
1477720	< 0.1	0.2	1.2	0.1	0.4	0.8	< 0.001	0.18	3.9	26	3.8	0.9	0.343	0.088	< 0.01
1477721	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.10	10.9	16	1.5	0.4	0.306	0.060	0.01
1477722	< 0.1	0.2	1.2	0.1	< 0.1	0.1	0.003	0.09	5.5	21	1.5	0.5	0.514	0.079	< 0.01
1477723	< 0.1	0.2	1.5	0.2	< 0.1	0.2	< 0.001	0.18	6.9	21	2.5	0.7	0.240	0.088	0.01
1477724	0.3	0.2	1.5	0.2	< 0.1	0.1	< 0.001	0.19	5.8	23	2.5	0.6	0.378	0.079	0.01
1477725	0.6	0.2	1.4	0.2	0.2	0.4	< 0.001	0.77	10.2	22	4.6	1.2	0.583	0.048	0.16
1477726	0.2	0.2	1.5	0.2	< 0.1	0.2	< 0.001	0.69	9.6	21	4.9	1.4	0.401	0.094	0.05
1027296	< 0.1	0.1	0.9	< 0.1	< 0.1	0.1	< 0.001	< 0.05	3.2	6	0.5	0.1	0.0932	0.020	0.13
1027297	0.6	0.2	1.4	0.2	1.0	5.2	< 0.001	0.39	7.2	25	2.0	0.5	0.422	0.068	0.24
1027298	< 0.1	0.1	1.1	0.1	0.2	5.5	0.008	0.35	6.7	19	1.5	0.4	0.377	0.065	1.04
1027300	< 0.1	0.1	0.9	< 0.1	< 0.1	0.7	< 0.001	0.18	4.7	14	0.9	0.2	0.304	0.043	0.35
1477901	< 0.1	< 0.1	0.5	< 0.1	< 0.1	1.5	0.001	0.16	4.1	15	0.5	0.1	0.230	0.021	0.04
1477902	< 0.1	0.3	1.9	0.2	< 0.1	< 0.1	0.002	0.06	3.4	26	0.9	0.2	0.165	0.040	< 0.01
1477903	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	0.9	12	< 0.1	< 0.1	0.0369	0.003	< 0.01
1477904	0.2	0.2	1.6	0.2	< 0.1	0.7	0.001	0.27	20.2	40	0.4	0.2	0.0794	0.063	0.58
1477905	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	3.3	3	0.2	11.5	0.0435	0.006	0.12
1027372	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.8	< 0.001	0.05	2.0	35	0.6	0.1	0.218	0.032	0.03
1027373	< 0.1	< 0.1	0.5	< 0.1	0.1	0.1	< 0.001	< 0.05	0.9	9	1.0	3.3	0.115	0.015	0.01
1027374	< 0.1	0.2	1.7	0.2	0.7	0.7	< 0.001	< 0.05	1.8	13	3.5	0.8	0.228	0.039	0.02
1027375	0.2	0.1	1.0	0.1	< 0.1	0.4	< 0.001	< 0.05	3.3	10	2.1	0.6	0.210	0.038	0.05
1027376	< 0.1	0.2	1.8	0.2	0.3	2.4	< 0.001	< 0.05	2.4	9	3.6	0.9	0.193	0.034	0.12
1027377	< 0.1	0.2	1.3	0.2	0.1	1.0	< 0.001	< 0.05	1.9	8	2.6	0.7	0.189	0.039	0.04
1027378	0.4	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.4	27	0.2	< 0.1	0.184	0.010	0.02
1027379	0.7	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	0.08	1.1	28	0.1	< 0.1	0.224	0.010	< 0.01
1027380	1.3	0.2	1.3	0.1	0.2	< 0.1	< 0.001	0.86	1.1	34	0.4	< 0.1	0.233	0.013	< 0.01
1027381	0.6	< 0.1	0.5	< 0.1	< 0.1	0.2	< 0.001	< 0.05	2.2	34	0.4	< 0.1	0.321	0.015	0.02
1027383	0.3	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	0.07	2.1	35	0.5	0.1	0.310	0.024	< 0.01
1027384	0.4	0.3	2.1	0.2	0.1	0.1	< 0.001	< 0.05	4.1	37	2.4	0.6	0.391	0.040	0.02
1027385	0.2	< 0.1	0.4	< 0.1	< 0.1	0.1	< 0.001	< 0.05	1.5	30	< 0.1	0.2	0.251	0.012	< 0.01
1027386	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.9	22	< 0.1	< 0.1	0.153	0.008	0.30
1027387	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	25	< 0.1	< 0.1	0.0658	0.010	< 0.01
1477989	0.2	< 0.1	0.2	< 0.1	< 0.1	1.5	< 0.001	0.65	4.0	30	< 0.1	< 0.1	0.0798	0.003	< 0.01
1477991	0.2	0.2	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.0	37	0.2	< 0.1	0.200	0.029	0.32
1477992	0.5	0.3	2.7	0.3	< 0.1	< 0.1	< 0.001	< 0.05	5.1	38	0.2	< 0.1	0.397	0.026	0.05

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477993	0.4	0.3	2.1	0.2	< 0.1	< 0.1	< 0.001	< 0.05	4.4	42	0.4	0.1	0.336	0.051	0.07
1477994	0.2	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.4	26	0.2	< 0.1	0.281	0.014	< 0.01
1477995	5.2	0.4	3.8	0.5	1.0	1.5	< 0.001	0.05	3.2	51	0.3	0.2	0.306	0.033	0.04
1477996	0.4	0.2	1.3	0.2	0.4	0.2	< 0.001	< 0.05	6.1	29	1.6	0.5	0.180	0.055	0.29
1477997	0.3	0.2	1.5	0.2	< 0.1	0.3	< 0.001	< 0.05	0.7	25	0.2	< 0.1	0.277	0.023	< 0.01
1477998	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.6	< 0.001	0.09	12.5	< 1	0.2	0.1	0.0301	0.034	0.16
1477999	< 0.1	0.1	1.2	0.2	0.5	1.2	0.002	0.92	5.8	15	2.8	0.8	0.443	0.125	1.63
1478000	0.2	0.1	0.9	0.1	< 0.1	0.6	< 0.001	1.28	101	9	2.2	1.4	0.249	0.068	3.71
1276554	< 0.1	0.1	1.1	0.1	0.5	0.6	0.002	0.28	9.6	13	2.8	0.7	0.414	0.099	2.33
1276555	< 0.1	0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.24	5.7	32	0.3	< 0.1	0.160	0.024	0.10
1276556	< 0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	4.0	11	1.6	0.3	0.0577	0.053	0.02
1276557	0.5	0.4	3.4	0.4	< 0.1	< 0.1	0.002	0.20	2.8	42	0.5	0.1	0.534	0.044	0.14
1276558	0.9	0.4	3.1	0.4	0.2	0.5	0.004	0.09	1.3	37	0.4	0.1	0.482	0.046	0.63
1276560	0.2	0.5	3.9	0.4	< 0.1	< 0.1	0.002	0.07	1.2	59	0.5	0.1	0.316	0.048	0.21
1276561	2.4	0.3	2.3	0.3	0.5	5.2	0.001	0.10	2.7	45	0.2	< 0.1	0.261	0.020	0.34
1276562	0.3	0.3	2.1	0.2	< 0.1	0.4	0.001	< 0.05	2.1	46	0.2	< 0.1	0.502	0.022	0.17
1276564	1.4	< 0.1	0.7	< 0.1	0.4	32.3	< 0.001	0.32	1.9	37	0.3	< 0.1	0.192	0.034	0.02
1276565	0.5	< 0.1	0.6	< 0.1	< 0.1	5.5	< 0.001	0.31	2.0	31	0.3	< 0.1	0.228	0.020	0.01
1276566	0.3	< 0.1	0.7	< 0.1	< 0.1	1.7	< 0.001	0.35	2.6	43	0.3	< 0.1	0.340	0.053	0.48
1276567	0.3	0.2	1.7	0.2	0.4	1.8	< 0.001	0.25	5.2	28	1.6	0.5	0.538	0.080	0.87

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	7.6	0.04	0.20	1.81	0.04	0.88	2.9	74	21.9	782	25.5	0.8	970	43.4		0.9		38.5	3.10	7.6	0.59	1270	11.1
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	10.7	0.52	1.60	5.63	2.90	0.99	0.3	74	52.1	140	2.95	1.3	< 10	38.5		2.1		3.36	2.60	12.1	1.28	19.3	3.6
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	35.9	1.66	1.03	7.79	2.63	1.10		32	49.1	806	5.10	1.0	30	38.3	3.5	2.8	1.3		4.45	17.8	1.40		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	35.1	0.10	0.59	> 10.0	1.79	0.17	0.1	96	58.1	918	5.88	1.9	120	26.9		1.1		0.21	4.52	13.2	0.60	0.22	0.5
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	4.8							130	170					280						54.1	0.55		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	165						0.4	190	92.5			4.0		93.2	3.4	3.3	1.3		8.99	22.0	1.80	0.74	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	21.3	0.09	0.22	6.80	0.32	0.18		67	451	450	14.5	1.6		244	1.3	0.7	0.5		4.06	28.0	0.55	0.39	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	18.3						5.7	24	50.9			3.9	1240	52.8	2.7	6.7	1.0		1.93	12.8	1.22	1.07	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
1477711 Orig	7.6	1.59	1.82	5.75	1.62	3.29	0.2	58	169	922	4.01	0.5	20	139	0.8	0.9	0.3	0.39	2.48	20.8	0.73	0.33	< 0.1
1477711 Dup	7.7	1.64	1.90	5.98	1.70	3.30	0.2	51	177	931	4.21	1.7	10	145	0.9	0.9	0.3	0.28	2.55	21.9	0.72	0.34	0.2
1027387 Orig	16.8	0.04	10.6	3.23	< 0.01	5.17	< 0.1	96	1570	1150	7.31	0.4	30	1100	0.2	< 0.1	< 0.1	< 0.05	0.09	74.9	0.19	0.02	< 0.1
1027387 Dup	15.9	0.05	10.3	3.04	< 0.01	5.12	0.1	95	1800	1090	7.01	0.4	20	1060	0.2	< 0.1	< 0.1	< 0.05	0.10	73.6	0.19	0.03	< 0.1
1477991 Orig	26.7	2.56	3.87	5.69	0.03	4.52	< 0.1	85	258	896	6.28	0.6	80	70.0	1.7	0.3	0.6	0.12	0.37	48.0	0.88	0.04	0.2
1477991 Dup	25.4	2.47	3.66	5.71	0.03	4.35	< 0.1	79	244	871	5.95	0.5	40	66.7	1.6	0.2	0.6	0.08	0.37	44.3	0.80	0.04	0.2
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	1	4.1	7	< 0.01	< 0.1	20	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	691	11.4	381	2.5	28.9	270	23	0.9	19.5	0.8	32	32.5	10.6	707	8.5	17.6		8.6	2.4	4.0	0.7	4.7	1110
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	62.9	12.4	91.2	102	12.2	173	31	7.5	289	0.2	7	4.7	1.0	106	57.3	106		38.5	4.7	4.4	0.5	2.6	5530
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	104	19.8	8.8	100		157	29	0.5			< 1	< 0.1		661	44.0	95.1		40.8	6.4	7.0	1.0	6.4	34.0
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	130	27.8	213	68.8	12.6	35.0	55	0.1	0.51	< 0.1	< 1	0.4	< 0.1	1220	13.7	38.5		12.3	2.1	2.3	0.3	2.4	76.8
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	66.6	11.1		3.2	16.3	128	38	2.0				1.0		105	4.1			4.7					106
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
SBC-1 Meas	198	22.8	32.6	120	31.3	160	114	16.4	2.27		4	1.2		546	54.9	113	13.5	48.6	7.3	8.2	1.1	6.6	34.7
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	41.8	16.7	11.4	36.6	11.3	26.7	49	0.1	0.85	< 0.1	< 1	< 0.1		186	18.0	40.0	4.2	13.8	2.3	2.4	0.4	2.3	376
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas	723	17.8		109	25.2	125	105	3.1	12.2					976	48.9	104	11.5	38.1	4.9	5.5	0.8	4.8	257
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
1477711 Orig	78.9	14.9	0.8	45.1	9.1	341	31	< 0.1	1.02	< 0.1	< 1	< 0.1	< 0.1	449	10.3	25.0	3.1	12.2	2.5	2.4	0.3	1.8	340
1477711 Dup	81.1	15.6	< 0.1	47.9	9.4	350	36	< 0.1	0.58	< 0.1	< 1	< 0.1	< 0.1	462	10.3	25.2	3.2	12.4	2.7	2.4	0.3	1.8	354
1027387 Orig	69.1	6.5	51.7	< 0.2	1.6	38.2	12	0.2	0.45	< 0.1	< 1	0.1	< 0.1	20	1.0	2.9	0.4	2.0	0.5	0.5	< 0.1	0.4	28.3
1027387 Dup	65.3	6.2	49.0	< 0.2	1.5	36.4	11	0.1	0.97	< 0.1	< 1	< 0.1	< 0.1	20	1.1	3.0	0.5	2.1	0.5	0.5	< 0.1	0.4	30.4
1477991 Orig	46.4	10.0	33.9	1.4	15.9	102	16	< 0.1	0.35	< 0.1	2	0.2	< 0.1	25	3.3	8.6	1.3	5.5	1.5	2.3	0.4	2.7	36.1
1477991 Dup	46.2	9.5	29.7	1.3	15.2	98.2	13	< 0.1	0.20	< 0.1	2	0.3	< 0.1	25	3.1	8.2	1.2	5.1	1.4	2.2	0.4	2.6	34.2
Method Blank	< 0.2	0.1	6.2	< 0.2	< 0.1	< 0.2	< 1	< 0.1	0.18	< 0.1	< 1	0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5
Method Blank																							
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.4	2.6	0.3	< 0.1	144		0.42	703	1	2.8	34.3	0.0273	0.060	0.24
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	2300			
DH-1a Cert											910	2629			
GXR-4 Meas		0.2	1.2	0.1	0.6	36.7		3.26	52.1	8	19.9	5.9	0.286	0.134	1.76
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.5	3.8		< 0.1	< 0.1		0.69	27.0	18	15.2	3.2	0.116	0.058	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			2.0	0.2	< 0.1	< 0.1		2.26	108	31	5.4	1.5		0.035	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			2.3						6.6	33			0.289		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.5	4.0	0.4	1.0	1.6		1.05	39.4	23	17.0	5.7	0.526		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.7	0.2	< 0.1	0.4		0.28	23.2	59	15.6	3.0	0.449	0.037	0.05
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
SdAR-M2 (U.S.G.S.) Meas		0.4	3.2	0.4	< 0.1	< 0.1			736	5	14.7	2.6			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
1477711 Orig	< 0.1	0.1	0.9	0.1	< 0.1	0.4	< 0.001	0.25	19.9	11	1.5	0.5	0.289	0.053	0.06
1477711 Dup	< 0.1	0.1	1.0	0.1	< 0.1	0.4	0.004	0.25	19.9	12	1.5	0.5	0.166	0.054	0.05
1027387 Orig	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	26	< 0.1	< 0.1	0.0643	0.010	< 0.01
1027387 Dup	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	0.001	< 0.05	1.2	25	< 0.1	< 0.1	0.0673	0.010	< 0.01
1477991 Orig	0.2	0.2	1.9	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.0	37	0.2	< 0.1	0.209	0.029	0.31
1477991 Dup	0.2	0.2	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.9	37	0.2	< 0.1	0.191	0.028	0.32
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5		< 0.1	< 0.1			
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0005	< 0.001	< 0.01



Date Submitted: 13-Oct-16
Invoice No.: A16-10619
Invoice Date: 17-Nov-16
Your Reference: PENG-20160919-005-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

37 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-10619**

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Notes:

CERTIFIED BY:

A handwritten signature in black ink, consisting of several loops and a vertical line, positioned above a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-10619

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477727	12.0	0.08	1.89	4.96	2.41	4.48	0.1	58	133	1140	3.40	2.4	10	49.6	0.7	1.4	0.3	< 0.05	4.62	13.9	0.78	0.03	0.1
1477729	18.9	1.32	2.45	7.62	2.11	2.02	0.1	117	217	579	6.22	4.2	10	153	1.4	1.1	0.6	< 0.05	3.04	31.0	1.27	0.05	< 0.1
1477730	17.5	2.47	2.48	5.63	0.43	3.31	< 0.1	63	281	712	5.49	3.0	120	193	1.1	0.7	0.4	0.77	0.91	32.6	1.05	1.09	0.4
1477731	36.3	> 3.00	2.95	7.64	0.37	3.39	0.1	80	211	681	5.60	3.7	80	189	1.2	1.0	0.4	0.07	0.96	27.8	1.01	0.06	0.2
1477732	27.6	> 3.00	2.46	7.41	2.08	3.13	0.1	92	111	540	4.49	5.0	70	86.0	1.2	1.6	0.5	< 0.05	6.82	19.9	2.09	0.05	0.2
1477733	33.1	2.16	2.60	6.85	1.11	3.57	0.2	55	224	803	6.01	1.2	60	171	1.3	1.2	0.5	< 0.05	3.14	32.4	1.32	0.06	0.2
1477734	22.1	0.98	2.42	4.80	1.53	2.58	< 0.1	61	64.3	745	4.66	2.3	50	59.3	0.6	0.9	0.2	< 0.05	3.78	21.0	0.83	0.02	0.2
1477736	14.5	2.39	2.97	7.10	0.50	4.00	< 0.1	35	136	704	6.42	1.1	40	135	1.7	1.0	0.6	< 0.05	1.27	29.3	1.32	0.07	0.1
1477737	16.3	1.74	3.04	7.08	1.05	5.61	0.1	45	171	826	6.58	0.9	40	132	1.7	1.0	0.6	< 0.05	1.41	32.1	1.33	0.06	0.2
1477738	36.8	> 3.00	3.19	7.42	1.76	3.66	< 0.1	92	130	592	4.36	5.9	30	125	1.2	1.9	0.5	< 0.05	8.69	23.8	2.21	0.03	0.1
1477906	17.0	1.56	2.79	6.62	0.02	0.34	< 0.1	99	72.3	739	16.5	3.4	20	10.6	1.0	0.5	0.4	< 0.05	0.18	14.6	0.81	0.31	1.8
1477907	3.5	0.14	0.35	1.20	0.13	0.06	0.3	16	44.2	307	3.47	0.5	80	10.2	0.1	0.2	< 0.1	0.44	0.29	3.5	0.20	0.64	0.4
1477908	12.1	0.63	1.94	4.90	0.54	0.15	0.1	59	60.6	606	14.4	3.0	70	19.2	0.6	0.8	0.3	0.09	0.74	17.7	0.59	0.30	1.4
1477910	10.9	> 3.00	1.40	7.16	0.45	0.70	21.7	82	94.9	549	9.83	4.5	50	47.7	1.0	1.2	0.4	< 0.05	0.54	20.4	1.11	0.29	1.7
1477911	21.0	0.08	2.15	5.98	1.85	0.50	< 0.1	67	80.8	531	12.9	3.3	< 10	55.1	1.0	2.1	0.4	< 0.05	2.00	17.2	1.08	0.19	2.1
1477912	24.7	> 3.00	3.68	7.04	0.06	1.16	< 0.1	170	98.7	460	6.98	2.9	20	82.0	2.2	0.5	0.8	< 0.05	0.28	10.6	1.01	0.05	1.8
1477913	0.9	0.16	0.22	1.64	0.40	0.03	< 0.1	29	49.0	66	2.14	< 0.1	90	4.8	0.2	0.5	< 0.1	0.42	0.40	0.9	0.20	0.22	1.5
1477914	3.6	0.11	0.51	1.28	0.20	0.06	< 0.1	33	58.7	138	1.67	0.2	60	16.9	0.2	0.1	< 0.1	0.19	0.29	4.9	0.13	< 0.02	< 0.1
1477915	15.5	2.23	1.90	4.55	0.06	1.17	< 0.1	43	73.1	417	5.65	0.8	70	50.8	1.5	0.3	0.6	0.05	0.88	18.8	0.62	0.03	0.3
1477917	2.7	0.08	1.46	0.95	< 0.01	1.01	< 0.1	32	79.5	344	2.41	0.3	40	70.2	0.2	0.2	< 0.1	< 0.05	0.08	12.1	< 0.05	0.03	0.1
1027388	13.6	0.93	9.59	3.69	< 0.01	5.67	< 0.1	106	1270	1150	8.41	0.9	30	819	0.5	0.2	0.2	< 0.05	0.06	79.7	0.18	< 0.02	< 0.1
1027389	12.5	1.88	4.19	5.47	0.24	0.94	< 0.1	153	2790	2100	11.0	0.8	20	742	0.6	0.2	0.2	< 0.05	12.0	82.6	0.22	0.04	0.2
1027390	3.8	1.21	2.80	3.04	0.56	11.1	< 0.1	88	1610	3120	9.29	0.5	30	486	1.0	0.1	0.4	< 0.05	18.0	60.6	0.40	0.06	0.4
1027391	31.5	0.16	12.5	3.14	0.02	2.35	0.3	94	1880	1210	7.53	0.5	30	1090	0.7	< 0.1	0.2	< 0.05	1.58	84.4	0.20	0.02	< 0.1
1027393	2.3	> 3.00	2.13	3.77	0.36	6.81	0.2	113	2330	2950	8.23	0.6	80	875	0.7	0.1	0.2	0.33	20.2	106	0.22	0.04	0.2
1027394	12.3	2.20	5.19	4.13	0.05	6.39	< 0.1	137	2250	1940	9.60	0.8	70	802	0.6	0.2	0.2	0.11	3.20	93.2	0.17	< 0.02	< 0.1
1027395	32.6	1.42	10.3	5.52	< 0.01	1.47	0.2	135	1360	1380	8.82	1.6	60	734	0.5	0.2	0.2	< 0.05	0.25	74.9	0.34	< 0.02	< 0.1
1027396	1.8	< 0.01	17.3	2.40	< 0.01	0.07	< 0.1	67	1040	941	6.91	0.1	40	1560	0.2	< 0.1	< 0.1	0.09	0.06	92.9	0.12	0.04	0.2
1027397	5.2	0.23	13.6	4.35	0.02	6.20	< 0.1	125	1250	970	7.99	0.6	30	975	0.9	0.2	0.3	< 0.05	0.38	84.0	0.13	0.07	0.1
1027398	19.8	0.02	14.2	4.69	< 0.01	1.70	0.1	136	1580	1080	9.36	0.5	30	1070	1.3	0.2	0.5	< 0.05	0.13	83.9	0.26	0.03	< 0.1
1027399	9.2	> 3.00	3.04	6.72	0.07	4.71	< 0.1	96	49.6	1170	10.9	2.3	30	58.7	3.3	0.9	1.2	< 0.05	3.31	43.3	2.67	0.03	< 0.1
1027400	7.0	0.63	3.61	4.15	0.06	7.54	0.1	187	30.8	1350	13.1	2.2	30	59.4	2.1	0.5	0.9	< 0.05	1.79	49.1	2.04	0.03	< 0.1
1477551	11.9	2.39	3.11	6.01	0.13	5.92	0.1	116	47.7	1520	12.0	1.5	10	59.9	3.2	1.1	1.2	< 0.05	3.22	52.0	2.16	0.06	< 0.1
1477552	23.8	1.11	10.9	4.52	0.03	4.20	0.1	114	1430	1220	8.12	1.5	110	591	1.5	0.2	0.6	0.19	1.21	70.8	0.53	0.04	< 0.1
1477554	24.3	1.71	2.84	5.87	0.64	5.85	0.2	224	64.4	1490	10.2	4.8	50	59.1	3.2	1.1	1.2	< 0.05	0.98	43.3	1.51	0.04	< 0.1
1477812	22.2	2.00	1.88	6.84	1.36	1.33	0.2	122	205	658	5.77	3.4	< 10	110	1.2	0.9	0.4	< 0.05	3.08	32.9	0.80	0.15	0.3
1477813	31.6	1.93	3.68	6.67	0.73	4.12	< 0.1	43	241	869	6.33	0.5	< 10	159	1.5	0.8	0.6	0.21	2.21	30.9	1.15	0.05	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-10619

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477727	69.7	14.1	9.9	80.2	6.5	234	74	0.4	0.22	< 0.1	< 1	< 0.1	< 0.1	794	14.3	33.4	4.0	14.8	2.2	2.1	0.2	1.4	25.1
1477729	113	19.6	9.6	59.0	13.4	321	124	1.6	1.13	< 0.1	< 1	< 0.1	< 0.1	628	19.3	45.4	5.9	22.8	4.1	4.2	0.6	3.1	36.4
1477730	96.1	12.7	11.4	13.1	10.5	238	95	0.3	1.58	< 0.1	< 1	0.1	0.1	202	15.1	37.5	5.1	20.1	3.2	3.3	0.4	2.2	519
1477731	109	16.1	10.8	12.8	11.5	344	112	5.0	0.64	< 0.1	1	0.8	< 0.1	331	17.1	41.6	5.3	20.0	3.2	3.2	0.4	2.3	82.7
1477732	97.8	18.9	10.9	67.2	13.3	719	167	2.6	0.44	< 0.1	1	< 0.1	< 0.1	1090	65.3	132	16.0	56.2	7.0	5.7	0.6	2.9	19.8
1477733	92.5	16.4	11.5	36.8	13.1	282	41	0.2	0.18	< 0.1	< 1	< 0.1	< 0.1	488	23.3	54.8	7.0	26.4	4.0	3.9	0.5	2.7	62.7
1477734	130	15.6	13.3	46.0	6.6	237	79	2.5	1.06	< 0.1	1	0.3	< 0.1	981	35.5	71.8	8.0	26.7	3.1	2.6	0.3	1.4	18.7
1477736	103	16.0	12.1	18.9	16.9	453	31	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	198	11.4	28.0	3.9	16.1	3.5	4.0	0.5	3.6	42.0
1477737	96.5	16.7	11.2	24.9	16.7	419	27	< 0.1	0.05	< 0.1	< 1	< 0.1	< 0.1	425	18.1	43.9	5.6	22.2	3.9	4.2	0.5	3.4	59.2
1477738	97.9	18.8	11.1	68.6	13.8	640	202	4.7	0.27	< 0.1	2	0.4	< 0.1	1210	52.8	117	14.9	54.4	7.1	6.3	0.6	3.3	28.0
1477906	396	22.1	12.3	0.9	9.2	41.8	111	5.6	0.72	0.1	< 1	0.4	0.4	11	12.5	28.1	2.9	10.1	1.6	1.9	0.3	1.9	225
1477907	151	4.3	14.2	4.1	1.4	10.5	14	0.8	2.63	< 0.1	1	0.5	0.7	62	2.2	5.4	0.6	2.2	0.3	0.4	< 0.1	0.3	50.9
1477908	335	15.7	14.8	15.3	6.3	29.9	103	4.3	2.23	< 0.1	1	0.4	0.6	296	13.6	29.5	3.0	9.8	1.6	1.7	0.2	1.4	185
1477910	1140	17.4	11.8	12.3	10.6	86.2	152	7.5	1.81	0.3	3	0.9	0.4	210	17.0	41.0	4.6	16.2	2.6	2.6	0.3	2.2	285
1477911	310	14.7	12.2	48.0	9.0	36.0	111	7.1	1.93	0.1	3	0.2	0.2	196	18.7	48.6	5.2	17.7	2.4	2.4	0.3	1.8	35.6
1477912	68.5	14.6	21.1	1.8	22.3	84.0	87	2.4	1.06	< 0.1	1	0.2	< 0.1	48	8.1	20.8	2.7	11.2	2.6	3.5	0.5	4.0	122
1477913	29.5	4.3	17.3	11.1	1.7	79.3	5	1.2	2.60	< 0.1	1	0.4	0.3	189	4.4	9.4	1.1	3.6	0.5	0.4	< 0.1	0.3	16.7
1477914	17.0	3.0	13.1	5.3	1.6	34.7	4	0.3	3.24	< 0.1	< 1	0.3	< 0.1	83	2.2	4.6	0.5	1.8	0.4	0.4	< 0.1	0.3	3.8
1477915	46.9	10.8	11.7	3.2	14.5	71.4	26	< 0.1	0.35	< 0.1	< 1	< 0.1	< 0.1	43	4.3	11.0	1.5	6.3	1.6	2.2	0.4	2.5	126
1477917	29.2	2.4	17.8	0.3	2.2	51.7	10	0.5	2.22	< 0.1	< 1	0.5	< 0.1	8	0.5	1.2	0.2	0.6	0.2	0.3	< 0.1	0.4	11.3
1027388	75.9	6.1	9.5	< 0.2	4.0	5.6	23	0.2	0.44	< 0.1	< 1	< 0.1	< 0.1	5	0.5	1.7	0.3	1.2	0.4	0.7	0.1	0.9	5.2
1027389	84.6	11.2	16.8	11.6	5.0	15.2	22	0.2	0.27	< 0.1	< 1	< 0.1	< 0.1	234	1.8	3.6	0.6	2.5	0.8	1.0	0.1	1.0	39.7
1027390	57.1	6.3	10.7	23.8	8.2	61.1	14	0.8	1.89	< 0.1	< 1	0.3	< 0.1	255	1.2	3.2	0.5	2.7	0.9	1.3	0.2	1.6	179
1027391	106	6.2	9.5	0.9	5.8	10.7	11	0.9	0.65	< 0.1	< 1	0.6	< 0.1	38	1.4	3.4	0.5	2.1	0.6	1.0	0.2	1.2	78.9
1027393	81.2	7.2	13.4	29.6	6.1	26.7	13	0.2	0.78	< 0.1	< 1	0.2	0.1	302	1.3	3.4	0.4	1.8	0.5	0.8	0.2	1.1	39.1
1027394	71.3	9.4	6.1	4.4	5.2	18.1	18	< 0.1	0.46	< 0.1	< 1	< 0.1	< 0.1	25	0.6	1.9	0.3	1.3	0.5	0.9	0.2	1.1	10.2
1027395	98.0	8.1	20.6	0.3	4.0	15.8	48	0.6	0.52	< 0.1	< 1	< 0.1	< 0.1	48	3.3	7.7	1.0	3.8	0.9	0.9	0.1	0.8	19.6
1027396	58.0	4.3	9.5	< 0.2	1.4	2.0	2	0.6	0.63	< 0.1	< 1	0.5	< 0.1	15	0.9	2.2	0.3	1.3	0.3	0.4	< 0.1	0.3	23.0
1027397	81.2	7.5	28.0	0.7	7.2	7.7	14	0.9	0.44	< 0.1	< 1	0.2	< 0.1	7	0.8	2.2	0.3	1.7	0.7	1.0	0.2	1.4	114
1027398	127	8.5	9.3	< 0.2	11.1	3.8	13	1.4	0.33	< 0.1	< 1	0.2	< 0.1	7	1.1	2.9	0.4	2.2	0.7	1.4	0.3	2.0	7.8
1027399	87.4	18.9	7.7	30.0	30.5	177	67	0.2	0.09	0.1	< 1	< 0.1	< 0.1	59	24.2	54.7	6.9	27.1	5.2	6.8	1.0	6.4	119
1027400	121	17.1	6.4	6.2	21.0	289	62	0.4	0.31	0.1	< 1	< 0.1	< 0.1	37	15.6	33.0	4.2	16.3	3.5	4.8	0.7	4.6	198
1477551	107	16.8	7.1	14.1	29.7	170	41	< 0.1	0.21	< 0.1	< 1	< 0.1	< 0.1	116	23.4	50.5	6.4	25.0	4.7	6.3	1.0	6.1	157
1477552	102	9.2	6.6	0.9	14.4	7.6	40	< 0.1	0.55	< 0.1	< 1	< 0.1	0.1	15	2.3	6.7	1.0	4.9	1.7	2.3	0.4	2.8	5.1
1477554	116	15.4	7.2	22.4	28.8	192	134	13.4	0.83	< 0.1	1	0.1	< 0.1	469	19.4	45.8	5.8	23.3	4.9	6.0	0.9	6.0	144
1477812	112	14.4	15.1	38.5	10.3	122	101	8.0	1.33	< 0.1	1	0.3	< 0.1	265	14.3	35.1	3.9	13.8	2.2	2.5	0.3	2.0	37.7
1477813	112	14.6	10.8	22.3	15.2	107	13	< 0.1	0.48	< 0.1	< 1	< 0.1	< 0.1	434	14.4	36.3	4.8	19.4	3.7	3.9	0.5	3.1	46.4

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477727	0.2	< 0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	0.41	7.1	12	2.2	0.6	0.249	0.054	0.02
1477729	0.4	0.2	1.5	0.2	< 0.1	< 0.1	0.012	0.30	6.2	24	3.3	0.7	0.455	0.093	< 0.01
1477730	0.1	0.2	1.2	0.1	< 0.1	< 0.1	< 0.001	0.08	4.2	19	2.3	0.8	0.354	0.074	0.05
1477731	0.2	0.2	1.3	0.1	0.3	1.1	< 0.001	0.06	5.9	16	2.3	0.7	0.326	0.090	0.01
1477732	< 0.1	0.1	1.1	0.1	< 0.1	0.2	< 0.001	0.44	14.8	14	11.6	2.1	0.391	0.163	0.03
1477733	< 0.1	0.2	1.2	0.1	< 0.1	< 0.1	< 0.001	0.24	5.7	18	3.2	0.9	0.310	0.081	0.03
1477734	< 0.1	< 0.1	0.6	< 0.1	0.1	0.3	< 0.001	0.27	7.3	8	6.6	1.0	0.267	0.069	0.02
1477736	< 0.1	0.2	1.6	0.1	< 0.1	< 0.1	< 0.001	0.07	6.1	19	1.7	0.5	0.183	0.048	< 0.01
1477737	< 0.1	0.2	1.7	0.2	< 0.1	< 0.1	< 0.001	0.13	5.9	20	2.3	0.6	0.138	0.073	0.14
1477738	< 0.1	0.1	1.1	< 0.1	0.3	0.2	< 0.001	0.46	10.7	14	7.7	1.7	0.394	0.204	0.02
1477906	1.4	0.1	1.2	0.2	0.3	0.2	0.001	< 0.05	5.5	17	3.6	0.8	0.431	0.153	0.70
1477907	0.4	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	13.6	2	0.4	0.1	0.0455	0.023	0.05
1477908	0.2	< 0.1	0.7	< 0.1	0.3	0.8	< 0.001	0.09	5.0	8	2.7	0.7	0.270	0.083	0.50
1477910	0.1	0.1	1.1	0.1	0.4	0.7	0.003	0.07	7.8	14	3.6	0.9	0.442	0.107	0.92
1477911	0.4	0.1	1.1	0.1	0.4	3.4	0.002	0.23	3.9	10	4.5	1.0	0.334	0.121	1.24
1477912	0.1	0.3	2.5	0.3	< 0.1	0.8	< 0.001	< 0.05	1.8	27	1.0	0.3	0.742	0.055	1.45
1477913	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.5	< 0.001	0.05	3.6	4	0.5	0.1	0.0898	0.017	0.03
1477914	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.3	< 0.001	< 0.05	1.2	4	< 0.1	< 0.1	0.0599	0.015	< 0.01
1477915	0.2	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.6	17	0.5	0.2	0.176	0.027	0.03
1477917	0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.9	4	0.1	< 0.1	0.0848	0.006	0.08
1027388	0.5	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	32	0.2	< 0.1	0.216	0.008	< 0.01
1027389	0.3	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.8	45	0.2	< 0.1	0.362	0.014	0.03
1027390	0.2	0.1	1.2	0.1	< 0.1	< 0.1	0.004	< 0.05	1.9	25	< 0.1	< 0.1	0.222	0.010	0.46
1027391	0.2	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	26	0.2	< 0.1	0.217	0.011	0.01
1027393	0.2	0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.8	31	0.2	< 0.1	0.274	0.012	0.03
1027394	0.5	< 0.1	0.6	< 0.1	< 0.1	< 0.1	0.006	< 0.05	0.7	37	0.1	< 0.1	0.264	0.012	< 0.01
1027395	0.3	< 0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.5	33	0.5	0.1	0.297	0.013	< 0.01
1027396	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	19	0.1	< 0.1	0.151	0.012	0.05
1027397	0.4	0.1	1.1	0.1	< 0.1	0.3	< 0.001	< 0.05	0.6	33	< 0.1	< 0.1	0.248	0.011	0.01
1027398	0.2	0.2	1.3	0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	33	< 0.1	< 0.1	0.251	0.018	0.01
1027399	< 0.1	0.4	3.5	0.4	< 0.1	< 0.1	< 0.001	< 0.05	2.3	42	3.4	1.0	0.284	0.078	0.02
1027400	0.3	0.2	1.8	0.2	< 0.1	< 0.1	< 0.001	< 0.05	4.0	24	1.4	1.6	0.295	0.037	0.02
1477551	< 0.1	0.4	3.4	0.4	< 0.1	< 0.1	< 0.001	< 0.05	2.8	42	3.1	1.0	0.237	0.071	0.07
1477552	0.3	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.1	35	0.5	0.1	0.195	0.014	< 0.01
1477554	0.6	0.4	3.5	0.4	0.6	0.4	< 0.001	0.05	3.3	41	3.3	0.9	0.716	0.086	0.03
1477812	0.1	0.2	1.5	0.2	0.5	2.6	< 0.001	0.26	10.0	20	2.4	0.6	0.527	0.053	0.51
1477813	< 0.1	0.2	1.5	0.1	< 0.1	< 0.1	< 0.001	0.08	3.6	20	1.7	0.4	0.131	0.071	0.01

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	7.6	0.04	0.20	1.81	0.04	0.88	2.9	74	21.9	782	25.5	0.8	970	43.4		0.9		38.5	3.10	7.6	0.59	1270	11.1
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	10.7	0.52	1.60	5.63	2.90	0.99	0.3	74	52.1	140	2.95	1.3	< 10	38.5		2.1		3.36	2.60	12.1	1.28	19.3	3.6
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	35.9	1.66	1.03	7.79	2.63	1.10		32	49.1	806	5.10	1.0	30	38.3	3.5	2.8	1.3		4.45	17.8	1.40		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	35.1	0.10	0.59	> 10.0	1.79	0.17	0.1	96	58.1	918	5.88	1.9	120	26.9		1.1		0.21	4.52	13.2	0.60	0.22	0.5
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	4.8							130	170					280						54.1	0.55		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	165						0.4	190	92.5			4.0		93.2	3.4	3.3	1.3		8.99	22.0	1.80	0.74	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	21.3	0.09	0.22	6.80	0.32	0.18		67	451	450	14.5	1.6		244	1.3	0.7	0.5		4.06	28.0	0.55	0.39	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	18.3						5.7	24	50.9			3.9	1240	52.8	2.7	6.7	1.0		1.93	12.8	1.22	1.07	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
1477911 Orig	21.3	0.08	2.14	6.05	1.89	0.52	< 0.1	67	79.5	531	12.9	3.3	< 10	55.0	1.0	2.1	0.4	< 0.05	1.96	16.9	1.10	0.19	2.2
1477911 Dup	20.7	0.07	2.15	5.90	1.82	0.48	< 0.1	66	82.0	531	12.9	3.3	< 10	55.3	1.0	2.0	0.4	< 0.05	2.05	17.5	1.07	0.19	2.1
1477917 Orig	2.7	0.08	1.48	0.97	< 0.01	1.04	0.1	33	81.3	345	2.41	0.4	50	70.7	0.2	0.2	< 0.1	0.06	0.09	11.9	< 0.05	0.04	0.2
1477917 Dup	2.7	0.07	1.44	0.93	< 0.01	0.98	< 0.1	32	77.7	342	2.41	0.3	30	69.6	0.2	0.2	< 0.1	< 0.05	0.07	12.2	0.05	0.03	0.1
1477813 Orig	31.1	1.92	3.58	6.70	0.72	4.03	< 0.1	43	246	855	6.40	0.6	< 10	157	1.5	0.9	0.6	0.28	2.18	30.9	1.13	0.04	0.2
1477813 Dup	32.2	1.94	3.77	6.64	0.74	4.21	< 0.1	43	236	883	6.27	0.4	60	160	1.5	0.8	0.6	0.15	2.23	31.0	1.17	0.06	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	1	4.1	7	< 0.01	< 0.1	20	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	691	11.4	381	2.5	28.9	270	23	0.9	19.5	0.8	32	32.5	10.6	707	8.5	17.6		8.6	2.4	4.0	0.7	4.7	1110
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	62.9	12.4	91.2	102	12.2	173	31	7.5	289	0.2	7	4.7	1.0	106	57.3	106		38.5	4.7	4.4	0.5	2.6	5530
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	104	19.8	8.8	100		157	29	0.5			< 1	< 0.1		661	44.0	95.1		40.8	6.4	7.0	1.0	6.4	34.0
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	130	27.8	213	68.8	12.6	35.0	55	0.1	0.51	< 0.1	< 1	0.4	< 0.1	1220	13.7	38.5		12.3	2.1	2.3	0.3	2.4	76.8
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	66.6	11.1		3.2	16.3	128	38	2.0				1.0		105	4.1			4.7					106
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
SBC-1 Meas	198	22.8	32.6	120	31.3	160	114	16.4	2.27		4	1.2		546	54.9	113	13.5	48.6	7.3	8.2	1.1	6.6	34.7
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	41.8	16.7	11.4	36.6	11.3	26.7	49	0.1	0.85	< 0.1	< 1	< 0.1		186	18.0	40.0	4.2	13.8	2.3	2.4	0.4	2.3	376
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas	723	17.8		109	25.2	125	105	3.1	12.2					976	48.9	104	11.5	38.1	4.9	5.5	0.8	4.8	257
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
1477911 Orig	314	14.9	12.5	48.2	9.0	36.1	110	7.1	1.90	0.1	3	0.2	0.2	223	18.8	49.0	5.2	17.7	2.4	2.4	0.3	1.8	36.6
1477911 Dup	306	14.6	11.9	47.7	9.0	36.0	112	7.1	1.97	0.1	3	0.2	0.2	168	18.6	48.2	5.1	17.7	2.5	2.3	0.3	1.8	34.7
1477917 Orig	29.4	2.4	18.5	0.3	2.2	52.9	12	0.5	2.17	< 0.1	< 1	0.5	< 0.1	8	0.5	1.1	0.2	0.6	0.2	0.4	< 0.1	0.4	9.0
1477917 Dup	29.1	2.4	17.1	0.3	2.1	50.5	8	0.4	2.26	< 0.1	< 1	0.5	< 0.1	8	0.5	1.2	0.1	0.6	0.2	0.3	< 0.1	0.4	13.7
1477813 Orig	119	14.3	11.5	22.8	15.1	105	12	< 0.1	0.87	< 0.1	3	< 0.1	0.1	429	14.3	36.0	4.8	19.3	3.8	3.8	0.5	3.0	47.4
1477813 Dup	104	14.9	10.0	21.7	15.4	109	14	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	439	14.4	36.5	4.9	19.5	3.6	4.0	0.5	3.1	45.4
Method Blank	< 0.2	0.1	6.2	< 0.2	< 0.1	< 0.2	< 1	< 0.1	0.18	< 0.1	< 1	0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5
Method Blank																							
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.4	2.6	0.3	< 0.1	144		0.42	703	1	2.8	34.3	0.0273	0.060	0.24
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	2300			
DH-1a Cert											910	2629			
GXR-4 Meas		0.2	1.2	0.1	0.6	36.7		3.26	52.1	8	19.9	5.9	0.286	0.134	1.76
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.5	3.8		< 0.1	< 0.1		0.69	27.0	18	15.2	3.2	0.116	0.058	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			2.0	0.2	< 0.1	< 0.1		2.26	108	31	5.4	1.5		0.035	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			2.3						6.6	33			0.289		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.5	4.0	0.4	1.0	1.6		1.05	39.4	23	17.0	5.7	0.526		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.7	0.2	< 0.1	0.4		0.28	23.2	59	15.6	3.0	0.449	0.037	0.05
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
SdAR-M2 (U.S.G.S.) Meas		0.4	3.2	0.4	< 0.1	< 0.1			736	5	14.7	2.6			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
1477911 Orig	0.3	0.1	1.1	0.1	0.4	3.5	0.002	0.23	3.9	10	4.5	1.0	0.330	0.120	1.22
1477911 Dup	0.4	0.1	1.1	0.1	0.4	3.2	0.001	0.23	3.9	10	4.5	1.0	0.337	0.121	1.25
1477917 Orig	0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.0	4	0.1	< 0.1	0.0851	0.007	0.10
1477917 Dup	0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.8	4	0.1	< 0.1	0.0845	0.006	0.06
1477813 Orig	< 0.1	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	0.08	3.4	20	1.8	0.4	0.125	0.074	0.02
1477813 Dup	< 0.1	0.2	1.5	0.1	< 0.1	< 0.1	< 0.001	0.08	3.8	21	1.7	0.4	0.136	0.069	0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5		< 0.1	< 0.1			
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0005	< 0.001	< 0.01



Date Submitted: 28-Sep-16
Invoice No.: A16-09921-UT6
Invoice Date: 18-Nov-16
Your Reference: PENG-20160926-006-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

72 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-09921-UT6**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is written in a cursive style with a large, stylized initial "E".

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-09921

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477739	1.2	0.16	0.11	0.48	0.03	0.16	< 0.1	12	30.4	239	1.06	< 0.1	30	9.6	< 0.1	< 0.1	< 0.1	0.12	< 0.05	2.7	0.06	< 0.02	0.1
1477740	0.5	0.08	0.01	0.39	0.02	0.31	< 0.1	9	12.0	142	0.50	< 0.1	30	1.9	< 0.1	< 0.1	< 0.1	0.05	0.13	0.8	< 0.05	< 0.02	0.1
1477741	11.6	0.02	10.7	4.10	< 0.01	9.58	0.1	127	1930	2410	8.85	0.4	10	1010	0.7	< 0.1	0.2	0.11	0.23	92.8	0.36	0.03	1.4
1477742	11.5	0.03	11.8	3.80	0.01	5.60	< 0.1	117	1690	929	7.34	0.4	< 10	1120	0.5	0.1	0.2	< 0.05	0.48	86.0	0.13	< 0.02	0.6
1477743	47.2	> 3.00	2.16	8.63	0.24	4.50	0.2	195	197	1260	5.13	0.9	< 10	95.6	1.7	0.4	0.5	< 0.05	0.46	42.8	0.70	0.04	0.3
1477744	45.9	> 3.00	1.98	7.51	0.03	5.27	0.3	196	172	1260	5.25	1.1	< 10	81.3	1.5	0.4	0.5	< 0.05	0.11	41.0	0.63	0.03	0.3
1477745	6.0	1.29	1.21	5.23	1.23	7.60	< 0.1	178	66.2	1850	7.64	1.4	10	40.1	3.9	1.3	1.9	< 0.05	1.33	28.0	4.69	0.08	< 0.1
1477746	2.2	0.04	0.13	0.60	0.18	4.96	< 0.1	31	13.7	1150	3.00	< 0.1	70	10.8	1.5	0.1	0.7	0.16	0.20	3.2	1.40	< 0.02	< 0.1
1477747	52.6	2.94	2.22	7.49	0.21	1.57	0.1	353	69.4	1280	11.0	2.9	50	50.9	1.3	0.3	0.4	0.15	0.46	39.6	0.77	0.13	1.2
1477748	47.4	1.22	2.08	5.40	0.12	1.57	0.4	246	48.8	1710	13.0	2.4	30	75.4	1.2	0.3	0.4	0.34	0.40	59.4	0.90	0.23	1.6
1477749	17.2	2.91	0.48	8.96	1.43	0.87	0.2	40	19.8	393	2.01	2.1	30	14.0	0.5	0.8	0.2	< 0.05	3.18	8.0	0.46	0.15	0.2
1477750	25.5	2.48	1.35	9.30	1.68	0.61	< 0.1	137	124	260	4.60	3.9	10	55.8	1.0	1.7	0.3	< 0.05	3.79	15.0	1.00	0.48	0.9
1477751	29.6	2.35	1.67	8.83	2.21	0.39	< 0.1	127	86.5	256	5.07	3.7	20	17.4	0.9	1.2	0.3	< 0.05	3.25	7.2	0.83	0.37	0.9
1477752	15.6	> 3.00	0.33	9.15	1.52	2.27	< 0.1	38	13.2	267	1.70	2.3	10	13.4	0.2	0.7	< 0.1	< 0.05	3.29	4.6	0.68	0.09	0.2
1477753	13.5	> 3.00	0.41	9.22	1.69	1.34	< 0.1	41	10.3	223	1.96	2.5	40	13.6	0.3	0.9	0.1	< 0.05	3.07	6.2	0.69	0.08	0.1
1477754	22.6	2.09	2.37	7.86	1.64	5.31	0.1	95	112	798	3.90	2.5	10	80.0	0.9	0.7	0.3	< 0.05	3.20	28.3	0.89	0.06	0.3
1477755	7.8	2.08	0.86	3.92	0.25	1.62	0.1	40	55.4	1150	2.97	0.4	60	28.9	0.5	0.4	0.2	0.13	0.36	9.9	0.41	0.07	0.1
1477756	17.2	> 3.00	1.43	8.50	1.26	1.61	< 0.1	76	82.7	535	4.24	2.9	40	70.3	1.2	1.0	0.4	< 0.05	1.81	20.2	1.06	0.11	0.2
1477757	22.6	2.59	1.12	8.34	1.45	1.07	< 0.1	92	125	488	4.75	2.3	50	81.0	1.3	0.8	0.4	< 0.05	2.15	27.5	1.00	0.13	0.2
1477918	7.6	2.53	0.22	7.91	0.76	7.53	0.3	122	93.6	969	1.75	0.3	40	32.3	0.8	0.6	0.3	0.05	1.16	18.4	0.65	0.04	0.2
1477919	38.2	> 3.00	1.84	8.28	0.03	3.53	< 0.1	230	248	939	5.83	1.4	20	108	1.3	0.4	0.4	< 0.05	0.09	47.0	0.65	0.03	1.1
1477920	16.3	2.48	0.72	7.44	0.91	11.9	0.4	169	89.6	1610	2.58	0.5	80	52.4	1.4	0.7	0.4	< 0.05	1.38	25.7	0.96	< 0.02	0.4
1477921	53.8	2.68	1.92	8.12	0.84	5.39	0.1	150	54.2	1200	8.85	1.9	< 10	50.1	2.6	1.6	1.0	< 0.05	1.38	41.6	1.98	0.04	0.3
1477922	26.3	> 3.00	1.70	7.00	0.49	9.14	0.1	96	51.2	1670	7.65	1.1	< 10	51.4	5.6	1.5	2.7	0.18	1.16	45.0	7.09	0.04	< 0.1
1477923	39.1	2.72	2.44	7.01	0.56	7.04	0.4	199	63.9	1720	9.18	1.6	70	48.5	2.7	1.1	1.0	< 0.05	0.68	39.7	2.10	0.02	0.3
1477924	32.1	2.72	1.03	9.88	2.23	0.74	0.1	88	42.1	240	3.87	4.3	30	19.0	0.8	1.0	0.3	< 0.05	3.14	9.9	0.61	0.22	0.6
1477926	20.2	> 3.00	0.80	8.87	1.68	0.51	< 0.1	72	27.3	170	2.92	3.6	10	11.0	0.6	0.8	0.2	< 0.05	2.43	6.8	0.58	0.46	0.5
1477927	18.5	> 3.00	0.58	8.92	1.24	1.85	< 0.1	47	19.1	340	2.36	1.9	20	16.2	0.6	0.6	0.2	< 0.05	1.91	8.6	0.61	0.14	0.2
1477928	26.1	1.69	1.47	> 10.0	1.48	0.85	< 0.1	141	112	354	4.47	3.6	20	49.8	1.2	1.0	0.4	< 0.05	3.25	14.2	0.72	0.19	0.3
1477929	13.2	> 3.00	0.32	7.37	1.20	1.99	< 0.1	38	16.8	250	1.44	2.3	20	11.9	0.2	0.8	< 0.1	< 0.05	2.51	4.6	0.57	0.08	0.2
1477930	13.2	> 3.00	0.39	9.16	1.46	1.24	< 0.1	37	10.1	201	1.87	2.2	20	12.5	0.3	0.9	< 0.1	< 0.05	2.94	6.1	0.61	0.09	0.2
1477931	12.9	> 3.00	0.44	8.52	1.61	1.57	< 0.1	38	11.4	255	1.87	2.0	< 10	8.0	0.3	0.9	0.1	< 0.05	3.09	5.1	0.79	0.04	0.2
1477932	9.6	> 3.00	0.21	8.69	1.80	0.71	< 0.1	32	8.7	190	1.61	2.2	10	5.0	0.2	1.1	< 0.1	< 0.05	3.38	4.1	0.33	0.14	0.2
1477933	26.8	2.81	2.50	7.90	1.37	4.20	0.1	95	105	679	3.89	2.5	50	83.0	0.8	0.8	0.3	< 0.05	2.22	16.5	0.83	0.03	0.2
1477934	19.0	> 3.00	0.08	6.91	1.60	0.14	< 0.1	33	9.0	39	1.69	2.2	30	3.1	< 0.1	0.8	< 0.1	< 0.05	3.33	2.0	0.12	1.04	0.1
1477935	2.8	0.89	0.68	3.57	0.02	0.15	< 0.1	52	37.8	135	1.63	0.6	20	20.6	0.3	0.4	< 0.1	0.06	0.17	8.7	0.46	0.04	0.1
1477937	23.7	> 3.00	1.56	8.01	1.35	0.54	< 0.1	80	127	304	4.87	3.2	10	97.6	1.3	1.0	0.4	2.00	1.77	28.3	1.17	0.15	0.7
1477555	6.0	0.04	15.1	5.46	0.01	2.11	0.1	157	1960	842	8.70	0.3	20	1140	0.3	0.1	0.1	0.26	0.78	68.6	0.09	< 0.02	0.5
1477556	4.0	0.05	13.7	3.85	0.01	5.11	< 0.1	110	1780	1120	7.14	0.4	< 10	813	0.6	< 0.1	0.2	< 0.05	0.49	60.3	0.09	< 0.02	0.6
1477557	29.0	0.12	12.9	3.38	0.13	4.76	< 0.1	89	1700	968	6.83	0.3	60	1070	0.4	0.1	0.1	0.12	7.09	83.2	0.08	0.03	0.4
1477558	26.3	> 3.00	1.85	9.52	0.07	6.01	0.1	144	216	2050	5.64	0.4	30	262	1.4	0.5	0.4	0.07	0.08	53.3	0.75	< 0.02	0.4
1477559	32.8	2.08	3.06	> 10.0	0.15	4.00	0.2	218	268	4030	10.9	0.1	30	203	1.6	0.3	0.5	0.08	0.14	53.4	0.67	0.02	0.3

Results

Activation Laboratories Ltd.

Report: A16-09921

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477560	26.2	2.89	2.36	> 10.0	0.10	2.99	0.1	174	219	2890	7.54	0.3	< 10	219	1.2	0.3	0.4	< 0.05	0.15	46.0	0.52	0.02	0.2
1477561	40.4	1.58	4.26	9.91	0.06	2.92	< 0.1	185	145	1320	7.05	0.2	10	128	1.4	0.3	0.5	< 0.05	0.11	42.0	0.60	< 0.02	0.1
1477562	37.3	1.13	4.03	8.93	0.06	5.17	0.2	131	113	1410	6.23	0.2	< 10	194	1.3	0.2	0.4	0.06	0.29	48.0	0.54	< 0.02	< 0.1
1477564	11.3	0.16	12.4	4.71	0.02	5.86	< 0.1	162	1850	1340	8.49	0.6	< 10	584	1.1	0.2	0.4	< 0.05	0.10	77.7	0.66	< 0.02	0.4
1477565	29.1	1.83	5.51	8.42	0.01	1.73	< 0.1	258	53.3	1210	11.4	0.5	< 10	88.8	0.3	0.1	0.1	< 0.05	0.07	56.9	0.14	< 0.02	< 0.1
1477566	10.9	> 3.00	5.53	7.05	0.03	5.08	< 0.1	199	405	933	6.49	1.1	60	112	1.5	0.3	0.5	0.09	< 0.05	39.6	0.42	0.02	0.2
1477567	13.0	> 3.00	3.65	7.67	0.02	2.69	< 0.1	287	24.8	1120	8.90	1.4	30	24.0	2.0	0.2	0.6	< 0.05	0.07	34.8	0.62	0.03	1.8
1477568	4.5	> 3.00	3.05	7.37	0.03	4.03	< 0.1	207	29.4	972	7.48	1.5	10	29.9	2.1	0.5	0.6	< 0.05	0.07	44.6	0.77	0.03	1.9
1477569	12.9	> 3.00	2.97	9.18	0.04	2.88	< 0.1	233	15.5	1220	10.5	0.8	20	9.7	1.5	1.2	0.5	0.06	0.15	20.9	0.59	0.02	2.2
1477570	9.2	> 3.00	3.47	8.39	0.03	3.29	< 0.1	197	20.4	941	8.20	1.1	< 10	25.0	2.2	0.3	0.7	< 0.05	< 0.05	34.6	0.66	0.09	1.7
1477571	12.1	> 3.00	2.92	9.93	0.06	3.02	< 0.1	205	17.4	1120	7.10	0.7	10	17.7	1.1	1.2	0.3	< 0.05	0.08	23.3	0.50	< 0.02	0.5
1477572	4.5	> 3.00	2.33	7.41	0.06	4.80	< 0.1	151	3.2	1100	9.26	0.8	< 10	7.2	3.1	0.6	1.0	< 0.05	0.11	31.9	1.14	0.03	1.3
1477573	3.9	> 3.00	2.30	7.22	0.57	3.28	0.2	374	7.3	1490	11.5	2.1	< 10	10.5	2.4	0.5	0.8	< 0.05	10.8	49.3	1.20	< 0.02	0.3
1477574	4.1	0.01	16.7	4.08	< 0.01	0.22	< 0.1	91	2120	914	7.62	0.5	50	1300	0.2	< 0.1	< 0.1	0.06	< 0.05	87.7	< 0.05	0.03	0.8
1477575	8.2	> 3.00	3.88	8.35	0.02	3.12	< 0.1	114	47.3	921	6.74	0.8	30	37.7	1.7	0.4	0.5	< 0.05	0.07	20.1	0.49	< 0.02	0.2
1276568	6.2	> 3.00	0.34	5.87	0.50	2.66	< 0.1	68	48.6	443	2.28	2.2	10	19.3	0.7	0.8	0.2	0.26	0.55	7.4	0.39	0.42	0.2
1276569	8.9	2.38	0.43	5.91	1.12	0.65	< 0.1	83	43.6	321	2.86	2.1	30	16.2	0.7	0.9	0.2	< 0.05	1.24	9.6	0.33	0.75	0.3
1276570	9.1	2.85	0.36	5.47	0.48	0.73	< 0.1	46	38.3	343	1.71	1.1	< 10	11.8	0.6	0.5	0.2	< 0.05	0.54	6.0	0.35	0.38	0.2
1276571	14.9	1.21	1.78	4.65	0.84	3.33	< 0.1	121	19.0	586	4.12	0.7	20	22.6	0.7	0.5	0.2	0.25	0.70	17.8	0.26	0.60	0.3
1276572	7.3	1.70	1.20	4.84	0.22	3.02	< 0.1	124	18.3	352	4.29	0.8	< 10	20.4	0.7	0.4	0.2	0.17	0.19	21.2	0.23	0.82	0.4
1276573	31.8	> 3.00	1.41	8.12	1.83	2.63	0.1	104	31.5	470	3.94	3.4	20	29.3	1.1	1.4	0.3	1.16	3.51	13.6	0.61	0.48	0.2
1276574	11.6	> 3.00	0.85	5.78	0.46	0.58	< 0.1	86	30.5	197	2.46	2.1	10	16.9	0.6	1.2	0.2	1.56	0.94	7.3	0.36	0.62	0.3
1276575	9.3	> 3.00	1.46	8.28	1.37	0.84	2.4	82	25.9	365	4.71	3.6	540	33.0	1.3	1.4	0.4	0.43	1.02	14.5	0.53	0.09	2.1
1276576	21.0	0.33	2.19	> 10.0	2.40	1.72	< 0.1	179	202	822	5.56	3.2	50	94.3	1.0	0.9	0.3	< 0.05	2.21	35.7	0.62	0.04	0.8
1477814	4.1	0.13	0.56	0.89	0.02	0.13	< 0.1	32	54.7	198	1.20	< 0.1	30	12.3	0.1	< 0.1	< 0.1	0.10	0.06	4.7	< 0.05	0.02	0.1
1477815	11.4	0.68	1.62	3.42	0.06	0.57	< 0.1	55	57.9	416	3.18	< 0.1	20	45.1	0.1	0.1	< 0.1	0.05	0.49	16.7	< 0.05	0.13	0.1
1477816	6.0	1.01	1.82	2.70	0.07	4.76	0.2	285	135	1240	5.69	0.4	20	89.3	0.8	0.3	0.3	0.10	< 0.05	37.8	0.43	< 0.02	0.3
1477818	18.1	0.50	2.53	8.12	1.95	4.44	< 0.1	107	99.7	728	4.59	2.7	20	82.2	1.1	2.2	0.4	< 0.05	9.42	26.4	0.87	0.08	0.3
1477819	16.4	2.67	3.99	8.34	0.70	5.63	< 0.1	95	282	913	6.41	0.9	10	141	1.4	0.9	0.5	< 0.05	2.11	37.1	1.15	0.07	0.1
1477504	9.9	> 3.00	4.20	8.29	0.03	4.42	< 0.1	172	50.8	1130	7.65	1.1	< 10	44.7	1.8	0.3	0.6	< 0.05	0.06	37.4	0.57	< 0.02	0.1

Results

Activation Laboratories Ltd.

Report: A16-09921

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477739	4.5	1.2	2.7	0.7	0.8	6.0	3	< 0.1	1.07	< 0.1	< 1	0.2	< 0.1	8	0.2	0.7	< 0.1	0.4	0.1	0.2	< 0.1	0.1	11.3
1477740	1.7	1.5	1.1	0.7	0.3	7.4	1	< 0.1	0.53	< 0.1	< 1	0.2	< 0.1	8	0.2	0.6	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	1.8
1477741	52.4	8.2	< 0.1	0.3	6.2	121	15	0.7	0.34	< 0.1	< 1	0.5	0.1	10	0.8	2.4	0.4	2.5	0.9	1.1	0.2	1.1	289
1477742	61.5	7.7	< 0.1	0.4	4.1	29.8	16	0.6	0.24	< 0.1	< 1	0.5	< 0.1	6	0.2	0.7	0.1	0.9	0.4	0.5	0.1	0.7	49.3
1477743	125	18.1	31.4	6.7	16.1	148	34	0.7	0.15	< 0.1	< 1	< 0.1	< 0.1	86	4.0	10.4	1.4	7.9	2.1	2.6	0.4	2.7	48.2
1477744	169	15.6	23.9	1.0	13.3	121	40	0.1	0.11	< 0.1	< 1	< 0.1	< 0.1	36	3.5	9.4	1.4	7.1	1.9	2.3	0.4	2.4	70.4
1477745	50.6	21.9	23.9	27.1	45.9	290	59	0.1	0.09	< 0.1	< 1	< 0.1	< 0.1	1500	14.2	31.8	4.1	23.0	11.0	18.3	3.0	14.2	38.4
1477746	11.3	3.8	4.9	4.8	18.4	62.5	3	0.4	0.91	< 0.1	< 1	0.2	< 0.1	166	3.5	6.9	1.1	6.0	2.6	4.6	0.9	4.8	13.7
1477747	211	19.9	0.2	4.6	10.7	91.9	110	4.6	0.80	< 0.1	2	0.3	0.1	82	6.5	16.0	2.2	10.7	2.7	3.0	0.4	2.3	107
1477748	177	16.8	< 0.1	4.6	11.1	65.4	89	3.3	1.05	< 0.1	< 1	0.1	< 0.1	62	6.2	15.3	2.1	10.7	2.6	3.0	0.5	2.3	150
1477749	90.3	24.1	2.6	50.1	5.6	168	87	2.3	0.65	< 0.1	1	0.2	< 0.1	367	10.1	23.3	2.3	9.9	1.6	1.3	0.2	0.9	16.8
1477750	52.8	30.9	< 0.1	60.4	9.8	475	170	6.0	1.00	< 0.1	1	0.2	0.1	807	23.6	51.1	5.5	23.3	3.5	2.9	0.4	1.8	44.3
1477751	64.8	31.0	< 0.1	65.2	9.6	436	152	2.8	0.50	< 0.1	1	< 0.1	< 0.1	809	17.7	39.6	4.4	18.9	2.9	2.4	0.3	1.7	52.0
1477752	34.6	29.7	< 0.1	45.2	3.0	243	84	2.2	0.79	< 0.1	< 1	0.1	< 0.1	756	17.3	38.0	4.1	18.2	2.6	1.8	0.2	0.6	12.1
1477753	35.2	30.4	< 0.1	50.6	3.6	239	98	2.2	0.30	< 0.1	< 1	0.1	< 0.1	646	19.6	42.5	4.8	20.6	2.9	1.8	0.2	0.7	6.6
1477754	64.7	21.9	< 0.1	57.7	9.3	258	104	4.1	0.11	< 0.1	< 1	0.5	< 0.1	565	17.3	38.5	4.6	20.2	3.3	2.6	0.3	1.5	39.0
1477755	42.0	8.9	15.7	8.0	5.2	253	28	1.7	0.87	< 0.1	< 1	0.2	0.1	151	7.3	16.6	2.0	9.0	1.5	1.3	0.2	0.9	9.6
1477756	84.2	23.1	< 0.1	38.3	11.8	368	118	0.4	0.14	< 0.1	< 1	< 0.1	< 0.1	417	23.5	52.3	6.0	26.4	4.3	3.5	0.4	2.1	37.7
1477757	92.9	23.3	0.5	45.0	13.3	245	110	0.1	0.29	< 0.1	< 1	< 0.1	< 0.1	393	20.8	47.4	5.5	24.4	3.9	3.3	0.4	2.3	37.0
1477918	37.8	25.7	25.8	23.4	8.6	327	14	1.2	0.36	< 0.1	< 1	2.8	0.1	418	3.3	7.4	0.9	4.4	1.0	1.3	0.2	1.3	17.1
1477919	96.8	14.7	6.9	0.5	12.3	146	51	2.3	0.33	< 0.1	< 1	0.2	< 0.1	42	3.6	9.0	1.3	6.8	1.9	2.0	0.4	2.3	171
1477920	44.9	25.6	31.5	29.6	14.2	303	18	0.7	0.44	< 0.1	1	0.9	< 0.1	499	3.3	7.9	1.1	5.6	1.4	1.9	0.3	2.1	60.1
1477921	111	22.5	9.4	27.6	27.6	201	73	2.6	< 0.05	< 0.1	1	< 0.1	< 0.1	371	8.8	21.5	2.9	14.5	4.1	5.8	1.0	5.7	70.8
1477922	80.6	17.0	20.0	14.2	68.4	215	40	7.0	< 0.05	< 0.1	< 1	< 0.1	< 0.1	272	10.6	25.7	3.8	24.8	15.3	25.6	4.0	18.9	42.5
1477923	289	18.8	23.5	18.1	26.7	355	60	0.6	0.14	0.1	1	< 0.1	< 0.1	269	8.8	21.4	2.8	14.6	4.6	6.9	1.2	6.1	47.8
1477924	83.3	30.0	< 0.1	67.1	7.9	204	166	3.3	1.21	< 0.1	1	0.2	< 0.1	444	16.0	33.9	3.4	13.1	2.1	1.8	0.3	1.5	34.3
1477926	66.6	25.1	< 0.1	52.8	5.7	170	143	0.6	1.38	< 0.1	1	< 0.1	< 0.1	318	14.7	31.8	3.0	12.0	2.0	1.8	0.2	1.1	33.6
1477927	41.5	22.1	< 0.1	36.7	6.2	113	80	0.7	0.37	< 0.1	< 1	< 0.1	< 0.1	308	15.4	32.6	3.5	14.2	2.0	1.7	0.2	1.1	16.7
1477928	73.1	32.0	6.1	58.0	12.6	368	168	< 0.1	0.18	< 0.1	< 1	< 0.1	< 0.1	608	15.7	37.6	4.2	17.5	2.7	2.3	0.4	2.1	56.6
1477929	32.3	28.7	< 0.1	35.8	2.7	209	89	2.5	3.01	< 0.1	< 1	0.1	< 0.1	701	13.7	36.3	3.4	15.0	2.1	1.4	0.1	0.5	2.9
1477930	39.9	27.6	< 0.1	45.0	3.1	227	86	2.3	0.40	< 0.1	< 1	0.1	< 0.1	619	16.5	36.5	4.0	17.3	2.5	1.6	0.2	0.6	2.3
1477931	37.8	27.6	< 0.1	48.6	3.5	236	80	1.8	0.23	< 0.1	< 1	< 0.1	< 0.1	640	20.1	42.7	4.7	20.4	2.9	1.9	0.2	0.7	2.6
1477932	28.4	27.9	0.2	50.0	2.2	282	83	2.1	0.40	< 0.1	< 1	0.2	< 0.1	548	7.1	15.4	1.7	7.6	1.2	1.0	< 0.1	0.4	13.9
1477933	84.7	21.3	< 0.1	47.1	8.3	267	101	3.0	0.36	< 0.1	< 1	0.5	0.1	484	16.2	36.6	4.2	19.5	3.1	2.4	0.3	1.4	19.4
1477934	15.7	28.0	< 0.1	41.5	1.0	111	76	2.0	2.08	< 0.1	< 1	0.3	0.2	496	1.6	4.0	0.5	2.1	0.4	0.4	< 0.1	0.2	5.0
1477935	29.5	8.0	7.8	0.9	2.9	305	15	0.7	0.77	< 0.1	< 1	0.1	< 0.1	10	12.8	28.2	3.2	13.4	1.9	1.2	0.1	0.6	7.9
1477937	107	25.6	< 0.1	37.3	12.9	309	127	0.2	0.11	< 0.1	< 1	< 0.1	< 0.1	453	26.9	61.7	6.9	30.6	4.8	3.7	0.5	2.3	50.1
1477555	72.8	12.0	19.2	1.0	2.9	7.6	6	0.7	0.21	< 0.1	< 1	0.3	< 0.1	12	0.3	0.8	0.1	0.8	0.3	0.4	< 0.1	0.5	9.7
1477556	60.9	9.2	27.0	0.6	5.1	13.6	9	0.5	0.28	< 0.1	< 1	0.7	< 0.1	7	0.4	1.2	0.2	1.1	0.5	0.6	0.1	0.9	36.6
1477557	66.2	7.5	9.6	5.1	3.9	11.9	9	0.1	0.23	< 0.1	< 1	0.1	0.1	13	0.4	1.0	0.2	1.1	0.4	0.6	0.1	0.7	24.8
1477558	65.5	15.7	13.7	0.5	13.8	87.2	11	0.9	0.13	< 0.1	< 1	< 0.1	< 0.1	63	2.6	7.0	1.1	5.9	1.7	2.1	0.3	2.2	70.6
1477559	98.9	19.5	< 0.1	1.2	15.7	85.6	4	0.3	0.11	< 0.1	< 1	< 0.1	< 0.1	50	2.7	7.5	1.2	6.6	1.9	2.4	0.4	2.5	65.7

Results

Activation Laboratories Ltd.

Report: A16-09921

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477560	81.0	16.5	3.0	1.2	12.5	98.1	20	0.4	0.08	< 0.1	< 1	0.1	< 0.1	54	2.0	5.8	0.9	5.1	1.5	1.9	0.3	2.0	20.0
1477561	66.8	18.1	< 0.1	0.8	13.5	91.4	6	0.5	0.05	< 0.1	< 1	< 0.1	< 0.1	36	2.3	6.3	1.0	5.6	1.6	2.0	0.4	2.2	12.3
1477562	71.4	15.6	< 0.1	1.5	12.3	94.5	7	0.2	< 0.05	< 0.1	< 1	< 0.1	< 0.1	67	2.2	6.4	1.0	5.5	1.5	1.9	0.3	2.1	35.5
1477564	83.1	9.5	< 0.1	0.2	10.1	4.9	17	0.6	0.14	< 0.1	< 1	< 0.1	< 0.1	4	0.8	2.5	0.4	2.5	0.9	1.3	0.3	1.7	1.7
1477565	103	31.1	< 0.1	0.3	3.1	48.1	17	0.8	0.07	< 0.1	< 1	0.2	< 0.1	11	0.8	2.0	0.2	1.3	0.3	0.5	< 0.1	0.5	1.6
1477566	41.8	12.8	< 0.1	< 0.2	14.2	80.0	42	1.8	0.19	< 0.1	< 1	0.2	< 0.1	13	2.9	7.2	1.0	5.0	1.3	2.0	0.3	2.2	4.7
1477567	72.9	17.3	< 0.1	0.3	19.5	70.4	53	1.5	0.24	< 0.1	< 1	< 0.1	< 0.1	14	4.9	11.8	1.5	7.6	2.0	2.6	0.4	2.9	145
1477568	52.2	11.7	< 0.1	0.3	19.5	115	52	0.4	0.13	< 0.1	1	< 0.1	< 0.1	30	4.0	9.9	1.3	6.5	1.7	2.5	0.4	2.8	191
1477569	61.2	16.4	0.4	0.5	15.4	146	27	1.6	0.35	< 0.1	< 1	0.3	0.1	91	4.0	9.0	1.1	5.7	1.5	2.2	0.3	2.3	126
1477570	62.6	17.7	< 0.1	0.3	21.2	95.3	41	0.2	0.09	< 0.1	< 1	< 0.1	< 0.1	17	4.9	12.1	1.5	7.1	2.1	2.8	0.5	3.2	191
1477571	67.8	20.4	< 0.1	0.6	10.6	167	22	1.7	0.28	< 0.1	< 1	0.2	< 0.1	123	2.3	5.5	0.7	3.3	0.9	1.2	0.2	1.4	41.3
1477572	76.7	21.2	< 0.1	0.6	30.3	88.9	30	0.4	< 0.05	< 0.1	< 1	0.4	< 0.1	18	8.7	21.0	2.7	13.1	3.3	4.3	0.7	4.7	108
1477573	114	19.6	< 0.1	17.5	24.3	90.2	82	0.5	0.11	0.1	< 1	< 0.1	< 0.1	40	9.1	21.7	2.8	14.1	3.5	4.4	0.7	4.3	113
1477574	84.2	7.8	42.0	< 0.2	1.8	1.7	19	0.7	0.22	< 0.1	< 1	0.3	0.1	13	0.7	1.8	0.2	1.2	0.3	0.4	< 0.1	0.3	19.5
1477575	54.8	11.8	< 0.1	0.2	16.9	85.3	28	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	22	2.9	7.6	0.9	4.8	1.4	2.1	0.4	2.6	76.5
1276568	16.5	13.3	0.2	14.9	6.9	121	91	3.2	4.61	< 0.1	< 1	< 0.1	0.6	89	7.4	16.7	1.8	7.8	1.5	1.4	0.2	1.1	3.8
1276569	17.5	14.9	0.5	34.1	7.0	68.8	83	3.0	1.43	< 0.1	1	0.1	0.2	144	7.6	18.8	1.9	7.7	1.3	1.4	0.2	1.1	58.3
1276570	24.7	10.5	0.3	14.0	6.2	85.8	75	2.5	0.85	< 0.1	< 1	< 0.1	< 0.1	88	7.8	17.2	2.0	8.3	1.3	1.3	0.2	1.0	26.6
1276571	31.2	11.1	< 0.1	26.5	6.6	80.2	29	0.9	1.48	< 0.1	< 1	0.1	0.2	137	2.5	5.8	0.7	3.3	0.8	0.9	0.2	1.0	35.7
1276572	18.4	11.2	< 0.1	4.8	6.7	120	27	1.0	5.87	< 0.1	< 1	< 0.1	0.1	81	2.5	5.8	0.7	3.2	0.7	0.9	0.2	1.0	43.6
1276573	29.5	18.7	2.0	53.0	10.8	214	139	4.7	0.89	< 0.1	1	0.1	1.3	230	12.1	27.6	3.1	12.5	2.1	2.2	0.3	1.7	17.3
1276574	22.1	14.2	< 0.1	14.2	6.4	76.2	91	3.0	1.31	< 0.1	< 1	< 0.1	1.7	52	5.9	12.5	1.4	6.3	1.0	1.2	0.2	1.0	3.5
1276575	445	22.7	8.0	30.6	14.2	95.9	138	0.8	1.48	0.8	2	< 0.1	0.1	616	12.8	25.6	2.6	10.2	1.8	1.9	0.3	2.0	138
1276576	90.6	21.1	16.1	69.3	9.2	171	131	4.5	0.49	< 0.1	1	0.8	< 0.1	582	8.7	21.1	2.4	10.8	2.3	2.2	0.3	1.6	62.1
1477814	9.6	2.4	0.8	0.7	1.4	5.8	3	0.5	0.46	< 0.1	< 1	< 0.1	< 0.1	13	0.3	0.7	0.1	0.5	0.1	0.2	< 0.1	0.2	7.5
1477815	28.6	5.0	5.2	2.4	1.1	29.6	1	0.2	0.92	< 0.1	< 1	0.1	< 0.1	63	0.2	0.5	< 0.1	0.4	0.1	0.1	< 0.1	0.2	7.7
1477816	73.5	15.7	1.0	0.6	6.7	81.9	12	2.3	0.29	< 0.1	< 1	0.3	< 0.1	108	1.6	4.7	0.7	4.1	1.2	1.5	0.2	1.4	80.7
1477818	60.6	21.8	1.4	73.1	10.6	414	106	1.4	0.58	< 0.1	1	0.3	< 0.1	875	12.1	28.1	3.5	16.2	3.2	2.8	0.4	1.8	6.1
1477819	85.1	18.1	< 0.1	19.3	14.4	612	32	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	318	21.0	47.9	5.8	26.6	4.5	3.8	0.5	2.5	49.9
1477504	76.1	15.2	< 0.1	0.4	17.7	79.5	39	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	13	3.8	9.2	1.2	6.1	1.8	2.4	0.4	2.7	52.4

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477739	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.9	2	< 0.1	< 0.1	0.0265	0.003	< 0.01
1477740	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	< 1	< 0.1	< 0.1	0.0119	0.002	< 0.01
1477741	0.3	0.1	0.7	0.1	< 0.1	< 0.1	0.002	< 0.05	1.1	27	< 0.1	< 0.1	0.254	0.019	0.41
1477742	0.7	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.6	26	< 0.1	< 0.1	0.204	0.005	0.11
1477743	0.4	0.2	1.7	0.2	< 0.1	0.4	0.001	< 0.05	2.0	40	0.4	0.1	0.333	0.030	0.11
1477744	< 0.1	0.2	1.6	0.2	< 0.1	< 0.1	0.002	< 0.05	4.4	37	0.4	0.1	0.310	0.024	0.21
1477745	< 0.1	0.4	2.6	0.3	< 0.1	< 0.1	0.002	0.18	3.6	33	12.7	0.2	0.354	0.086	0.26
1477746	< 0.1	0.2	1.1	0.1	< 0.1	0.2	< 0.001	< 0.05	0.9	8	0.4	< 0.1	0.0099	0.011	0.01
1477747	0.1	0.2	1.6	0.2	0.3	0.7	0.002	< 0.05	4.9	41	0.6	0.2	0.811	0.066	1.17
1477748	< 0.1	0.2	1.5	0.2	0.2	< 0.1	0.002	< 0.05	6.1	32	0.9	0.3	0.571	0.048	1.54
1477749	< 0.1	< 0.1	0.5	< 0.1	0.1	0.5	< 0.001	0.63	5.9	7	1.7	0.5	0.246	0.044	0.08
1477750	< 0.1	0.2	1.1	0.2	0.3	3.4	0.002	0.35	9.1	18	4.1	1.3	0.362	0.074	0.68
1477751	0.2	0.1	1.0	0.1	0.1	1.3	< 0.001	0.29	8.0	17	4.1	1.2	0.374	0.105	0.15
1477752	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.4	0.009	0.20	5.8	4	2.8	0.8	0.200	0.061	0.17
1477753	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.3	< 0.001	0.23	5.4	4	3.2	0.9	0.210	0.062	0.11
1477754	< 0.1	0.1	0.9	0.1	0.2	0.8	< 0.001	0.26	4.2	13	2.1	0.6	0.259	0.076	0.31
1477755	< 0.1	< 0.1	0.5	< 0.1	< 0.1	1.1	< 0.001	< 0.05	5.1	8	1.0	0.3	0.129	0.057	< 0.01
1477756	< 0.1	0.2	1.2	0.2	< 0.1	< 0.1	< 0.001	0.19	6.5	13	3.8	1.0	0.303	0.075	0.11
1477757	< 0.1	0.2	1.4	0.2	< 0.1	< 0.1	0.003	0.21	6.2	16	2.7	0.7	0.453	0.074	0.10
1477918	0.7	0.1	0.8	0.1	< 0.1	0.5	< 0.001	0.20	3.6	18	0.5	0.1	0.222	0.019	0.06
1477919	< 0.1	0.2	1.5	0.2	0.1	1.7	0.001	< 0.05	1.7	36	0.3	0.1	0.514	0.030	0.77
1477920	0.2	0.2	1.3	0.2	< 0.1	0.3	< 0.001	0.27	2.8	25	0.3	< 0.1	0.248	0.017	0.21
1477921	0.1	0.4	2.5	0.3	< 0.1	0.1	0.002	0.23	6.5	33	2.8	0.3	0.383	0.059	0.65
1477922	< 0.1	0.6	3.0	0.4	< 0.1	< 0.1	0.002	0.08	5.5	31	7.4	0.2	0.291	0.047	0.53
1477923	0.2	0.4	2.8	0.4	< 0.1	0.2	0.002	0.11	4.0	41	0.8	0.2	0.323	0.055	0.39
1477924	0.2	0.1	0.9	0.1	< 0.1	0.2	< 0.001	0.83	9.7	15	4.7	1.3	0.403	0.075	0.27
1477926	0.2	< 0.1	0.7	< 0.1	< 0.1	0.2	< 0.001	0.60	8.5	11	3.7	1.0	0.336	0.044	0.11
1477927	0.2	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.25	4.5	7	2.2	0.6	0.214	0.044	0.14
1477928	< 0.1	0.2	1.3	0.2	< 0.1	< 0.1	0.001	0.32	9.8	24	4.8	1.3	0.376	0.083	0.06
1477929	< 0.1	< 0.1	0.2	< 0.1	0.1	0.4	0.002	0.17	4.7	3	2.4	0.7	0.201	0.061	0.16
1477930	< 0.1	< 0.1	0.2	< 0.1	0.1	0.2	< 0.001	0.21	6.3	4	2.6	0.8	0.202	0.058	0.09
1477931	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	0.22	5.2	4	2.4	0.7	0.180	0.053	0.04
1477932	< 0.1	< 0.1	0.2	< 0.1	0.1	1.0	< 0.001	0.22	4.3	3	1.5	0.7	0.166	0.035	0.22
1477933	< 0.1	0.1	0.9	0.1	0.1	0.5	< 0.001	0.19	3.1	13	2.2	0.6	0.256	0.076	0.19
1477934	0.1	< 0.1	0.1	< 0.1	0.1	1.3	< 0.001	0.24	4.1	2	0.7	0.3	0.167	0.027	0.14
1477935	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	7.9	7	1.4	0.4	0.158	0.018	< 0.01
1477937	< 0.1	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	0.19	7.4	17	3.9	1.2	0.313	0.092	0.14
1477555	0.2	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.6	32	< 0.1	0.1	0.285	0.012	< 0.01
1477556	0.8	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.3	26	< 0.1	< 0.1	0.211	0.008	< 0.01
1477557	0.5	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.6	19	< 0.1	< 0.1	0.132	0.007	< 0.01
1477558	0.7	0.2	1.4	0.2	< 0.1	< 0.1	0.001	< 0.05	2.0	31	0.2	< 0.1	0.514	0.026	0.04
1477559	0.5	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.7	37	0.2	< 0.1	0.369	0.025	0.02

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477560	0.5	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.4	32	0.1	< 0.1	0.374	0.023	< 0.01
1477561	0.4	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.7	37	0.2	< 0.1	0.304	0.013	< 0.01
1477562	0.3	0.2	1.2	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.1	31	0.2	< 0.1	0.280	0.020	< 0.01
1477564	0.8	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	36	0.1	< 0.1	0.294	0.012	< 0.01
1477565	0.5	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.8	17	0.2	< 0.1	0.147	0.017	< 0.01
1477566	0.4	0.2	1.5	0.2	0.1	< 0.1	< 0.001	< 0.05	1.4	36	0.4	0.1	0.351	0.024	< 0.01
1477567	0.3	0.3	2.0	0.3	< 0.1	< 0.1	0.001	< 0.05	1.4	35	0.7	0.2	0.526	0.038	0.66
1477568	0.3	0.3	2.3	0.3	< 0.1	< 0.1	< 0.001	< 0.05	1.9	40	0.6	0.2	0.472	0.039	0.86
1477569	0.3	0.2	1.5	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.2	21	0.4	0.1	0.337	0.034	0.27
1477570	0.5	0.3	2.3	0.3	< 0.1	< 0.1	0.001	< 0.05	2.4	43	1.4	11.5	0.384	0.041	0.69
1477571	0.6	0.2	1.2	0.1	0.1	< 0.1	< 0.001	< 0.05	3.0	17	0.4	< 0.1	0.297	0.028	0.08
1477572	0.3	0.5	3.2	0.4	< 0.1	< 0.1	0.002	< 0.05	3.3	38	1.1	0.3	0.333	0.060	0.57
1477573	0.4	0.3	2.5	0.3	< 0.1	< 0.1	0.002	< 0.05	2.4	38	1.1	0.3	0.490	0.054	0.14
1477574	0.4	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	22	< 0.1	< 0.1	0.205	0.013	< 0.01
1477575	0.6	0.2	1.7	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.3	30	0.6	0.1	0.240	0.040	0.05
1276568	< 0.1	0.1	0.8	0.1	0.2	4.0	< 0.001	< 0.05	3.1	8	1.2	0.3	0.241	0.051	1.66
1276569	< 0.1	0.1	0.8	0.1	0.2	1.4	< 0.001	0.10	2.7	9	1.2	0.3	0.241	0.050	0.55
1276570	< 0.1	< 0.1	0.7	< 0.1	< 0.1	2.1	< 0.001	< 0.05	3.4	7	1.1	0.3	0.212	0.049	0.19
1276571	0.1	0.1	0.7	0.1	< 0.1	0.4	< 0.001	0.10	3.8	17	0.3	< 0.1	0.195	0.017	0.55
1276572	0.1	0.1	0.7	0.1	< 0.1	0.6	0.003	< 0.05	3.3	19	0.4	0.1	0.225	0.024	1.04
1276573	< 0.1	0.2	1.2	0.2	0.3	3.1	< 0.001	0.24	3.9	13	1.7	0.5	0.353	0.069	2.00
1276574	0.1	< 0.1	0.7	< 0.1	0.2	3.0	< 0.001	< 0.05	2.1	7	1.2	0.4	0.230	0.053	1.42
1276575	0.9	0.2	1.3	0.2	< 0.1	< 0.1	0.001	0.16	3.5	15	2.3	0.7	0.314	0.055	0.12
1276576	0.5	0.2	1.3	0.2	0.3	2.6	< 0.001	0.32	5.0	30	1.1	0.3	0.445	0.071	0.33
1477814	0.6	< 0.1	0.1	< 0.1	< 0.1	0.6	< 0.001	< 0.05	1.3	6	< 0.1	< 0.1	0.126	0.006	< 0.01
1477815	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.6	3	< 0.1	< 0.1	0.0695	0.012	< 0.01
1477816	1.7	0.1	0.8	< 0.1	0.2	< 0.1	< 0.001	< 0.05	0.9	24	< 0.1	0.2	0.571	0.027	< 0.01
1477818	0.1	0.2	1.1	0.2	< 0.1	< 0.1	< 0.001	0.45	5.6	14	1.6	0.5	0.406	0.060	0.27
1477819	< 0.1	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	5.6	27	2.9	0.8	0.186	0.084	< 0.01
1477504	0.7	0.3	1.9	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.4	34	0.5	0.2	0.245	0.023	0.05

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	10.4	0.07	0.29	4.78	0.05	0.87	2.4	78	17.1	856	22.6	0.9	1460	36.2		0.9		31.8	2.66	7.1	0.52	1500	28.5
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
GXR-1 Meas																							
GXR-1 Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	9.1	0.57	1.59	6.79	3.94	0.98	0.5	90	37.9	147	3.03	1.2	220	38.5		1.7		3.85	2.62	13.2	1.33	19.4	9.4
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
GXR-4 Meas																							
GXR-4 Cert																							
SDC-1 Meas	29.3	1.52	0.92	8.41	1.97	0.98		44	45.6	765	4.78	0.8	50	31.2	3.2	2.5	1.0		3.67	15.7	1.37		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
SDC-1 Meas																							
SDC-1 Cert																							
GXR-6 Meas	31.0	0.11	0.59	> 10.0	1.78	0.18	< 0.1	130	45.1	956	5.26	2.1	60	22.7		1.0		0.11	3.96	12.5	0.58	0.19	0.6
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
GXR-6 Meas																							
GXR-6 Cert																							
DNC-1a Meas	4.3							149	146					238						50.7	0.51		
DNC-1a Cert	5.2							148	270					247						57	0.59		
DNC-1a Meas																							
DNC-1a Cert																							
OREAS 45d (Aqua Regia) Meas	21.9	0.10	0.23	7.93	0.38	0.18		156	533	444	13.6			214						26.9		0.37	
OREAS 45d (Aqua Regia) Cert	11.9	0.031	0.144	4.860	0.097			201.0	467	400.000	13.650			176.0						26.2		0.30	
OREAS 45d (Aqua Regia) Meas																							
OREAS 45d (Aqua Regia) Cert																							
SBC-1 Meas	138						0.5	231	74.7			3.5		82.2	3.3	3.0	1.1		7.95	21.1	1.74	0.71	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
SBC-1 Meas																							
SBC-1 Cert																							
SdAR-M2 (U.S.G.S.) Meas	13.6						5.6	25	37.4			3.6	770	49.0	2.6	5.7	0.8		1.66	12.1	1.22	1.08	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477739 Orig	1.2	0.16	0.11	0.49	0.03	0.16	< 0.1	12	30.5	243	1.07	0.1	40	9.8	< 0.1	< 0.1	< 0.1	0.16	< 0.05	2.8	0.06	< 0.02	0.1
1477739 Dup	1.2	0.16	0.10	0.48	0.03	0.16	< 0.1	12	30.3	235	1.05	< 0.1	20	9.3	< 0.1	< 0.1	< 0.1	0.07	< 0.05	2.6	0.05	< 0.02	0.2
1477556 Orig	4.1	0.05	13.7	3.86	0.01	5.15	< 0.1	117	1690	1140	7.25	0.5	10	821	0.6	< 0.1	0.2	0.09	0.52	61.4	0.09	< 0.02	0.7
1477556 Dup	4.0	0.05	13.7	3.83	0.01	5.07	< 0.1	103	1870	1110	7.02	0.3	< 10	805	0.6	< 0.1	0.2	< 0.05	0.46	59.1	0.09	< 0.02	0.6
1477558 Orig	26.6	> 3.00	1.87	9.91	0.07	6.05	0.1	185	234	2040	5.63	0.7	30	261	1.4	0.5	0.5	0.09	0.08	53.0	0.77	0.02	0.4
1477558 Dup	26.0	> 3.00	1.82	9.12	0.06	5.98	0.1	104	198	2060	5.64	0.1	20	263	1.4	0.4	0.4	0.06	0.08	53.7	0.74	< 0.02	0.4
1477564 Orig	11.3	0.16	12.4	4.71	0.02	5.86	< 0.1	162	1850	1340	8.49	0.6	< 10	584	1.1	0.2	0.4	< 0.05	0.10	77.7	0.66	< 0.02	0.4
1477564 Split PREP DUP	12.2	0.16	13.3	5.26	0.02	5.46	< 0.1	164	1830	1420	9.13	0.6	< 10	597	1.1	0.3	0.4	< 0.05	0.10	81.4	0.65	< 0.02	0.7
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	5.3	4	< 0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	697	13.9	417	2.5	25.3	283	34	0.9	16.6	0.7	27	31.8	9.3	1080	7.4	14.3		8.6	2.5	3.3	0.6	3.8	1020
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
GXR-1 Meas																							
GXR-1 Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	68.6	18.2	108	134	13.8	214	41	9.7	313	0.2	8	4.6	1.0	430	59.9	113		44.3	6.0	4.4	0.5	2.4	6160
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
GXR-4 Meas																							
GXR-4 Cert																							
SDC-1 Meas	93.8	21.6	< 0.1	88.8		175	31	0.1			< 1	< 0.1		571	39.3	85.4		41.4	7.5	6.4	0.9	5.3	27.8
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
SDC-1 Meas																							
SDC-1 Cert																							
GXR-6 Meas	116	30.7	255	69.1	12.6	39.5	76	0.6	0.55	< 0.1	< 1	0.8	< 0.1	1320	12.4	33.1		13.0	2.5	2.1	0.3	2.0	63.6
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
GXR-6 Meas																							
GXR-6 Cert																							
DNC-1a Meas	60.3	14.1		2.9	15.8	141	42	1.5				0.5		96	3.6			5.0					83.8
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
DNC-1a Meas																							
DNC-1a Cert																							
OREAS 45d (Aqua Regia) Meas	41.4	22.5	10.4	34.6	11.1	30.4				< 0.1	< 1			170	16.0	35.2							338
OREAS 45d (Aqua Regia) Cert	30.6	17.9	6.50	20.9	5.08	11.0				0.085	1.950			80	9.960	24.8							345.0
OREAS 45d (Aqua Regia) Meas																							
OREAS 45d (Aqua Regia) Cert																							
SBC-1 Meas	181	28.0	27.3	127	32.9	180	128	15.0	2.27		4	1.0		767	50.3	108	12.0	50.6	9.1	7.7	1.1	5.7	28.1
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
SBC-1 Meas																							
SBC-1 Cert																							
SdAR-M2 (U.S.G.S.) Meas	771	18.8		99.5	26.2	143	120	9.1	11.5					957	45.2	99.4	10.3	40.0	6.3	5.3	0.7	4.2	233
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00
SdAR-M2 (U.S.G.S.) Meas																							00
SdAR-M2 (U.S.G.S.) Cert																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477739 Orig	4.9	1.2	3.3	0.7	0.8	6.2	4	0.1	1.11	< 0.1	< 1	0.2	< 0.1	8	0.2	0.7	< 0.1	0.4	0.1	0.2	< 0.1	0.1	11.2
1477739 Dup	4.2	1.3	2.0	0.7	0.9	5.9	2	< 0.1	1.03	< 0.1	< 1	0.2	< 0.1	8	0.3	0.7	< 0.1	0.4	0.1	0.2	< 0.1	0.1	11.3
1477556 Orig	62.6	9.3	33.0	0.6	5.1	14.1	12	0.9	0.39	< 0.1	< 1	1.0	< 0.1	7	0.5	1.2	0.2	1.1	0.4	0.7	0.1	0.9	37.6
1477556 Dup	59.1	9.0	20.9	0.6	5.1	13.0	6	0.2	0.17	< 0.1	< 1	0.3	< 0.1	7	0.4	1.2	0.2	1.1	0.5	0.6	0.1	0.9	35.5
1477558 Orig	65.6	15.7	16.3	0.6	14.0	87.0	16	1.5	0.20	< 0.1	< 1	0.2	< 0.1	61	2.6	7.2	1.1	6.0	1.8	2.1	0.4	2.3	69.6
1477558 Dup	65.5	15.7	11.1	0.4	13.5	87.4	6	0.2	0.05	< 0.1	< 1	< 0.1	< 0.1	64	2.5	6.8	1.1	5.8	1.6	2.0	0.3	2.2	71.5
1477564 Orig	83.1	9.5	< 0.1	0.2	10.1	4.9	17	0.6	0.14	< 0.1	< 1	< 0.1	< 0.1	4	0.8	2.5	0.4	2.5	0.9	1.3	0.3	1.7	1.7
1477564 Split PREP DUP	89.4	9.8	< 0.1	0.3	10.6	5.7	18	0.4	< 0.05	< 0.1	< 1	< 0.1	< 0.1	5	1.0	3.2	0.5	2.7	0.9	1.4	0.3	1.7	2.6
Method Blank	< 0.2	0.2	< 0.1	< 0.2	< 0.1	< 0.2	< 1	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.3	2.1	0.3	< 0.1	151		0.29	743	1	2.1	29.5	0.0295	0.051	0.21
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
GXR-1 Meas										1			0.0297	0.056	0.22
GXR-1 Cert										1.58			0.036	0.0650	0.257
DH-1a Meas											> 500	2250			
DH-1a Cert											910	2629			
GXR-4 Meas		0.2	1.0	0.1	0.6	33.9		2.79	48.0	8	18.2	5.2	0.290	0.135	1.80
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
GXR-4 Meas										9			0.290	0.142	1.90
GXR-4 Cert										7.70			0.29	0.120	1.77
SDC-1 Meas		0.5	3.3		< 0.1	< 0.1		0.47	22.4	17	10.3	2.8	0.294	0.058	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
SDC-1 Meas										17			0.169	0.056	
SDC-1 Cert										17.00			0.606	0.0690	
GXR-6 Meas			1.7	0.2	< 0.1	< 0.1		1.86	96.7	28	4.5	1.3		0.036	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
GXR-6 Meas										29				0.036	0.02
GXR-6 Cert										27.6				0.0350	0.0160
DNC-1a Meas			1.9						5.5	31			0.279		
DNC-1a Cert			2.0						6.3	31			0.29		
DNC-1a Meas										31			0.278		
DNC-1a Cert										31			0.29		
OREAS 45d (Aqua Regia) Meas									20.7	55	12.7	2.6		0.034	0.04
OREAS 45d (Aqua Regia) Cert									17.00	41.50	11.3	1.64		0.035	0.045
OREAS 45d (Aqua Regia) Meas										58				0.039	0.05
OREAS 45d (Aqua Regia) Cert										41.50				0.035	0.045
SBC-1 Meas		0.5	3.5	0.5	0.9	1.6		0.76	35.0	22	13.6	5.3	0.464		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
SBC-1 Meas										22			0.507		
SBC-1 Cert										20.0			0.51		
SdAR-M2 (U.S.G.S.) Meas		0.4	2.8	0.4	0.4	0.8			811	4	11.9	2.2			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
SdAR-M2 (U.S.G.S.) Meas										4					
SdAR-M2 (U.S.G.S.) Cert										4.1					

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477739 Orig	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	2	< 0.1	< 0.1	0.0273	0.003	< 0.01
1477739 Dup	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	2	< 0.1	< 0.1	0.0256	0.003	< 0.01
1477556 Orig	0.9	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.2	27	< 0.1	< 0.1	0.225	0.008	< 0.01
1477556 Dup	0.8	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.5	26	< 0.1	< 0.1	0.197	0.008	< 0.01
1477558 Orig	1.0	0.2	1.4	0.2	< 0.1	< 0.1	0.001	< 0.05	2.2	30	0.2	< 0.1	0.451	0.025	0.03
1477558 Dup	0.4	0.2	1.3	0.2	< 0.1	< 0.1	0.001	< 0.05	1.9	32	0.1	< 0.1	0.578	0.026	0.04
1477564 Orig	0.8	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	36	0.1	< 0.1	0.294	0.012	< 0.01
1477564 Split PREP DUP	0.6	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.6	31	0.1	< 0.1	0.211	0.010	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0007	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01



Date Submitted: 12-Oct-16
Invoice No.: A16-10517-UT6
Invoice Date: 25-Nov-16
Your Reference: PENG-20161007-007-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

170 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-10517-UT6**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is stylized and somewhat cursive.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477759	11.4	> 3.00	1.41	7.47	0.62	2.39	< 0.1	116	5.8	444	7.72	5.1	110	2.4	3.7	0.8	1.1	2.38	1.33	20.1	1.10	2.74	0.7
1477760	14.3	> 3.00	1.81	5.99	0.46	1.98	0.1	69	7.8	548	8.65	5.1	70	2.3	3.1	0.7	1.0	4.45	1.17	18.4	0.99	2.71	1.5
1477761	12.3	> 3.00	1.56	6.27	0.51	1.68	< 0.1	74	13.2	419	8.61	5.7	20	1.6	3.3	1.0	1.0	4.66	1.63	17.1	0.90	2.76	2.4
1477762	11.1	> 3.00	1.41	6.10	0.41	0.42	< 0.1	68	19.1	324	8.40	5.4	30	3.0	2.4	0.9	0.7	4.80	1.01	11.5	0.57	2.88	1.7
1477763	1.4	0.11	0.04	0.23	0.04	0.02	< 0.1	4	17.2	62	0.54	< 0.1	10	0.9	< 0.1	< 0.1	< 0.1	0.23	< 0.05	0.5	< 0.05	0.10	0.2
1477764	6.0	1.70	0.35	3.44	0.78	0.10	< 0.1	183	22.4	159	4.16	2.7	70	2.8	1.2	0.9	0.3	4.33	1.08	2.3	0.21	1.22	0.5
1477766	14.7	> 3.00	1.06	6.35	0.93	1.43	< 0.1	158	5.9	443	6.57	5.0	30	1.9	3.4	0.9	1.1	2.20	4.26	16.8	1.11	2.23	0.1
1477767	19.6	0.80	3.38	6.44	0.37	6.13	< 0.1	171	21.8	1010	8.11	0.6	20	46.3	1.1	0.4	0.3	0.49	1.46	44.1	0.60	1.01	1.7
1477768	10.3	> 3.00	2.31	6.50	0.43	4.82	< 0.1	198	10.3	1150	8.51	1.9	10	21.2	2.0	1.3	0.6	0.11	2.59	34.3	0.50	1.14	0.3
1477769	30.8	1.94	3.35	6.69	1.56	3.83	< 0.1	273	13.2	1300	8.42	1.7	< 10	17.5	1.8	2.0	0.6	0.11	5.19	29.8	0.60	0.57	0.2
1477770	67.1	0.49	4.07	7.60	2.39	4.91	< 0.1	251	25.3	1220	10.7	1.5	< 10	44.6	1.7	0.5	0.5	< 0.05	32.0	54.1	0.49	1.09	0.6
1477771	37.0	0.91	2.78	7.10	0.96	3.25	0.1	132	38.3	951	9.26	1.0	< 10	63.8	1.2	0.8	0.4	< 0.05	0.62	43.1	0.59	0.03	< 0.1
1477772	27.3	1.14	2.35	5.97	0.83	4.56	0.1	248	67.4	2660	11.7	1.2	20	42.5	0.6	0.5	0.2	< 0.05	0.53	36.3	0.46	0.28	0.9
1477773	25.0	2.06	2.16	6.23	0.45	4.57	0.2	135	53.5	1330	8.81	1.3	60	51.8	1.0	0.3	0.3	< 0.05	0.32	36.8	0.61	< 0.02	< 0.1
1477775	18.9	1.53	2.45	5.30	0.60	5.79	0.2	189	13.5	1570	10.5	0.2	50	47.7	0.6	0.5	0.2	0.09	0.45	46.5	0.51	0.05	0.8
1477776	8.9	0.22	2.03	5.57	1.79	5.98	< 0.1	87	9.4	1580	8.79	0.5	20	33.3	1.2	0.7	0.4	< 0.05	1.01	44.8	0.82	< 0.02	< 0.1
1477777	4.3	0.29	2.42	5.92	2.32	2.72	< 0.1	115	20.9	1190	9.98	0.7	< 10	31.0	1.0	0.7	0.3	< 0.05	1.21	34.7	0.59	< 0.02	< 0.1
1477778	2.4	0.66	0.96	5.93	2.14	3.23	0.4	134	84.7	2110	9.02	1.6	20	76.7	1.0	0.7	0.3	< 0.05	1.36	35.6	1.13	0.04	0.2
1477779	6.7	0.10	0.88	5.95	2.56	1.05	0.3	296	61.5	951	5.99	2.0	40	61.0	1.1	1.3	0.3	< 0.05	1.79	71.1	0.49	0.46	2.4
1477780	7.8	> 3.00	0.77	6.52	0.25	1.12	< 0.1	60	41.8	491	2.88	2.9	< 10	22.5	0.5	0.6	0.2	< 0.05	0.26	10.7	1.02	0.08	< 0.1
1477782	3.4	2.31	0.81	6.60	1.66	2.24	< 0.1	54	51.1	604	2.95	3.8	< 10	24.6	0.6	0.9	0.2	< 0.05	1.22	8.8	1.54	0.03	< 0.1
1477783	5.3	> 3.00	1.03	7.77	2.30	2.03	0.1	85	91.2	440	2.79	5.0	10	52.7	0.8	1.7	0.3	< 0.05	2.10	16.9	1.77	0.29	0.4
1477784	3.3	0.02	9.58	1.93	0.01	8.24	0.3	62	906	3000	5.81	0.1	60	738	0.3	0.2	0.1	0.28	< 0.05	50.8	0.54	0.16	0.6
1477785	4.6	2.51	1.54	7.76	1.92	3.73	0.2	76	90.1	548	3.20	4.4	40	52.5	0.9	2.2	0.3	< 0.05	2.22	15.5	1.85	0.04	< 0.1
1477786	4.2	2.63	1.78	8.75	1.11	2.15	0.1	117	77.7	348	3.58	5.2	30	108	0.8	2.1	0.3	< 0.05	0.91	15.6	0.86	0.58	< 0.1
1477787	4.5	> 3.00	0.52	8.29	2.01	0.76	0.1	45	32.0	184	2.32	4.4	40	21.1	0.6	2.0	0.2	< 0.05	1.25	6.0	1.41	0.74	0.9
1477788	8.7	0.86	2.94	5.89	1.46	6.93	0.2	108	176	1580	4.71	4.0	20	143	1.3	1.1	0.5	< 0.05	0.77	22.9	2.86	0.04	< 0.1
1477789	9.7	0.29	2.39	6.40	1.92	7.18	0.1	72	91.0	1660	5.32	1.2	10	80.6	0.9	1.2	0.3	< 0.05	1.02	20.1	0.87	0.02	< 0.1
1477790	2.1	1.75	0.37	5.44	1.26	0.96	0.1	38	25.8	573	2.21	0.1	10	12.9	0.4	0.8	0.1	0.06	0.66	5.4	0.91	< 0.02	< 0.1
1477791	10.7	0.62	2.87	6.83	1.78	7.56	0.1	145	184	1750	5.27	5.1	< 10	159	1.6	1.2	0.6	< 0.05	0.92	25.0	3.45	< 0.02	< 0.1
1477792	1.1	0.06	0.07	0.33	0.04	0.03	< 0.1	18	36.7	606	1.62	< 0.1	< 10	5.9	0.1	< 0.1	< 0.1	< 0.05	0.09	5.4	0.07	0.02	< 0.1
1477793	12.3	0.30	4.73	2.59	0.76	11.6	0.2	83	1270	3340	6.53	0.2	40	887	0.6	0.3	0.2	0.20	0.34	74.2	0.62	0.02	0.7
1477794	25.2	0.60	3.34	5.97	0.49	4.02	0.3	170	2550	2760	9.51	0.7	30	1240	0.6	0.2	0.2	0.08	0.17	125	0.34	< 0.02	1.3
1477795	14.5	< 0.01	3.18	5.84	< 0.01	2.25	1.4	166	2890	3020	15.2	1.0	30	1900	0.6	< 0.1	0.2	0.10	0.07	174	0.23	0.03	2.6
1477796	21.3	0.45	1.40	8.15	1.78	0.46	0.4	216	3760	584	4.29	1.5	30	1190	0.5	0.8	0.1	0.08	0.98	118	0.18	0.04	3.2
1477797	3.9	2.81	0.48	4.02	0.09	13.5	0.2	25	47.0	2750	1.41	0.5	10	35.8	1.7	0.2	0.6	< 0.05	< 0.05	4.6	1.62	< 0.02	< 0.1
1477798	15.4	< 0.01	2.86	2.45	< 0.01	11.5	0.3	84	1690	2060	5.37	0.2	20	940	0.5	0.4	0.2	0.11	< 0.05	53.7	0.30	0.23	1.1
1477799	22.0	0.58	2.23	4.81	0.62	6.12	0.1	230	55.1	2540	10.8	0.7	20	50.9	0.8	0.4	0.2	< 0.05	0.50	33.5	0.56	0.06	< 0.1
1477800	5.8	0.09	0.32	1.82	0.36	0.46	0.1	83	23.9	1020	3.20	0.5	< 10	14.0	0.7	0.2	0.2	< 0.05	0.37	10.5	0.28	0.02	< 0.1
1470501	8.3	0.15	0.60	7.59	2.74	0.52	0.4	196	57.3	1660	10.6	0.5	10	57.5	1.2	0.6	0.4	0.08	2.29	45.6	0.73	0.12	0.8
1470502	2.9	0.17	1.24	6.63	2.91	3.60	0.2	193	43.4	962	8.99	0.8	50	41.2	0.9	0.5	0.3	< 0.05	1.92	20.4	0.55	< 0.02	< 0.1
1470503	12.4	0.99	2.34	6.73	1.59	4.04	0.1	63	113	982	7.92	2.4	20	63.0	1.8	0.8	0.6	< 0.05	1.18	35.0	1.49	0.05	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470505	1.1	0.13	0.20	0.39	0.01	0.17	< 0.1	14	30.5	199	0.85	< 0.1	20	4.5	< 0.1	< 0.1	< 0.1	0.12	0.15	3.2	< 0.05	< 0.02	< 0.1
1470506	0.7	0.14	0.09	0.31	0.02	0.05	< 0.1	8	45.4	191	0.68	< 0.1	10	3.3	< 0.1	< 0.1	< 0.1	0.11	0.12	1.9	< 0.05	< 0.02	< 0.1
1470507	8.5	0.15	2.09	6.15	1.80	4.88	< 0.1	249	90.3	924	6.18	0.5	30	47.8	0.4	0.3	0.1	0.06	1.71	57.3	0.27	0.05	2.5
1470508	2.2	0.08	0.46	0.65	0.02	0.08	< 0.1	27	37.0	129	1.19	< 0.1	60	7.4	< 0.1	< 0.1	< 0.1	0.14	0.16	4.2	< 0.05	0.02	< 0.1
1470509	29.5	0.55	3.47	6.27	0.20	7.55	0.1	254	52.8	1810	9.33	0.7	40	66.1	0.8	0.1	0.2	0.06	0.17	48.0	0.52	0.02	0.2
1470510	8.3	0.01	10.8	0.45	< 0.01	17.3	0.8	15	597	1750	4.24	< 0.1	20	1740	0.2	0.1	< 0.1	0.07	0.16	85.5	1.04	0.04	0.4
1470511	5.3	< 0.01	15.4	0.48	< 0.01	0.47	0.1	16	665	785	4.50	< 0.1	< 10	1570	0.1	0.2	< 0.1	< 0.05	0.06	74.4	< 0.05	< 0.02	0.5
1470512	2.4	< 0.01	16.5	0.45	< 0.01	1.16	< 0.1	17	673	1040	5.00	< 0.1	< 10	1980	< 0.1	0.1	< 0.1	0.07	< 0.05	101	< 0.05	< 0.02	0.3
1470514	3.2	< 0.01	9.40	0.37	< 0.01	11.9	0.1	6	859	1210	4.24	< 0.1	< 10	1620	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	70.0	0.08	0.02	0.5
1470515	6.4	> 3.00	1.08	6.86	0.92	3.22	0.1	54	45.6	702	2.63	4.5	< 10	31.0	1.2	1.2	0.4	< 0.05	0.52	9.5	1.80	0.09	< 0.1
1470516	40.2	0.71	2.87	6.77	1.13	4.68	0.2	218	72.9	2100	9.74	1.6	< 10	70.3	0.7	0.7	0.2	< 0.05	0.67	46.3	0.63	0.21	0.4
1470517	5.1	0.07	4.81	1.92	0.58	12.0	0.4	169	65.9	2700	7.66	0.3	30	50.0	0.9	0.2	0.3	0.08	0.50	37.2	0.58	< 0.02	< 0.1
1470518	24.0	1.04	2.00	6.53	1.13	6.11	0.1	97	45.9	1670	7.65	0.7	20	40.8	1.0	0.5	0.3	< 0.05	0.70	33.9	0.60	0.18	< 0.1
1470519	10.3	1.08	2.08	5.37	1.26	6.41	0.1	107	42.6	2100	6.40	0.7	10	30.2	0.9	0.7	0.3	< 0.05	0.71	25.5	0.67	0.05	2.5
1470520	2.9	2.96	0.71	8.22	2.49	1.44	0.1	64	39.1	378	2.54	3.9	20	25.5	0.6	1.5	0.2	< 0.05	2.11	15.3	1.53	0.27	0.3
1470521	5.0	1.71	1.65	8.43	3.44	3.57	0.1	92	69.0	503	3.52	4.2	40	43.3	0.8	1.7	0.3	< 0.05	2.71	24.2	1.80	0.20	< 0.1
1470522	6.1	1.92	0.91	3.67	0.18	0.90	< 0.1	39	56.5	485	2.70	1.8	< 10	30.9	0.4	0.5	0.2	< 0.05	0.17	11.8	0.73	0.02	< 0.1
1470523	20.9	0.19	2.68	7.78	1.39	2.51	< 0.1	287	130	1160	8.71	0.9	< 10	106	0.7	0.5	0.2	0.11	0.91	55.7	0.34	0.75	1.1
1470524	18.8	1.56	3.04	5.07	0.57	7.45	< 0.1	201	45.9	2210	8.36	0.7	< 10	52.9	0.9	0.4	0.3	< 0.05	0.28	31.9	0.42	0.03	< 0.1
1470525	14.8	0.45	3.22	3.36	0.61	9.23	0.1	206	36.9	3160	8.33	1.0	60	37.3	1.2	0.3	0.4	0.13	0.36	24.6	0.97	0.05	< 0.1
1470526	14.7	2.95	1.85	5.08	0.21	2.48	< 0.1	70	129	569	3.08	0.3	50	71.4	0.8	0.7	0.3	< 0.05	0.16	15.1	1.44	0.04	< 0.1
1470527	8.7	2.21	2.94	5.97	1.17	6.59	0.1	82	136	1040	4.15	3.2	20	75.1	0.9	0.7	0.3	< 0.05	0.66	18.7	1.56	< 0.02	< 0.1
1470529	24.9	1.49	2.46	7.48	1.16	3.01	0.1	123	56.5	1150	8.28	1.2	20	67.8	1.2	0.6	0.3	< 0.05	0.47	34.5	0.75	0.13	< 0.1
1477938	15.3	2.28	1.75	6.19	0.43	2.90	< 0.1	209	9.8	950	9.54	1.7	20	11.9	2.0	0.4	0.6	0.25	1.68	33.4	0.50	0.74	< 0.1
1477939	10.1	> 3.00	0.47	6.40	0.06	3.75	< 0.1	68	14.1	376	6.37	5.0	10	1.4	3.8	0.9	1.2	0.05	0.28	12.1	1.24	1.01	< 0.1
1477940	3.9	1.60	0.25	6.56	0.04	7.36	< 0.1	60	12.5	556	8.98	4.1	20	0.6	2.8	0.7	0.9	0.36	0.12	11.5	1.04	1.55	< 0.1
1477941	4.2	> 3.00	0.50	6.88	0.07	2.97	< 0.1	61	9.2	366	7.36	5.0	< 10	0.6	3.1	0.9	1.0	0.34	0.24	15.9	0.94	1.81	0.4
1477942	6.5	2.71	1.28	4.72	0.54	2.04	< 0.1	244	16.7	592	7.69	1.6	< 10	8.8	1.5	0.4	0.5	0.21	0.88	17.9	0.54	0.79	< 0.1
1477943	7.9	> 3.00	0.44	8.34	0.47	1.22	< 0.1	25	18.3	105	1.10	3.1	60	9.2	0.2	1.5	< 0.1	< 0.05	0.40	2.4	0.40	0.11	< 0.1
1477944	20.8	2.01	1.26	8.13	1.51	3.25	0.2	104	44.7	785	4.97	3.1	40	17.1	1.0	1.5	0.3	0.17	1.86	10.2	0.56	0.45	0.5
1477945	18.7	2.26	1.65	6.90	0.76	4.38	< 0.1	157	30.2	772	6.14	2.7	10	15.5	2.5	0.4	0.8	< 0.05	4.58	20.5	1.01	0.65	0.2
1477946	13.3	2.27	1.34	3.77	0.97	3.11	0.2	150	21.4	589	4.91	1.5	< 10	13.4	1.3	0.5	0.4	< 0.05	5.94	22.1	0.60	0.21	0.6
1477947	16.9	1.97	1.91	6.37	0.71	4.41	< 0.1	152	10.0	963	8.41	1.1	60	15.7	2.1	0.7	0.6	0.13	4.59	34.9	0.67	0.56	< 0.1
1477948	10.4	2.81	1.96	5.61	0.62	3.36	< 0.1	194	12.1	811	8.30	2.1	40	15.1	2.0	1.0	0.6	0.29	0.33	33.0	0.60	0.80	< 0.1
1477949	5.0	> 3.00	1.69	5.44	0.51	2.44	< 0.1	187	12.8	639	6.94	2.0	30	11.4	1.6	0.9	0.5	0.16	1.65	22.9	0.48	0.84	0.5
1477950	17.0	> 3.00	1.32	6.32	0.34	1.37	< 0.1	149	12.2	599	7.86	2.3	10	11.4	1.8	0.6	0.6	0.51	1.06	29.2	0.56	0.63	0.9
1470601	9.0	2.53	1.41	5.88	1.43	2.21	< 0.1	190	10.7	650	7.42	2.2	20	9.2	1.7	0.5	0.5	1.18	0.36	17.8	0.46	0.83	0.8
1470602	13.0	0.31	1.25	4.07	1.12	0.53	< 0.1	63	41.4	364	6.17	1.7	20	40.3	0.8	0.7	0.2	0.37	1.50	33.7	0.44	0.59	8.1
1470603	5.4	2.15	1.02	5.26	0.05	1.44	0.2	102	51.6	695	3.71	2.0	< 10	34.7	1.3	0.5	0.4	0.05	0.09	21.0	0.55	0.04	0.2
1470604	16.5	2.19	1.93	5.06	0.05	6.37	0.1	120	18.7	1100	5.87	1.5	< 10	9.1	1.5	0.4	0.5	< 0.05	0.24	25.6	0.62	< 0.02	< 0.1
1470606	6.3	< 0.01	7.37	2.37	< 0.01	7.51	0.3	70	1170	1200	5.30	0.2	70	405	0.2	< 0.1	< 0.1	0.18	< 0.05	54.4	0.23	0.05	1.0
1470607	9.1	< 0.01	8.07	3.69	< 0.01	7.54	0.3	119	1120	1390	6.46	0.2	30	518	0.3	0.1	< 0.1	0.10	< 0.05	69.8	0.33	0.03	0.8

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470608	6.1	0.19	4.94	2.75	0.57	16.9	0.2	93	63.3	2840	4.73	2.3	30	47.3	0.7	0.5	0.3	< 0.05	0.35	18.4	1.19	< 0.02	< 0.1
1470609	4.1	> 3.00	0.59	8.26	1.63	1.42	0.1	33	14.9	229	1.66	6.6	30	10.6	0.4	1.9	0.2	0.08	1.13	6.0	1.15	0.13	0.2
1470610	6.7	> 3.00	0.45	7.53	2.70	0.61	< 0.1	40	18.7	133	1.80	6.8	20	11.8	0.4	2.6	0.1	< 0.05	1.73	5.9	1.09	0.35	0.5
1470611	9.6	2.27	1.26	8.63	1.63	1.54	0.2	127	136	1240	4.37	6.7	< 10	65.5	1.3	1.6	0.5	< 0.05	1.10	19.4	1.95	0.02	< 0.1
1470612	14.5	1.92	2.14	7.39	1.36	5.39	0.1	353	67.0	1860	10.3	1.3	< 10	72.1	1.0	0.8	0.3	< 0.05	0.80	49.6	0.65	0.12	0.5
1470613	31.6	2.01	2.32	6.84	0.23	5.01	< 0.1	262	59.2	1660	9.82	0.9	< 10	65.8	0.9	0.2	0.3	< 0.05	0.20	43.1	0.66	< 0.02	0.1
1470614	25.4	1.25	2.40	7.39	1.25	5.08	0.1	167	64.3	1900	9.99	0.4	10	74.5	0.9	0.6	0.3	0.08	0.56	49.9	0.68	1.02	0.4
1470615	27.0	0.10	2.77	7.87	1.41	3.79	0.3	314	113	1040	9.27	1.8	60	69.3	1.0	0.5	0.3	0.07	0.66	38.8	0.58	0.14	0.3
1477576	4.2	0.02	12.1	4.40	0.02	3.55	< 0.1	133	2280	976	7.26	0.8	20	436	0.6	0.1	0.2	0.08	0.12	45.1	0.06	0.07	2.4
1477578	9.7	> 3.00	1.36	8.58	0.17	0.73	< 0.1	68	43.9	282	3.06	3.3	10	31.5	0.7	0.9	0.3	< 0.05	0.13	14.3	1.64	0.06	< 0.1
1477579	13.2	> 3.00	2.17	6.82	0.07	0.58	< 0.1	50	31.1	163	2.28	0.3	20	29.3	0.6	0.5	0.2	0.24	0.05	12.1	1.49	0.88	0.5
1477580	15.2	0.01	12.8	4.01	< 0.01	2.96	< 0.1	137	1680	873	7.70	0.2	< 10	1100	0.3	0.6	< 0.1	0.13	< 0.05	91.9	0.13	0.08	1.1
1477581	5.6	1.36	1.00	2.56	0.07	0.76	< 0.1	25	34.9	231	1.52	0.4	< 10	39.6	0.2	0.3	< 0.1	< 0.05	0.09	5.6	0.39	0.09	< 0.1
1477582	6.2	> 3.00	2.94	7.78	0.03	2.71	< 0.1	263	34.1	1130	8.51	1.9	< 10	22.8	2.1	0.3	0.7	< 0.05	0.12	23.5	0.65	0.02	< 0.1
1477584	10.8	> 3.00	4.76	6.97	0.03	4.34	0.1	233	255	1100	7.13	0.5	< 10	85.0	1.6	0.2	0.5	0.06	< 0.05	39.1	0.53	0.02	< 0.1
1477585	10.8	2.27	4.92	4.86	< 0.01	11.9	0.1	130	181	1640	4.98	0.7	< 10	92.5	1.0	< 0.1	0.3	< 0.05	< 0.05	30.3	0.38	< 0.02	< 0.1
1477586	10.0	> 3.00	4.61	6.79	0.03	4.94	< 0.1	224	351	1090	6.88	0.8	50	116	1.6	0.3	0.5	0.11	0.05	42.4	0.47	0.05	1.2
1477587	12.7	0.40	2.41	2.77	0.01	0.73	< 0.1	70	210	477	3.21	0.2	40	45.1	0.4	< 0.1	0.1	0.11	0.05	19.5	0.21	< 0.02	< 0.1
1477588	17.5	0.23	5.29	2.95	0.01	4.01	< 0.1	101	1050	879	4.82	0.8	20	144	0.9	0.1	0.3	< 0.05	< 0.05	33.5	0.26	< 0.02	0.4
1477589	15.0	> 3.00	3.19	7.30	0.01	1.29	< 0.1	170	232	773	5.76	1.0	20	56.3	1.3	0.1	0.4	< 0.05	< 0.05	30.4	0.40	< 0.02	< 0.1
1477590	12.1	> 3.00	4.61	7.42	0.03	3.83	0.1	170	423	1010	6.67	0.8	10	78.1	1.6	0.7	0.5	< 0.05	0.08	40.6	0.52	0.03	0.2
1477591	11.9	> 3.00	4.73	7.27	0.02	3.34	< 0.1	204	324	979	6.79	1.2	< 10	55.4	1.5	0.2	0.5	< 0.05	< 0.05	29.7	0.48	< 0.02	< 0.1
1477592	9.3	> 3.00	3.86	7.37	0.02	3.38	0.1	248	140	1000	7.36	1.5	< 10	39.4	2.0	0.3	0.6	< 0.05	0.07	30.4	0.61	0.05	0.9
1477593	7.4	> 3.00	3.60	6.96	0.02	5.76	< 0.1	167	98.2	1060	6.29	1.0	50	54.9	1.6	0.2	0.5	< 0.05	0.06	33.1	0.46	0.03	0.6
1477594	17.5	> 3.00	4.66	8.96	0.02	2.66	0.1	259	139	1070	7.83	1.4	30	65.1	2.0	0.4	0.6	< 0.05	0.15	39.4	0.72	0.03	< 0.1
1477595	9.9	> 3.00	3.63	8.60	0.03	2.95	< 0.1	244	79.8	883	7.25	1.8	40	36.5	2.1	0.3	0.7	< 0.05	0.08	27.7	0.61	0.06	1.2
1477596	10.3	> 3.00	3.73	8.17	0.02	3.20	0.1	182	87.5	1040	7.29	1.1	< 10	50.5	1.9	0.2	0.6	< 0.05	0.10	35.0	0.60	0.03	0.5
1477597	16.1	2.69	6.06	6.81	0.02	3.46	< 0.1	204	371	889	7.73	0.5	60	70.3	1.4	0.3	0.5	0.16	0.08	36.1	0.47	0.07	0.2
1477598	2.1	0.05	12.2	1.45	< 0.01	7.19	0.1	77	923	1110	5.66	0.3	50	366	0.4	< 0.1	0.1	0.06	0.05	32.1	< 0.05	0.06	0.2
1477599	29.9	0.13	8.94	6.38	0.03	3.39	1.5	284	480	1880	17.1	1.5	60	160	1.3	0.1	0.5	5.54	0.17	61.3	0.81	0.08	2.3
1477600	3.7	> 3.00	2.26	6.82	0.11	4.16	< 0.1	136	10.1	1270	10.0	1.1	20	12.7	2.9	0.4	1.0	0.40	0.16	23.5	0.89	0.03	0.7
1470751	5.3	> 3.00	2.55	7.33	0.06	3.23	< 0.1	249	9.6	984	9.01	1.9	20	13.4	2.4	0.3	0.9	< 0.05	0.08	31.3	0.71	0.06	1.4
1470752	11.3	> 3.00	3.16	8.26	0.03	2.58	< 0.1	264	31.3	1070	8.82	1.5	30	43.7	1.9	0.2	0.7	< 0.05	0.12	39.6	0.60	0.04	1.3
1470753	8.8	> 3.00	3.55	7.80	0.07	4.69	0.1	306	16.8	1400	9.78	1.3	30	29.7	2.3	0.3	0.8	< 0.05	0.06	40.7	0.87	0.02	0.5
1470754	9.4	> 3.00	4.23	7.87	0.07	4.40	< 0.1	285	202	1130	9.40	1.6	10	53.3	2.3	0.3	0.8	< 0.05	0.20	36.2	0.77	0.06	3.1
1276578	22.0	2.87	2.44	6.65	0.67	3.79	< 0.1	250	7.8	1150	9.27	1.4	80	18.9	2.1	0.4	0.8	0.13	1.79	42.9	0.62	0.22	< 0.1
1276579	14.2	1.40	1.97	6.50	0.33	6.13	< 0.1	318	8.5	1220	8.97	1.8	60	16.6	2.1	0.4	0.8	0.05	1.68	26.5	0.72	0.80	0.4
1276580	3.4	1.97	0.68	3.29	0.58	1.47	< 0.1	153	24.9	383	4.63	1.4	60	3.4	1.0	0.5	0.4	0.25	0.61	10.9	0.41	2.40	0.2
1276581	0.9	1.05	0.20	1.39	0.13	0.21	< 0.1	25	30.2	86	2.50	0.4	30	5.5	0.2	0.2	< 0.1	0.36	0.14	8.6	0.06	1.02	0.4
1276582	5.7	0.83	0.83	2.01	0.30	0.92	< 0.1	67	21.1	271	2.41	0.3	20	11.4	0.3	0.4	0.1	0.11	0.24	7.1	0.11	0.15	< 0.1
1276583	2.2	2.77	0.71	4.02	0.33	0.94	< 0.1	82	20.0	237	4.59	1.1	20	7.8	0.4	0.7	0.1	0.39	0.38	12.1	0.15	1.92	0.4
1276584	7.7	> 3.00	0.94	6.62	0.56	2.01	< 0.1	94	9.9	548	7.44	3.4	20	1.3	2.9	0.6	1.1	0.48	0.24	22.1	0.99	0.88	0.7

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1276585	14.2	2.19	2.17	7.05	0.55	5.43	< 0.1	333	12.7	1220	10.5	1.5	10	14.0	2.4	0.7	0.8	0.06	2.37	35.8	0.72	0.49	0.2
1276587	11.7	0.21	1.47	6.23	0.36	7.92	< 0.1	418	14.9	1170	8.06	1.4	70	14.9	1.9	0.3	0.7	< 0.05	1.12	25.1	0.83	1.15	0.2
1276588	16.7	0.55	1.67	2.89	0.37	1.08	< 0.1	186	24.2	656	5.92	0.4	50	17.3	0.6	0.1	0.2	0.07	1.25	33.3	0.22	0.08	0.1
1276589	6.0	0.78	1.29	3.92	0.09	3.53	< 0.1	130	45.0	558	3.50	0.2	40	15.0	0.6	0.5	0.2	< 0.05	0.64	11.1	0.28	0.03	< 0.1
1276590	29.9	> 3.00	3.47	8.20	0.26	2.05	< 0.1	267	181	984	7.37	1.7	40	64.6	1.5	0.7	0.6	< 0.05	1.67	28.2	0.79	0.10	0.3
1276591	18.1	> 3.00	2.75	8.10	0.02	2.04	< 0.1	143	58.1	758	7.58	1.3	30	57.8	2.1	0.6	0.8	< 0.05	0.07	36.3	1.14	0.04	< 0.1
1276592	26.3	> 3.00	2.94	8.63	0.34	1.18	< 0.1	94	82.6	841	8.41	0.5	30	74.6	1.7	0.8	0.6	< 0.05	4.08	42.7	0.80	< 0.02	< 0.1
1276593	44.3	0.28	2.88	9.12	1.92	0.35	0.6	291	151	1230	13.0	1.7	30	146	0.9	0.7	0.4	< 0.05	2.66	124	1.08	0.36	1.1
1276594	2.5	0.06	0.21	1.08	0.28	0.28	0.2	36	66.3	414	1.91	< 0.1	30	19.6	0.2	0.2	0.1	0.08	0.49	9.7	0.21	0.02	0.1
1276595	36.7	0.71	3.40	8.45	1.62	2.64	0.3	273	336	1170	9.09	0.6	20	153	0.5	0.8	0.2	< 0.05	2.10	66.7	0.28	< 0.02	0.1
1276596	7.9	2.54	0.98	4.73	0.17	4.46	0.1	42	34.9	894	3.30	0.8	80	37.6	1.0	1.6	0.4	0.06	0.33	19.1	0.42	0.03	< 0.1
1276597	6.1	2.99	1.01	7.57	0.42	4.92	3.1	102	45.8	684	5.45	1.0	130	44.7	1.3	0.8	0.5	0.16	0.46	27.6	0.83	0.26	2.8
1276598	7.8	0.16	0.87	5.42	1.07	3.78	< 0.1	111	33.8	1010	3.41	0.1	40	13.3	0.4	3.3	0.1	0.11	0.96	4.1	0.51	0.10	< 0.1
1276599	5.9	> 3.00	1.21	7.55	0.05	1.87	10.3	109	45.2	414	5.90	1.2	270	46.6	1.3	0.5	0.5	0.89	0.18	38.4	1.12	0.75	4.7
1276600	1.6	0.24	0.14	0.70	0.04	0.07	< 0.1	19	24.7	299	1.16	< 0.1	30	8.4	< 0.1	0.1	< 0.1	0.16	0.16	4.4	< 0.05	0.02	< 0.1
1470701	13.8	2.40	0.68	4.25	0.14	0.99	< 0.1	100	78.3	478	2.66	0.4	20	72.1	0.5	0.1	0.2	0.08	0.34	20.5	0.25	0.03	0.1
1470702	10.6	> 3.00	2.43	7.80	0.03	5.60	< 0.1	243	162	1110	7.40	0.6	20	131	1.8	0.6	0.6	< 0.05	0.10	39.2	0.47	0.05	0.8
1470703	6.1	< 0.01	5.21	2.10	< 0.01	5.36	0.1	72	805	1170	5.04	0.2	< 10	417	0.2	< 0.1	< 0.1	0.05	< 0.05	74.0	0.18	0.05	0.5
1470705	9.1	1.58	1.45	4.45	0.66	3.13	< 0.1	178	25.0	785	6.62	1.1	70	16.2	1.5	0.3	0.5	0.14	0.81	32.3	0.57	0.37	0.4
1470706	2.1	0.43	0.20	0.88	0.27	0.61	< 0.1	24	36.9	157	1.79	0.2	40	4.5	0.2	0.1	< 0.1	0.19	0.61	11.1	0.08	0.35	0.2
1470707	0.9	0.17	0.13	0.37	0.05	0.23	< 0.1	14	39.2	102	1.35	0.3	40	3.6	0.2	< 0.1	< 0.1	1.08	0.12	4.7	0.06	3.66	< 0.1
1470708	12.6	1.96	1.36	3.92	0.64	0.93	< 0.1	120	21.0	515	5.77	1.2	20	19.9	1.0	0.5	0.4	0.22	3.55	34.8	0.30	0.39	0.6
1470710	2.2	< 0.01	18.9	0.20	< 0.01	4.58	< 0.1	7	468	952	4.59	< 0.1	20	2910	< 0.1	0.2	< 0.1	0.10	0.16	108	0.07	0.42	0.1
1470711	6.2	2.88	1.22	4.09	0.43	1.51	< 0.1	108	11.7	366	7.55	2.3	20	26.2	2.2	0.8	0.8	0.60	1.06	38.1	0.89	8.98	1.3
1470712	25.0	1.72	2.02	6.94	1.30	1.44	< 0.1	74	50.6	443	3.01	2.2	60	44.3	0.6	0.8	0.2	< 0.05	1.37	13.2	0.41	0.06	< 0.1
1470713	18.8	1.61	2.55	5.82	0.69	3.80	< 0.1	211	103	654	5.34	1.7	40	57.6	1.4	1.0	0.5	2.99	1.41	23.7	0.48	0.55	0.2
1470714	4.6	2.62	1.66	7.09	2.24	3.51	< 0.1	89	45.1	420	3.35	3.5	40	74.3	1.0	1.9	0.5	< 0.05	1.37	21.9	1.70	0.94	0.2
1470715	1.7	> 3.00	0.25	7.46	1.58	0.43	< 0.1	46	16.8	183	1.83	2.5	30	24.9	0.3	1.4	0.1	< 0.05	0.88	10.3	0.48	0.93	0.2
1470716	< 0.5	> 3.00	0.36	7.85	0.27	0.80	< 0.1	17	12.9	195	1.11	2.2	20	15.7	0.3	0.7	0.1	< 0.05	0.18	6.1	0.39	2.76	0.1
1470717	< 0.5	> 3.00	1.50	6.87	0.19	3.46	< 0.1	14	14.2	463	2.02	2.2	20	20.0	0.4	0.6	0.2	< 0.05	0.14	8.5	0.48	0.58	0.1
1470718	2.2	> 3.00	0.79	5.19	0.57	1.56	< 0.1	33	31.5	217	1.47	1.6	10	34.7	0.2	0.9	< 0.1	< 0.05	0.41	7.3	0.39	0.34	0.1
1470719	28.5	0.04	11.4	2.65	0.03	7.22	0.1	105	1000	1090	6.73	0.2	< 10	1260	0.3	0.3	0.1	0.06	0.08	78.9	0.19	0.03	0.3
1470720	19.9	0.11	7.58	2.09	0.34	10.8	0.2	67	1020	910	4.51	0.3	20	607	0.5	0.5	0.2	< 0.05	0.32	37.9	0.49	1.11	0.3
1470721	3.5	> 3.00	1.16	7.13	1.62	1.88	< 0.1	48	41.5	251	2.06	2.6	70	42.2	0.5	1.3	0.2	< 0.05	1.01	11.0	0.58	0.10	0.1
1470722	0.8	> 3.00	0.60	7.72	0.16	2.30	< 0.1	87	8.9	1070	6.82	1.5	30	31.4	0.9	0.3	0.3	< 0.05	0.07	35.8	0.64	0.63	1.6
1470723	1.4	0.37	0.30	1.59	0.05	0.80	< 0.1	26	34.4	258	3.71	0.6	40	7.0	0.8	0.2	0.3	0.29	0.66	4.4	0.24	0.13	0.9
1470724	7.4	1.97	1.17	6.74	0.04	2.78	10.6	75	27.5	676	9.16	0.9	390	35.5	2.3	0.8	0.9	0.38	0.37	26.2	1.12	0.27	2.5
1470725	5.8	2.21	0.94	6.35	0.04	4.52	2.0	77	30.4	932	7.61	1.1	160	24.0	2.5	1.0	0.9	0.24	0.36	17.8	1.09	0.39	1.6
1470726	22.2	2.96	2.49	7.02	0.07	1.50	< 0.1	66	8.8	1080	12.3	0.6	20	16.6	1.8	0.5	0.7	< 0.05	0.29	48.3	1.10	0.04	< 0.1
1470727	15.8	0.02	6.09	3.11	< 0.01	3.21	0.3	90	662	994	5.62	0.1	30	395	0.2	0.1	< 0.1	0.06	0.11	59.5	0.16	0.03	0.3
1470728	21.2	2.87	1.85	7.92	0.90	1.53	0.3	82	125	997	6.83	0.9	30	154	0.6	0.4	0.2	< 0.05	0.74	38.4	0.59	< 0.02	< 0.1
1470729	21.6	0.26	4.85	5.20	0.86	10.7	0.1	153	240	1240	6.13	0.4	20	149	0.5	0.4	0.2	< 0.05	0.90	38.3	0.28	< 0.02	0.4

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470730	32.8	0.12	5.53	6.38	1.65	6.57	< 0.1	191	466	1020	6.26	0.3	80	216	0.2	0.2	< 0.1	0.13	1.84	49.4	0.22	0.04	0.5
1470732	3.6	< 0.01	1.89	0.77	< 0.01	2.32	< 0.1	26	264	720	2.25	0.1	50	116	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	16.2	0.13	< 0.02	0.1

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477759	30.5	20.7	0.5	16.0	37.2	107	202	7.7	0.72	< 0.1	2	< 0.1	3.3	56	16.0	36.3	4.5	20.1	4.3	5.3	0.8	5.3	12.0
1477760	36.2	18.9	0.6	11.9	30.7	71.3	206	7.7	2.68	< 0.1	1	< 0.1	4.7	42	13.4	31.1	3.6	17.2	3.8	4.5	0.7	4.5	14.9
1477761	29.8	18.7	0.7	13.9	31.9	81.5	218	8.4	1.90	< 0.1	1	< 0.1	4.7	53	12.1	27.5	3.4	15.4	3.4	4.3	0.7	4.7	16.0
1477762	25.6	18.6	1.4	8.0	21.5	59.0	200	7.0	2.39	< 0.1	2	< 0.1	2.7	46	4.1	11.7	1.4	6.9	1.7	2.6	0.5	3.3	18.6
1477763	0.9	1.0	3.2	0.9	0.6	2.3	4	0.2	1.50	< 0.1	< 1	< 0.1	0.3	4	0.3	0.7	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	2.5
1477764	7.1	14.4	1.0	19.9	9.9	44.7	95	4.1	2.81	< 0.1	1	0.1	4.1	135	2.7	6.4	0.7	3.1	0.7	0.8	0.2	1.4	10.1
1477766	29.9	19.3	0.2	34.7	32.0	118	181	6.6	0.97	< 0.1	2	< 0.1	3.1	95	14.0	32.7	4.2	19.3	3.9	4.8	0.8	4.9	34.8
1477767	38.3	16.0	3.0	12.2	9.9	131	19	1.0	5.42	< 0.1	< 1	0.2	0.2	166	2.6	6.4	0.8	4.0	1.0	1.3	0.2	1.6	99.9
1477768	57.4	17.4	0.2	15.3	18.2	139	62	0.3	0.44	< 0.1	< 1	< 0.1	< 0.1	246	4.0	10.6	1.5	7.1	1.6	2.2	0.4	2.7	47.1
1477769	125	17.9	< 0.1	52.8	16.1	87.5	56	1.7	0.73	< 0.1	< 1	< 0.1	< 0.1	235	6.3	15.1	1.8	8.6	2.0	2.2	0.4	2.6	108
1477770	60.5	19.8	0.1	102	15.1	192	59	2.4	8.00	< 0.1	< 1	< 0.1	< 0.1	404	5.6	13.4	1.7	8.1	1.8	2.1	0.4	2.4	81.5
1477771	140	20.1	0.4	26.7	10.7	110	35	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	513	4.7	12.6	1.8	9.7	2.4	1.9	0.3	1.9	33.0
1477772	146	13.9	12.7	22.4	5.2	181	40	1.8	0.21	< 0.1	< 1	0.7	< 0.1	406	3.4	9.5	1.4	7.9	1.9	1.5	0.2	1.0	35.2
1477773	176	15.9	< 0.1	12.2	8.2	134	44	< 0.1	0.13	< 0.1	< 1	< 0.1	0.1	99	3.9	11.4	1.7	9.5	2.3	1.8	0.2	1.4	119
1477775	123	14.8	0.9	16.8	5.4	176	6	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	239	3.0	8.6	1.4	7.6	1.9	1.5	0.2	1.0	116
1477776	79.7	17.8	0.6	47.0	10.8	176	18	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	396	5.6	15.9	2.5	13.8	3.2	2.5	0.3	1.8	6.1
1477777	62.1	16.4	0.6	54.3	8.5	109	25	< 0.1	< 0.05	0.1	< 1	< 0.1	< 0.1	491	3.8	10.9	1.7	9.5	2.4	1.9	0.3	1.5	60.3
1477778	92.4	14.9	1.1	56.0	9.9	136	68	< 0.1	0.12	< 0.1	< 1	0.7	< 0.1	504	24.4	55.0	6.5	29.7	4.6	3.5	0.4	1.9	48.8
1477779	96.3	17.5	12.1	73.0	8.6	32.0	66	1.8	0.90	< 0.1	< 1	0.7	< 0.1	159	5.6	13.3	1.7	8.0	1.7	1.7	0.3	1.5	177
1477780	39.2	15.0	1.7	7.4	5.6	160	118	3.8	0.75	< 0.1	< 1	0.6	< 0.1	119	35.5	75.0	8.3	33.1	4.0	2.9	0.3	1.1	7.5
1477782	24.1	16.0	0.5	48.3	7.9	188	161	4.8	1.24	< 0.1	< 1	0.5	< 0.1	670	49.3	106	11.7	47.2	5.9	3.9	0.4	1.6	9.8
1477783	30.7	19.5	1.8	68.6	9.0	319	223	6.6	1.29	< 0.1	< 1	1.0	< 0.1	1680	75.0	154	16.0	62.8	7.3	5.3	0.5	1.9	6.2
1477784	39.5	4.2	2.5	0.3	3.4	529	5	0.2	0.46	< 0.1	< 1	0.2	0.1	42	0.9	2.5	0.4	2.2	0.7	0.7	0.1	0.6	32.3
1477785	41.7	14.2	0.9	65.4	9.2	442	215	3.0	0.39	< 0.1	< 1	0.5	< 0.1	1750	70.0	151	15.9	63.1	8.2	5.8	0.5	2.1	25.4
1477786	105	20.5	9.3	32.4	9.0	670	233	7.2	1.17	< 0.1	1	1.1	0.1	534	17.1	41.4	5.2	23.7	3.8	3.0	0.4	1.7	5.8
1477787	43.9	21.1	< 0.1	57.7	7.1	268	184	6.0	1.01	< 0.1	< 1	0.6	0.2	426	59.8	132	13.8	54.1	7.1	3.9	0.4	1.4	3.2
1477788	50.5	11.9	< 0.1	41.9	15.9	325	183	4.6	0.37	< 0.1	< 1	0.3	< 0.1	823	78.0	177	20.0	83.5	11.9	7.8	0.8	3.3	5.1
1477789	64.5	12.5	< 0.1	54.9	8.5	305	45	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	1170	22.3	48.5	5.4	23.4	3.4	2.5	0.3	1.6	42.1
1477790	57.8	12.7	< 0.1	35.5	4.3	199	7	2.1	0.90	< 0.1	< 1	0.2	< 0.1	812	32.8	68.3	7.0	29.2	3.6	2.5	0.2	0.9	12.1
1477791	52.9	13.9	< 0.1	50.4	17.1	433	216	7.1	0.57	< 0.1	1	0.5	< 0.1	833	93.8	213	23.9	101	14.3	9.9	0.9	3.8	9.7
1477792	9.6	1.5	2.2	1.1	1.1	5.8	3	0.3	1.88	< 0.1	< 1	0.2	< 0.1	17	0.5	1.2	0.1	0.6	0.1	0.2	< 0.1	0.2	9.4
1477793	39.2	5.0	64.4	17.2	5.3	159	12	0.3	0.54	< 0.1	< 1	0.2	< 0.1	196	0.6	1.7	0.3	1.6	0.5	0.8	0.1	0.9	20.7
1477794	113	11.7	93.8	10.7	4.9	68.7	24	0.5	0.48	< 0.1	< 1	< 0.1	< 0.1	138	1.0	2.8	0.4	2.7	0.9	0.9	0.1	0.9	93.9
1477795	245	13.3	50.6	0.3	4.7	26.4	33	0.8	0.89	< 0.1	< 1	0.2	0.2	13	1.0	2.8	0.4	2.5	0.7	0.7	< 0.1	0.7	114
1477796	74.3	17.1	125	51.0	3.9	47.1	55	1.1	0.62	< 0.1	1	0.5	0.2	793	1.9	4.7	0.6	3.0	0.7	0.6	< 0.1	0.6	164
1477797	16.2	6.9	3.1	1.3	19.2	369	21	1.0	0.49	< 0.1	< 1	0.1	< 0.1	24	6.2	15.1	1.9	9.7	2.6	3.1	0.5	3.1	9.6
1477798	189	5.9	2.7	< 0.2	5.0	676	6	0.2	0.42	< 0.1	< 1	< 0.1	< 0.1	10	1.3	2.8	0.4	2.8	0.9	1.1	0.2	0.8	81.8
1477799	111	13.8	< 0.1	18.5	6.0	175	25	< 0.1	0.07	< 0.1	< 1	0.2	< 0.1	267	3.3	9.0	1.3	7.2	1.9	1.6	0.2	1.2	49.9
1477800	38.1	4.9	2.2	10.9	6.5	28.7	17	0.2	0.28	< 0.1	< 1	0.4	< 0.1	82	1.4	3.9	0.6	3.1	0.9	0.9	0.2	1.0	21.2
1470501	124	20.0	3.2	75.1	10.2	27.1	21	< 0.1	< 0.05	0.1	< 1	< 0.1	< 0.1	441	5.0	14.3	2.2	12.0	3.1	2.3	0.3	1.8	125
1470502	28.2	17.1	< 0.1	66.2	7.7	99.5	37	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	529	3.6	10.3	1.6	8.9	2.2	1.9	0.2	1.3	20.8
1470503	114	18.4	6.0	38.3	16.2	150	92	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	417	21.0	52.9	6.9	33.2	6.4	4.6	0.6	2.9	25.3

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470505	8.1	1.5	4.1	0.9	0.7	8.0	2	< 0.1	1.00	< 0.1	< 1	0.3	< 0.1	9	0.2	0.4	< 0.1	0.3	< 0.1	< 0.1	< 0.1	0.1	11.6
1470506	4.5	1.1	3.5	0.8	0.8	7.4	3	0.2	1.54	< 0.1	< 1	0.3	< 0.1	11	0.2	0.6	< 0.1	0.4	< 0.1	< 0.1	< 0.1	0.1	58.2
1470507	29.1	12.9	2.1	43.5	3.6	43.8	17	1.0	0.32	< 0.1	< 1	1.1	< 0.1	231	1.3	3.9	0.6	3.5	1.0	0.8	0.1	0.6	46.9
1470508	7.3	2.0	2.3	0.8	0.4	8.3	1	< 0.1	1.20	< 0.1	< 1	0.2	< 0.1	8	0.1	0.2	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	7.6
1470509	108	14.3	0.6	6.0	6.8	85.6	23	0.3	0.25	< 0.1	< 1	0.1	< 0.1	63	2.5	6.9	1.1	6.5	1.7	1.4	0.2	1.2	91.0
1470510	30.4	1.2	2340	0.5	2.3	331	5	< 0.1	0.47	< 0.1	< 1	25.6	< 0.1	10	0.6	1.6	0.2	1.3	0.4	0.4	< 0.1	0.4	19.5
1470511	40.9	1.3	591	0.2	1.3	7.7	2	< 0.1	0.24	< 0.1	< 1	6.5	< 0.1	9	0.2	0.5	< 0.1	0.5	0.1	0.2	< 0.1	0.2	1.3
1470512	48.1	1.2	595	< 0.2	0.7	27.9	2	< 0.1	0.40	< 0.1	< 1	7.4	< 0.1	17	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	3.4
1470514	22.4	1.0	1520	< 0.2	0.7	292	4	< 0.1	0.47	< 0.1	< 1	10.8	< 0.1	14	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	3.6
1470515	51.8	13.0	9.6	20.4	13.6	244	210	4.7	1.26	< 0.1	< 1	0.5	< 0.1	447	30.8	104	8.8	40.5	7.5	5.5	0.6	2.8	41.1
1470516	159	15.0	4.5	32.5	6.1	172	57	0.3	0.80	< 0.1	< 1	0.3	< 0.1	369	7.9	18.2	2.4	11.5	2.3	1.8	0.2	1.2	136
1470517	69.5	4.1	4.1	16.9	9.0	113	11	0.4	0.42	< 0.1	< 1	0.7	< 0.1	172	2.4	5.9	0.8	4.6	1.4	1.5	0.3	1.6	42.1
1470518	80.9	15.0	0.7	33.4	7.6	181	24	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	340	3.7	9.9	1.5	8.3	2.0	1.7	0.2	1.4	49.8
1470519	48.0	12.6	2.7	38.0	7.4	238	21	< 0.1	0.07	< 0.1	< 1	< 0.1	< 0.1	411	5.5	13.2	1.8	9.4	2.2	1.8	0.2	1.3	59.2
1470520	49.6	16.5	1.6	73.4	6.8	160	151	4.9	2.90	< 0.1	< 1	1.0	< 0.1	1270	56.0	115	12.4	50.9	7.0	4.0	0.4	1.5	16.9
1470521	58.5	19.2	1.3	104	9.8	218	178	7.2	0.78	< 0.1	1	1.5	0.2	1030	61.7	132	14.9	60.8	7.9	5.1	0.5	2.0	30.5
1470522	46.6	9.5	1.9	5.8	4.9	149	73	2.2	0.52	< 0.1	< 1	0.2	< 0.1	139	24.5	50.6	5.7	23.0	2.9	1.8	0.2	0.9	2.3
1470523	94.9	14.9	2.0	42.0	5.2	73.4	30	1.4	0.64	< 0.1	< 1	0.1	0.1	748	2.4	6.5	1.0	5.4	1.4	1.1	0.1	1.0	266
1470524	89.1	11.1	0.1	17.0	7.1	170	25	< 0.1	0.13	< 0.1	< 1	0.1	< 0.1	267	2.8	7.2	1.1	6.0	1.6	1.5	0.2	1.2	311
1470525	73.3	8.3	0.5	18.6	11.7	142	34	1.1	0.35	< 0.1	< 1	0.4	< 0.1	204	3.8	9.9	1.5	8.9	2.8	2.6	0.4	2.1	66.1
1470526	51.1	10.7	0.7	6.3	8.9	288	25	1.5	0.27	< 0.1	< 1	0.4	< 0.1	556	36.1	78.4	9.2	40.6	6.2	3.8	0.4	1.9	1.9
1470527	56.7	12.2	< 0.1	33.6	10.3	315	126	3.1	0.10	< 0.1	< 1	0.4	< 0.1	417	39.9	85.7	9.9	42.0	5.9	4.1	0.5	2.1	3.7
1470529	131	19.0	40.2	30.5	9.7	117	39	0.4	0.15	< 0.1	< 1	< 0.1	< 0.1	425	7.0	18.8	2.8	14.7	3.3	2.4	0.3	1.7	128
1477938	48.3	19.9	0.5	11.9	18.2	98.5	61	0.3	0.23	< 0.1	< 1	< 0.1	< 0.1	130	5.7	12.6	1.5	6.9	1.6	2.0	0.4	2.6	55.5
1477939	23.0	15.6	4.6	1.0	34.6	303	177	15.8	29.3	< 0.1	2	< 0.1	< 0.1	25	15.4	36.2	4.6	21.5	4.7	5.5	0.9	5.7	28.8
1477940	9.5	24.4	0.4	0.7	25.3	736	141	21.5	41.0	< 0.1	2	< 0.1	< 0.1	30	13.0	30.1	3.8	17.2	3.6	3.9	0.7	4.2	31.6
1477941	18.7	17.8	0.8	1.2	27.9	336	181	19.7	285	< 0.1	2	< 0.1	0.1	49	11.9	27.3	3.5	16.2	3.6	4.2	0.7	4.6	68.4
1477942	40.2	16.7	< 0.1	17.7	13.3	114	52	1.5	1.60	< 0.1	< 1	< 0.1	0.1	179	10.6	18.4	1.9	7.8	1.5	1.7	0.3	2.1	52.5
1477943	15.1	22.5	0.6	11.0	2.3	642	115	1.8	0.69	< 0.1	< 1	< 0.1	< 0.1	265	4.3	14.6	1.2	5.3	1.3	0.9	0.1	0.4	3.4
1477944	45.7	19.3	1.8	33.9	9.4	194	134	6.5	2.68	< 0.1	1	0.3	0.3	449	11.2	26.1	3.0	12.3	2.1	1.7	0.3	1.5	56.2
1477945	48.2	20.8	3.9	30.1	24.4	297	109	1.4	0.96	< 0.1	< 1	< 0.1	< 0.1	112	11.1	26.7	3.5	16.2	3.6	3.9	0.6	3.9	58.2
1477946	33.3	9.0	1.0	41.0	12.8	220	56	2.5	0.68	< 0.1	< 1	< 0.1	< 0.1	238	6.2	14.1	1.8	8.5	1.8	2.0	0.3	2.1	65.5
1477947	58.4	20.2	0.5	29.0	19.5	152	32	< 0.1	0.15	< 0.1	< 1	< 0.1	< 0.1	230	5.6	14.0	1.9	9.1	2.2	2.4	0.4	2.8	23.6
1477948	42.4	16.4	0.8	16.7	18.6	275	76	0.5	0.29	< 0.1	< 1	< 0.1	< 0.1	155	5.7	13.7	1.8	8.2	1.9	2.5	0.4	2.8	86.6
1477949	33.7	12.6	1.1	20.0	14.7	198	70	1.0	1.97	< 0.1	< 1	< 0.1	< 0.1	278	4.7	11.1	1.4	7.0	1.4	2.0	0.3	2.3	90.8
1477950	38.6	20.1	2.2	9.3	17.2	55.4	89	1.9	2.17	< 0.1	< 1	< 0.1	0.2	124	4.8	11.8	1.5	7.3	1.7	2.3	0.4	2.7	60.8
1470601	31.2	17.3	0.7	37.0	16.1	121	81	2.1	1.13	< 0.1	1	< 0.1	0.2	209	5.4	12.6	1.5	6.9	1.5	1.9	0.3	2.4	57.2
1470602	73.7	11.6	26.4	29.6	7.0	31.3	71	2.8	6.53	0.2	2	0.3	0.6	140	5.6	13.2	1.6	7.0	1.4	1.3	0.2	1.1	194
1470603	54.4	11.5	18.3	0.6	12.4	230	61	0.6	0.51	< 0.1	< 1	< 0.1	< 0.1	21	7.5	19.4	2.1	10.1	2.1	2.0	0.3	2.1	33.6
1470604	88.3	12.6	1.4	0.9	14.4	154	44	0.2	0.21	< 0.1	< 1	< 0.1	< 0.1	15	7.1	17.2	2.2	10.3	2.1	2.3	0.4	2.3	132
1470606	58.6	5.0	8.9	< 0.2	2.0	91.7	4	< 0.1	0.41	< 0.1	< 1	0.2	0.1	15	0.5	1.3	0.2	1.2	0.4	0.4	< 0.1	0.3	204
1470607	67.3	7.7	20.7	< 0.2	2.5	59.7	5	0.2	0.27	< 0.1	< 1	< 0.1	< 0.1	18	1.3	2.8	0.4	2.2	0.5	0.5	< 0.1	0.5	68.2

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470608	46.5	5.3	1.6	20.4	8.2	259	67	2.2	0.27	< 0.1	< 1	0.3	< 0.1	339	23.6	50.9	6.5	27.0	4.3	2.9	0.3	1.7	3.0
1470609	32.2	17.7	2.9	47.9	5.3	237	175	5.7	0.59	< 0.1	1	0.8	< 0.1	946	47.9	95.2	10.2	40.1	4.7	2.8	0.3	1.1	10.7
1470610	38.8	23.0	1.7	78.5	4.6	429	189	5.5	1.08	< 0.1	1	0.9	< 0.1	734	48.6	99.3	10.5	40.0	4.9	2.9	0.2	1.0	24.2
1470611	53.3	17.4	< 0.1	50.4	14.4	222	202	6.1	0.37	< 0.1	1	0.2	< 0.1	1050	59.6	126	14.1	58.8	8.2	5.3	0.6	2.6	4.1
1470612	86.7	17.8	1.4	40.7	8.7	175	27	1.5	0.54	< 0.1	< 1	< 0.1	< 0.1	414	4.0	11.0	1.7	9.2	2.4	1.9	0.3	1.5	67.7
1470613	107	17.0	0.3	6.8	7.9	156	38	0.7	0.06	< 0.1	< 1	< 0.1	< 0.1	73	4.1	11.3	1.7	9.8	2.4	1.9	0.2	1.4	70.1
1470614	132	19.0	2.2	36.3	7.7	120	16	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	415	4.3	11.4	1.7	9.9	2.6	2.0	0.3	1.4	72.0
1470615	133	18.4	59.1	41.6	8.4	111	63	1.5	0.21	< 0.1	< 1	0.2	< 0.1	443	3.5	10.1	1.5	8.7	2.2	1.6	0.2	1.4	78.2
1477576	75.5	11.2	1.8	0.4	4.9	7.0	32	0.8	0.25	< 0.1	< 1	0.3	< 0.1	12	2.6	5.8	0.7	3.2	0.6	0.8	0.1	0.9	36.2
1477578	57.5	20.6	< 0.1	3.7	8.8	268	155	2.5	0.26	< 0.1	< 1	0.2	< 0.1	254	54.3	123	13.1	54.3	7.1	4.3	0.4	1.8	15.0
1477579	28.3	3.6	< 0.1	0.9	7.1	212	41	0.7	0.33	< 0.1	< 1	< 0.1	< 0.1	2670	48.3	105	11.6	48.3	6.1	4.0	0.3	1.5	1.7
1477580	71.6	8.9	2.8	< 0.2	2.5	156	4	0.4	0.12	< 0.1	< 1	0.1	< 0.1	10	0.6	1.7	0.2	1.5	0.4	0.4	< 0.1	0.4	68.3
1477581	28.2	6.6	0.9	0.9	2.4	66.6	21	1.1	0.80	< 0.1	< 1	0.4	< 0.1	23	11.3	24.3	2.8	11.4	1.6	1.0	0.1	0.5	5.0
1477582	88.2	21.5	< 0.1	0.8	20.2	67.1	76	1.0	0.09	< 0.1	< 1	< 0.1	< 0.1	13	3.1	8.3	1.0	5.6	2.0	2.5	0.5	3.1	24.6
1477584	70.3	15.1	0.1	< 0.2	15.4	70.7	16	2.0	0.16	< 0.1	< 1	0.2	< 0.1	12	2.1	5.7	0.8	4.3	1.4	1.9	0.4	2.4	60.0
1477585	75.8	8.8	0.5	< 0.2	9.3	85.6	25	0.8	0.23	< 0.1	< 1	0.2	< 0.1	12	2.2	5.3	0.7	3.4	0.9	1.1	0.2	1.3	6.2
1477586	66.2	14.4	0.2	0.3	14.7	59.8	26	1.7	0.38	< 0.1	< 1	0.3	< 0.1	12	2.0	5.4	0.8	4.2	1.3	1.9	0.4	2.3	66.3
1477587	33.8	7.4	0.4	0.2	3.6	10.8	8	0.4	0.30	< 0.1	< 1	0.1	< 0.1	12	1.2	3.6	0.4	1.9	0.5	0.7	0.1	0.6	3.0
1477588	47.9	7.7	0.5	< 0.2	7.9	18.7	26	1.2	0.33	< 0.1	< 1	0.1	< 0.1	20	1.2	3.1	0.4	2.2	0.8	1.0	0.2	1.3	2.3
1477589	54.1	15.3	0.4	< 0.2	12.5	42.3	38	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	10	1.7	4.5	0.6	3.2	1.1	1.4	0.3	2.0	18.6
1477590	63.2	14.7	1.0	< 0.2	15.1	73.9	31	< 0.1	0.10	< 0.1	< 1	< 0.1	< 0.1	21	2.5	6.5	0.9	4.7	1.5	1.9	0.4	2.4	74.0
1477591	73.4	15.4	2.5	< 0.2	14.6	63.6	47	0.3	0.25	< 0.1	< 1	< 0.1	< 0.1	14	1.4	3.7	0.5	3.1	1.2	1.7	0.3	2.3	53.0
1477592	66.1	16.2	< 0.1	0.4	18.2	64.7	55	1.5	0.15	< 0.1	< 1	0.2	< 0.1	13	2.5	6.7	0.9	4.9	1.7	2.2	0.4	2.9	119
1477593	48.8	13.2	< 0.1	0.2	14.7	88.3	34	0.2	0.20	< 0.1	< 1	0.2	0.1	12	2.9	7.3	1.0	5.1	1.5	1.8	0.3	2.3	52.7
1477594	68.3	19.5	3.5	0.2	18.9	67.9	55	2.5	0.27	< 0.1	< 1	0.4	< 0.1	16	4.6	11.4	1.4	7.5	2.1	2.7	0.4	3.0	58.7
1477595	59.3	17.1	2.9	0.3	19.0	62.5	64	1.8	0.33	< 0.1	< 1	0.1	< 0.1	17	3.8	9.9	1.3	6.8	1.9	2.5	0.5	3.1	97.5
1477596	72.9	17.1	1.2	0.4	18.1	63.1	39	0.3	0.14	< 0.1	< 1	< 0.1	< 0.1	14	3.5	9.3	1.3	6.5	1.7	2.4	0.4	2.8	56.4
1477597	66.1	13.5	1.8	0.3	13.7	68.1	20	0.2	0.47	< 0.1	< 1	< 0.1	< 0.1	24	2.2	5.2	0.7	3.1	1.3	1.7	0.3	2.3	50.8
1477598	40.7	5.6	< 0.1	0.3	3.6	7.9	11	0.1	0.34	< 0.1	< 1	0.2	< 0.1	17	0.4	1.1	0.2	0.8	0.4	0.5	< 0.1	0.7	11.4
1477599	299	14.7	< 0.1	0.9	12.1	8.3	57	1.1	0.44	6.6	2	0.1	< 0.1	65	1.6	3.7	0.5	2.5	1.2	1.6	0.3	1.9	7320
1477600	83.7	17.8	< 0.1	1.8	26.7	64.3	39	< 0.1	0.09	0.2	< 1	< 0.1	< 0.1	35	7.0	16.0	2.0	8.7	2.9	3.6	0.7	4.3	84.9
1470751	61.9	14.5	< 0.1	0.6	22.5	56.3	72	0.2	0.32	< 0.1	1	0.2	< 0.1	24	5.8	13.5	1.7	7.1	2.3	3.2	0.6	3.6	152
1470752	76.8	15.9	< 0.1	0.5	18.0	59.5	59	2.0	0.92	< 0.1	< 1	0.2	< 0.1	17	4.1	9.4	1.2	5.4	1.9	2.4	0.5	2.9	90.1
1470753	78.8	18.5	< 0.1	0.4	21.1	89.6	51	2.2	0.25	< 0.1	< 1	0.2	< 0.1	19	5.8	13.3	1.8	7.8	2.5	3.1	0.6	3.4	60.8
1470754	63.4	16.9	< 0.1	0.5	21.2	103	64	3.2	0.31	< 0.1	< 1	1.0	< 0.1	31	5.6	12.4	1.6	7.2	2.3	3.2	0.5	3.4	169
1276578	89.9	17.8	< 0.1	20.0	20.1	56.3	57	0.2	0.44	< 0.1	< 1	< 0.1	< 0.1	195	7.2	15.5	1.9	7.9	2.3	2.9	0.5	3.2	17.3
1276579	70.8	19.5	0.5	8.6	19.4	177	76	3.3	1.69	< 0.1	< 1	0.2	0.2	99	6.4	15.5	1.9	8.4	2.2	2.9	0.5	3.1	40.1
1276580	19.3	11.0	1.8	15.0	9.3	91.4	60	2.1	1.30	< 0.1	< 1	0.1	0.4	284	4.2	8.5	1.0	4.2	1.1	1.4	0.2	1.5	17.0
1276581	4.1	4.5	< 0.1	2.9	1.7	21.8	16	0.6	19.1	< 0.1	< 1	< 0.1	0.4	53	0.9	1.5	0.2	0.7	0.2	0.2	< 0.1	0.3	13.8
1276582	14.0	5.2	0.4	8.4	2.9	33.8	11	0.4	2.39	< 0.1	< 1	< 0.1	0.1	85	0.9	2.0	0.3	1.0	0.3	0.4	< 0.1	0.5	8.6
1276583	10.7	11.4	0.3	8.2	4.1	84.2	43	1.6	6.49	< 0.1	< 1	< 0.1	0.4	150	2.1	3.8	0.5	1.8	0.5	0.6	0.1	0.6	38.4
1276584	27.1	18.8	< 0.1	12.7	27.8	123	150	4.5	1.60	< 0.1	< 1	< 0.1	0.6	104	12.1	26.9	3.3	13.9	3.7	4.4	0.7	4.4	91.1

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1276585	49.6	19.1	< 0.1	21.3	22.5	234	66	0.3	0.77	< 0.1	< 1	< 0.1	< 0.1	179	8.3	18.5	2.3	9.3	2.6	3.0	0.5	3.3	24.7
1276587	31.5	22.8	2.3	13.3	17.9	449	50	0.3	0.35	< 0.1	< 1	< 0.1	< 0.1	123	7.5	16.6	2.0	8.6	2.4	2.7	0.5	2.9	50.7
1276588	47.5	9.8	0.6	12.8	5.5	49.1	16	0.9	2.22	< 0.1	< 1	0.1	< 0.1	107	2.2	4.9	0.6	2.6	0.7	0.9	0.2	0.9	22.7
1276589	26.7	8.7	5.9	4.7	5.1	179	5	0.4	0.70	< 0.1	< 1	0.3	< 0.1	66	1.9	4.2	0.6	2.6	0.8	0.9	0.1	0.8	27.9
1276590	118	17.7	11.9	5.4	13.9	290	71	3.2	0.54	< 0.1	1	0.7	0.1	264	5.9	15.1	1.9	8.0	2.3	2.7	0.4	2.4	75.1
1276591	82.5	16.9	6.8	0.2	20.2	158	53	0.7	0.13	< 0.1	< 1	0.2	< 0.1	6	11.6	25.5	3.1	13.1	3.3	3.5	0.5	3.4	70.7
1276592	86.1	16.4	< 0.1	21.5	15.6	152	23	0.2	< 0.05	< 0.1	< 1	< 0.1	< 0.1	124	9.4	21.6	2.6	10.6	2.4	2.7	0.4	2.6	57.5
1276593	218	22.6	3.6	61.8	8.5	85.4	65	0.5	0.12	0.1	< 1	0.2	< 0.1	414	10.9	25.2	3.2	14.7	4.0	3.8	0.4	1.9	192
1276594	23.7	2.6	6.2	9.2	2.7	14.7	4	0.4	1.44	< 0.1	< 1	0.6	< 0.1	68	2.7	5.9	0.7	3.4	0.9	0.8	< 0.1	0.5	132
1276595	162	16.6	0.5	51.7	5.3	111	24	0.3	0.18	< 0.1	< 1	< 0.1	< 0.1	365	1.6	4.6	0.7	3.5	1.2	1.2	0.2	1.0	72.9
1276596	50.6	8.3	0.6	6.8	10.1	133	33	< 0.1	0.17	< 0.1	< 1	< 0.1	< 0.1	174	7.0	15.1	1.8	7.6	1.8	2.0	0.3	1.7	11.7
1276597	1350	18.3	5.8	14.5	13.1	147	39	4.5	1.29	0.7	10	0.9	0.5	248	13.2	27.6	3.2	12.8	3.0	2.8	0.4	2.2	293
1276598	108	15.5	20.1	28.4	4.1	116	4	0.1	0.86	1.3	13	3.2	< 0.1	1150	1.0	1.8	0.2	0.9	0.3	0.4	< 0.1	0.4	20.9
1276599	3740	15.9	18.2	1.0	13.7	71.7	47	4.6	2.87	1.7	16	2.1	1.1	31	15.4	32.3	3.9	15.1	3.4	3.2	0.4	2.3	652
1276600	11.5	1.5	2.6	1.2	0.6	7.7	3	0.1	0.89	< 0.1	< 1	0.3	< 0.1	10	0.3	0.9	< 0.1	0.3	< 0.1	< 0.1	< 0.1	0.1	29.7
1470701	26.4	7.2	10.3	5.4	4.4	54.8	12	0.4	0.63	< 0.1	< 1	0.2	< 0.1	103	1.0	2.7	0.4	1.8	0.6	0.8	0.1	0.8	64.8
1470702	63.1	15.4	19.9	0.4	16.3	200	21	0.2	0.17	< 0.1	< 1	< 0.1	< 0.1	12	2.3	5.9	0.9	4.5	1.7	2.3	0.4	2.6	62.4
1470703	50.0	4.3	14.4	< 0.2	1.9	57.6	8	0.1	0.43	< 0.1	< 1	0.4	< 0.1	10	0.7	1.6	0.2	1.1	0.4	0.4	< 0.1	0.3	58.0
1470705	36.8	11.7	< 0.1	21.7	13.9	125	41	1.3	3.51	< 0.1	< 1	< 0.1	< 0.1	139	6.1	13.2	1.6	6.8	1.9	2.4	0.4	2.3	57.4
1470706	4.7	2.6	< 0.1	7.5	2.3	7.2	11	0.4	57.4	< 0.1	< 1	< 0.1	0.3	44	0.7	1.7	0.2	1.0	0.3	0.4	< 0.1	0.4	12.5
1470707	2.9	1.5	1.0	1.5	2.0	4.7	10	0.6	50.1	< 0.1	< 1	0.1	2.5	13	0.6	1.3	0.1	0.7	0.2	0.3	< 0.1	0.3	21.1
1470708	39.0	10.1	0.4	24.0	9.6	45.7	48	1.9	7.26	< 0.1	< 1	< 0.1	0.2	153	3.6	7.8	1.0	3.9	1.1	1.4	0.2	1.5	103
1470710	37.3	1.0	0.6	< 0.2	0.8	98.0	3	< 0.1	0.49	< 0.1	< 1	0.1	< 0.1	10	2.9	3.5	0.3	1.3	0.2	0.2	< 0.1	< 0.1	4.3
1470711	18.9	13.6	2.8	10.6	21.3	37.7	88	11.1	496	< 0.1	1	< 0.1	2.2	88	5.3	13.6	2.0	8.9	3.0	3.7	0.6	3.6	58.4
1470712	30.7	15.3	< 0.1	37.2	5.1	93.3	92	1.2	1.85	< 0.1	< 1	< 0.1	0.1	217	7.3	15.7	1.5	5.0	1.1	0.9	0.1	0.8	2.4
1470713	28.7	15.7	2.1	26.1	13.2	168	67	2.5	2.06	< 0.1	< 1	< 0.1	1.5	161	6.8	14.5	1.7	6.6	1.7	1.8	0.3	2.0	23.4
1470714	33.6	19.0	< 0.1	66.0	11.6	321	157	3.7	0.46	< 0.1	1	0.4	0.2	343	31.8	68.8	8.2	32.9	7.3	5.9	0.6	2.5	21.4
1470715	10.3	21.6	< 0.1	43.6	3.6	264	101	1.8	0.69	< 0.1	< 1	0.2	0.1	737	13.5	25.8	2.8	10.2	2.1	1.5	0.1	0.7	12.4
1470716	6.8	19.0	1.2	7.1	2.9	362	82	2.2	0.64	< 0.1	< 1	0.2	< 0.1	1090	10.6	21.8	2.3	8.3	1.7	1.2	0.1	0.5	95.5
1470717	6.9	13.3	0.6	4.7	4.9	422	81	1.0	1.53	< 0.1	< 1	< 0.1	0.1	246	9.2	19.1	2.2	8.1	1.8	1.4	0.2	0.9	9.5
1470718	9.5	12.9	< 0.1	17.3	2.7	268	59	0.9	0.81	< 0.1	< 1	0.2	< 0.1	333	10.1	19.9	2.3	8.5	1.7	1.1	0.1	0.5	10.9
1470719	53.4	6.0	< 0.1	0.9	2.6	306	7	0.2	0.35	< 0.1	< 1	< 0.1	< 0.1	123	0.5	1.3	0.2	1.2	0.5	0.5	< 0.1	0.5	14.8
1470720	97.2	8.9	< 0.1	10.1	5.7	749	10	0.1	0.87	< 0.1	< 1	< 0.1	< 0.1	178	1.2	3.1	0.5	2.2	0.9	1.0	0.2	0.9	3.8
1470721	30.2	18.8	< 0.1	46.3	4.9	169	105	2.5	0.47	< 0.1	< 1	0.2	0.1	457	12.8	29.2	3.0	11.9	2.4	1.8	0.2	0.9	20.6
1470722	17.2	10.9	155	3.3	7.8	277	55	3.6	0.51	< 0.1	1	2.7	0.2	53	4.5	11.7	1.7	8.0	2.4	2.1	0.3	1.5	10.2
1470723	51.5	5.5	22.0	5.9	8.0	38.8	20	2.9	1.51	< 0.1	2	1.4	0.3	27	5.1	10.6	1.3	5.1	1.3	1.3	0.2	1.3	137
1470724	1900	15.9	4.0	2.5	23.2	194	38	6.0	1.95	0.9	8	0.8	0.3	17	17.1	37.4	4.5	18.3	4.3	4.3	0.6	3.7	277
1470725	829	17.2	4.4	2.6	23.8	168	52	6.1	1.47	0.5	7	0.6	0.3	24	17.7	37.4	4.5	18.4	4.4	4.3	0.6	3.8	161
1470726	141	18.9	0.9	2.7	18.2	78.8	22	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	27	9.7	22.8	3.0	13.7	3.8	4.1	0.6	3.5	37.4
1470727	82.7	5.7	14.3	0.3	2.0	25.4	6	0.2	0.83	< 0.1	< 1	0.2	< 0.1	29	0.5	1.3	0.2	1.0	0.4	0.3	< 0.1	0.3	80.5
1470728	186	12.7	25.7	23.7	5.1	107	36	0.3	0.11	< 0.1	< 1	< 0.1	< 0.1	151	6.8	15.6	2.0	8.6	2.0	1.8	0.2	1.1	23.9
1470729	56.8	8.3	14.7	25.6	4.4	93.0	16	0.4	0.36	< 0.1	< 1	0.9	< 0.1	99	0.7	1.9	0.3	1.7	0.7	0.9	0.1	0.8	18.5

Results

Activation Laboratories Ltd.

Report: A16-10517

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470730	53.8	10.4	4.3	47.5	2.0	46.1	7	0.4	0.35	< 0.1	< 1	0.3	0.1	305	0.7	1.9	0.3	1.7	0.6	0.6	< 0.1	0.4	64.7
1470732	19.9	1.7	3.5	0.3	1.0	24.9	4	< 0.1	0.81	< 0.1	< 1	0.3	< 0.1	8	2.3	3.5	0.4	1.6	0.3	0.3	< 0.1	0.2	9.3

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477759	< 0.1	0.6	3.8	0.5	0.5	8.6	< 0.001	0.05	4.2	15	2.3	0.7	0.515	0.070	5.70
1477760	< 0.1	0.5	3.3	0.4	0.5	9.8	< 0.001	< 0.05	4.5	14	2.3	2.6	0.524	0.092	5.18
1477761	< 0.1	0.5	3.6	0.5	0.6	3.0	< 0.001	< 0.05	4.6	15	2.5	0.7	0.575	0.059	5.29
1477762	0.6	0.4	2.7	0.4	0.4	4.0	< 0.001	< 0.05	4.6	15	2.2	0.6	0.598	0.088	3.49
1477763	0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.5	< 0.001	< 0.05	0.6	< 1	< 0.1	< 0.1	0.0171	0.004	0.05
1477764	0.2	0.2	1.4	0.2	0.2	4.0	< 0.001	< 0.05	2.2	14	1.3	0.4	0.406	0.056	0.68
1477766	< 0.1	0.5	3.7	0.5	0.5	2.7	< 0.001	0.17	3.1	22	2.3	0.6	0.624	0.099	4.11
1477767	0.4	0.2	1.1	0.2	< 0.1	0.2	< 0.001	< 0.05	6.0	28	0.4	< 0.1	0.222	0.019	0.65
1477768	0.2	0.3	2.2	0.3	< 0.1	< 0.1	< 0.001	< 0.05	4.4	33	0.9	0.3	0.372	0.049	1.74
1477769	0.5	0.3	2.0	0.3	< 0.1	< 0.1	< 0.001	0.23	3.0	31	0.9	1.4	0.482	0.038	0.80
1477770	0.5	0.2	1.8	0.3	0.2	0.2	0.031	0.68	5.3	34	0.9	0.2	0.452	0.033	0.38
1477771	0.2	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	0.10	3.2	46	0.4	0.2	0.442	0.048	< 0.01
1477772	0.3	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.10	5.1	39	0.3	< 0.1	0.669	0.044	0.42
1477773	0.2	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	2.4	42	0.3	< 0.1	0.213	0.044	0.03
1477775	0.1	0.1	0.7	0.1	< 0.1	< 0.1	< 0.001	0.08	2.9	42	0.3	< 0.1	0.149	0.035	0.34
1477776	< 0.1	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	0.34	3.5	41	0.4	0.2	0.113	0.049	0.09
1477777	0.2	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	0.34	2.7	42	0.4	< 0.1	0.152	0.044	0.07
1477778	< 0.1	0.2	1.1	0.2	< 0.1	< 0.1	< 0.001	0.37	5.5	29	1.9	0.5	0.317	0.101	0.08
1477779	0.4	0.2	1.4	0.2	< 0.1	2.8	< 0.001	0.45	3.5	43	0.6	0.8	0.780	0.053	1.31
1477780	< 0.1	< 0.1	0.4	< 0.1	0.2	0.1	< 0.001	< 0.05	4.0	7	5.7	1.5	0.205	0.089	0.03
1477782	< 0.1	< 0.1	0.5	< 0.1	0.2	0.3	< 0.001	0.24	6.0	6	6.2	1.4	0.280	0.121	< 0.01
1477783	< 0.1	0.1	0.7	0.1	0.3	0.8	< 0.001	0.42	19.1	10	10.0	2.1	0.354	0.137	0.30
1477784	0.3	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	14.0	14	< 0.1	< 0.1	0.0799	0.007	< 0.01
1477785	< 0.1	0.1	0.8	0.1	0.2	0.6	< 0.001	0.55	4.9	9	11.2	2.0	0.323	0.136	0.16
1477786	0.2	0.1	0.8	0.1	0.4	1.7	< 0.001	0.18	47.7	11	11.5	2.7	0.356	0.160	0.13
1477787	< 0.1	< 0.1	0.5	< 0.1	0.3	1.6	< 0.001	0.39	30.0	4	11.8	2.9	0.250	0.088	0.93
1477788	< 0.1	0.2	1.0	0.2	0.2	0.3	< 0.001	0.20	8.3	16	8.2	1.6	0.401	0.226	< 0.01
1477789	< 0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.29	9.6	28	2.4	0.8	0.188	0.053	< 0.01
1477790	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	0.17	8.8	4	4.8	1.8	0.192	0.061	< 0.01
1477791	< 0.1	0.2	1.3	0.2	0.4	0.3	< 0.001	0.26	11.0	18	9.8	2.0	0.461	0.270	< 0.01
1477792	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.4	2	< 0.1	< 0.1	0.0222	0.005	< 0.01
1477793	0.2	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.08	1.3	19	< 0.1	< 0.1	0.118	0.011	0.07
1477794	0.3	< 0.1	0.8	0.1	< 0.1	< 0.1	< 0.001	0.07	2.4	38	0.1	< 0.1	0.261	0.016	0.08
1477795	0.6	< 0.1	0.8	0.1	< 0.1	< 0.1	0.003	< 0.05	105	38	0.1	0.2	0.383	0.011	0.72
1477796	0.2	< 0.1	0.7	0.1	< 0.1	< 0.1	< 0.001	0.40	5.3	50	0.3	0.1	0.348	0.014	0.29
1477797	< 0.1	0.2	1.7	0.2	< 0.1	< 0.1	< 0.001	< 0.05	3.0	11	0.7	0.2	0.0882	0.044	< 0.01
1477798	0.2	< 0.1	0.6	< 0.1	< 0.1	0.3	< 0.001	< 0.05	7.9	17	< 0.1	< 0.1	0.115	0.009	0.07
1477799	0.3	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.07	3.9	36	0.3	< 0.1	0.334	0.028	0.07
1477800	0.4	0.1	0.8	0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.0	14	0.1	< 0.1	0.229	0.021	0.01
1470501	0.2	0.2	1.5	0.2	< 0.1	< 0.1	< 0.001	0.26	3.9	59	0.4	0.1	0.200	0.061	0.17
1470502	0.2	0.1	1.1	0.2	< 0.1	< 0.1	< 0.001	0.24	1.7	46	0.4	< 0.1	0.263	0.047	0.02
1470503	< 0.1	0.3	2.2	0.3	< 0.1	< 0.1	< 0.001	0.14	2.3	32	2.0	0.5	0.321	0.125	0.25

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470505	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	2	< 0.1	< 0.1	0.0310	0.003	< 0.01
1470506	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	1	< 0.1	< 0.1	0.0327	0.003	< 0.01
1470507	0.2	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	0.13	1.2	42	0.1	< 0.1	0.330	0.018	1.47
1470508	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	3	< 0.1	< 0.1	0.0184	0.001	< 0.01
1470509	0.7	0.1	1.1	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.6	53	0.1	< 0.1	0.331	0.020	0.07
1470510	0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	5.3	6	< 0.1	< 0.1	0.0130	0.003	0.09
1470511	0.2	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	5	< 0.1	< 0.1	0.0099	0.008	0.04
1470512	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	5	< 0.1	< 0.1	0.0095	0.006	0.02
1470514	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.7	4	< 0.1	< 0.1	0.0095	0.004	0.07
1470515	< 0.1	0.2	0.9	0.1	0.3	0.4	< 0.001	0.11	9.7	6	5.8	2.3	0.324	0.211	< 0.01
1470516	0.4	0.1	0.9	0.2	< 0.1	< 0.1	< 0.001	0.15	8.0	37	1.0	0.3	0.457	0.047	0.15
1470517	0.2	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.2	17	< 0.1	< 0.1	0.107	0.008	0.03
1470518	0.2	0.2	1.2	0.2	< 0.1	< 0.1	< 0.001	0.15	3.9	42	0.3	0.1	0.142	0.038	0.07
1470519	0.2	0.1	1.2	0.2	< 0.1	< 0.1	< 0.001	0.19	5.4	37	0.3	0.1	0.154	0.033	0.11
1470520	< 0.1	< 0.1	0.5	< 0.1	0.2	0.4	< 0.001	0.49	9.4	8	8.1	2.0	0.317	0.119	0.18
1470521	< 0.1	0.1	0.7	0.1	0.4	0.9	< 0.001	0.64	6.2	10	8.7	2.6	0.382	0.131	0.42
1470522	< 0.1	< 0.1	0.4	< 0.1	0.2	< 0.1	< 0.001	< 0.05	3.0	5	3.5	0.8	0.130	0.051	< 0.01
1470523	0.4	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.14	3.3	57	0.2	< 0.1	0.417	0.021	0.17
1470524	0.2	0.1	1.1	0.2	< 0.1	< 0.1	< 0.001	< 0.05	4.2	48	0.2	< 0.1	0.344	0.029	0.03
1470525	0.1	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	0.07	3.2	32	0.2	< 0.1	0.387	0.026	0.06
1470526	< 0.1	0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	7.6	11	4.6	1.1	0.289	0.114	0.01
1470527	< 0.1	0.1	0.8	0.1	0.1	< 0.1	< 0.001	0.16	7.0	10	5.3	1.3	0.308	0.131	< 0.01
1470529	0.1	0.2	1.6	0.3	< 0.1	0.1	0.001	0.18	9.8	48	0.5	0.3	0.279	0.045	0.07
1477938	0.2	0.3	2.2	0.3	< 0.1	< 0.1	< 0.001	< 0.05	4.1	32	1.0	0.3	0.425	0.060	1.79
1477939	< 0.1	0.6	4.0	0.6	0.5	1.7	0.005	< 0.05	4.2	14	2.1	0.9	0.459	0.124	3.25
1477940	0.3	0.4	3.0	0.4	0.4	1.5	0.006	< 0.05	6.8	11	1.8	0.9	0.387	0.123	3.38
1477941	< 0.1	0.5	3.3	0.5	0.5	1.7	0.041	< 0.05	5.4	14	1.9	0.9	0.390	0.116	3.74
1477942	0.5	0.2	1.6	0.2	< 0.1	0.3	< 0.001	< 0.05	3.6	23	0.8	0.4	0.585	0.053	1.25
1477943	< 0.1	< 0.1	0.2	< 0.1	0.1	0.2	< 0.001	< 0.05	7.2	2	2.2	1.0	0.154	0.037	0.16
1477944	0.1	0.2	1.1	0.2	0.4	3.7	< 0.001	0.09	45.0	13	2.2	0.6	0.456	0.087	0.80
1477945	0.2	0.4	2.6	0.4	< 0.1	< 0.1	< 0.001	0.13	5.5	23	1.9	0.5	0.550	0.080	0.51
1477946	< 0.1	0.2	1.3	0.2	0.2	1.8	< 0.001	0.19	3.4	17	0.8	0.2	0.348	0.046	1.36
1477947	0.2	0.3	2.4	0.3	< 0.1	< 0.1	< 0.001	0.12	5.1	34	1.1	0.3	0.318	0.063	0.44
1477948	0.2	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	< 0.05	5.0	31	1.0	0.3	0.518	0.059	2.74
1477949	0.5	0.2	1.6	0.2	< 0.1	0.2	< 0.001	< 0.05	3.6	27	0.8	0.3	0.514	0.067	1.68
1477950	0.4	0.3	1.8	0.3	< 0.1	0.9	< 0.001	< 0.05	2.5	25	1.0	0.5	0.664	0.125	2.48
1470601	0.5	0.3	1.8	0.2	< 0.1	0.3	< 0.001	0.16	4.0	29	1.0	0.4	0.562	0.075	1.96
1470602	0.1	0.1	0.9	0.1	0.2	1.7	0.001	0.13	4.8	9	1.3	0.4	0.196	0.038	2.02
1470603	0.1	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	4.8	16	0.9	0.3	0.386	0.050	0.09
1470604	0.1	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	3.0	21	0.6	0.1	0.385	0.034	0.06
1470606	0.2	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.2	16	< 0.1	< 0.1	0.0495	0.007	0.07
1470607	0.3	< 0.1	0.3	< 0.1	< 0.1	0.5	< 0.001	< 0.05	2.8	22	< 0.1	< 0.1	0.0987	0.007	0.02

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470608	< 0.1	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	5.5	7	2.3	0.5	0.183	0.077	< 0.01
1470609	< 0.1	< 0.1	0.4	< 0.1	0.4	0.6	< 0.001	0.29	17.5	3	11.2	2.7	0.227	0.070	0.46
1470610	< 0.1	< 0.1	0.3	< 0.1	0.4	0.7	< 0.001	0.49	55.2	3	10.8	2.6	0.249	0.076	0.56
1470611	< 0.1	0.2	1.2	0.2	0.3	0.2	< 0.001	0.19	10.1	15	9.2	2.1	0.367	0.129	< 0.01
1470612	0.5	0.2	1.2	0.2	< 0.1	< 0.1	0.001	0.20	6.2	59	0.4	< 0.1	0.751	0.047	0.15
1470613	0.5	0.1	1.2	0.2	< 0.1	< 0.1	< 0.001	< 0.05	3.9	41	0.3	< 0.1	0.482	0.043	0.09
1470614	0.2	0.1	1.1	0.2	< 0.1	< 0.1	< 0.001	0.20	6.2	47	0.3	< 0.1	0.231	0.043	0.22
1470615	0.2	0.2	1.3	0.2	< 0.1	0.1	< 0.001	0.37	7.7	51	0.3	0.1	0.653	0.044	0.48
1477576	0.6	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.5	27	0.2	< 0.1	0.257	0.009	0.17
1477578	< 0.1	0.1	0.7	< 0.1	0.1	0.2	< 0.001	< 0.05	5.4	7	7.5	2.0	0.314	0.115	0.05
1477579	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	28.2	6	6.6	1.2	0.275	0.093	0.07
1477580	1.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.8	24	< 0.1	< 0.1	0.196	0.008	0.07
1477581	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.6	2	2.1	0.4	0.101	0.043	< 0.01
1477582	0.6	0.3	2.2	0.3	< 0.1	< 0.1	< 0.001	< 0.05	1.5	42	0.7	0.2	0.560	0.035	0.06
1477584	0.4	0.2	1.5	0.2	0.1	< 0.1	< 0.001	< 0.05	1.5	40	0.4	0.1	0.413	0.025	0.11
1477585	0.5	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.7	22	0.2	< 0.1	0.201	0.017	< 0.01
1477586	0.2	0.2	1.6	0.2	0.1	< 0.1	< 0.001	< 0.05	1.7	39	0.4	0.1	0.379	0.024	0.34
1477587	0.2	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	8	0.1	< 0.1	0.107	0.015	< 0.01
1477588	0.2	0.1	1.0	0.2	< 0.1	0.4	< 0.001	< 0.05	1.7	20	0.3	< 0.1	0.241	0.016	< 0.01
1477589	0.3	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.9	32	0.3	0.1	0.306	0.020	< 0.01
1477590	0.6	0.2	1.7	0.3	< 0.1	< 0.1	0.001	< 0.05	1.8	41	0.5	0.5	0.271	0.024	0.11
1477591	0.5	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.6	45	0.4	0.2	0.322	0.023	0.03
1477592	0.4	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	< 0.05	5.4	42	0.6	0.2	0.489	0.035	0.32
1477593	0.5	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.6	35	0.5	0.1	0.382	0.026	0.42
1477594	0.5	0.3	2.1	0.3	0.2	0.3	< 0.001	< 0.05	1.8	44	0.6	0.4	0.476	0.033	0.11
1477595	0.6	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	< 0.05	2.4	39	0.7	0.2	0.470	0.037	0.41
1477596	0.4	0.3	1.9	0.3	< 0.1	< 0.1	< 0.001	< 0.05	1.9	38	0.6	0.2	0.351	0.032	0.33
1477597	0.6	0.2	1.4	0.2	< 0.1	0.1	< 0.001	< 0.05	1.8	40	0.4	0.1	0.328	0.021	0.05
1477598	0.9	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.8	18	0.1	< 0.1	0.158	0.011	0.03
1477599	0.6	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.9	46	0.5	0.2	0.382	0.029	0.77
1477600	0.3	0.4	2.9	0.4	< 0.1	< 0.1	0.001	< 0.05	2.0	36	1.0	0.3	0.266	0.060	0.39
1470751	0.5	0.4	2.5	0.3	< 0.1	< 0.1	0.002	< 0.05	2.3	37	0.9	0.3	0.523	0.056	0.62
1470752	0.5	0.3	1.9	0.3	< 0.1	0.2	0.001	< 0.05	1.2	40	0.6	0.2	0.538	0.038	0.49
1470753	0.6	0.3	2.3	0.3	< 0.1	0.2	0.001	< 0.05	2.0	41	0.7	0.2	0.584	0.043	0.17
1470754	0.3	0.3	2.3	0.3	0.2	0.4	0.001	< 0.05	3.3	41	0.7	0.3	0.535	0.045	0.25
1276578	0.2	0.3	2.2	0.3	< 0.1	0.2	0.002	0.10	1.4	34	1.0	0.3	0.425	0.046	0.61
1276579	0.1	0.3	2.1	0.3	0.2	2.0	0.002	< 0.05	5.2	31	0.9	0.3	0.588	0.049	0.63
1276580	< 0.1	0.1	1.0	0.2	0.2	1.0	< 0.001	0.05	5.7	13	0.6	0.3	0.363	0.033	1.27
1276581	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.9	0.002	< 0.05	1.1	4	0.2	0.1	0.0993	0.013	1.35
1276582	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.4	< 0.001	< 0.05	0.9	10	0.2	< 0.1	0.107	0.011	0.30
1276583	< 0.1	< 0.1	0.5	< 0.1	< 0.1	1.4	0.001	< 0.05	2.4	15	0.6	0.3	0.292	0.029	1.05
1276584	< 0.1	0.4	3.0	0.4	0.3	0.9	0.002	< 0.05	3.5	20	1.7	0.6	0.460	0.093	3.28

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1276585	0.3	0.4	2.5	0.4	< 0.1	< 0.1	0.002	0.07	4.3	36	1.2	0.3	0.639	0.059	0.37
1276587	0.6	0.3	2.0	0.3	< 0.1	< 0.1	< 0.001	< 0.05	6.8	32	0.9	0.2	0.479	0.065	0.35
1276588	0.3	< 0.1	0.6	< 0.1	< 0.1	0.5	0.003	< 0.05	1.1	16	0.3	< 0.1	0.227	0.016	0.34
1276589	0.6	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.5	15	0.1	< 0.1	0.187	0.027	< 0.01
1276590	< 0.1	0.2	1.5	0.2	0.2	0.2	< 0.001	< 0.05	5.7	27	0.9	0.3	0.586	0.087	0.03
1276591	< 0.1	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	< 0.05	2.7	29	1.4	0.4	0.343	0.052	0.12
1276592	0.1	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	0.09	2.5	30	0.8	0.2	0.209	0.039	< 0.01
1276593	0.2	0.1	1.0	0.1	< 0.1	0.2	< 0.001	0.32	4.8	51	1.1	0.4	0.555	0.059	1.05
1276594	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.4	< 0.001	< 0.05	1.2	7	0.3	0.3	0.0799	0.022	0.02
1276595	0.7	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	0.26	2.8	51	0.1	< 0.1	0.288	0.019	0.01
1276596	0.2	0.2	1.0	0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.2	15	0.8	0.2	0.217	0.034	< 0.01
1276597	0.4	0.2	1.1	0.1	0.3	0.3	0.001	0.10	12.2	14	1.6	0.5	0.374	0.058	1.02
1276598	0.2	< 0.1	0.5	< 0.1	< 0.1	0.4	< 0.001	0.15	8.6	6	< 0.1	< 0.1	0.0343	0.006	0.01
1276599	0.2	0.2	1.2	0.2	0.3	0.2	0.003	< 0.05	8.3	15	1.7	0.5	0.410	0.070	1.16
1276600	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.001	< 0.05	1.2	2	< 0.1	0.4	0.0264	0.006	0.01
1470701	0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.0	17	< 0.1	< 0.1	0.208	0.016	0.03
1470702	0.1	0.3	1.8	0.3	< 0.1	0.5	0.003	< 0.05	1.9	46	0.2	< 0.1	0.393	0.022	0.38
1470703	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	1.4	15	< 0.1	< 0.1	0.0650	0.007	0.49
1470705	0.2	0.2	1.5	0.2	< 0.1	0.6	0.001	0.10	3.1	23	0.7	0.2	0.429	0.040	1.05
1470706	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.4	0.006	< 0.05	0.6	4	0.1	0.2	0.0794	0.026	0.81
1470707	0.1	< 0.1	0.2	< 0.1	< 0.1	0.5	0.002	< 0.05	0.8	3	0.2	< 0.1	0.0919	0.025	0.17
1470708	< 0.1	0.2	1.0	0.1	0.1	1.1	< 0.001	0.11	2.3	19	0.6	0.2	0.390	0.036	2.00
1470710	0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.001	< 0.05	1.5	3	< 0.1	< 0.1	0.0139	0.002	0.04
1470711	< 0.1	0.3	2.1	0.3	0.3	3.4	0.082	< 0.05	2.8	23	1.1	0.7	0.590	0.239	4.43
1470712	< 0.1	< 0.1	0.6	< 0.1	< 0.1	0.1	< 0.001	0.11	2.0	11	1.4	0.5	0.272	0.041	0.02
1470713	0.1	0.2	1.5	0.2	< 0.1	0.8	< 0.001	0.07	3.3	23	1.0	0.3	0.340	0.042	0.42
1470714	< 0.1	0.1	0.9	0.1	0.2	4.5	< 0.001	0.28	6.3	12	4.2	1.7	0.292	0.158	1.24
1470715	< 0.1	< 0.1	0.3	< 0.1	< 0.1	2.4	< 0.001	0.16	6.1	5	2.5	1.0	0.180	0.047	0.55
1470716	< 0.1	< 0.1	0.3	< 0.1	0.1	6.5	< 0.001	< 0.05	6.4	3	1.8	0.8	0.129	0.058	0.37
1470717	< 0.1	< 0.1	0.4	< 0.1	< 0.1	4.2	< 0.001	< 0.05	5.5	4	2.2	1.0	0.0791	0.048	0.74
1470718	< 0.1	< 0.1	0.2	< 0.1	< 0.1	1.9	< 0.001	< 0.05	5.5	4	1.6	0.6	0.105	0.023	0.41
1470719	0.6	< 0.1	0.3	< 0.1	< 0.1	0.3	< 0.001	< 0.05	3.9	19	< 0.1	< 0.1	0.0964	0.005	0.02
1470720	< 0.1	< 0.1	0.5	< 0.1	< 0.1	1.0	< 0.001	< 0.05	8.5	14	< 0.1	< 0.1	0.0590	0.002	0.08
1470721	< 0.1	< 0.1	0.5	< 0.1	0.2	0.4	< 0.001	0.22	5.2	6	2.2	1.0	0.209	0.049	0.13
1470722	< 0.1	0.1	1.0	0.2	0.2	5.6	< 0.001	< 0.05	3.6	31	0.4	0.3	0.870	0.050	3.12
1470723	< 0.1	0.1	0.7	0.1	0.2	0.2	< 0.001	< 0.05	6.2	5	0.8	0.3	0.122	0.035	0.21
1470724	0.4	0.3	2.0	0.2	0.2	0.2	0.002	< 0.05	13.7	13	2.3	0.7	0.320	0.050	1.26
1470725	0.5	0.3	2.2	0.3	0.2	< 0.1	0.001	< 0.05	15.9	13	2.3	0.7	0.335	0.048	0.51
1470726	< 0.1	0.3	1.9	0.3	< 0.1	< 0.1	0.001	< 0.05	1.5	42	1.2	0.4	0.147	0.101	0.05
1470727	0.3	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	2.3	15	< 0.1	< 0.1	0.0692	0.007	0.01
1470728	0.4	< 0.1	0.6	0.1	< 0.1	0.4	< 0.001	0.13	4.6	25	0.8	0.3	0.243	0.046	< 0.01
1470729	0.3	< 0.1	0.6	< 0.1	< 0.1	2.0	< 0.001	0.12	1.8	28	< 0.1	< 0.1	0.159	0.021	0.16

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470730	0.2	< 0.1	0.3	< 0.1	< 0.1	0.7	< 0.001	0.25	1.5	39	< 0.1	< 0.1	0.180	0.010	0.15
1470732	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.2	6	< 0.1	< 0.1	0.0262	0.011	< 0.01

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	10.4	0.07	0.29	4.78	0.05	0.87	2.4	78	17.1	856	22.6	0.9	1460	36.2		0.9		31.8	2.66	7.1	0.52	1500	28.5
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
GXR-1 Meas																							
GXR-1 Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	10.5	0.48	1.57	6.00	2.47	0.98	0.3	88	45.4	136	3.14	1.1	190	43.4		1.9		3.35	2.59	14.4	1.24	17.1	5.3
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
GXR-4 Meas	9.1	0.57	1.59	6.79	3.94	0.98	0.5	90	37.9	147	3.03	1.2	220	38.5		1.7		3.85	2.62	13.2	1.33	19.4	9.4
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	33.3	1.53	0.97	7.86	2.08	1.01		45	39.2	775	5.04	0.9	70	37.9	3.1	2.8	1.2		4.06	18.8	1.36		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
SDC-1 Meas	29.3	1.52	0.92	8.41	1.97	0.98		44	45.6	765	4.78	0.8	50	31.2	3.2	2.5	1.0		3.67	15.7	1.37		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	34.3	0.10	0.58	> 10.0	1.70	0.18	< 0.1	146	36.2	885	5.64	2.1	70	24.8		1.0		0.10	4.01	13.4	0.57	0.17	0.6
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
GXR-6 Meas	31.0	0.11	0.59	> 10.0	1.78	0.18	< 0.1	130	45.1	956	5.26	2.1	60	22.7		1.0		0.11	3.96	12.5	0.58	0.19	0.6
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	4.7							152	150														
DNC-1a Cert	5.2							148	270														
DNC-1a Meas	4.3							149	146														
DNC-1a Cert	5.2							148	270														
OREAS 45d (Aqua Regia) Meas	20.9	0.09	0.22	7.75	0.39	0.18		98	440	452	15.0			256									0.33
OREAS 45d (Aqua Regia) Cert	11.9	0.031	0.144	4.860	0.097			201.0	467	400.000	13.650			176.0									0.30
OREAS 45d (Aqua Regia) Meas	21.9	0.10	0.23	7.93	0.38	0.18		156	533	444	13.6			214									0.37
OREAS 45d (Aqua Regia) Cert	11.9	0.031	0.144	4.860	0.097			201.0	467	400.000	13.650			176.0									0.30
SBC-1 Meas	165							0.3	224	57.8													
SBC-1 Cert	163.0							0.40	220.0	109													
SBC-1 Meas	138							0.5	231	74.7													
SBC-1 Cert	163.0							0.40	220.0	109													
SdAR-M2 (U.S.G.S.) Meas	16.9							5.1	25	33.0													
SdAR-M2 (U.S.G.S.) Cert	17.9							5.1	25.2	49.6													
SdAR-M2 (U.S.G.S.) Meas	13.6							5.6	25	37.4													

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29		48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
1477762 Orig	10.8	> 3.00	1.39	5.93	0.42	0.42	< 0.1	68	20.5	321	8.39	5.3	20	2.9	2.4	0.8	0.7	4.78	1.03	11.6	0.56	2.85	1.6
1477762 Dup	11.4	> 3.00	1.42	6.26	0.41	0.43	< 0.1	68	17.7	327	8.41	5.5	30	3.2	2.4	1.0	0.7	4.82	0.98	11.4	0.58	2.91	1.7
1477769 Orig	31.1	1.98	3.43	6.68	1.53	3.84	0.1	272	11.0	1310	8.44	1.7	20	18.1	1.8	2.1	0.6	0.12	5.25	29.8	0.60	0.58	0.2
1477769 Dup	30.5	1.90	3.27	6.69	1.60	3.82	< 0.1	273	15.3	1290	8.40	1.7	< 10	16.9	1.8	1.9	0.6	0.09	5.14	29.8	0.59	0.57	0.3
1470502 Orig	2.9	0.17	1.23	6.68	2.90	3.53	0.1	168	42.3	937	8.90	0.8	70	41.0	0.9	0.5	0.3	< 0.05	1.91	20.5	0.55	0.02	< 0.1
1470502 Dup	2.9	0.17	1.24	6.58	2.91	3.66	0.2	219	44.6	987	9.08	0.9	20	41.5	0.9	0.6	0.3	< 0.05	1.93	20.3	0.55	< 0.02	< 0.1
1470514 Orig	3.2	< 0.01	9.28	0.36	< 0.01	11.8	0.1	6	814	1230	4.29	< 0.1	< 10	1640	< 0.1	0.1	< 0.1	< 0.05	< 0.05	70.6	0.08	0.02	0.4
1470514 Dup	3.3	< 0.01	9.52	0.38	< 0.01	12.1	0.1	6	905	1190	4.19	< 0.1	20	1600	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	69.4	0.08	0.02	0.5
1470516 Orig	46.0	0.71	2.90	6.87	1.17	4.67	0.3	225	76.7	2130	9.71	1.7	< 10	68.9	0.7	0.7	0.2	< 0.05	0.69	45.8	0.64	0.20	0.4
1470516 Dup	34.4	0.70	2.84	6.68	1.09	4.70	0.2	212	69.1	2070	9.77	1.5	80	71.6	0.7	0.6	0.2	0.08	0.64	46.7	0.62	0.21	0.4
1470602 Orig	13.1	0.32	1.27	4.16	1.11	0.53	0.1	63	43.5	368	6.20	1.8	20	39.6	0.8	0.7	0.2	0.43	1.49	34.1	0.44	0.60	8.3
1470602 Dup	12.9	0.31	1.23	3.99	1.13	0.53	< 0.1	62	39.2	359	6.15	1.7	20	41.0	0.7	0.7	0.2	0.31	1.50	33.4	0.44	0.58	8.0
1477576 Orig																							
1477576 Split PREP DUP	4.7	0.02	14.1	4.38	0.01	3.85	< 0.1	130	2010	1020	8.01	0.8	10	536	0.6	0.1	0.2	< 0.05	0.14	54.3	0.05	0.06	1.5
1477590 Orig	12.2	> 3.00	4.54	7.30	0.03	3.77	0.1	173	467	1020	6.61	0.8	10	76.7	1.6	0.3	0.5	< 0.05	0.05	40.3	0.51	0.03	0.3
1477590 Dup	12.0	> 3.00	4.67	7.53	0.03	3.89	0.2	167	380	1010	6.72	0.8	10	79.5	1.6	1.0	0.5	< 0.05	0.11	40.9	0.52	0.03	0.2
1276581 Orig	0.9	1.06	0.20	1.41	0.13	0.22	< 0.1	25	28.7	89	2.52	0.4	30	5.5	0.2	0.2	< 0.1	0.37	0.14	8.6	0.06	1.04	0.4
1276581 Dup	1.0	1.04	0.20	1.37	0.13	0.20	< 0.1	25	31.7	82	2.48	0.4	20	5.4	0.2	0.2	< 0.1	0.36	0.13	8.6	0.06	1.01	0.3
1276598 Orig	7.8	0.16	0.87	5.42	1.07	3.78	< 0.1	111	33.8	1010	3.41	0.1	40	13.3	0.4	3.3	0.1	0.11	0.96	4.1	0.51	0.10	< 0.1
1276598 Split PREP DUP	8.0	0.15	0.83	5.37	1.08	3.80	< 0.1	110	27.8	960	3.42	0.2	30	13.2	0.4	3.5	0.1	< 0.05	0.98	4.1	0.52	0.10	0.1
1470702 Orig	10.7	> 3.00	2.44	7.76	0.03	5.64	< 0.1	262	169	1110	7.47	0.7	20	134	1.8	0.6	0.6	< 0.05	0.09	39.1	0.46	0.06	0.8
1470702 Dup	10.5	> 3.00	2.42	7.83	0.03	5.56	< 0.1	224	155	1110	7.33	0.5	20	129	1.7	0.6	0.6	< 0.05	0.10	39.3	0.47	0.05	0.8
1470732 Orig	3.7	0.01	1.90	0.77	< 0.01	2.33	0.1	26	258	715	2.25	0.1	50	117	0.1	< 0.1	< 0.1	0.06	< 0.05	16.5	0.13	0.02	0.1
1470732 Dup	3.5	< 0.01	1.88	0.76	< 0.01	2.31	< 0.1	26	269	725	2.24	0.1	50	116	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	15.9	0.13	< 0.02	0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	5.3	4	< 0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	2.8	10	< 0.01	< 0.1	10	< 0.5	< 0.1	< 0.1	< 0.1	0.13	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	697	13.9	417	2.5	25.3	283	34	0.9	16.6	0.7	27	31.8	9.3	1080	7.4	14.3		8.6	2.5	3.3	0.6	3.8	1020
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
GXR-1 Meas																							
GXR-1 Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	61.4	16.1	101	111	12.5	208	37	8.1	301	0.2	7	4.1	0.9	103	55.9	103		35.4	6.6	4.7	0.5	2.3	6500
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
GXR-4 Meas	68.6	18.2	108	134	13.8	214	41	9.7	313	0.2	8	4.6	1.0	430	59.9	113		44.3	6.0	4.4	0.5	2.4	6160
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	93.4	22.6	< 0.1	100		167	34	0.1			< 1	< 0.1		602	39.8	82.4		35.1	7.3	6.9	0.9	5.2	28.5
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
SDC-1 Meas	93.8	21.6	< 0.1	88.8		175	31	0.1			< 1	< 0.1		571	39.3	85.4		41.4	7.5	6.4	0.9	5.3	27.8
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	111	31.3	259	71.1	11.0	36.4	76	2.1	0.91	< 0.1	< 1	1.2	< 0.1	1300	11.9	30.6		10.6	2.5	2.3	0.3	1.9	62.5
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
GXR-6 Meas	116	30.7	255	69.1	12.6	39.5	76	0.6	0.55	< 0.1	< 1	0.8	< 0.1	1320	12.4	33.1		13.0	2.5	2.1	0.3	2.0	63.6
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	55.6	12.8		3.2	14.9	140	42	1.2					0.4	98	3.7			4.2					93.5
DNC-1a Cert	70	15		5	18.0	144	38.0	3					0.96	118	3.6			5.20					100
DNC-1a Meas	60.3	14.1		2.9	15.8	141	42	1.5					0.5	96	3.6			5.0					83.8
DNC-1a Cert	70	15		5	18.0	144	38.0	3					0.96	118	3.6			5.20					100
OREAS 45d (Aqua Regia) Meas	39.4	20.1	4.7	38.0	10.4	29.3				< 0.1	< 1			176	16.0	32.8							373
OREAS 45d (Aqua Regia) Cert	30.6	17.9	6.50	20.9	5.08	11.0				0.085	1.950			80	9.960	24.8							345.0
OREAS 45d (Aqua Regia) Meas	41.4	22.5	10.4	34.6	11.1	30.4				< 0.1	< 1			170	16.0	35.2							338
OREAS 45d (Aqua Regia) Cert	30.6	17.9	6.50	20.9	5.08	11.0				0.085	1.950			80	9.960	24.8							345.0
SBC-1 Meas	172	26.3	24.0	129	35.4	175	112	10.0	2.10		3	0.8		730	49.0	100	10.9	41.4	9.2	7.8	1.0	5.4	28.2
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
SBC-1 Meas	181	28.0	27.3	127	32.9	180	128	15.0	2.27		4	1.0		767	50.3	108	12.0	50.6	9.1	7.7	1.1	5.7	28.1
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
SdAR-M2 (U.S.G.S.) Meas	739	20.2		103	22.7	134	61	4.0	11.2					900	43.7	90.7	9.1	32.6	6.9	5.5	0.7	4.0	243
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SdAR-M2 (U.S.G.S.) Meas	771	18.8		99.5	26.2	143	120	9.1	11.5					957	45.2	99.4	10.3	40.0	6.3	5.3	0.7	4.2	233
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.0000
1477762 Orig	25.4	18.6	1.4	7.8	21.3	59.8	197	6.9	2.40	< 0.1	2	< 0.1	1.8	45	4.1	11.6	1.4	6.7	1.8	2.6	0.5	3.2	19.0
1477762 Dup	25.8	18.7	1.4	8.2	21.8	58.1	203	7.2	2.38	< 0.1	2	< 0.1	3.5	46	4.1	11.8	1.4	7.1	1.7	2.6	0.5	3.3	18.2
1477769 Orig	128	18.1	< 0.1	53.0	16.0	88.7	54	1.2	0.63	< 0.1	< 1	< 0.1	< 0.1	238	6.2	15.1	1.9	8.7	2.0	2.2	0.4	2.6	121
1477769 Dup	122	17.7	0.5	52.6	16.2	86.3	58	2.2	0.82	< 0.1	< 1	< 0.1	< 0.1	231	6.3	15.0	1.8	8.6	2.1	2.2	0.4	2.6	94.6
1470502 Orig	29.0	17.0	< 0.1	66.0	7.7	96.6	34	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	522	3.6	10.4	1.6	9.0	2.2	1.8	0.2	1.3	20.7
1470502 Dup	27.4	17.2	< 0.1	66.5	7.7	102	40	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	535	3.6	10.1	1.6	8.8	2.3	2.0	0.2	1.3	21.0
1470514 Orig	22.4	1.0	1530	< 0.2	0.7	288	4	< 0.1	0.34	< 0.1	< 1	11.4	< 0.1	14	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	3.0
1470514 Dup	22.4	1.0	1510	< 0.2	0.7	295	4	< 0.1	0.60	< 0.1	< 1	10.2	< 0.1	14	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	4.2
1470516 Orig	159	14.9	5.0	32.1	6.0	168	61	0.4	1.29	< 0.1	< 1	0.3	< 0.1	370	8.2	19.0	2.5	11.9	2.4	1.8	0.2	1.2	136
1470516 Dup	159	15.2	4.0	32.9	6.3	176	53	0.1	0.31	< 0.1	< 1	0.4	< 0.1	367	7.6	17.5	2.3	11.1	2.1	1.8	0.2	1.2	137
1470602 Orig	74.8	11.4	26.8	29.8	6.9	32.0	72	2.8	6.45	0.2	2	0.4	0.6	198	5.7	13.4	1.5	7.1	1.4	1.3	0.2	1.1	197
1470602 Dup	72.5	11.8	26.0	29.4	7.0	30.6	70	2.8	6.62	0.3	2	0.3	0.6	82	5.4	12.9	1.6	6.9	1.4	1.2	0.2	1.1	191
1477576 Orig																							
1477576 Split PREP DUP	72.8	9.9	1.3	0.4	4.9	7.5	33	0.7	0.22	< 0.1	< 1	0.5	< 0.1	12	3.0	6.2	0.8	2.9	0.7	0.8	0.1	0.9	45.0
1477590 Orig	60.5	14.7	0.5	< 0.2	14.8	75.9	31	0.1	0.12	< 0.1	< 1	< 0.1	< 0.1	21	2.5	6.4	0.9	4.7	1.5	1.9	0.4	2.4	72.1
1477590 Dup	66.0	14.8	1.5	0.2	15.5	71.9	31	< 0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	22	2.5	6.5	0.9	4.7	1.4	1.9	0.4	2.5	75.8
1276581 Orig	3.9	4.6	< 0.1	2.9	1.8	21.3	16	0.6	19.1	< 0.1	< 1	< 0.1	0.4	54	0.9	1.5	0.2	0.7	0.2	0.2	< 0.1	0.3	13.8
1276581 Dup	4.2	4.4	0.9	2.9	1.7	22.3	17	0.6	19.2	< 0.1	< 1	< 0.1	0.4	52	0.9	1.5	0.2	0.7	0.2	0.2	< 0.1	0.3	13.8
1276598 Orig	108	15.5	20.1	28.4	4.1	116	4	0.1	0.86	1.3	13	3.2	< 0.1	1150	1.0	1.8	0.2	0.9	0.3	0.4	< 0.1	0.4	20.9
1276598 Split PREP DUP	108	13.9	20.1	28.1	4.1	114	3	< 0.1	0.74	1.4	12	3.3	< 0.1	1160	0.9	1.8	0.2	1.0	0.3	0.4	< 0.1	0.4	9.8
1470702 Orig	62.3	15.5	20.8	0.4	16.3	201	24	0.2	0.19	< 0.1	< 1	< 0.1	< 0.1	12	2.3	5.8	0.9	4.4	1.6	2.3	0.4	2.6	63.2
1470702 Dup	63.9	15.3	19.0	0.5	16.4	200	18	0.1	0.16	< 0.1	< 1	< 0.1	< 0.1	12	2.3	5.9	0.9	4.5	1.7	2.4	0.4	2.6	61.7
1470732 Orig	20.7	1.6	3.7	0.3	1.0	25.2	5	< 0.1	0.82	< 0.1	< 1	0.3	< 0.1	8	2.3	3.5	0.4	1.5	0.3	0.3	< 0.1	0.2	9.7
1470732 Dup	19.1	1.7	3.4	0.3	0.9	24.6	4	< 0.1	0.80	< 0.1	< 1	0.3	< 0.1	7	2.3	3.5	0.4	1.7	0.4	0.3	< 0.1	0.2	8.8
Method Blank	< 0.2	0.2	< 0.1	< 0.2	< 0.1	< 0.2	< 1	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank	< 0.2	0.1	< 0.1	< 0.2	< 0.1	< 0.2	< 1	< 0.1	0.99	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.3	2.1	0.3	< 0.1	151		0.29	743	1	2.1	29.5	0.0295	0.051	0.21
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
GXR-1 Meas										1			0.0297	0.056	0.22
GXR-1 Cert										1.58			0.036	0.0650	0.257
DH-1a Meas											> 500	2460			
DH-1a Cert											910	2629			
DH-1a Meas											> 500	2250			
DH-1a Cert											910	2629			
GXR-4 Meas		0.2	0.9	0.1	0.4	32.0		2.63	45.4	8	16.8	5.6	0.290	0.135	1.80
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
GXR-4 Meas		0.2	1.0	0.1	0.6	33.9		2.79	48.0	9	18.2	5.2	0.290	0.142	1.90
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.4	3.1		< 0.1	< 0.1		0.52	23.1	17	10.4	3.0	0.294	0.058	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
SDC-1 Meas		0.5	3.3		< 0.1	< 0.1		0.47	22.4	17	10.3	2.8	0.169	0.056	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			1.5	0.3	0.1	0.9		1.78	93.6	28	4.4	1.4		0.036	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
GXR-6 Meas			1.7	0.2	< 0.1	< 0.1		1.86	96.7	29	4.5	1.3		0.036	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			1.8						5.8	31			0.279		
DNC-1a Cert			2.0						6.3	31			0.29		
DNC-1a Meas			1.9						5.5	31			0.278		
DNC-1a Cert			2.0						6.3	31			0.29		
OREAS 45d (Aqua Regia) Meas									19.8	55	12.6	2.7		0.034	0.04
OREAS 45d (Aqua Regia) Cert									17.00	41.50	11.3	1.64		0.035	0.045
OREAS 45d (Aqua Regia) Meas									20.7	58	12.7	2.6		0.039	0.05
OREAS 45d (Aqua Regia) Cert									17.00	41.50	11.3	1.64		0.035	0.045
SBC-1 Meas		0.5	3.1	0.5	0.6	1.3		0.73	33.6	22	13.5	5.7	0.464		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
SBC-1 Meas		0.5	3.5	0.5	0.9	1.6		0.76	35.0	22	13.6	5.3	0.507		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
SdAR-M2 (U.S.G.S.) Meas		0.4	2.5	0.4	0.1	0.3			784	4	12.2	2.4			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
SdAR-M2 (U.S.G.S.) Meas		0.4	2.8	0.4	0.4	0.8			811	4	11.9	2.2			

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
1477762 Orig	0.6	0.4	2.7	0.4	0.3	3.5	< 0.001	< 0.05	4.5	15	2.2	0.6	0.566	0.085	3.31
1477762 Dup	0.6	0.4	2.8	0.4	0.4	4.4	< 0.001	< 0.05	4.6	16	2.3	0.7	0.629	0.091	3.66
1477769 Orig	0.6	0.3	2.0	0.3	< 0.1	< 0.1	< 0.001	0.23	3.0	31	0.9	0.3	0.469	0.038	0.79
1477769 Dup	0.5	0.3	1.9	0.3	0.1	0.3	< 0.001	0.23	3.0	31	0.9	2.5	0.495	0.039	0.80
1470502 Orig	0.2	0.1	1.1	0.2	< 0.1	< 0.1	< 0.001	0.25	1.8	46	0.4	0.1	0.226	0.047	0.02
1470502 Dup	0.2	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	0.24	1.7	46	0.4	< 0.1	0.299	0.048	0.02
1470514 Orig	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.8	4	0.2	< 0.1	0.0092	0.004	0.08
1470514 Dup	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.7	4	< 0.1	< 0.1	0.0099	0.004	0.07
1470516 Orig	0.2	0.1	1.0	0.2	< 0.1	< 0.1	0.001	0.15	8.1	37	1.1	0.3	0.411	0.046	0.15
1470516 Dup	0.5	0.1	0.9	0.2	< 0.1	< 0.1	< 0.001	0.15	7.9	36	1.0	0.3	0.502	0.048	0.14
1470602 Orig	0.1	0.1	0.9	0.1	0.2	1.7	0.001	0.12	4.9	9	1.3	0.4	0.197	0.038	2.04
1470602 Dup	0.1	0.1	0.9	0.1	0.2	1.8	0.001	0.13	4.7	9	1.2	0.4	0.195	0.038	2.01
1477576 Orig										27			0.257	0.009	0.17
1477576 Split PREP DUP	0.5	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	28	0.3	< 0.1	0.263	0.010	0.18
1477590 Orig	0.7	0.2	1.7	0.3	< 0.1	< 0.1	0.001	< 0.05	2.3	42	0.4	0.1	0.284	0.024	0.11
1477590 Dup	0.6	0.2	1.7	0.3	< 0.1	< 0.1	0.001	< 0.05	1.3	41	0.5	0.8	0.258	0.024	0.11
1276581 Orig	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.9	0.002	< 0.05	1.1	4	0.2	0.1	0.0995	0.013	1.34
1276581 Dup	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.8	0.002	< 0.05	1.1	4	0.2	0.1	0.0991	0.014	1.35
1276598 Orig	0.2	< 0.1	0.5	< 0.1	< 0.1	0.4	< 0.001	0.15	8.6	6	< 0.1	< 0.1	0.0343	0.006	0.01
1276598 Split PREP DUP	0.2	< 0.1	0.5	< 0.1	< 0.1	0.4	< 0.001	0.14	8.6	6	< 0.1	< 0.1	0.0322	0.006	< 0.01
1470702 Orig	0.1	0.3	1.8	0.3	< 0.1	0.6	0.002	< 0.05	1.9	45	0.2	< 0.1	0.437	0.022	0.38
1470702 Dup	0.1	0.3	1.8	0.3	< 0.1	0.4	0.003	< 0.05	1.9	46	0.2	< 0.1	0.349	0.023	0.39
1470732 Orig	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.2	6	0.1	0.1	0.0249	0.011	< 0.01
1470732 Dup	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	1.3	6	< 0.1	< 0.1	0.0274	0.011	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0007	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01



Date Submitted: 18-Oct-16
Invoice No.: A16-10885-UT6
Invoice Date: 18-Jan-17
Your Reference: PENG-20161017-008-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Roger-(Inv.) Walsh

CERTIFICATE OF ANALYSIS

91 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-10885-UT6**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the end.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-10885

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470530	12.4	1.08	2.43	5.78	0.08	7.26	0.2	132	145	2070	9.62	0.1	70	97.4	2.7	0.2	0.9	0.24	0.70	67.3	0.85	0.05	0.6
1470531	4.0	0.04	0.48	1.19	0.03	0.44	< 0.1	64	30.0	1140	3.10	0.1	40	25.1	0.5	< 0.1	0.2	0.08	0.48	17.4	0.30	0.04	0.1
1470532	8.4	0.09	1.65	2.06	0.01	0.63	< 0.1	42	42.0	579	4.23	< 0.1	50	46.4	0.1	< 0.1	< 0.1	0.06	0.12	19.2	0.10	0.03	0.1
1470533	7.6	0.14	0.82	3.07	0.50	2.29	8.1	42	37.2	787	6.72	1.4	60	42.5	0.5	0.1	0.2	< 0.05	0.20	42.9	0.50	0.40	3.4
1470534	5.4	0.28	0.82	4.54	0.49	0.75	4.9	72	44.0	582	8.38	2.4	50	87.7	0.8	0.3	0.3	< 0.05	0.19	75.1	1.00	0.59	4.2
1470535	15.6	0.81	1.38	4.89	0.47	5.83	< 0.1	204	42.8	2140	9.10	0.7	20	23.7	2.1	0.6	0.7	< 0.05	0.14	36.3	0.80	0.04	0.5
1470536	21.7	0.72	1.91	6.61	1.09	4.46	< 0.1	316	38.5	2850	9.68	1.4	30	32.9	2.6	0.6	0.9	0.05	0.46	32.5	1.10	0.15	2.8
1470537	25.1	0.08	2.53	6.33	2.42	4.23	0.2	110	181	1100	5.86	2.4	80	122	1.4	0.7	0.5	< 0.05	2.37	31.1	0.90	0.06	0.2
1470538	19.8	1.87	2.22	5.87	0.55	1.69	< 0.1	158	169	1190	10.0	2.1	50	88.9	1.1	0.2	0.4	< 0.05	1.14	47.3	0.50	0.21	0.8
1470539	30.2	2.16	2.82	7.18	0.57	3.09	< 0.1	185	183	1660	10.1	2.5	40	96.4	1.4	0.3	0.5	< 0.05	1.22	41.7	0.80	0.06	0.7
1470541	7.1	2.48	2.47	6.51	0.20	2.61	< 0.1	153	203	1470	14.9	1.2	40	87.0	1.6	0.3	0.5	< 0.05	1.00	32.1	0.60	0.16	0.4
1470542	15.1	1.72	2.20	5.90	0.44	3.92	1.8	132	150	2330	10.4	1.8	60	84.4	1.3	0.4	0.4	0.19	0.46	36.1	0.70	0.09	0.2
1470543	6.5	0.43	1.44	4.20	0.09	2.94	< 0.1	95	113	1320	7.30	0.1	30	60.7	1.7	0.2	0.6	0.10	1.23	34.3	0.60	0.04	0.2
1470544	11.9	0.63	2.32	6.64	0.14	8.09	< 0.1	229	337	1800	8.40	0.3	20	138	1.9	0.1	0.7	< 0.05	0.79	51.4	0.70	0.03	0.6
1470545	11.6	1.00	2.56	6.93	0.03	6.39	0.1	231	322	1250	10.1	0.3	20	123	2.1	0.1	0.7	< 0.05	0.11	56.2	0.70	0.03	1.8
1470546	19.4	0.97	3.91	6.54	0.03	3.91	< 0.1	246	398	2160	13.1	0.3	10	116	1.9	0.1	0.7	< 0.05	0.15	66.1	0.60	0.02	0.4
1470547	12.8	1.40	4.60	5.90	0.14	6.74	< 0.1	225	240	1250	7.39	0.4	50	134	1.7	0.2	0.6	0.11	0.46	46.3	0.60	0.04	0.6
1470548	5.3	0.18	0.83	1.40	0.02	0.23	0.2	30	89.4	271	3.22	< 0.1	50	25.1	0.2	< 0.1	0.1	3.19	0.12	13.5	0.10	0.06	1.9
1470549	< 0.5	0.02	0.04	0.10	0.01	0.69	0.7	1	31.6	217	1.86	< 0.1	40	19.5	< 0.1	0.1	< 0.1	3.22	0.09	8.5	< 0.05	0.04	1.6
1470550	3.4	0.18	0.56	1.04	0.02	0.71	1.4	22	75.0	295	2.69	< 0.1	40	27.7	0.1	0.1	0.1	2.70	0.12	13.5	< 0.05	0.04	2.2
1470551	12.7	1.50	4.56	6.97	0.03	7.54	0.1	219	405	1330	7.47	0.3	30	183	1.6	0.1	0.5	0.37	0.08	46.3	0.60	0.03	0.3
1470552	9.9	1.55	2.95	4.79	0.06	5.20	< 0.1	161	187	2390	9.36	0.5	20	103	1.5	0.4	0.5	0.19	0.18	52.4	0.50	0.03	0.2
1470554	21.5	1.97	2.75	7.20	0.37	5.22	< 0.1	131	134	2490	7.75	0.4	10	81.3	2.3	0.3	0.8	0.08	0.32	52.4	0.90	0.02	< 0.1
1470616	13.8	0.82	3.30	7.34	0.22	7.87	0.1	235	31.7	1300	8.68	0.4	20	48.4	1.7	0.1	0.6	< 0.05	3.32	52.4	0.60	0.03	0.4
1470618	18.4	0.32	2.68	3.78	0.03	1.54	< 0.1	94	39.1	837	5.18	0.1	80	33.3	0.3	0.1	0.1	0.12	0.20	29.3	0.10	0.04	0.1
1470619	17.2	> 3.00	2.69	> 10.0	0.02	2.32	< 0.1	204	171	947	6.72	0.8	50	129	1.1	0.1	0.4	< 0.05	0.19	57.2	0.40	0.05	0.2
1470620	17.3	1.44	3.55	8.14	0.04	5.63	1.5	228	122	1190	7.82	0.3	30	124	2.1	0.2	0.7	0.68	0.06	54.8	0.70	0.06	1.1
1470621	14.1	0.10	1.00	6.72	2.68	2.68	< 0.1	72	72.4	507	3.13	1.1	30	45.0	0.5	1.3	0.2	0.12	2.64	22.4	0.60	0.15	1.2
1470622	42.2	1.11	4.33	6.65	0.01	4.78	< 0.1	218	118	1190	8.30	0.7	30	130	0.6	0.1	0.2	< 0.05	0.06	49.3	0.40	0.04	0.5
1470623	29.2	1.31	3.82	> 10.0	0.73	5.16	< 0.1	224	128	803	7.17	1.7	20	85.6	0.8	0.3	0.3	0.05	0.72	40.2	0.70	0.04	0.5
1470624	2.6	0.14	2.08	1.95	0.70	4.22	< 0.1	98	159	794	4.75	0.6	30	94.3	0.7	0.5	0.3	< 0.05	0.18	29.6	0.50	0.20	1.0
1470625	21.8	1.52	1.38	7.91	0.64	2.05	< 0.1	194	27.1	2090	11.5	0.8	20	31.3	0.8	0.7	0.3	< 0.05	0.86	44.3	0.70	0.04	0.5
1470626	33.5	> 3.00	3.67	6.28	0.06	1.95	< 0.1	224	31.3	1050	10.1	0.8	30	33.7	3.3	0.9	0.9	0.07	1.58	45.1	0.80	0.07	< 0.1
1470627	3.9	0.07	0.90	4.65	0.06	7.45	0.3	29	41.9	982	1.59	0.1	10	15.0	0.4	< 0.1	0.1	0.05	0.12	8.4	0.30	0.03	< 0.1
1470628	21.7	2.70	6.19	> 10.0	0.06	6.57	< 0.1	252	192	1070	7.79	0.5	< 10	131	1.8	0.3	0.5	0.05	0.44	44.3	0.50	0.03	< 0.1
1470629	41.9	0.86	2.85	> 10.0	0.19	6.42	< 0.1	242	228	1530	7.14	0.6	< 10	121	1.8	0.2	0.5	< 0.05	1.74	40.4	0.50	0.03	< 0.1
1470756	1.5	0.02	15.6	> 10.0	0.01	2.98	< 0.1	90	1120	980	7.18	0.6	< 10	514	0.5	< 0.1	0.1	< 0.05	0.08	85.6	< 0.05	0.03	0.3
1470758	33.0	2.56	6.34	> 10.0	0.19	5.56	< 0.1	187	287	952	6.23	0.9	< 10	107	1.4	0.3	0.4	< 0.05	0.41	39.2	0.40	0.03	< 0.1
1470759	9.8	> 3.00	3.89	> 10.0	0.19	5.51	< 0.1	245	12.5	1150	7.30	1.7	< 10	22.2	2.2	0.6	0.6	< 0.05	0.47	28.7	0.80	0.04	< 0.1
1470760	7.7	> 3.00	1.78	> 10.0	0.20	3.64	< 0.1	185	7.8	1020	8.33	1.8	20	4.4	2.9	0.5	0.8	< 0.05	0.42	28.3	0.80	0.04	< 0.1
1470761	12.9	> 3.00	3.30	> 10.0	0.09	3.21	< 0.1	217	16.6	1200	8.15	0.9	20	32.4	1.7	0.4	0.5	< 0.05	0.58	31.3	0.75	0.04	< 0.1
1470762	6.5	1.28	1.29	> 10.0	0.12	2.13	< 0.1	215	11.4	1550	8.78	1.9	< 10	2.8	2.0	0.5	0.6	< 0.05	1.02	25.0	0.50	0.05	0.2

Results

Activation Laboratories Ltd.

Report: A16-10885

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470763	1.7	0.05	2.07	> 10.0	0.03	13.1	< 0.1	216	20.1	1900	8.56	1.3	< 10	8.8	1.8	0.4	0.5	< 0.05	0.16	32.4	0.90	0.04	< 0.1
1470764	15.1	0.58	1.92	> 10.0	0.22	5.74	< 0.1	211	12.0	1600	11.2	1.8	< 10	4.9	2.9	0.5	0.8	< 0.05	0.73	37.3	0.70	0.03	< 0.1
1470765	18.8	1.21	1.35	> 10.0	0.17	4.55	< 0.1	145	10.1	1370	10.1	1.3	30	5.3	3.2	0.3	0.9	< 0.05	0.38	36.7	0.90	0.06	3.2
1470766	10.0	0.53	3.14	> 10.0	0.08	7.51	< 0.1	257	14.2	1300	7.05	1.2	50	23.7	1.7	0.2	0.5	< 0.05	0.24	28.0	0.50	0.05	< 0.1
1470767	1.0	< 0.01	17.9	> 10.0	0.01	0.72	< 0.1	66	234	840	12.2	0.5	20	1060	0.4	< 0.1	0.1	< 0.05	0.15	95.2	< 0.05	0.05	< 0.1
1470768	20.9	1.79	2.59	> 10.0	0.14	4.09	< 0.1	234	15.1	1360	8.64	1.6	20	16.3	2.2	0.3	0.6	< 0.05	0.56	30.0	0.60	0.04	< 0.1
1470769	30.0	1.48	2.91	> 10.0	0.15	3.54	< 0.1	255	15.3	1510	11.9	1.6	20	10.6	2.0	0.4	0.6	< 0.05	0.75	43.4	0.40	0.04	1.0
1470770	11.6	1.84	2.69	> 10.0	0.12	3.36	< 0.1	237	10.7	1240	8.94	1.6	< 10	8.7	2.2	0.1	0.6	< 0.05	0.45	41.1	0.50	0.02	< 0.1
1470771	9.7	1.20	2.39	> 10.0	0.15	3.25	< 0.1	309	11.3	1360	11.8	1.6	< 10	4.9	2.4	0.4	0.7	< 0.05	1.59	32.5	1.10	0.04	< 0.1
1470772	10.3	1.37	1.25	> 10.0	0.26	1.55	< 0.1	173	9.3	957	7.75	1.2	< 10	2.7	2.2	0.6	0.6	< 0.05	5.26	28.7	0.60	0.02	< 0.1
1470773	11.3	2.71	1.43	> 10.0	0.04	0.52	< 0.1	186	34.2	1030	9.26	1.7	< 10	7.7	2.4	0.3	0.7	< 0.05	1.05	32.8	0.50	0.02	< 0.1
1470774	20.3	1.67	1.82	> 10.0	1.04	0.60	0.1	322	12.7	1500	11.1	1.1	< 10	8.4	2.1	0.4	0.6	< 0.05	21.2	47.4	0.60	0.03	< 0.1
1470775	7.5	0.09	0.67	> 10.0	0.03	4.89	< 0.1	129	17.8	894	6.87	2.6	30	1.7	3.0	0.2	0.8	< 0.05	0.82	15.2	1.20	0.03	< 0.1
1470776	6.7	> 3.00	0.92	> 10.0	0.05	0.90	< 0.1	19	10.7	874	8.36	4.2	10	2.1	3.3	0.6	0.9	< 0.05	0.60	18.7	0.70	0.03	< 0.1
1470777	3.8	1.00	0.25	> 10.0	0.03	0.29	< 0.1	20	25.0	480	3.66	2.0	< 10	2.0	5.3	0.1	1.2	< 0.05	0.26	5.3	0.30	0.03	< 0.1
1470778	11.8	0.05	11.4	> 10.0	0.05	4.43	< 0.1	71	1560	1480	7.44	0.5	10	561	0.6	< 0.1	0.2	< 0.05	0.61	85.4	0.10	0.02	< 0.1
1470779	13.1	0.05	12.0	> 10.0	0.05	4.40	< 0.1	73	1270	1490	6.83	0.4	< 10	573	0.7	0.1	0.2	< 0.05	0.74	82.6	0.10	0.02	< 0.1
1470780	11.4	2.58	2.92	> 10.0	0.31	4.27	< 0.1	225	14.9	1280	8.58	1.1	< 10	30.1	2.3	0.4	0.7	< 0.05	1.06	37.5	0.70	0.03	< 0.1
1470782	9.2	2.78	3.06	> 10.0	0.61	4.64	< 0.1	253	25.3	1330	8.29	1.2	< 10	32.6	2.0	0.3	0.5	< 0.05	0.77	38.3	0.70	0.03	< 0.1
1470783	25.3	2.17	3.48	> 10.0	1.12	6.07	< 0.1	108	342	1000	3.72	0.5	< 10	98.8	0.6	0.1	0.2	< 0.05	0.53	25.7	0.10	0.03	< 0.1
1470784	14.8	> 3.00	3.58	> 10.0	0.73	3.61	< 0.1	229	26.5	1340	7.73	1.0	50	52.9	1.7	0.3	0.5	0.09	1.22	42.5	0.40	0.03	< 0.1
1477505	4.7	0.28	0.39	> 10.0	0.87	0.57	< 0.1	49	58.1	546	2.17	1.1	30	32.6	0.3	0.6	0.1	0.09	0.90	11.4	0.20	3.50	< 0.1
1477506	6.3	2.14	0.57	> 10.0	1.23	0.31	< 0.1	63	64.7	495	2.85	1.7	20	30.4	0.4	0.9	0.1	< 0.05	1.42	9.8	0.40	0.27	< 0.1
1477507	5.1	2.59	0.60	8.16	1.89	0.14	< 0.1	80	57.4	200	3.07	2.2	< 10	33.5	0.4	1.2	0.1	< 0.05	2.08	10.8	0.50	0.20	< 0.1
1477509	7.1	2.72	2.05	5.72	2.13	3.20	0.1	125	157	879	3.41	3.3	< 10	93.8	1.0	0.8	0.3	< 0.05	1.94	20.4	0.70	0.07	< 0.1
1477510	3.8	0.22	0.45	> 10.0	0.29	5.12	0.2	26	47.3	1050	1.82	0.5	< 10	22.4	0.9	0.3	0.2	0.15	0.38	6.9	0.20	0.94	< 0.1
1477511	15.6	0.43	1.81	> 10.0	1.16	0.12	< 0.1	106	141	583	4.33	2.0	< 10	79.0	0.6	0.6	0.2	< 0.05	1.37	22.8	0.30	0.65	< 0.1
1477512	13.8	1.11	1.64	> 10.0	0.75	1.62	0.1	112	115	980	4.70	1.6	20	75.4	0.8	0.4	0.3	0.44	0.79	31.9	0.40	1.55	0.3
1477513	19.8	1.50	2.33	> 10.0	1.18	2.03	< 0.1	105	123	490	4.46	2.4	< 10	100	1.0	0.7	0.3	< 0.05	1.35	24.7	0.70	0.06	< 0.1
1477514	30.0	0.67	2.34	6.02	1.32	1.95	< 0.1	132	165	759	7.10	3.2	60	118	1.0	0.7	0.3	0.05	0.95	30.3	0.70	0.42	< 0.1
1477515	0.7	0.03	0.03	0.38	0.03	0.03	< 0.1	2	16.3	94	0.85	0.1	30	2.6	< 0.1	< 0.1	< 0.1	0.10	0.15	0.8	< 0.05	0.15	< 0.1
1477516	28.5	1.18	3.66	1.19	1.50	1.15	< 0.1	119	57.6	3080	12.9	2.2	20	28.3	0.7	0.7	0.2	0.06	2.12	79.6	0.40	0.28	0.7
1477517	5.1	0.42	0.25	9.31	0.96	0.13	< 0.1	23	27.5	257	1.65	0.5	10	22.5	0.1	0.2	< 0.1	< 0.05	0.99	3.1	0.10	0.05	< 0.1
1477518	0.6	0.03	0.01	0.44	0.04	0.03	< 0.1	2	13.1	127	0.91	< 0.1	10	2.7	< 0.1	0.1	< 0.1	< 0.05	0.15	0.8	< 0.05	0.05	< 0.1
1477519	< 0.5	0.02	< 0.01	0.16	0.01	0.02	< 0.1	1	22.8	146	1.11	< 0.1	< 10	1.6	< 0.1	0.2	< 0.1	< 0.05	0.18	0.5	< 0.05	0.04	< 0.1
1477522	20.8	0.53	1.63	> 10.0	1.75	1.95	< 0.1	96	29.1	1490	5.59	2.0	50	22.1	0.8	0.5	0.2	0.17	2.31	21.1	0.40	0.27	0.4
1477523	< 0.5	0.01	0.50	0.77	0.14	0.23	< 0.1	24	17.5	1660	8.30	0.2	30	2.5	0.1	< 0.1	< 0.1	5.86	1.13	0.7	< 0.05	0.18	0.3
1477524	2.3	0.41	0.54	5.20	0.10	0.16	< 0.1	20	29.5	1030	7.52	0.6	40	11.2	0.2	0.3	< 0.1	0.48	1.89	8.1	0.10	0.16	< 0.1
1477525	8.2	2.06	0.48	> 10.0	0.61	0.39	< 0.1	40	23.5	1300	8.52	1.7	< 10	35.5	0.4	0.5	0.1	0.26	0.91	14.5	0.20	0.11	0.9
1477526	5.8	0.67	0.36	7.26	0.26	0.75	< 0.1	25	27.0	592	2.15	0.3	< 10	8.0	0.2	0.6	< 0.1	< 0.05	0.72	5.6	0.10	0.32	< 0.1
1477851	11.5	0.55	3.36	> 10.0	2.23	5.14	< 0.1	201	234	1160	7.04	1.3	< 10	105	0.6	0.2	0.2	0.11	0.72	60.7	0.70	0.37	0.9
1477853	20.1	1.21	2.83	> 10.0	1.43	0.35	< 0.1	250	382	237	13.5	1.7	< 10	192	1.2	0.2	0.3	0.21	0.56	> 500	0.60	0.96	3.8

Results

Activation Laboratories Ltd.

Report: A16-10885

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477854	30.9	1.30	4.78	6.91	1.12	0.63	< 0.1	266	437	318	8.65	1.7	< 10	139	0.9	0.2	0.3	0.07	0.64	175	0.40	0.19	0.7
1477855	33.5	0.51	6.65	> 10.0	0.28	1.34	< 0.1	206	851	503	8.44	1.4	60	209	0.6	0.1	0.2	0.08	1.49	59.1	0.40	0.30	0.1
1477856	21.1	0.23	4.30	0.79	1.44	4.78	< 0.1	66	577	394	2.07	0.1	30	133	0.1	< 0.1	< 0.1	0.07	1.17	25.8	0.10	0.04	< 0.1
1477857	28.3	0.25	5.67	> 10.0	1.59	5.06	< 0.1	103	340	814	3.30	0.1	20	165	0.2	< 0.1	< 0.1	0.06	0.77	35.4	0.10	0.04	< 0.1
1477858	22.6	> 3.00	2.71	1.90	0.33	2.94	< 0.1	288	139	1600	7.79	1.2	10	130	2.6	0.4	0.7	< 0.05	3.08	53.3	1.00	0.08	< 0.1
1477859	26.8	1.63	1.91	> 10.0	0.06	6.35	< 0.1	191	115	2310	8.07	0.5	< 10	88.4	2.1	0.2	0.6	< 0.05	0.53	77.3	0.90	0.10	< 0.1
1477861	38.1	2.26	2.31	> 10.0	0.05	4.45	< 0.1	227	150	2330	9.82	0.7	< 10	104	2.7	0.5	0.8	0.05	0.21	48.7	0.90	0.06	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-10885

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470530	99.8	15.1	6.6	4.1	27.1	71.4	4	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	24	3.5	9.6	1.4	7.9	2.1	3.7	0.6	4.1	275
1470531	28.4	4.3	4.0	4.9	6.1	12.2	2	0.3	0.47	< 0.1	< 1	0.2	< 0.1	27	1.3	3.3	0.5	2.2	0.6	1.0	0.2	0.9	65.2
1470532	33.8	3.6	< 0.1	0.8	1.0	8.6	2	0.1	0.35	< 0.1	< 1	0.1	< 0.1	8	0.1	0.4	0.1	0.2	< 0.1	0.1	< 0.1	0.1	21.1
1470533	2520	10.3	17.4	14.0	4.4	53.4	56	1.7	5.26	1.4	2	0.6	0.4	94	3.6	9.1	1.1	4.9	1.1	1.3	0.2	0.9	153
1470534	1590	14.3	36.0	14.8	7.8	65.2	101	3.0	5.97	0.6	2	0.7	0.4	95	6.1	15.6	2.1	9.0	2.0	2.2	0.3	1.6	250
1470535	114	12.8	< 0.1	12.0	18.2	141	26	0.1	0.96	< 0.1	1	< 0.1	< 0.1	116	2.8	8.2	1.2	6.3	1.8	2.7	0.5	3.0	157
1470536	234	18.5	285	34.5	24.7	155	51	0.6	0.15	< 0.1	6	0.3	< 0.1	69	5.1	14.6	2.2	11.0	3.2	4.0	0.7	4.3	197
1470537	97.1	12.4	< 0.1	96.6	13.5	91.1	87	0.1	0.11	< 0.1	< 1	< 0.1	0.1	675	10.6	25.6	3.4	13.9	2.7	3.2	0.4	2.5	44.6
1470538	104	13.6	1.8	15.1	10.2	99.9	73	3.8	1.26	< 0.1	1	0.4	0.1	104	4.3	11.6	1.4	6.5	1.5	2.1	0.3	1.7	63.9
1470539	129	17.9	< 0.1	19.5	14.0	105	93	1.9	0.25	< 0.1	< 1	< 0.1	< 0.1	144	5.3	13.7	1.9	8.4	2.0	2.5	0.4	2.4	88.8
1470541	97.1	19.3	< 0.1	11.2	15.9	157	43	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	79	4.8	11.5	1.5	6.9	1.7	2.4	0.4	2.4	103
1470542	305	14.7	< 0.1	13.6	11.3	87.6	64	0.2	< 0.05	< 0.1	< 1	< 0.1	< 0.1	158	5.1	13.1	1.8	7.9	1.9	2.4	0.4	2.0	59.6
1470543	51.9	11.3	5.0	5.4	16.9	105	3	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	46	2.2	6.5	1.1	5.1	1.6	2.4	0.4	2.7	146
1470544	67.2	16.4	7.6	3.5	17.4	130	7	0.9	< 0.05	< 0.1	< 1	< 0.1	< 0.1	40	2.1	6.3	1.0	5.3	1.6	2.6	0.5	2.8	124
1470545	61.0	18.6	< 0.1	0.5	19.4	110	6	0.5	< 0.05	< 0.1	< 1	< 0.1	< 0.1	12	2.4	7.4	1.2	6.2	1.8	3.1	0.5	3.2	324
1470546	116	14.9	< 0.1	0.8	17.3	66.1	6	0.4	< 0.05	< 0.1	< 1	< 0.1	< 0.1	9	2.4	6.9	1.1	5.6	1.7	2.6	0.5	2.9	68.9
1470547	65.2	13.5	< 0.1	4.3	14.6	116	8	0.4	< 0.05	< 0.1	< 1	0.1	< 0.1	61	1.9	5.8	1.0	4.9	1.4	2.2	0.4	2.5	117
1470548	30.6	2.7	5.6	0.9	1.8	9.7	1	0.2	0.45	< 0.1	< 1	0.3	0.8	7	0.4	1.0	0.2	0.7	0.2	0.3	< 0.1	0.3	1300
1470549	16.5	0.6	17.0	0.4	0.2	2.8	< 1	0.1	0.65	< 0.1	< 1	0.2	0.8	2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1850
1470550	32.3	2.0	5.5	1.1	1.4	9.4	< 1	0.2	0.67	< 0.1	1	0.3	0.5	8	0.2	0.7	0.1	0.4	0.1	0.2	< 0.1	0.2	4120
1470551	65.6	14.4	13.3	0.5	15.1	139	8	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	15	1.9	5.5	0.9	4.6	1.5	2.2	0.4	2.4	174
1470552	116	12.9	< 0.1	1.6	13.8	24.3	16	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	17	3.5	9.4	1.5	7.1	1.9	2.5	0.4	2.5	188
1470554	99.8	13.7	1.8	11.0	20.7	42.8	13	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	290	2.7	8.4	1.4	6.5	2.0	3.1	0.6	3.5	189
1470616	84.4	16.1	16.8	14.3	15.8	249	12	0.4	< 0.05	< 0.1	< 1	0.5	< 0.1	44	1.6	4.8	0.8	4.3	1.4	2.2	0.4	2.5	88.6
1470618	69.3	5.3	5.3	1.2	2.9	25.6	4	0.3	0.54	< 0.1	< 1	0.5	0.1	11	0.5	1.4	0.2	0.9	0.3	0.5	0.1	0.5	19.0
1470619	94.8	16.2	< 0.1	0.9	9.8	44.5	31	0.4	< 0.05	< 0.1	< 1	< 0.1	< 0.1	10	1.6	4.6	0.7	3.7	1.2	1.7	0.3	1.8	94.9
1470620	87.6	14.5	< 0.1	0.6	20.6	106	9	0.1	< 0.05	< 0.1	< 1	0.2	< 0.1	11	2.8	8.0	1.2	6.2	1.7	2.8	0.5	3.2	222
1470621	27.0	17.8	2.3	63.4	5.7	99.5	50	2.8	0.37	< 0.1	2	0.2	< 0.1	685	8.3	20.1	2.4	9.4	1.6	1.5	0.2	1.0	50.6
1470622	89.4	12.9	39.8	0.2	6.1	58.0	30	0.5	< 0.05	< 0.1	< 1	< 0.1	< 0.1	9	2.1	5.6	0.9	4.2	1.1	1.3	0.2	1.2	93.4
1470623	88.4	14.0	2.1	15.7	7.9	64.8	74	2.5	< 0.05	< 0.1	1	0.8	< 0.1	142	5.3	13.6	1.8	8.5	2.0	2.5	0.3	1.7	149
1470624	44.5	3.2	4.3	15.7	7.3	61.6	23	1.0	1.39	< 0.1	< 1	0.2	0.1	87	3.5	9.0	1.2	5.9	1.3	1.6	0.2	1.3	42.4
1470625	103	15.4	< 0.1	25.4	7.4	38.3	34	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	330	3.1	9.4	1.3	7.0	1.9	2.0	0.3	1.3	125
1470626	86.3	16.2	1.9	4.1	24.3	115	18	1.7	0.16	< 0.1	2	0.6	< 0.1	18	4.1	10.6	1.9	9.5	2.8	3.6	0.6	4.7	57.4
1470627	36.2	1.3	1.3	1.1	3.3	30.4	2	0.1	0.80	< 0.1	1	0.1	< 0.1	38	1.2	2.9	0.5	2.5	0.6	0.6	0.1	0.7	67.2
1470628	61.8	12.8	9.0	1.1	12.8	58.9	7	1.5	0.18	< 0.1	< 1	0.3	< 0.1	23	2.1	5.5	1.0	5.2	1.6	2.0	0.4	2.6	25.2
1470629	51.3	12.0	1.6	8.4	13.0	107	14	1.3	0.29	< 0.1	< 1	1.4	< 0.1	23	2.2	5.4	1.0	5.2	1.5	1.8	0.3	2.5	53.0
1470756	67.9	5.9	< 0.1	0.3	3.4	2.4	20	0.9	0.21	< 0.1	< 1	0.3	< 0.1	5	1.6	3.6	0.5	2.4	0.6	0.7	0.1	0.7	31.4
1470758	38.4	10.3	< 0.1	3.4	9.5	80.1	27	1.7	0.38	< 0.1	< 1	< 0.1	< 0.1	62	3.5	7.8	1.1	5.3	1.3	1.6	0.3	2.0	18.0
1470759	19.7	13.3	0.6	4.9	16.0	80.6	50	1.6	0.11	< 0.1	< 1	< 0.1	< 0.1	60	3.4	8.5	1.4	6.8	2.0	2.4	0.4	3.2	< 0.2
1470760	37.8	15.9	0.5	4.5	25.8	47.0	75	2.0	0.46	< 0.1	< 1	< 0.1	< 0.1	60	8.8	20.1	3.1	12.8	3.1	3.4	0.6	4.2	< 0.2
1470761	34.8	15.8	0.3	4.1	15.0	63.6	29	2.0	0.34	< 0.1	< 1	< 0.1	< 0.1	56	2.9	6.5	1.0	4.1	1.1	1.5	0.3	2.3	< 0.2
1470762	70.8	15.9	49.5	11.4	18.3	149	67	2.6	0.58	< 0.1	< 1	< 0.1	< 0.1	321	4.3	10.4	1.6	6.8	1.8	2.2	0.4	2.9	61.2

Results

Activation Laboratories Ltd.

Report: A16-10885

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470763	66.0	12.8	13.3	2.2	15.6	105	60	1.8	0.29	< 0.1	< 1	0.9	< 0.1	17	4.6	10.6	1.6	6.8	1.7	2.0	0.4	2.6	< 0.2
1470764	60.5	16.4	119	9.0	25.3	114	66	1.5	0.44	< 0.1	< 1	< 0.1	< 0.1	28	6.0	15.2	2.5	10.8	2.8	3.3	0.6	4.2	23.1
1470765	65.0	16.8	> 10000	4.0	27.7	85.6	66	1.6	37.3	0.1	< 1	0.2	0.6	38	6.5	16.2	2.5	11.2	2.7	3.4	0.6	4.4	238
1470766	50.2	14.1	49.1	2.3	15.6	200	44	2.0	0.56	< 0.1	< 1	< 0.1	0.2	24	3.5	8.2	1.3	6.1	1.6	1.8	0.3	2.5	15.3
1470767	74.8	3.1	13.0	0.6	3.3	1.3	24	1.2	0.51	< 0.1	< 1	< 0.1	< 0.1	13	0.3	1.1	0.2	1.0	0.3	0.4	0.1	0.6	< 0.2
1470768	39.2	13.6	40.7	6.3	20.4	80.2	74	2.9	1.41	< 0.1	< 1	< 0.1	< 0.1	26	4.9	11.5	1.7	7.7	1.8	2.2	0.4	3.1	< 0.2
1470769	74.0	14.9	4.7	7.1	18.4	35.8	67	2.8	0.64	< 0.1	< 1	< 0.1	< 0.1	37	4.6	10.7	1.6	7.6	2.1	2.3	0.4	3.0	80.6
1470770	35.5	14.0	0.9	3.3	19.4	56.5	67	2.5	0.66	< 0.1	< 1	< 0.1	< 0.1	56	5.0	12.3	1.8	7.8	2.1	2.2	0.4	3.1	< 0.2
1470771	34.3	20.8	< 0.1	8.4	22.8	60.7	72	2.1	0.40	0.1	< 1	< 0.1	< 0.1	55	6.7	15.5	2.3	10.1	2.5	2.7	0.5	3.5	185
1470772	40.1	12.6	< 0.1	15.0	21.0	47.0	67	2.2	0.34	< 0.1	< 1	< 0.1	< 0.1	237	5.1	12.4	1.9	8.1	2.2	2.4	0.4	3.2	< 0.2
1470773	40.7	15.6	0.3	11.8	23.5	40.9	89	2.4	0.27	< 0.1	< 1	< 0.1	< 0.1	29	4.2	10.8	1.6	7.2	2.0	2.6	0.5	3.7	< 0.2
1470774	100	16.1	< 0.1	71.9	20.3	35.6	79	2.1	0.40	< 0.1	< 1	< 0.1	< 0.1	655	5.2	12.0	1.8	7.7	1.9	2.2	0.4	3.0	5.4
1470775	11.5	19.4	3.0	14.0	27.0	176	102	5.1	0.81	< 0.1	< 1	0.2	< 0.1	14	7.6	18.1	2.7	11.8	2.8	3.4	0.6	4.3	< 0.2
1470776	19.9	16.5	0.7	7.8	28.8	62.2	160	5.9	0.75	< 0.1	< 1	< 0.1	< 0.1	39	5.9	14.4	2.2	9.7	2.4	3.0	0.6	4.4	60.8
1470777	14.2	5.1	0.4	1.2	47.2	14.0	90	5.6	0.48	< 0.1	1	< 0.1	< 0.1	19	2.0	5.7	0.8	3.5	1.0	1.8	0.5	5.0	< 0.2
1470778	65.4	5.4	< 0.1	1.9	5.1	3.6	18	0.9	0.32	< 0.1	< 1	1.0	< 0.1	24	0.8	2.3	0.3	1.7	0.5	0.6	0.1	0.8	5.6
1470779	64.7	4.8	< 0.1	2.3	6.5	4.2	13	0.8	0.16	< 0.1	2	1.5	< 0.1	37	1.0	2.6	0.4	2.0	0.5	0.7	0.1	0.9	12.4
1470780	63.1	14.7	< 0.1	7.4	20.7	83.5	42	1.7	0.17	< 0.1	< 1	< 0.1	< 0.1	74	6.1	14.4	2.1	9.1	2.2	2.6	0.5	3.4	12.6
1470782	71.5	15.1	< 0.1	12.8	16.4	71.4	56	2.3	0.31	< 0.1	< 1	< 0.1	< 0.1	163	5.2	11.7	1.8	7.7	1.9	2.2	0.4	2.9	4.1
1470783	35.5	7.4	< 0.1	10.2	5.2	58.5	15	0.9	0.30	< 0.1	< 1	0.4	< 0.1	272	1.4	3.2	0.4	1.8	0.5	0.6	0.1	0.8	311
1470784	62.6	12.4	< 0.1	19.1	15.1	40.2	39	1.8	0.58	< 0.1	< 1	< 0.1	0.1	201	4.2	9.4	1.4	6.0	1.5	1.8	0.3	2.5	99.1
1477505	21.3	6.3	4.3	26.5	3.1	108	41	2.2	5.51	< 0.1	1	2.3	2.0	268	3.8	8.5	1.2	4.8	0.8	0.7	0.1	0.6	21.5
1477506	36.9	12.8	0.5	35.1	6.3	173	65	3.3	1.13	< 0.1	1	2.0	0.3	323	7.4	15.8	2.0	8.2	1.4	1.1	0.1	0.7	4.0
1477507	48.5	19.4	< 0.1	59.7	3.9	171	86	5.5	0.87	< 0.1	2	4.3	0.2	650	11.2	23.4	3.2	12.2	2.1	1.4	0.2	0.8	2.3
1477509	56.7	15.6	< 0.1	61.2	9.0	197	151	4.8	0.80	< 0.1	2	2.4	< 0.1	683	10.2	23.8	3.2	13.1	2.5	2.3	0.3	1.8	83.5
1477510	15.3	3.1	0.9	9.4	8.1	98.2	21	1.4	2.13	< 0.1	1	0.4	0.5	148	1.7	3.7	0.5	2.3	0.6	0.8	0.2	1.3	133
1477511	60.9	12.1	2.9	36.8	4.9	40.2	87	3.6	2.80	< 0.1	2	1.3	0.6	567	6.5	13.5	1.8	7.4	1.4	1.3	0.2	0.9	18.7
1477512	59.5	12.1	3.9	23.6	7.0	57.5	69	2.6	13.1	< 0.1	1	0.7	1.7	315	5.9	13.0	1.7	7.2	1.4	1.4	0.2	1.3	106
1477513	63.6	12.6	< 0.1	39.1	8.1	75.4	104	4.7	0.67	< 0.1	1	1.1	< 0.1	474	10.6	22.6	3.1	12.6	2.7	2.2	0.3	1.7	28.3
1477514	111	15.7	17.2	37.6	9.8	191	130	4.6	1.65	< 0.1	1	5.1	0.2	287	10.8	23.4	3.5	13.6	2.7	2.3	0.3	1.7	33.4
1477515	12.5	0.4	0.5	0.8	0.1	3.9	2	0.3	1.30	< 0.1	< 1	< 0.1	< 0.1	8	0.1	0.3	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	10.8
1477516	388	20.6	2.5	36.2	6.7	111	103	6.1	9.57	< 0.1	< 1	< 0.1	0.2	406	11.6	27.8	3.3	11.9	1.7	1.4	0.2	1.2	207
1477517	27.3	5.2	< 0.1	21.3	1.4	37.4	30	0.9	1.68	< 0.1	< 1	< 0.1	0.3	202	1.5	4.5	0.4	1.4	0.3	0.3	< 0.1	0.2	32.7
1477518	10.1	0.6	0.5	1.0	0.1	3.9	3	0.2	0.94	< 0.1	< 1	< 0.1	< 0.1	8	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	11.0
1477519	26.1	0.3	< 0.1	0.4	< 0.1	5.3	< 1	0.1	0.67	< 0.1	< 1	< 0.1	< 0.1	3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.5
1477522	189	14.6	2.4	45.5	6.8	112	88	3.0	1.04	< 0.1	< 1	< 0.1	0.2	326	9.3	17.3	2.4	8.7	1.4	1.2	0.2	1.1	67.8
1477523	8.9	2.9	0.6	3.6	1.0	3.8	10	0.3	3.34	< 0.1	1	< 0.1	4.6	109	0.7	0.8	0.1	0.3	< 0.1	0.1	< 0.1	0.1	30.3
1477524	35.3	3.8	4.3	6.6	2.0	61.6	27	1.0	1.48	< 0.1	< 1	< 0.1	0.3	74	1.8	3.7	0.5	1.8	0.3	0.2	< 0.1	0.2	39.0
1477525	13.0	9.3	< 0.1	15.8	3.8	171	76	2.7	1.40	< 0.1	< 1	< 0.1	0.2	161	8.3	12.7	1.4	4.9	0.7	0.6	0.1	0.6	62.9
1477526	28.3	4.8	< 0.1	6.1	1.5	66.7	12	0.6	1.50	< 0.1	< 1	< 0.1	< 0.1	66	1.5	3.3	0.4	1.5	0.2	0.2	< 0.1	0.2	16.4
1477851	< 0.2	9.2	9.5	56.6	8.1	115	50	1.8	1.00	< 0.1	< 1	0.9	< 0.1	524	5.1	12.3	2.2	10.6	2.2	1.8	0.2	1.1	40.1
1477853	< 0.2	11.2	360	34.4	10.4	39.3	72	1.5	0.47	< 0.1	< 1	1.0	< 0.1	249	8.3	21.6	3.6	15.9	3.1	2.6	0.3	2.1	121

Results

Activation Laboratories Ltd.

Report: A16-10885

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1477854	< 0.2	13.4	74.0	28.8	7.5	46.1	69	2.2	0.28	< 0.1	< 1	0.4	< 0.1	344	5.0	13.7	2.4	12.1	2.7	1.9	0.2	1.5	35.8
1477855	< 0.2	11.1	50.7	14.9	4.6	51.4	54	2.4	0.42	< 0.1	< 1	1.1	0.1	35	4.6	14.4	2.6	11.7	2.5	1.5	0.2	1.0	1.6
1477856	6.2	8.1	3.1	42.4	1.2	58.0	5	0.1	0.31	< 0.1	< 1	0.4	< 0.1	191	0.2	0.6	0.1	0.4	0.1	0.1	< 0.1	0.2	2.6
1477857	13.9	6.0	5.6	38.3	1.4	41.1	5	0.1	0.32	< 0.1	< 1	1.1	< 0.1	369	0.6	1.1	0.2	0.8	0.2	0.2	< 0.1	0.3	184
1477858	106	15.9	25.4	12.8	23.2	95.5	45	2.4	0.36	< 0.1	2	3.0	< 0.1	79	3.4	9.0	1.7	8.0	2.5	3.0	0.5	3.8	37.1
1477859	115	16.3	29.8	2.3	19.9	99.8	18	0.8	0.17	< 0.1	< 1	1.6	< 0.1	22	3.2	8.1	1.3	6.9	2.1	2.4	0.5	3.2	< 0.2
1477861	155	15.9	9.2	0.7	24.6	80.9	20	1.4	0.17	< 0.1	< 1	1.8	< 0.1	9	3.5	9.0	1.7	8.1	2.3	3.0	0.6	4.1	90.7

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470530	0.1	0.4	2.7	0.3	< 0.1	< 0.1	0.002	< 0.05	1.0	40	0.2	0.1	0.206	0.027	0.16
1470531	< 0.1	0.1	0.4	0.1	< 0.1	0.1	0.001	< 0.05	1.0	7	0.1	< 0.1	0.0822	0.014	0.01
1470532	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	1.0	2	< 0.1	< 0.1	0.0259	0.007	< 0.01
1470533	< 0.1	0.1	0.6	0.1	0.1	0.2	0.008	0.10	4.3	11	1.0	0.3	0.117	0.028	1.26
1470534	< 0.1	0.1	0.9	0.1	0.2	0.3	0.010	0.11	7.5	14	1.9	0.5	0.193	0.035	1.98
1470535	0.2	0.3	2.1	0.3	< 0.1	< 0.1	0.005	0.09	4.4	33	0.3	0.1	0.517	0.032	0.78
1470536	0.1	0.4	2.7	0.4	< 0.1	0.6	0.003	0.33	8.0	40	0.4	0.1	0.780	0.049	2.17
1470537	< 0.1	0.2	1.5	0.2	< 0.1	< 0.1	0.001	0.39	5.9	21	1.1	0.3	0.300	0.049	0.02
1470538	0.1	0.2	1.3	0.2	0.3	0.5	0.001	0.13	7.1	20	0.5	0.2	0.597	0.038	1.57
1470539	0.1	0.2	1.6	0.2	< 0.1	< 0.1	0.002	0.11	3.7	26	0.7	0.2	0.655	0.045	0.81
1470541	0.2	0.2	1.7	0.2	< 0.1	< 0.1	0.001	0.09	9.4	25	0.8	0.2	0.507	0.046	0.19
1470542	0.2	0.2	1.5	0.2	< 0.1	< 0.1	0.001	0.09	15.7	23	0.7	0.3	0.447	0.041	0.94
1470543	0.2	0.2	1.5	0.2	< 0.1	< 0.1	0.001	< 0.05	1.4	27	0.2	0.1	0.219	0.019	0.04
1470544	0.7	0.3	1.9	0.2	< 0.1	< 0.1	0.001	< 0.05	0.6	47	0.2	< 0.1	0.383	0.020	0.16
1470545	0.4	0.3	2.2	0.3	< 0.1	< 0.1	0.002	< 0.05	< 0.5	48	0.2	0.1	0.382	0.024	0.47
1470546	0.3	0.3	1.9	0.2	< 0.1	< 0.1	0.001	< 0.05	0.5	48	0.2	0.1	0.377	0.016	0.02
1470547	0.3	0.3	1.7	0.2	< 0.1	< 0.1	0.001	< 0.05	1.0	42	0.2	< 0.1	0.386	0.019	0.12
1470548	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	< 0.5	7	0.1	< 0.1	0.0616	0.005	0.09
1470549	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	0.0065	0.004	0.10
1470550	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	0.001	< 0.05	< 0.5	4	< 0.1	< 0.1	0.0736	0.007	0.45
1470551	0.1	0.2	1.6	0.2	< 0.1	< 0.1	0.001	< 0.05	1.0	41	0.1	< 0.1	0.373	0.019	0.02
1470552	0.1	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	< 0.05	0.7	28	0.3	0.1	0.255	0.025	0.02
1470554	0.1	0.4	2.4	0.3	< 0.1	< 0.1	0.001	< 0.05	0.6	40	0.2	0.1	0.185	0.027	< 0.01
1470616	0.6	0.3	1.7	0.2	< 0.1	< 0.1	0.001	0.13	2.8	38	0.1	< 0.1	0.366	0.016	0.21
1470618	0.2	< 0.1	0.3	< 0.1	< 0.1	0.1	< 0.001	< 0.05	1.0	9	0.1	< 0.1	0.0736	0.006	< 0.01
1470619	0.5	0.2	1.0	0.1	< 0.1	< 0.1	0.001	< 0.05	0.9	40	0.2	0.1	0.364	0.023	0.01
1470620	0.4	0.3	2.1	0.3	< 0.1	< 0.1	0.001	< 0.05	7.2	43	0.2	0.1	0.369	0.026	0.30
1470621	< 0.1	0.1	0.5	0.1	< 0.1	0.7	< 0.001	0.26	2.9	8	1.3	0.3	0.213	0.045	0.37
1470622	0.7	0.1	0.7	0.1	< 0.1	< 0.1	0.001	< 0.05	2.7	36	0.2	0.1	0.346	0.020	0.10
1470623	0.2	0.1	1.0	0.1	0.2	0.7	< 0.001	0.09	1.8	26	0.5	0.1	0.588	0.044	0.18
1470624	< 0.1	0.1	0.8	0.1	< 0.1	2.5	0.002	0.07	1.9	14	0.2	0.2	0.220	0.016	1.14
1470625	0.1	0.2	1.2	0.2	< 0.1	< 0.1	0.003	0.15	1.8	44	0.3	0.1	0.184	0.044	0.23
1470626	0.6	0.5	3.2	0.5	0.1	0.4	< 0.001	< 0.05	2.4	46	0.4	0.1	0.166	0.043	0.07
1470627	< 0.1	0.1	0.4	< 0.1	< 0.1	0.2	< 0.001	< 0.05	7.0	6	0.1	0.1	0.0391	0.004	0.02
1470628	0.6	0.3	1.8	0.2	0.1	0.3	< 0.001	< 0.05	0.9	43	0.2	< 0.1	0.463	0.022	0.04
1470629	0.9	0.3	1.8	0.3	< 0.1	0.3	< 0.001	0.09	2.0	45	0.2	< 0.1	0.377	0.021	0.06
1470756	0.1	0.1	0.5	0.1	< 0.1	0.2	< 0.001	< 0.05	0.6	21	0.2	0.1	0.196	0.015	0.10
1470758	0.2	0.2	1.4	0.2	0.1	0.4	< 0.001	< 0.05	1.5	37	0.4	0.1	0.380	0.027	0.03
1470759	1.0	0.3	2.2	0.3	0.1	0.4	< 0.001	< 0.05	1.2	44	0.6	0.1	0.364	0.006	< 0.01
1470760	0.7	0.4	2.9	0.4	0.1	0.3	< 0.001	< 0.05	1.5	31	1.3	0.4	0.173	0.047	< 0.01
1470761	1.1	0.2	1.7	0.2	< 0.1	0.4	< 0.001	< 0.05	1.4	45	0.3	0.1	0.197	0.004	< 0.01
1470762	0.7	0.3	2.0	0.3	0.2	0.6	< 0.001	< 0.05	2.7	27	0.7	0.3	0.254	0.048	0.04

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470763	1.1	0.3	1.8	0.2	0.1	0.4	< 0.001	< 0.05	1.5	30	0.5	0.2	0.227	0.032	< 0.01
1470764	0.4	0.4	2.9	0.4	< 0.1	0.1	< 0.001	< 0.05	1.1	38	1.0	0.3	0.270	0.045	< 0.01
1470765	< 0.1	0.5	3.1	0.4	< 0.1	6.9	< 0.001	< 0.05	1.8	32	1.1	0.3	0.294	0.043	0.69
1470766	0.7	0.3	1.7	0.2	0.1	0.2	< 0.001	< 0.05	1.5	43	0.5	0.1	0.257	0.024	< 0.01
1470767	0.5	0.1	0.4	0.1	0.2	0.1	< 0.001	< 0.05	2.0	24	0.3	0.1	0.173	0.022	< 0.01
1470768	0.6	0.3	2.2	0.3	0.2	0.5	< 0.001	< 0.05	1.7	39	0.6	0.2	0.583	0.033	< 0.01
1470769	0.7	0.3	2.0	0.3	0.2	0.4	< 0.001	< 0.05	1.1	40	0.6	0.2	0.451	0.043	0.28
1470770	0.8	0.3	2.2	0.3	0.2	0.4	< 0.001	< 0.05	0.7	38	0.6	0.2	0.158	0.032	< 0.01
1470771	0.4	0.4	2.4	0.3	0.1	0.1	< 0.001	< 0.05	1.1	34	1.1	0.3	0.330	0.041	0.08
1470772	0.7	0.3	2.1	0.3	0.2	0.1	< 0.001	0.06	1.1	31	0.7	0.2	0.143	0.037	< 0.01
1470773	0.5	0.3	2.0	0.2	0.1	0.2	< 0.001	< 0.05	1.0	38	0.8	0.2	0.196	0.144	< 0.01
1470774	0.7	0.3	1.9	0.2	0.2	0.1	< 0.001	0.24	2.3	44	0.8	0.3	0.249	0.055	0.04
1470775	1.2	0.5	3.0	0.4	0.3	0.3	< 0.001	< 0.05	1.8	25	1.1	0.3	0.421	0.046	< 0.01
1470776	0.6	0.5	3.4	0.4	0.8	0.3	< 0.001	< 0.05	1.6	22	1.7	0.5	0.484	0.096	0.04
1470777	0.6	0.9	6.0	0.7	0.2	0.3	< 0.001	< 0.05	1.2	10	0.9	0.3	0.238	0.034	< 0.01
1470778	0.1	0.1	0.6	0.1	< 0.1	0.3	< 0.001	< 0.05	0.5	19	0.2	< 0.1	0.159	0.013	< 0.01
1470779	0.5	0.1	0.7	0.1	< 0.1	0.2	< 0.001	< 0.05	< 0.5	15	0.2	0.1	0.110	0.010	< 0.01
1470780	0.6	0.4	2.2	0.3	0.1	0.4	< 0.001	< 0.05	0.6	40	0.7	0.2	0.338	0.042	0.03
1470782	1.0	0.3	1.9	0.2	0.2	0.7	< 0.001	< 0.05	1.8	38	0.6	0.2	0.194	0.033	< 0.01
1470783	0.6	0.1	0.6	0.1	0.1	0.1	< 0.001	0.05	1.3	27	0.2	0.1	0.202	0.015	0.03
1470784	0.5	0.2	1.6	0.2	0.1	0.8	< 0.001	0.16	0.8	41	0.6	0.2	0.324	0.034	< 0.01
1477505	< 0.1	0.1	0.4	0.1	0.2	1.9	< 0.001	0.14	4.0	7	0.5	0.2	0.196	0.025	0.28
1477506	0.3	0.1	0.4	0.1	0.2	3.0	< 0.001	0.19	4.2	9	1.1	0.4	0.217	0.034	0.04
1477507	0.1	0.1	0.4	0.1	0.4	2.5	< 0.001	0.32	4.8	10	1.7	0.6	0.276	0.029	0.09
1477509	0.7	0.1	1.1	0.2	0.3	2.4	< 0.001	0.30	3.8	15	1.4	0.5	0.419	0.076	0.02
1477510	< 0.1	0.1	0.8	0.1	0.9	1.4	< 0.001	< 0.05	3.6	4	0.2	0.1	0.0753	0.013	0.10
1477511	0.1	0.1	0.7	0.1	0.2	3.8	< 0.001	0.21	3.9	15	0.8	0.3	0.368	0.046	0.09
1477512	< 0.1	0.1	0.9	0.1	0.2	4.3	0.004	0.11	3.5	12	0.7	0.2	0.229	0.032	0.60
1477513	0.7	0.1	1.0	0.2	0.3	1.0	< 0.001	0.18	2.5	18	1.1	0.3	0.151	0.060	0.06
1477514	0.6	0.2	1.2	0.2	0.3	1.7	< 0.001	0.22	4.6	20	1.4	0.4	0.356	0.072	0.33
1477515	0.1	< 0.1	< 0.1	< 0.1	0.1	0.1	< 0.001	< 0.05	3.3	< 1	< 0.1	0.1	0.0063	0.002	< 0.01
1477516	0.1	0.1	0.8	0.1	0.4	1.5	0.001	0.20	6.0	11	1.9	0.4	0.376	0.109	0.36
1477517	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.5	< 0.001	0.09	4.6	3	0.4	0.1	0.0935	0.022	< 0.01
1477518	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.1	< 0.001	< 0.05	2.1	< 1	< 0.1	< 0.1	0.0063	0.002	< 0.01
1477519	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	5.2	< 1	< 0.1	< 0.1	0.0021	< 0.001	< 0.01
1477522	< 0.1	0.1	0.8	0.1	0.2	0.6	< 0.001	0.27	11.3	15	1.4	0.4	0.287	0.055	0.51
1477523	0.1	< 0.1	0.1	< 0.1	< 0.1	0.6	< 0.001	0.10	2.8	< 1	0.2	0.1	0.0243	0.009	0.36
1477524	0.1	< 0.1	0.2	< 0.1	< 0.1	0.4	< 0.001	0.05	2.5	2	0.4	0.2	0.0684	0.020	0.33
1477525	< 0.1	0.1	0.4	0.1	0.2	0.8	< 0.001	0.21	4.0	5	1.2	0.4	0.204	0.040	2.07
1477526	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	2.9	2	0.3	0.1	0.0478	0.018	0.29
1477851	< 0.1	0.1	0.7	0.1	0.1	8.4	< 0.001	0.33	3.0	35	0.3	0.1	0.379	0.097	0.36
1477853	< 0.1	0.2	1.8	0.2	< 0.1	8.8	0.029	0.25	4.1	45	0.4	0.1	0.273	0.240	7.53

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1477854	0.7	0.1	0.9	0.1	0.1	10.8	0.001	0.19	2.0	49	0.4	0.1	0.466	0.078	2.95
1477855	< 0.1	0.1	0.6	0.1	0.1	13.3	< 0.001	0.20	2.2	43	0.4	0.1	0.496	0.044	3.43
1477856	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.9	< 0.001	0.39	2.3	25	< 0.1	< 0.1	0.0562	0.003	< 0.01
1477857	0.1	< 0.1	0.2	< 0.1	< 0.1	0.4	< 0.001	0.24	1.6	36	0.1	< 0.1	0.0676	0.004	0.02
1477858	0.9	0.4	2.5	0.3	0.2	0.4	< 0.001	0.07	1.1	55	0.3	0.1	0.172	0.037	0.07
1477859	0.4	0.3	1.9	0.3	< 0.1	0.1	< 0.001	< 0.05	3.2	40	0.3	0.1	0.207	0.031	0.31
1477861	0.5	0.4	2.3	0.3	< 0.1	0.1	< 0.001	< 0.05	1.3	46	0.3	0.1	0.262	0.034	0.13

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	8.4	0.05	0.24	2.95	0.05	0.86	2.2	85	15.1	914	27.1	0.3	3420	44.4		1.0		32.6	2.92	8.4	0.40	1520	15.6
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
GXR-1 Meas	9.5	0.05	0.24	3.26	0.06	0.88	2.5	83	15.5	932	25.8	0.5	1870	43.7		1.4		30.8	2.79	8.6	0.40	1490	16.5
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	10.5	0.59	1.76	7.86	3.05	0.96	< 0.1	87	48.0	153	3.11	1.3	70	40.9		2.0		3.19	2.72	14.1	1.10	19.1	5.1
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
GXR-4 Meas	11.7	0.56	1.85	8.39	4.85	0.99	0.3	89	47.6	165	3.23	1.3	70	44.8		2.2		3.36	2.86	14.7	1.10	19.7	5.7
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	35.3	1.65	1.01	9.72	1.67	1.00		51	51.0	857	4.72	1.0	< 10	35.4	3.0	2.9	0.8		3.89	18.2	1.10		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
SDC-1 Meas	32.7	1.45	0.97	4.29	1.88	0.89		62	44.6	786	4.48	1.0	30	34.4	2.8	2.9	0.8		3.89	17.4	1.00		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	38.6	0.11	0.62	> 10.0	1.77	0.20	< 0.1	159	61.9	1130	5.39	2.4	50	22.6		1.0		< 0.05	3.90	13.6	0.60	0.21	0.9
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
GXR-6 Meas	34.0	0.11	0.58	> 10.0	1.44	0.18	< 0.1	149	72.9	949	5.13	2.2	70	23.3		1.0		0.09	4.00	12.1	0.40	0.19	< 0.1
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	5.0							145	201					276						59.4	0.40		
DNC-1a Cert	5.2							148	270					247						57	0.59		
DNC-1a Meas	5.0							146	159					265						57.1	0.40		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	151						0.2	218	71.0			2.7		87.6	2.9	3.3	0.8		7.95	22.3	1.30	0.71	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
SBC-1 Meas	167						0.3	220	91.6			3.3		91.9	3.1	3.4	0.9		8.97	22.8	1.40	0.72	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	20.7	0.09	0.23	6.98	0.36	0.18		150	619	507	15.1	3.1		216	1.3	0.6	0.5		3.66	32.4	0.60	0.43	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
OREAS 45d (4-Acid) Meas	21.1	0.10	0.25	> 10.0	0.46	0.18		100	510	504	14.8	1.6		243	1.2	0.7	0.3		3.77	31.2	0.40	0.34	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	16.2						4.6	23	37.7			2.9	1130	49.7	2.3	6.6	0.6		1.74	11.9	1.00	1.05	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
SdAR-M2 (U.S.G.S.) Meas	17.3						4.9	24	41.5			3.4	530	52.3	2.2	6.9	0.6		1.79	12.9	0.90	1.07	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470530 Orig	12.5	1.13	2.51	5.83	0.07	7.23	0.3	136	149	2080	9.78	0.1	80	99.4	2.7	0.2	0.9	0.28	0.71	66.7	0.90	0.06	0.6
1470530 Dup	12.4	1.02	2.35	5.74	0.08	7.29	0.2	127	140	2070	9.46	0.1	70	95.3	2.7	0.2	0.9	0.20	0.70	67.8	0.80	0.04	0.6
1470759 Orig	10.0	> 3.00	3.91	> 10.0	0.20	5.49	< 0.1	245	13.3	1160	7.37	1.7	< 10	22.1	2.2	0.6	0.6	< 0.05	0.48	28.7	0.80	0.03	< 0.1
1470759 Dup	9.6	> 3.00	3.87	> 10.0	0.19	5.54	< 0.1	245	11.6	1130	7.24	1.7	< 10	22.4	2.2	0.5	0.6	< 0.05	0.47	28.7	0.80	0.04	< 0.1
1470761 Orig	13.0	> 3.00	3.25	> 10.0	0.09	3.20	< 0.1	208	18.2	1160	8.10	0.8	10	31.9	1.7	0.3	0.5	< 0.05	0.58	30.9	0.80	0.03	< 0.1
1470761 Dup	12.9	> 3.00	3.34	> 10.0	0.09	3.22	< 0.1	226	15.0	1230	8.19	0.9	20	32.8	1.7	0.4	0.5	< 0.05	0.59	31.8	0.70	0.04	< 0.1
1470766 Orig	10.0	0.53	3.14	> 10.0	0.08	7.51	< 0.1	257	14.2	1300	7.05	1.2	50	23.7	1.7	0.2	0.5	< 0.05	0.24	28.0	0.50	0.05	< 0.1
1470766 Split PREP DUP	11.9	0.52	3.69	> 10.0	0.09	8.18	< 0.1	269	15.8	1500	7.72	1.4	< 10	20.0	1.9	0.2	0.5	< 0.05	0.24	29.6	0.60	0.03	< 0.1
1477519 Orig	< 0.5	0.02	< 0.01	0.14	0.01	0.02	< 0.1	1	23.0	138	1.10	< 0.1	< 10	1.7	< 0.1	0.2	< 0.1	0.09	0.17	0.5	< 0.05	0.03	< 0.1
1477519 Dup	0.6	0.02	< 0.01	0.17	0.01	0.02	< 0.1	1	22.6	154	1.11	< 0.1	< 10	1.6	< 0.1	0.1	< 0.1	< 0.05	0.18	0.5	< 0.05	0.04	< 0.1
1477526 Orig	6.0	0.69	0.37	7.47	0.27	0.77	< 0.1	25	24.6	611	2.19	0.3	20	8.2	0.2	0.5	< 0.1	0.17	0.71	5.8	0.10	0.34	0.1
1477526 Dup	5.7	0.64	0.35	7.06	0.26	0.73	< 0.1	24	29.5	573	2.11	0.3	< 10	7.8	0.1	0.8	< 0.1	< 0.05	0.72	5.4	0.10	0.31	< 0.1
1477859 Orig	26.8	1.63	1.91	> 10.0	0.06	6.35	< 0.1	191	115	2310	8.07	0.5	< 10	88.4	2.1	0.2	0.6	< 0.05	0.53	77.3	0.90	0.10	< 0.1
1477859 Split PREP DUP	30.0	1.66	1.97	> 10.0	0.06	6.72	< 0.1	292	136	2630	9.27	1.2	< 10	92.8	2.3	0.2	0.7	< 0.05	0.57	83.2	1.00	0.10	0.1
Method Blank																							
Method Blank																							
Method Blank	< 0.5	< 0.01	< 0.01	0.01	< 0.01	0.01	< 0.1	1	2.4	7	< 0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	0.04	< 0.1
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	889	4.4	413	2.7	25.8	308	15	0.8	17.9	0.8	29	27.3	8.8	742	7.2	13.2		7.7	2.4	3.1	0.6	3.7	1300
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
GXR-1 Meas	938	9.4	405	3.6	24.3	296	24	1.4	18.3	0.9	31	45.0	10.0	684	7.1	13.6		7.7	2.2	3.0	0.5	3.7	1250
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	68.4	9.9	89.1	110	12.0	217	43	9.8	319	0.2	7	3.7	1.2	695	55.6	99.9		38.9	4.9	3.5	0.4	2.1	7050
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
GXR-4 Meas	68.5	13.0	91.8	138	11.0	217	41	9.5	331	0.2	7	3.8	0.9	1120	57.6	104		40.2	5.2	3.6	0.4	2.2	7060
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	107	13.7	< 0.1	76.5		178	41	2.4			< 1	< 0.1		640	33.3	72.6		36.1	5.7	4.9	0.7	4.6	22.4
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
SDC-1 Meas	87.8	16.2	< 0.1	75.5		165	41	8.8			2	< 0.1		598	35.4	78.0		35.8	5.4	4.7	0.7	4.5	15.4
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	114	25.0	296	69.0	10.6	41.4	81	1.6	1.04	< 0.1	1	2.1	< 0.1	1510	10.8	31.7		11.5	1.9	2.2	0.3	2.0	69.2
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
GXR-6 Meas	110	12.4	247	54.5	9.1	38.4	100	3.2	1.48	< 0.1	1	1.5	< 0.1	1390	10.8	26.7		10.3	1.9	1.6	0.2	1.6	49.6
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	56.0	11.6		2.9	14.2	146	41	1.5						109	3.4				4.6				88.8
DNC-1a Cert	70	15		5	18.0	144	38.0	3						118	3.6				5.20				100
DNC-1a Meas	55.8	11.7		3.1	12.4	137	38	1.8						99	3.3				4.2				85.8
DNC-1a Cert	70	15		5	18.0	144	38.0	3						118	3.6				5.20				100
SBC-1 Meas	175	18.4	10.3	91.9	25.8	172	111	9.8	2.38		3	0.6		602	45.7	91.4	11.6	42.5	7.5	5.7	0.8	4.8	13.1
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
SBC-1 Meas	186	20.7	15.1	130	25.9	169	121	15.6	2.09		4	0.7		717	45.8	95.4	12.4	44.9	6.9	6.1	0.9	5.2	12.7
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	41.3	18.9	8.8	36.3	10.8	30.9	110	1.6	0.85	< 0.1	1	< 0.1		188	16.0	35.8	3.8	14.2	2.4	2.7	0.4	2.2	389
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
OREAS 45d (4-Acid) Meas	38.7	18.5	2.8	36.8	9.4	30.1	67	1.7	0.53	< 0.1	< 1	< 0.1		187	15.4	32.5	3.7	13.2	2.1	1.7	0.2	1.8	377
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas	845	8.4		85.4	20.3	128	96	16.4	11.9					920	41.2	86.1	9.9	33.3	5.6	4.0	0.6	3.6	246
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
SdAR-M2 (U.S.G.S.) Meas	893	14.3		101	19.6	141	111	21.1	13.2					976	38.4	83.4	9.5	32.6	4.8	3.8	0.5	3.5	237

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
1470530 Orig	103	15.2	7.0	4.2	26.4	72.5	4	0.1	0.18	< 0.1	< 1	< 0.1	< 0.1	25	3.5	9.9	1.4	7.9	2.2	3.6	0.6	4.1	270
1470530 Dup	97.1	15.0	6.1	4.1	27.8	70.4	4	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	23	3.4	9.3	1.4	7.8	2.1	3.7	0.6	4.0	281
1470759 Orig	19.6	13.4	0.6	4.9	16.1	81.1	53	1.6	0.11	< 0.1	< 1	< 0.1	< 0.1	60	3.4	8.6	1.4	6.9	2.0	2.4	0.5	3.2	< 0.2
1470759 Dup	19.8	13.3	0.7	5.0	15.9	80.0	48	1.6	0.10	< 0.1	< 1	< 0.1	< 0.1	61	3.4	8.4	1.4	6.7	1.9	2.4	0.4	3.2	< 0.2
1470761 Orig	36.7	15.9	0.3	4.1	15.5	63.3	29	1.5	0.34	< 0.1	< 1	< 0.1	< 0.1	57	2.9	6.4	1.0	4.1	1.1	1.5	0.3	2.2	< 0.2
1470761 Dup	32.9	15.6	0.3	4.1	14.5	63.9	28	2.4	0.35	< 0.1	1	< 0.1	< 0.1	56	2.9	6.6	1.0	4.1	1.1	1.5	0.3	2.3	< 0.2
1470766 Orig	50.2	14.1	49.1	2.3	15.6	200	44	2.0	0.56	< 0.1	< 1	< 0.1	0.2	24	3.5	8.2	1.3	6.1	1.6	1.8	0.3	2.5	15.3
1470766 Split PREP DUP	48.9	15.6	61.3	2.5	17.2	222	45	2.3	0.44	< 0.1	< 1	< 0.1	< 0.1	25	3.9	9.3	1.4	6.7	1.8	2.1	0.4	2.7	14.2
1477519 Orig	25.5	0.3	< 0.1	0.4	< 0.1	5.4	< 1	0.1	0.65	< 0.1	< 1	< 0.1	< 0.1	3	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.6
1477519 Dup	26.7	0.3	0.6	0.5	< 0.1	5.2	1	0.1	0.70	< 0.1	< 1	< 0.1	< 0.1	3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.4
1477526 Orig	29.2	4.9	< 0.1	6.2	1.5	66.3	12	0.5	1.54	< 0.1	< 1	< 0.1	< 0.1	66	1.6	3.4	0.4	1.5	0.2	0.2	< 0.1	0.2	25.0
1477526 Dup	27.3	4.8	< 0.1	6.0	1.4	67.0	12	0.6	1.46	< 0.1	< 1	< 0.1	< 0.1	66	1.5	3.2	0.4	1.5	0.2	0.2	< 0.1	0.2	7.8
1477859 Orig	115	16.3	29.8	2.3	19.9	99.8	18	0.8	0.17	< 0.1	< 1	1.6	< 0.1	22	3.2	8.1	1.3	6.9	2.1	2.4	0.5	3.2	< 0.2
1477859 Split PREP DUP	96.6	17.2	38.7	2.5	20.8	111	40	2.3	0.31	< 0.1	1	3.4	< 0.1	24	3.3	8.2	1.5	7.2	2.2	2.6	0.5	3.4	< 0.2
Method Blank																							
Method Blank																							
Method Blank	< 0.2	< 0.1	< 0.1	< 0.2	< 0.1	0.2	< 1	< 0.1	0.09	< 0.1	< 1	< 0.1	< 0.1	< 1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.3	2.0	0.2	< 0.1	109		0.37	734	1	2.5	32.4	0.0268	0.059	0.25
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
GXR-1 Meas		0.3	2.0	0.3	0.1	126		0.38	729	1	2.5	32.2	0.0254	0.058	0.24
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	2260			
DH-1a Cert											910	2629			
DH-1a Meas											> 500	2210			
DH-1a Cert											910	2629			
GXR-4 Meas		0.1	0.9	0.1	0.5	29.7		3.04	49.0	8	18.3	5.5	0.290	0.133	1.78
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
GXR-4 Meas		0.2	0.9	0.1	0.6	29.7		3.13	49.1	8	20.0	5.7	0.275	0.130	1.73
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.4	2.8		0.1	0.1		0.57	22.7	17	10.8	2.6	0.194	0.055	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
SDC-1 Meas		0.4	2.9		0.6	0.3		0.55	21.4	16	10.7	2.7	0.136	0.051	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			1.6	0.2	< 0.1	< 0.1		1.96	99.5	27	4.7	1.4		0.034	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
GXR-6 Meas			1.4	0.2	0.2	0.8		1.83	85.6	28	4.3	1.3		0.036	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			1.8						6.1	31			0.268		
DNC-1a Cert			2.0						6.3	31			0.29		
DNC-1a Meas			1.7						5.8	31			0.273		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.4	2.9	0.4	0.6	1.1		0.82	31.7	21	13.7	5.2	0.468		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
SBC-1 Meas		0.5	3.2	0.5	1.0	1.5		0.86	33.6	22	14.8	5.5	0.508		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.4	0.2	< 0.1	0.7		0.23	21.6		14.4	2.7			
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8		14.5	2.63			
OREAS 45d (4-Acid) Meas			1.3	0.2	0.1	0.2		0.25	21.1		13.2	2.6			
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8		14.5	2.63			
SdAR-M2 (U.S.G.S.) Meas		0.3	2.3	0.3	0.9	1.2			733	4	12.4	2.3			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
SdAR-M2 (U.S.G.S.) Meas		0.3	2.3	0.4	1.0	1.9			773	4	12.1	2.3			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470530 Orig	0.1	0.4	2.7	0.3	< 0.1	0.1	0.002	< 0.05	1.0	40	0.2	0.1	0.214	0.028	0.17
1470530 Dup	0.1	0.4	2.6	0.3	< 0.1	< 0.1	0.002	< 0.05	1.0	39	0.2	0.1	0.199	0.027	0.16
1470759 Orig	0.8	0.3	2.2	0.3	0.1	0.3	< 0.001	< 0.05	1.2	44	0.6	0.1	0.363	0.006	< 0.01
1470759 Dup	1.1	0.3	2.2	0.3	0.1	0.5	< 0.001	< 0.05	1.1	45	0.6	0.1	0.365	0.006	< 0.01
1470761 Orig	1.0	0.2	1.7	0.2	< 0.1	0.3	< 0.001	< 0.05	0.7	45	0.3	0.1	0.186	0.003	< 0.01
1470761 Dup	1.3	0.2	1.7	0.2	0.3	0.4	< 0.001	< 0.05	2.1	44	0.3	0.1	0.208	0.004	< 0.01
1470766 Orig	0.7	0.3	1.7	0.2	0.1	0.2	< 0.001	< 0.05	1.5	43	0.5	0.1	0.257	0.024	< 0.01
1470766 Split PREP DUP	1.0	0.3	1.9	0.3	0.3	0.2	< 0.001	< 0.05	1.6	45	0.5	0.1	0.355	0.027	< 0.01
1477519 Orig	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	5.2	< 1	< 0.1	< 0.1	0.0021	< 0.001	< 0.01
1477519 Dup	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	5.2	< 1	< 0.1	< 0.1	0.0021	0.001	< 0.01
1477526 Orig	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	2.9	2	0.3	0.1	0.0473	0.018	0.29
1477526 Dup	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.1	< 0.001	< 0.05	2.8	2	0.2	0.1	0.0482	0.018	0.29
1477859 Orig	0.4	0.3	1.9	0.3	< 0.1	0.1	< 0.001	< 0.05	3.2	40	0.3	0.1	0.207	0.031	0.31
1477859 Split PREP DUP	0.8	0.3	2.1	0.3	0.1	0.3	< 0.001	< 0.05	1.6	42	0.3	0.3	0.568	0.034	0.32
Method Blank										< 1			0.0007	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01



Date Submitted: 01-Nov-16
Invoice No.: A16-11435-UT6
Invoice Date: 19-Dec-16
Your Reference: PENG-20161029-009-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

143 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-11435-UT6**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is stylized with a large, sweeping 'E' and 'S'.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-11435

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470555	53.5	0.03	13.4	3.36	0.01	3.47	< 0.1	45	1760	1230	8.13	0.4	30	1180	0.8	0.1	0.3	0.27	1.73	93.9	0.15	0.22	0.6
1470556	4.6	> 3.00	1.72	7.36	0.05	2.23	< 0.1	49	76.2	334	2.60	3.5	110	103	0.8	1.4	0.3	0.08	0.10	11.7	1.10	0.14	< 0.1
1470557	22.6	2.24	0.58	7.66	0.92	2.53	< 0.1	35	33.2	320	2.41	2.8	50	12.2	1.0	1.6	0.4	0.07	0.71	7.2	0.90	0.46	< 0.1
1470558	3.2	< 0.01	11.1	1.78	< 0.01	16.2	0.1	9	1400	2170	6.04	0.2	40	1800	0.4	0.1	0.1	0.09	< 0.05	77.5	0.30	0.37	0.4
1470559	4.6	< 0.01	13.8	2.48	< 0.01	12.1	0.1	30	1600	1850	7.67	0.3	70	1070	0.4	0.1	0.1	0.07	< 0.05	91.0	0.30	0.14	0.2
1470560	15.6	0.21	8.66	4.92	0.02	3.79	0.5	132	1090	2760	13.1	0.8	60	609	1.3	0.5	0.5	0.09	0.42	66.0	0.40	0.40	0.1
1470561	5.0	< 0.01	12.9	3.17	< 0.01	8.54	< 0.1	108	2170	1820	8.41	0.3	50	1150	0.3	0.1	0.1	0.06	< 0.05	98.6	0.20	0.13	0.2
1470562	8.8	> 3.00	1.33	6.79	0.58	1.84	< 0.1	78	152	554	2.91	0.9	50	40.3	1.2	0.7	0.4	< 0.05	0.78	12.2	0.80	0.05	< 0.1
1470563	14.5	2.80	2.16	7.26	0.17	2.88	< 0.1	135	123	1680	7.50	1.1	20	117	1.7	0.6	0.6	0.39	0.32	27.2	1.00	0.07	0.3
1470565	14.4	0.91	1.29	5.72	1.23	2.98	0.2	126	141	699	11.9	1.3	< 10	26.5	1.3	1.8	0.5	0.06	1.12	17.4	1.40	0.18	< 0.1
1470566	8.0	0.65	0.49	2.17	0.76	0.95	< 0.1	24	30.7	400	1.80	0.5	100	9.0	0.5	0.8	0.2	0.26	1.72	4.9	0.90	0.09	< 0.1
1470567	6.2	< 0.01	1.52	0.96	0.01	2.65	< 0.1	31	107	384	1.71	< 0.1	90	50.9	0.2	< 0.1	0.1	0.14	0.06	13.8	0.10	0.04	< 0.1
1470568	4.6	1.80	1.16	4.79	0.13	1.93	0.3	67	39.0	1000	16.4	2.5	60	32.6	1.5	1.0	0.5	0.14	1.14	29.8	0.60	0.49	6.8
1470569	18.5	0.66	2.04	7.24	0.05	6.21	0.1	197	161	2390	10.9	0.4	50	82.5	3.1	0.2	1.1	0.12	0.30	54.5	1.00	0.04	0.5
1470570	17.3	0.69	3.56	7.22	0.04	6.48	0.1	147	332	1600	9.01	0.3	50	139	2.7	0.2	0.9	0.11	0.11	52.9	0.90	0.03	0.6
1470571	11.9	0.13	4.72	6.29	0.03	8.98	< 0.1	212	246	2240	10.4	0.6	40	81.4	2.6	0.2	0.9	0.06	0.11	41.8	1.00	0.03	< 0.1
1470572	12.5	1.37	4.52	6.26	0.04	7.31	< 0.1	121	165	1490	7.59	0.2	40	74.8	2.4	0.4	0.9	0.07	0.05	40.7	0.80	0.03	< 0.1
1470573	6.7	0.43	1.03	1.54	0.02	1.64	< 0.1	48	92.5	309	1.98	0.1	40	19.4	0.4	< 0.1	0.1	0.07	0.08	10.6	0.10	< 0.02	< 0.1
1470574	< 0.5	0.05	0.02	0.13	0.01	0.03	< 0.1	19	9.8	179	0.87	< 0.1	30	1.9	0.2	< 0.1	0.1	< 0.05	< 0.05	1.2	< 0.05	0.02	< 0.1
1470575	11.4	1.25	1.41	6.10	0.02	4.97	0.1	215	33.4	2370	11.2	0.3	110	38.0	3.5	0.5	1.2	0.29	0.19	44.3	1.10	0.08	< 0.1
1470576	24.9	1.55	4.40	6.51	0.02	5.19	< 0.1	199	280	1230	7.86	0.2	80	140	1.8	0.2	0.6	0.16	0.09	46.2	0.60	0.04	< 0.1
1470577	11.8	2.87	1.35	6.38	0.02	3.63	0.2	141	23.5	1840	10.1	0.1	60	43.4	3.1	0.4	1.1	0.11	0.18	47.7	1.10	0.05	0.3
1470579	17.1	1.52	2.50	6.21	0.01	5.14	< 0.1	165	21.9	1510	11.5	0.2	60	44.4	3.4	0.5	1.2	0.07	0.24	48.6	1.20	0.03	< 0.1
1470580	24.0	> 3.00	2.44	7.66	0.58	2.48	0.1	78	118	735	3.87	2.6	10	86.0	0.6	0.8	0.2	< 0.05	0.63	22.0	0.70	0.02	< 0.1
1470581	3.4	0.03	0.35	0.45	0.03	0.13	< 0.1	8	18.8	262	1.08	0.1	20	8.0	0.1	< 0.1	< 0.1	0.16	0.07	3.2	0.10	0.02	< 0.1
1470582	9.4	2.01	0.91	3.81	0.38	0.10	< 0.1	44	54.5	265	2.27	1.0	40	23.4	0.2	0.4	0.1	< 0.05	0.54	8.2	0.30	0.03	< 0.1
1470584	22.8	1.79	2.29	6.42	0.22	2.18	0.2	195	23.0	2320	12.0	1.2	20	41.9	1.3	0.4	0.5	< 0.05	0.33	53.4	0.80	0.06	< 0.1
1470585	10.8	1.23	4.64	7.47	0.04	9.36	< 0.1	224	187	1470	8.71	0.5	90	152	1.8	0.2	0.6	0.28	0.17	46.8	0.60	0.04	0.4
1470586	9.1	1.01	3.19	5.25	0.05	5.70	< 0.1	150	193	953	6.13	0.3	70	100	1.2	0.1	0.4	0.10	0.13	25.8	0.50	0.03	< 0.1
1470587	39.5	1.83	4.04	7.54	0.23	2.90	0.1	181	354	1500	8.60	1.0	50	134	1.1	0.4	0.5	< 0.05	0.20	48.5	0.70	0.02	< 0.1
1470588	17.1	2.46	2.16	6.51	0.02	3.65	< 0.1	168	119	1310	11.0	0.4	50	101	2.4	0.3	0.8	< 0.05	0.06	54.1	0.90	0.04	< 0.1
1470589	25.8	1.44	3.89	5.97	0.02	9.33	0.2	124	100	1670	8.69	0.7	50	97.3	2.8	0.4	1.0	< 0.05	0.10	48.8	1.10	0.02	< 0.1
1470590	17.3	1.25	2.13	6.87	0.50	5.74	0.1	138	102	1360	9.69	0.2	50	98.3	2.8	0.5	1.0	< 0.05	4.92	50.8	0.90	0.08	< 0.1
1470591	21.2	1.81	4.83	7.52	0.02	3.93	< 0.1	236	214	1290	9.40	0.4	40	136	2.1	0.2	0.7	< 0.05	0.20	50.2	0.80	0.02	0.1
1470592	18.0	2.65	2.59	7.03	0.03	2.45	< 0.1	127	127	2050	8.73	0.5	20	117	1.6	0.5	0.6	< 0.05	0.37	32.7	0.90	0.03	< 0.1
1470593	27.5	2.44	2.93	9.50	1.38	1.05	< 0.1	200	147	2060	12.2	2.3	20	153	2.4	0.8	0.8	< 0.05	0.84	34.6	1.00	0.14	0.7
1470594	3.7	0.28	0.45	1.22	0.07	0.24	< 0.1	25	35.8	390	1.95	0.1	110	20.3	0.1	0.1	< 0.1	0.31	0.13	4.9	0.10	0.04	< 0.1
1470595	8.3	0.08	1.15	1.88	0.03	0.18	< 0.1	40	24.2	573	3.82	< 0.1	80	59.4	0.1	0.1	< 0.1	0.14	0.12	12.7	< 0.05	0.02	< 0.1
1470596	20.2	2.13	2.22	6.59	0.85	5.74	< 0.1	122	94.8	2750	7.39	1.8	50	67.7	1.4	0.4	0.5	< 0.05	0.47	19.3	0.60	0.08	< 0.1
1470597	1.1	0.10	0.09	3.36	0.07	4.29	< 0.1	128	21.5	471	3.76	0.2	30	5.1	0.4	0.2	0.1	0.15	0.20	2.9	0.70	0.13	< 0.1
1470598	28.1	2.12	3.24	7.68	1.37	3.11	0.2	110	103	1070	7.35	0.6	30	79.3	1.7	0.6	0.6	0.29	0.37	40.1	1.25	0.16	< 0.1
1470599	21.0	2.63	2.38	7.07	0.19	2.43	0.1	60	112	880	8.22	1.9	90	82.3	3.0	0.5	1.1	0.40	0.31	32.1	1.20	0.08	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-11435

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470600	2.4	0.14	0.20	1.72	0.03	2.02	0.1	73	20.6	638	2.66	0.2	70	9.3	0.4	0.1	0.1	0.25	0.17	6.1	0.50	0.18	< 0.1
1470901	14.1	0.81	2.82	6.78	0.05	2.99	0.2	207	87.2	2650	15.4	0.4	70	46.3	4.6	0.2	1.6	0.17	0.34	47.7	1.70	0.08	< 0.1
1470902	19.5	1.52	2.27	7.63	0.47	5.40	< 0.1	302	176	2060	11.2	0.4	30	94.7	3.2	0.2	1.1	0.11	3.41	46.0	1.20	0.05	0.7
1470903	12.4	0.04	2.52	7.35	0.16	4.75	< 0.1	287	186	2250	14.2	0.4	50	40.5	3.4	0.1	1.1	0.15	1.31	29.7	1.00	0.03	3.0
1470905	10.9	0.91	2.53	6.34	0.08	2.78	< 0.1	154	99.3	2110	14.2	0.2	40	39.0	4.4	0.2	1.5	0.09	0.67	37.0	1.70	0.05	1.0
1470906	12.8	0.02	2.71	6.36	0.13	3.04	< 0.1	248	188	2660	16.1	0.4	30	52.0	3.1	< 0.1	1.1	0.11	1.24	49.1	0.90	0.04	2.1
1470907	14.7	0.03	2.70	5.63	0.66	0.43	< 0.1	236	83.8	3300	19.4	0.3	40	22.9	2.5	0.3	0.9	0.08	5.82	20.3	0.60	0.04	0.3
1470909	12.6	0.47	2.22	7.50	0.07	6.73	< 0.1	213	190	1760	11.9	0.4	30	90.8	2.9	0.1	1.0	0.06	0.20	62.4	1.10	0.05	2.0
1470910	11.2	0.04	3.47	6.87	0.07	7.43	< 0.1	174	239	1700	9.49	0.4	100	47.8	2.7	0.1	0.9	0.29	0.13	35.4	1.10	0.10	0.8
1470911	3.5	0.66	2.53	5.50	0.06	10.4	0.1	103	117	1430	5.04	0.3	70	54.4	1.7	0.3	0.6	0.12	0.08	28.2	0.60	0.03	< 0.1
1470912	21.0	1.39	4.19	7.04	0.17	3.31	< 0.1	232	218	1570	8.46	0.4	60	51.8	2.7	0.4	1.0	0.13	0.14	32.6	1.00	0.12	< 0.1
1470913	8.2	0.91	2.87	5.41	1.45	2.32	< 0.1	156	131	759	7.07	2.2	30	4.9	0.7	0.4	0.2	< 0.05	0.50	3.4	0.20	0.16	0.8
1470914	14.5	2.27	3.40	7.23	0.21	4.15	< 0.1	180	183	1420	6.77	0.6	30	146	1.7	0.5	0.6	0.18	0.29	37.2	0.90	0.04	< 0.1
1470630	16.0	> 3.00	2.35	5.59	0.32	2.26	0.3	211	13.5	1950	14.1	4.2	30	24.9	5.2	0.9	1.8	< 0.05	9.36	61.6	1.60	0.56	0.6
1470631	6.1	> 3.00	1.19	5.22	0.27	0.48	< 0.1	44	109	160	1.75	2.4	20	60.9	0.5	1.4	0.2	< 0.05	1.83	9.7	0.80	8.20	< 0.1
1470632	2.0	> 3.00	0.46	6.96	0.05	1.23	< 0.1	16	12.5	233	1.09	2.6	30	19.0	0.2	1.0	0.1	< 0.05	0.21	6.9	0.50	0.75	< 0.1
1470634	4.2	> 3.00	0.31	8.52	0.24	1.43	< 0.1	10	9.2	177	1.32	3.1	80	6.2	0.2	1.9	0.1	0.10	0.28	5.1	0.40	0.27	< 0.1
1470635	14.2	> 3.00	0.63	9.43	0.50	1.39	< 0.1	23	10.3	133	1.31	3.4	60	21.4	0.3	2.2	0.1	< 0.05	0.36	9.1	0.40	0.37	< 0.1
1470636	20.9	1.18	0.67	7.55	1.68	1.63	< 0.1	26	11.8	328	2.48	2.3	30	11.2	0.7	0.9	0.3	< 0.05	1.16	6.2	0.60	0.07	< 0.1
1470637	11.8	1.88	1.64	7.65	0.96	5.38	< 0.1	99	124	1160	5.88	0.7	50	89.6	2.0	0.6	0.7	< 0.05	2.47	18.9	1.00	0.10	0.1
1470638	6.5	0.40	1.80	4.87	0.18	7.03	< 0.1	107	65.4	1020	6.03	0.5	40	66.5	1.0	0.2	0.4	0.07	0.71	18.9	1.00	0.03	< 0.1
1470639	15.6	0.98	2.25	4.45	0.45	4.87	0.3	121	59.4	1010	6.05	1.5	< 10	36.7	1.0	0.7	0.4	< 0.05	0.45	19.9	0.90	0.05	< 0.1
1470640	9.3	1.30	3.32	6.66	0.03	7.71	< 0.1	267	93.1	1560	10.6	0.7	20	81.9	3.0	0.4	1.0	0.06	0.16	51.6	1.00	0.03	0.4
1470641	7.1	1.81	2.07	5.75	0.25	6.88	0.1	241	84.1	2570	11.4	0.6	20	58.0	4.0	0.5	1.4	< 0.05	0.52	42.5	1.20	0.02	0.2
1470642	17.7	0.45	2.37	5.65	0.05	7.42	0.1	270	88.5	3190	15.4	0.6	10	74.4	4.0	0.1	1.4	0.07	0.43	76.1	1.20	0.06	1.3
1470644	35.6	0.02	4.42	5.94	0.70	7.84	0.2	169	564	1570	8.39	0.9	100	308	1.5	0.4	0.5	0.20	0.43	52.2	0.50	0.04	< 0.1
1470645	24.8	1.40	2.61	7.45	1.14	1.44	0.1	164	59.0	703	8.23	2.9	60	50.6	1.4	1.1	0.5	< 0.05	1.50	38.2	0.80	0.14	0.4
1470785	25.3	1.95	2.82	6.88	1.50	2.67	< 0.1	207	256	1410	8.47	0.6	50	96.7	1.2	0.2	0.4	0.13	2.78	38.8	0.30	0.19	0.2
1470786	17.5	> 3.00	1.73	7.46	1.30	3.06	< 0.1	139	140	1080	5.70	2.4	40	63.3	1.2	0.7	0.4	< 0.05	1.71	23.3	0.70	0.16	0.1
1470787	14.4	2.13	2.66	6.26	1.42	5.18	0.1	179	43.7	1670	11.3	2.1	40	60.0	3.5	0.9	1.2	< 0.05	2.30	53.6	1.30	0.07	< 0.1
1470788	17.8	1.49	4.42	7.18	0.50	6.84	< 0.1	215	163	2130	8.76	0.6	20	117	1.7	0.4	0.6	0.15	1.21	52.5	0.60	0.25	0.5
1470789	47.3	0.06	5.59	5.99	0.38	7.09	< 0.1	247	174	2950	14.7	0.4	< 10	148	1.9	0.2	0.6	0.16	0.38	69.8	0.50	0.51	0.6
1470790	26.5	0.24	2.26	4.12	0.73	6.64	< 0.1	186	128	1010	4.81	0.5	< 10	65.8	0.9	0.4	0.3	2.61	1.06	28.6	0.30	1.05	0.2
1470791	2.9	> 3.00	0.14	7.26	0.13	4.42	< 0.1	13	11.7	296	1.39	2.3	< 10	10.8	1.0	0.9	0.4	0.94	0.12	6.0	0.80	1.87	< 0.1
1470792	5.1	> 3.00	0.26	6.77	1.56	2.51	< 0.1	29	17.4	232	2.07	2.5	< 10	10.1	0.8	0.9	0.3	0.15	1.38	6.7	0.70	0.84	< 0.1
1470793	4.4	> 3.00	0.23	6.67	0.99	2.76	< 0.1	22	12.6	226	2.05	2.1	< 10	8.9	0.7	0.9	0.3	0.14	0.89	6.4	0.60	0.78	< 0.1
1470795	0.9	> 3.00	0.61	7.15	0.53	2.35	< 0.1	21	17.0	449	2.10	2.0	< 10	19.7	0.4	1.0	0.1	< 0.05	0.36	11.2	0.50	0.88	< 0.1
1470796	5.1	> 3.00	0.45	6.93	1.71	1.00	< 0.1	29	13.1	220	2.17	2.5	< 10	11.1	0.6	1.3	0.2	< 0.05	1.07	6.5	0.60	0.74	< 0.1
1470797	0.7	> 3.00	0.37	5.30	0.45	1.56	< 0.1	19	23.1	248	1.54	2.0	< 10	12.1	0.3	0.8	0.1	< 0.05	0.31	6.0	0.50	0.40	< 0.1
1470798	6.6	> 3.00	1.90	7.42	2.02	4.18	< 0.1	93	111	753	3.82	3.7	< 10	126	1.0	1.5	0.4	< 0.05	1.26	24.0	1.50	1.56	< 0.1
1470799	2.8	> 3.00	0.62	7.93	2.06	1.36	< 0.1	47	24.4	280	1.42	3.1	< 10	17.5	0.4	1.5	0.1	< 0.05	1.33	8.0	0.50	0.44	< 0.1
1470800	0.7	0.34	0.10	1.76	0.70	0.24	< 0.1	21	33.9	214	1.36	0.6	20	15.1	0.2	0.3	0.1	0.06	0.38	4.2	0.20	0.39	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-11435

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470801	19.1	0.43	3.43	5.49	1.87	8.25	0.1	189	215	1680	6.52	0.6	< 10	101	0.7	0.9	0.2	0.06	1.31	35.6	0.40	0.71	< 0.1
1470802	8.7	0.32	2.32	6.66	1.66	5.38	< 0.1	222	283	1570	5.69	0.7	< 10	115	0.5	0.5	0.2	< 0.05	1.78	43.5	0.30	0.42	0.2
1470803	6.6	0.19	3.11	6.77	2.47	9.31	< 0.1	231	261	2050	6.45	0.9	< 10	117	1.1	1.2	0.4	< 0.05	2.06	50.6	0.70	0.71	0.4
1470804	46.3	0.20	8.77	4.19	0.15	3.61	0.4	82	2240	6510	10.2	0.5	20	1340	1.0	0.1	0.3	5.28	3.45	120	0.20	0.33	0.3
1470805	4.5	1.87	2.14	5.13	0.31	5.71	0.1	95	23.0	1030	5.98	0.4	30	25.1	1.5	0.2	0.5	0.73	1.43	23.2	0.50	0.04	0.4
1470806	28.6	1.23	6.81	6.83	0.11	4.72	0.1	151	374	1160	6.66	0.4	80	196	0.9	0.1	0.3	0.29	0.25	49.0	0.30	0.06	< 0.1
1470807	10.3	2.37	4.09	7.19	0.62	7.75	< 0.1	198	74.9	1250	7.15	0.6	50	82.6	1.4	0.2	0.5	0.12	2.94	38.4	0.50	0.02	< 0.1
1470808	13.7	> 3.00	3.70	6.88	1.12	4.62	< 0.1	235	80.0	1200	8.46	1.5	30	46.4	1.9	0.2	0.7	< 0.05	4.89	31.6	0.60	0.02	0.4
1470810	8.7	0.13	3.90	7.93	0.09	12.0	0.1	234	49.5	1260	8.61	1.0	50	82.1	1.8	0.1	0.6	< 0.05	0.33	46.2	0.60	0.03	< 0.1
1470811	7.0	0.20	3.68	7.81	0.07	11.7	< 0.1	263	18.1	1730	11.6	0.9	20	55.8	2.5	0.2	0.9	< 0.05	0.26	56.4	0.90	0.03	< 0.1
1470812	10.0	2.63	2.95	6.24	0.10	4.18	< 0.1	220	19.9	1250	9.41	1.4	30	35.3	2.5	0.5	0.9	< 0.05	0.22	44.7	0.80	< 0.02	< 0.1
1470814	26.9	2.77	4.34	7.55	0.08	1.55	< 0.1	182	185	985	8.47	1.0	30	95.3	2.1	0.2	0.7	< 0.05	0.22	46.9	1.10	< 0.02	< 0.1
1470815	10.9	> 3.00	3.60	6.35	0.17	3.25	< 0.1	236	73.2	1000	7.63	1.2	40	49.5	1.8	0.3	0.6	< 0.05	0.47	33.1	0.70	0.03	0.4
1470816	16.5	> 3.00	2.78	6.10	0.10	1.32	< 0.1	67	47.5	331	2.82	2.3	20	59.2	1.4	0.5	0.5	< 0.05	0.13	28.4	0.50	0.15	< 0.1
1470817	23.1	2.24	3.41	6.67	0.63	2.22	< 0.1	176	33.2	936	8.87	0.9	90	60.7	1.7	0.2	0.6	0.25	1.39	45.4	0.80	0.04	< 0.1
1470818	20.8	2.02	3.02	5.77	0.07	2.73	< 0.1	138	9.2	1010	7.80	0.9	80	34.0	1.9	0.2	0.6	0.07	0.32	37.7	0.90	0.03	< 0.1
1470819	15.7	1.80	4.20	6.51	0.41	6.02	0.5	235	190	1260	8.56	1.0	30	73.4	1.7	0.2	0.6	0.08	0.89	47.8	0.70	0.11	0.3
1470820	18.0	1.79	2.76	6.45	0.66	8.68	< 0.1	160	123	947	5.61	0.7	40	63.6	1.3	0.2	0.4	< 0.05	1.41	34.0	0.50	0.04	0.2
1470821	14.0	1.26	2.13	6.28	0.14	5.26	< 0.1	247	19.9	1600	9.28	0.9	30	27.4	1.7	0.1	0.6	< 0.05	0.89	34.5	1.10	0.02	< 0.1
1470822	17.8	2.53	2.62	6.37	0.29	5.71	0.1	247	20.6	1410	9.43	1.4	30	36.9	2.5	0.3	0.9	< 0.05	0.88	42.8	0.80	0.02	< 0.1
1470823	28.9	0.52	10.9	3.74	0.19	6.41	< 0.1	147	929	1620	8.25	1.4	20	633	1.3	0.1	0.5	< 0.05	4.90	78.1	0.50	0.02	< 0.1
1470824	< 0.5	< 0.01	22.4	0.94	< 0.01	0.49	< 0.1	14	520	897	5.51	0.2	20	2100	0.2	< 0.1	0.1	< 0.05	< 0.05	119	0.10	< 0.02	< 0.1
1470825	12.7	0.63	5.02	2.92	0.01	3.12	0.3	63	957	1790	6.44	0.6	30	437	0.3	0.1	0.1	< 0.05	0.10	48.2	0.30	0.02	< 0.1
1470826	8.1	0.49	3.09	1.86	0.02	1.22	< 0.1	32	643	792	3.58	0.4	90	258	0.2	< 0.1	0.1	0.24	0.10	30.3	0.20	0.05	< 0.1
1470827	15.3	0.10	4.20	2.53	0.01	1.56	< 0.1	51	855	794	4.85	0.5	70	346	0.2	< 0.1	0.1	0.11	0.09	33.5	0.20	0.03	< 0.1
1470829	2.1	0.52	1.61	0.82	0.01	2.61	0.1	15	215	668	2.02	0.1	30	112	0.2	< 0.1	0.1	0.09	0.11	12.2	0.20	0.03	< 0.1
1470830	19.3	1.32	7.45	4.90	0.02	3.23	0.2	127	1080	1240	7.90	1.1	< 10	597	0.4	0.1	0.2	< 0.05	0.22	72.8	0.30	0.06	0.5
1470831	8.3	0.08	4.31	1.32	< 0.01	5.50	0.2	21	587	1190	3.91	0.2	20	380	0.3	< 0.1	0.1	0.11	0.08	39.0	0.40	0.03	< 0.1
1470832	16.1	2.26	5.48	5.74	0.01	3.14	0.1	187	373	1040	7.32	1.2	20	166	0.5	0.1	0.2	< 0.05	0.10	49.0	0.40	0.02	0.2
1470833	5.5	0.44	1.53	1.31	0.01	0.16	0.1	53	279	454	3.29	0.3	30	64.8	0.2	< 0.1	0.1	< 0.05	0.09	10.8	0.10	0.02	< 0.1
1470834	20.4	0.74	6.59	4.22	0.02	1.10	0.3	91	1390	1550	8.43	0.9	70	631	0.4	0.1	0.1	0.22	0.13	59.0	0.30	0.05	< 0.1
1274051	13.1	> 3.00	1.90	6.30	0.85	4.51	< 0.1	70	164	918	5.14	2.1	60	100	1.2	0.9	0.4	< 0.05	1.81	26.0	0.80	0.06	< 0.1
1274052	18.4	2.26	1.78	7.15	1.20	4.46	0.1	102	175	1170	6.18	2.2	30	116	1.3	1.3	0.5	< 0.05	2.09	30.5	1.20	0.06	< 0.1
1274053	14.3	2.97	2.32	5.87	0.69	5.62	0.1	84	132	1390	5.82	1.9	20	84.8	1.2	0.6	0.4	< 0.05	1.64	28.6	0.90	0.13	< 0.1
1274055	35.5	> 3.00	2.90	7.20	0.02	4.66	< 0.1	133	204	998	8.14	2.6	30	373	1.1	0.7	0.4	< 0.05	0.35	55.0	1.20	0.09	< 0.1
1274056	97.0	2.01	2.62	8.91	0.33	8.08	< 0.1	145	101	988	4.79	0.5	30	110	0.8	0.2	0.3	0.05	0.34	27.2	0.50	0.03	0.3
1274057	18.8	> 3.00	1.64	7.26	0.80	1.04	< 0.1	140	155	760	6.30	3.3	< 10	67.9	1.3	0.7	0.5	< 0.05	1.25	23.1	0.80	0.14	< 0.1
1274058	23.6	0.93	1.95	7.26	2.40	2.61	0.1	149	376	1110	6.48	2.7	50	195	0.9	1.0	0.3	0.15	4.41	33.1	0.70	0.07	< 0.1
1274059	16.3	2.59	1.82	6.07	0.84	2.71	0.3	74	203	1700	6.35	2.0	< 10	137	1.0	0.9	0.4	0.36	1.91	29.3	1.10	0.06	< 0.1
1274061	31.6	2.46	2.98	6.79	0.59	3.03	< 0.1	41	212	685	7.10	1.6	40	172	1.2	0.9	0.5	0.08	1.12	42.3	1.20	0.04	< 0.1
1274062	34.1	1.73	1.50	8.27	1.35	1.10	< 0.1	129	135	439	5.09	4.0	40	114	1.3	1.8	< 0.1	< 0.05	2.40	23.5	0.65	0.25	< 0.1
1274063	16.8	0.90	0.70	> 10.0	1.67	0.73	< 0.1	94	261	2960	12.5	2.2	20	158	1.4	1.8	0.5	< 0.05	3.04	49.1	1.00	0.05	< 0.1

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274064	38.6	0.75	2.84	6.39	1.65	4.40	0.1	64	216	968	7.48	1.9	30	292	1.0	0.9	0.4	< 0.05	6.38	47.7	1.00	0.04	< 0.1
1274065	17.7	2.20	3.09	6.74	0.83	4.11	0.1	74	177	1120	8.80	1.1	30	177	1.5	0.6	< 0.05	1.72	44.5	1.10	0.03	< 0.1	
1274066	15.9	1.79	2.00	8.65	1.06	6.20	0.1	269	13.7	1220	8.12	1.2	90	32.4	2.1	0.7	0.7	0.23	2.36	34.7	1.20	0.05	< 0.1
1274067	28.4	> 3.00	4.08	7.56	0.13	3.31	< 0.1	157	198	905	6.91	2.7	60	196	1.5	1.2	0.6	< 0.05	0.59	40.3	1.20	0.04	< 0.1
1274068	19.2	2.56	3.43	7.44	1.31	4.91	< 0.1	117	187	895	6.11	1.1	50	160	1.5	1.1	0.6	0.06	3.11	35.3	1.20	0.06	< 0.1
1274069	20.2	2.94	4.06	6.58	0.71	5.02	0.1	117	114	1010	5.77	1.2	30	89.9	1.4	1.0	0.5	0.13	2.07	27.1	1.10	0.10	< 0.1
1274070	19.6	2.43	2.81	6.78	0.77	6.23	< 0.1	100	154	1160	6.17	1.0	30	104	2.0	1.0	0.7	0.06	3.36	36.2	1.50	0.06	< 0.1
1274071	13.0	0.30	10.5	2.95	0.16	8.31	0.1	95	443	1460	7.20	1.5	30	701	1.1	4.0	0.4	< 0.05	0.43	69.0	1.10	0.04	< 0.1
1274072	23.6	> 3.00	3.06	6.81	1.28	4.56	0.1	208	278	986	7.38	1.5	30	109	1.9	2.3	0.7	< 0.05	18.2	39.8	1.40	0.12	< 0.1
1274073	13.1	0.11	9.62	2.57	0.08	13.1	0.1	84	898	1550	6.96	0.1	10	181	2.2	2.3	0.9	0.06	0.33	53.1	3.00	0.07	< 0.1
1274074	19.8	2.95	3.47	7.18	0.57	5.05	< 0.1	70	162	1230	6.53	0.8	20	100	2.0	1.2	0.7	< 0.05	2.72	39.1	1.50	0.03	< 0.1
1274075	14.6	> 3.00	2.06	7.85	0.68	1.55	< 0.1	60	57.4	516	3.36	2.6	80	78.4	0.9	0.9	0.3	0.10	0.79	18.6	0.80	0.05	< 0.1
1274076	26.7	> 3.00	4.29	7.48	0.51	3.38	< 0.1	96	143	659	4.20	5.4	70	329	1.2	0.9	0.6	< 0.05	2.46	30.7	2.00	0.10	< 0.1
1274077	16.9	0.05	2.63	3.03	0.23	7.22	0.2	51	30.1	1500	5.56	0.1	30	65.4	0.7	0.1	0.2	0.12	0.85	15.9	0.10	0.07	< 0.1
1274078	11.6	> 3.00	1.38	7.32	1.56	5.22	0.2	84	54.9	976	2.98	3.4	10	49.1	0.9	1.4	0.3	5.39	1.23	6.5	1.30	0.06	< 0.1
1274079	13.1	2.46	5.03	6.54	0.19	6.32	< 0.1	158	267	1150	6.85	1.9	30	313	1.3	0.9	0.5	0.73	0.47	45.8	1.50	0.03	< 0.1
1477527	< 0.5	0.04	0.02	0.14	< 0.01	0.05	< 0.1	6	67.8	194	37.2	0.1	100	123	0.1	< 0.1	< 0.1	11.0	0.19	67.8	< 0.05	16.0	4.5

Results

Activation Laboratories Ltd.

Report: A16-11435

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470555	58.3	9.5	4.1	1.0	7.5	61.8	9	0.6	0.90	< 0.1	< 1	0.7	0.2	13	0.6	1.5	0.2	1.5	0.5	0.9	0.2	1.3	78.0
1470556	59.6	20.2	< 0.1	0.9	8.9	415	173	1.9	1.20	< 0.1	< 1	< 0.1	0.8	311	36.9	74.8	8.0	34.5	3.3	3.3	0.3	1.6	11.1
1470557	58.1	19.2	0.1	28.6	10.4	431	117	6.5	10.9	< 0.1	1	< 0.1	0.4	210	17.8	37.1	3.8	16.7	2.3	2.7	0.4	1.9	31.0
1470558	115	5.3	0.2	0.2	3.9	363	17	0.5	0.98	< 0.1	< 1	< 0.1	0.3	9	0.8	1.6	0.2	1.4	0.4	0.6	0.1	0.6	13.0
1470559	76.3	7.0	0.6	< 0.2	3.6	298	13	0.6	0.55	< 0.1	< 1	< 0.1	0.2	7	0.7	1.8	0.3	1.8	0.5	0.6	0.1	0.6	4.1
1470560	900	12.4	1.6	2.6	13.2	8.6	30	1.0	2.66	0.3	1	< 0.1	0.2	62	0.7	2.1	0.3	2.0	0.7	1.4	0.3	2.0	90.9
1470561	69.0	8.2	0.7	0.2	3.2	222	11	0.6	0.70	< 0.1	< 1	< 0.1	0.2	8	0.6	1.7	0.3	1.7	0.4	0.6	0.1	0.6	23.0
1470562	50.2	13.7	< 0.1	21.5	12.5	135	47	0.3	0.21	< 0.1	< 1	< 0.1	< 0.1	291	11.2	25.4	2.9	13.6	1.9	2.4	0.4	2.1	27.1
1470563	91.1	20.4	1.3	7.3	17.3	214	48	4.7	0.42	< 0.1	< 1	0.4	< 0.1	96	11.3	26.3	3.0	14.7	2.3	3.0	0.5	2.9	110
1470565	249	11.2	< 0.1	31.4	13.6	227	60	3.3	0.68	< 0.1	1	0.2	< 0.1	620	25.5	54.3	6.3	28.5	3.1	3.5	0.4	2.4	37.4
1470566	26.6	3.8	4.8	24.3	6.0	123	38	1.8	1.93	< 0.1	< 1	0.3	0.7	455	36.9	65.2	6.7	29.2	3.0	2.9	0.3	1.2	34.6
1470567	17.7	2.2	2.6	0.4	2.1	21.9	2	0.2	0.82	< 0.1	< 1	0.2	0.4	11	0.9	2.3	0.3	2.0	0.4	0.4	0.1	0.4	2.2
1470568	360	19.8	0.8	10.2	14.7	85.3	138	10.4	4.66	0.3	3	0.6	0.6	68	15.1	30.6	3.2	13.6	1.8	2.2	0.4	2.1	556
1470569	116	23.1	< 0.1	3.7	30.9	123	11	1.0	0.50	< 0.1	< 1	0.4	0.2	16	4.6	12.2	1.8	10.4	2.4	3.9	0.7	4.6	147
1470570	94.7	20.9	< 0.1	1.0	26.7	113	11	0.9	0.37	< 0.1	< 1	0.1	0.2	20	5.1	13.1	1.8	10.5	2.5	3.5	0.7	4.2	177
1470571	105	17.5	< 0.1	0.8	25.5	145	14	0.7	0.44	< 0.1	< 1	0.3	0.1	14	4.4	11.6	1.6	9.4	2.2	3.4	0.6	3.9	60.4
1470572	115	16.3	11.0	1.1	23.8	113	4	0.2	0.13	< 0.1	< 1	< 0.1	< 0.1	13	4.5	11.7	1.6	9.3	2.1	3.2	0.6	3.8	151
1470573	43.6	3.5	0.4	0.5	3.9	26.0	4	0.6	0.31	< 0.1	< 1	0.1	< 0.1	13	1.4	3.0	0.4	1.9	0.4	0.6	0.1	0.7	192
1470574	< 0.2	1.2	0.3	0.3	2.0	< 0.2	1	0.2	0.73	< 0.1	< 1	< 0.1	0.2	4	0.5	1.0	0.1	0.6	0.2	0.3	< 0.1	0.3	19.9
1470575	122	21.7	1.3	1.0	32.8	219	9	0.5	0.92	0.1	< 1	< 0.1	0.8	16	5.6	14.9	2.2	12.2	3.0	4.4	0.8	5.1	74.3
1470576	82.7	16.1	< 0.1	0.5	17.0	82.0	5	0.3	0.54	< 0.1	< 1	< 0.1	0.4	14	2.4	6.8	1.0	5.9	1.5	2.2	0.4	2.7	76.5
1470577	125	20.8	< 0.1	1.0	30.1	106	4	0.2	0.33	0.1	< 1	< 0.1	0.3	12	5.3	14.4	2.2	12.2	2.8	4.1	0.7	4.8	122
1470579	126	20.6	< 0.1	0.9	32.8	173	5	0.2	0.21	< 0.1	< 1	< 0.1	0.1	15	5.8	15.4	2.2	12.8	2.9	4.3	0.8	5.2	101
1470580	123	17.0	< 0.1	20.7	6.7	310	111	4.7	0.35	< 0.1	< 1	0.3	0.1	299	17.4	37.3	4.2	19.0	2.0	2.2	0.3	1.3	2.3
1470581	16.2	1.7	10.2	1.1	0.9	8.1	2	0.2	1.51	< 0.1	< 1	0.2	0.2	20	0.9	2.6	0.2	1.0	0.1	0.1	< 0.1	0.1	1.5
1470582	43.1	10.1	4.6	14.7	2.5	90.4	42	2.1	0.85	< 0.1	< 1	0.5	0.1	216	4.9	10.9	1.2	5.2	0.7	0.7	0.1	0.5	13.5
1470584	201	19.2	2.1	9.8	12.1	90.7	51	0.4	0.44	< 0.1	< 1	< 0.1	< 0.1	178	5.0	13.4	1.9	10.8	2.3	2.9	0.5	2.6	143
1470585	89.9	17.6	1.6	0.8	17.9	145	13	2.1	1.29	< 0.1	< 1	0.5	0.8	14	2.6	7.3	1.1	6.2	1.5	2.3	0.4	2.8	92.9
1470586	64.8	12.7	1.1	1.2	12.0	65.6	10	0.2	0.53	< 0.1	< 1	< 0.1	0.3	24	1.6	4.5	0.7	4.0	1.0	1.5	0.3	1.9	14.3
1470587	100	15.4	< 0.1	4.9	11.1	72.0	46	1.9	0.43	< 0.1	< 1	0.7	0.2	30	3.1	7.9	1.1	6.5	1.6	2.2	0.4	2.4	4.3
1470588	153	21.3	< 0.1	0.5	23.6	52.0	20	0.5	0.23	0.1	< 1	< 0.1	0.1	4	4.4	11.9	1.7	9.8	2.1	3.1	0.6	3.8	94.7
1470589	242	16.4	< 0.1	0.5	26.8	48.4	32	0.1	0.12	< 0.1	< 1	< 0.1	0.1	4	4.5	12.4	1.8	10.3	2.3	3.5	0.7	4.2	63.5
1470590	137	18.7	1.2	22.6	26.9	577	5	0.1	0.15	< 0.1	< 1	< 0.1	< 0.1	266	4.7	13.1	1.8	10.8	2.4	3.6	0.6	4.3	78.3
1470591	83.7	18.8	< 0.1	0.5	20.2	85.3	15	1.3	0.23	< 0.1	< 1	0.2	< 0.1	10	3.3	8.9	1.2	7.5	1.7	2.7	0.5	3.3	113
1470592	98.8	16.7	< 0.1	2.4	15.8	151	25	1.3	0.22	< 0.1	< 1	< 0.1	< 0.1	21	10.1	22.9	2.6	12.8	2.0	2.7	0.4	2.6	45.0
1470593	121	20.5	8.2	49.3	23.9	136	121	9.9	0.20	< 0.1	2	0.3	< 0.1	461	12.9	28.0	3.1	14.9	2.3	3.1	0.6	3.6	81.7
1470594	18.0	2.9	1.5	2.7	1.5	23.2	4	0.6	1.43	< 0.1	< 1	0.2	0.9	21	0.9	2.3	0.2	1.1	0.2	0.2	< 0.1	0.2	5.1
1470595	39.8	5.4	0.2	1.5	0.8	22.8	2	0.4	1.13	< 0.1	< 1	0.2	0.4	13	0.5	1.2	0.1	0.6	< 0.1	0.1	< 0.1	0.1	5.9
1470596	72.0	14.7	< 0.1	25.5	13.8	120	83	1.9	0.52	< 0.1	< 1	0.1	0.2	150	8.4	18.4	2.0	9.7	1.4	1.9	0.3	2.1	64.6
1470597	6.6	17.3	13.0	3.3	4.7	720	8	0.6	1.76	< 0.1	< 1	2.3	0.2	30	2.0	4.1	0.4	2.0	0.3	0.5	0.1	0.5	9.8
1470598	146	17.9	23.8	28.0	17.4	356	24	0.4	0.49	0.1	< 1	< 0.1	< 0.1	446	13.5	30.7	3.7	18.5	2.5	3.2	0.5	2.8	376
1470599	142	18.1	5.2	5.4	30.2	209	89	0.8	1.05	< 0.1	< 1	0.3	0.7	81	23.9	53.7	6.2	28.0	3.5	5.1	0.8	4.9	197

Results

Activation Laboratories Ltd.

Report: A16-11435

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470600	29.9	9.9	4.2	2.6	4.8	218	6	0.8	0.96	< 0.1	1	2.3	0.3	17	2.3	5.3	0.6	2.6	0.4	0.6	0.1	0.6	10.3
1470901	200	26.0	2.3	2.4	45.3	77.6	11	0.9	0.51	0.1	< 1	0.1	0.3	28	6.7	19.5	2.8	16.6	3.9	6.0	1.1	7.1	200
1470902	130	21.7	9.4	32.6	30.7	148	7	1.6	0.59	0.1	< 1	0.2	0.2	278	4.3	12.3	1.8	10.8	2.4	4.0	0.7	4.8	136
1470903	136	21.1	< 0.1	15.5	31.5	112	8	2.6	0.78	< 0.1	< 1	0.2	0.2	81	5.0	13.5	1.9	11.4	2.7	4.1	0.8	5.0	328
1470905	162	23.6	< 0.1	8.0	41.8	80.8	6	0.3	0.17	0.1	< 1	< 0.1	< 0.1	66	7.0	19.3	2.8	16.3	3.6	5.6	1.0	6.8	205
1470906	173	17.8	< 0.1	11.7	29.7	69.9	10	0.6	0.63	0.1	< 1	0.1	< 0.1	81	5.4	13.5	1.9	10.7	2.4	3.7	0.7	4.6	340
1470907	232	12.3	< 0.1	40.4	25.6	15.1	16	0.2	0.27	< 0.1	< 1	0.2	< 0.1	701	5.0	14.1	2.0	11.5	2.5	3.9	0.7	4.4	244
1470909	111	26.9	< 0.1	2.1	27.4	168	20	0.7	0.17	0.1	< 1	0.1	< 0.1	31	3.8	10.8	1.6	9.6	2.3	3.3	0.7	4.4	479
1470910	127	22.9	< 0.1	1.8	25.9	130	12	0.7	1.54	< 0.1	< 1	0.4	0.7	37	5.7	13.8	1.8	9.7	2.2	3.4	0.6	4.1	182
1470911	59.4	17.3	3.5	1.3	17.2	82.2	11	0.1	0.40	< 0.1	< 1	< 0.1	0.3	31	3.6	8.9	1.1	6.5	1.4	2.3	0.4	2.7	19.6
1470912	128	19.2	5.4	5.4	25.9	138	13	2.9	0.61	< 0.1	< 1	0.1	0.2	39	5.1	13.7	1.8	10.5	2.3	3.4	0.6	4.2	83.4
1470913	72.2	9.1	0.5	27.5	5.9	71.1	117	2.9	1.04	< 0.1	1	< 0.1	0.1	586	1.4	3.6	0.4	2.4	0.5	0.7	0.1	0.9	38.5
1470914	106	16.8	23.0	5.5	16.9	138	39	5.5	1.39	< 0.1	< 1	0.3	0.2	98	9.4	21.9	2.6	12.6	2.1	2.8	0.5	2.9	35.7
1470630	161	20.5	2.7	12.7	49.7	90.7	188	2.7	0.82	0.1	2	0.2	< 0.1	240	26.8	58.3	6.6	32.7	5.7	7.6	1.3	8.2	240
1470631	47.3	14.7	0.1	10.7	5.8	494	113	2.2	0.90	< 0.1	< 1	< 0.1	< 0.1	153	27.9	53.3	5.8	24.1	2.3	2.2	0.2	1.1	14.8
1470632	19.0	14.4	< 0.1	2.0	3.0	476	110	1.9	0.41	< 0.1	< 1	< 0.1	< 0.1	55	10.1	22.5	2.3	9.8	1.4	1.3	0.1	0.6	3.0
1470634	24.1	20.8	1.4	4.6	2.4	> 1000	128	2.0	1.09	< 0.1	< 1	0.1	0.7	434	10.6	24.4	2.3	9.9	1.1	1.0	0.1	0.5	1.6
1470635	27.2	18.3	< 0.1	7.0	2.9	> 1000	144	2.6	0.62	< 0.1	< 1	< 0.1	0.3	1500	10.4	22.1	2.0	8.6	1.0	0.9	0.1	0.5	< 0.2
1470636	53.4	17.6	< 0.1	42.8	6.8	248	91	3.6	0.67	< 0.1	1	< 0.1	0.2	333	11.4	26.3	2.4	10.5	1.4	1.5	0.2	1.3	2.0
1470637	80.3	17.5	< 0.1	47.8	20.4	300	29	0.8	0.36	< 0.1	< 1	< 0.1	0.1	288	14.2	31.2	3.5	16.8	2.4	3.3	0.5	3.3	26.8
1470638	57.8	18.5	0.3	6.8	10.6	449	23	2.6	0.62	< 0.1	< 1	0.3	0.1	90	6.6	13.7	1.5	7.3	1.2	1.6	0.3	1.7	68.0
1470639	142	11.3	1.9	11.4	11.8	167	70	4.0	3.53	< 0.1	< 1	0.4	0.1	271	14.6	32.6	3.7	16.9	2.0	2.5	0.3	1.9	55.3
1470640	110	20.4	1.2	0.9	29.1	181	24	2.1	0.53	< 0.1	< 1	0.2	< 0.1	11	5.4	14.6	2.0	11.4	2.7	3.9	0.7	4.6	120
1470641	129	20.0	0.3	6.4	38.3	128	22	1.0	0.28	0.1	< 1	< 0.1	< 0.1	158	6.3	17.7	2.5	14.6	3.4	5.2	1.0	6.2	93.9
1470642	174	20.8	< 0.1	1.9	37.8	111	18	1.6	0.26	0.1	< 1	< 0.1	< 0.1	17	6.3	17.2	2.4	14.2	3.3	5.0	0.9	6.2	451
1470644	113	12.5	< 0.1	15.1	14.7	56.7	40	0.7	0.99	< 0.1	< 1	< 0.1	0.7	192	2.1	5.7	0.8	4.4	1.0	1.8	0.3	2.3	60.0
1470645	319	16.3	4.1	35.0	12.9	77.7	130	2.1	0.57	< 0.1	1	< 0.1	0.3	389	10.4	24.3	3.0	14.6	2.3	2.9	0.5	2.6	42.0
1470785	96.7	7.9	0.3	50.7	10.9	226	19	0.9	1.14	< 0.1	< 1	< 0.1	0.2	579	1.4	4.0	0.6	3.3	0.8	1.3	0.3	1.7	119
1470786	60.1	10.6	< 0.1	37.4	12.1	473	131	3.1	0.98	< 0.1	< 1	0.1	0.1	629	42.8	79.2	7.3	26.7	1.8	2.3	0.3	1.9	83.2
1470787	151	16.1	3.7	50.7	33.9	441	95	0.2	0.33	< 0.1	< 1	< 0.1	< 0.1	371	21.5	45.8	5.1	24.3	3.7	5.4	0.9	5.5	169
1470788	96.8	13.7	3.2	15.2	15.9	418	19	1.7	0.76	< 0.1	< 1	0.4	0.2	158	2.5	6.3	0.8	4.8	1.1	1.9	0.3	2.4	138
1470789	199	14.9	1.0	7.6	15.5	140	18	1.4	1.77	< 0.1	< 1	0.2	0.1	84	6.9	13.9	1.6	7.6	1.3	2.1	0.4	2.5	178
1470790	45.5	11.3	1.5	22.6	8.3	114	17	0.9	1.11	< 0.1	< 1	0.2	1.4	98	1.6	3.8	0.5	3.0	0.7	1.1	0.2	1.4	56.4
1470791	5.0	21.6	0.7	3.3	12.4	237	95	4.9	4.64	< 0.1	< 1	0.1	0.6	73	13.9	28.1	2.9	13.2	2.0	2.6	0.4	2.1	6.0
1470792	19.4	17.5	< 0.1	48.2	8.7	191	99	4.9	1.89	< 0.1	< 1	0.6	0.7	365	16.8	33.0	3.3	14.6	1.9	2.2	0.3	1.7	7.9
1470793	15.1	19.5	11.6	30.2	7.3	236	82	4.3	2.07	< 0.1	< 1	0.1	0.4	238	15.2	29.8	3.0	13.3	1.7	2.2	0.3	1.4	5.4
1470795	14.5	13.9	2.9	15.5	4.1	389	90	2.1	2.22	< 0.1	< 1	0.2	0.3	257	11.7	23.7	2.5	10.7	1.2	1.3	0.2	0.8	3.7
1470796	22.9	16.0	2.0	52.1	7.1	206	97	4.7	1.37	< 0.1	< 1	0.2	0.3	476	15.3	31.3	3.0	13.3	1.6	1.7	0.2	1.2	3.3
1470797	13.0	10.4	1.0	13.6	3.7	386	88	2.1	0.76	< 0.1	< 1	0.2	0.1	340	18.1	35.3	3.4	14.6	1.5	1.4	0.1	0.7	4.1
1470798	52.5	22.0	3.7	58.8	10.3	548	151	4.1	0.94	< 0.1	1	0.5	0.8	134	41.7	86.0	9.4	42.5	4.3	3.8	0.4	2.0	7.3
1470799	15.8	17.6	1.1	57.7	4.2	428	126	3.9	0.57	< 0.1	< 1	0.2	0.4	623	14.1	29.6	3.0	13.2	1.5	1.5	0.2	0.8	22.5
1470800	5.4	3.9	1.9	19.3	2.2	38.8	24	1.2	1.75	< 0.1	< 1	0.2	0.2	232	6.0	11.4	1.3	5.5	0.5	0.7	0.1	0.4	4.6

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470801	85.7	8.9	6.3	55.1	6.3	259	26	1.3	1.60	< 0.1	< 1	0.2	0.3	387	2.3	5.8	0.8	4.4	0.9	1.1	0.2	1.1	67.4
1470802	52.4	9.7	2.1	60.6	4.8	144	26	1.4	0.64	< 0.1	< 1	0.2	0.2	299	1.3	3.2	0.4	2.5	0.5	0.7	0.1	0.7	83.8
1470803	56.4	18.1	1.0	87.5	10.5	201	32	1.5	1.32	< 0.1	< 1	0.4	0.2	193	6.6	14.6	1.9	9.3	1.7	2.1	0.3	1.8	15.5
1470804	745	10.4	11.0	7.2	9.7	25.1	17	0.9	1.11	< 0.1	< 1	3.2	0.3	68	1.0	2.6	0.4	2.3	0.6	1.2	0.2	1.5	155
1470805	58.3	16.7	< 0.1	13.1	14.3	108	14	0.2	0.17	< 0.1	< 1	< 0.1	< 0.1	104	4.5	10.6	1.3	6.5	1.3	1.9	0.4	2.3	97.0
1470806	98.6	14.3	0.3	2.1	7.9	163	17	1.2	1.39	< 0.1	< 1	5.7	0.7	45	2.3	5.2	0.6	3.2	0.7	1.0	0.2	1.3	30.5
1470807	60.5	15.5	< 0.1	23.6	13.1	205	23	1.5	0.60	< 0.1	< 1	< 0.1	0.3	251	3.2	7.6	0.9	5.0	1.1	1.7	0.3	2.1	34.7
1470808	64.7	14.0	< 0.1	41.4	18.0	72.0	66	2.9	0.97	< 0.1	< 1	0.1	0.2	331	6.2	14.5	1.7	8.5	1.6	2.5	0.4	2.9	56.9
1470810	80.3	19.0	< 0.1	3.1	17.5	317	32	1.4	0.40	< 0.1	< 1	< 0.1	0.1	32	4.6	10.9	1.3	7.0	1.5	2.3	0.4	2.8	6.7
1470811	104	23.7	< 0.1	2.4	24.1	200	27	1.1	0.26	< 0.1	< 1	< 0.1	0.1	34	7.0	16.7	2.0	10.6	2.1	3.4	0.6	3.9	2.2
1470812	100	17.4	< 0.1	3.2	24.8	83.3	65	0.3	0.15	< 0.1	< 1	< 0.1	< 0.1	30	7.6	17.8	2.2	11.2	2.1	3.3	0.6	3.9	113
1470814	75.2	18.9	< 0.1	1.9	19.7	29.0	51	0.4	0.19	< 0.1	< 1	< 0.1	< 0.1	22	6.4	15.9	1.9	9.3	1.9	2.7	0.5	3.3	38.6
1470815	80.3	15.5	< 0.1	5.9	17.3	60.8	54	0.8	0.12	< 0.1	< 1	< 0.1	< 0.1	56	5.9	13.7	1.6	8.2	1.6	2.4	0.4	2.8	56.5
1470816	25.9	14.5	8.2	1.2	14.2	81.6	111	1.4	1.19	< 0.1	< 1	< 0.1	0.1	35	10.4	22.4	2.4	10.9	1.6	2.2	0.4	2.3	121
1470817	87.8	17.1	0.2	16.5	16.1	33.7	41	0.2	0.79	< 0.1	< 1	< 0.1	0.8	121	6.9	15.3	1.8	9.6	1.8	2.7	0.4	2.8	81.8
1470818	80.9	17.2	< 0.1	3.4	18.6	30.4	43	0.1	0.34	< 0.1	< 1	< 0.1	0.4	28	4.9	12.1	1.6	8.1	1.6	2.4	0.4	2.9	24.4
1470819	160	16.7	0.7	14.6	17.0	181	44	2.6	0.82	0.1	< 1	0.3	0.3	88	7.8	15.6	1.8	8.8	1.6	2.5	0.4	2.7	135
1470820	36.9	20.4	8.8	18.9	12.7	163	33	0.9	0.39	< 0.1	< 1	0.3	0.2	168	3.5	8.7	1.1	5.8	1.1	1.8	0.3	2.0	72.9
1470821	93.9	27.8	< 0.1	23.2	17.5	121	39	2.3	0.64	< 0.1	< 1	0.2	0.1	55	5.0	11.5	1.4	7.3	1.5	2.3	0.4	2.7	71.7
1470822	108	21.4	< 0.1	11.9	24.1	84.2	63	1.5	0.39	< 0.1	< 1	< 0.1	< 0.1	84	7.6	17.9	2.2	11.2	2.3	3.1	0.6	3.8	42.4
1470823	95.4	11.0	4.3	7.9	13.1	26.7	58	2.3	0.35	< 0.1	< 1	0.9	< 0.1	41	3.0	7.6	1.0	5.5	1.1	1.9	0.3	2.1	2.1
1470824	57.0	2.3	22.8	< 0.2	2.1	1.4	6	0.3	0.44	< 0.1	< 1	4.4	< 0.1	4	0.3	0.8	0.1	0.6	0.1	0.3	< 0.1	0.3	16.7
1470825	86.6	6.9	35.8	0.3	3.2	23.7	25	0.8	0.60	< 0.1	< 1	0.1	< 0.1	62	2.0	4.7	0.6	3.1	0.6	0.8	0.1	0.6	39.9
1470826	55.3	4.4	27.8	0.5	2.4	9.3	15	0.6	1.63	< 0.1	< 1	0.6	0.7	27	1.1	2.9	0.4	1.9	0.3	0.5	0.1	0.4	19.9
1470827	55.4	6.7	125	0.3	2.1	10.6	24	0.5	1.00	< 0.1	< 1	0.1	0.3	20	1.4	3.1	0.4	1.9	0.3	0.4	0.1	0.4	35.0
1470829	19.6	1.5	21.1	0.2	1.9	33.6	5	0.2	0.96	< 0.1	< 1	0.1	0.3	22	0.7	1.5	0.2	1.0	0.2	0.3	0.1	0.3	36.7
1470830	112	12.6	87.4	0.4	3.8	42.6	49	1.3	0.97	< 0.1	< 1	0.1	0.2	35	2.5	5.9	0.7	3.8	0.7	0.8	0.1	0.7	115
1470831	39.2	3.2	121	0.2	2.6	44.9	9	0.2	0.71	< 0.1	< 1	0.2	0.1	22	1.0	2.6	0.3	1.7	0.4	0.5	0.1	0.5	237
1470832	57.4	13.9	16.6	0.2	4.6	25.9	54	2.0	0.68	< 0.1	< 1	< 0.1	0.2	17	3.5	8.3	1.1	5.6	1.0	1.2	0.2	0.9	83.3
1470833	28.0	3.5	16.3	0.2	2.2	4.7	12	0.4	0.82	< 0.1	< 1	0.1	< 0.1	20	1.3	2.9	0.4	1.8	0.3	0.4	0.1	0.4	7.2
1470834	122	10.6	105	0.6	3.4	11.2	42	1.4	1.69	< 0.1	< 1	< 0.1	0.6	54	2.5	5.8	0.7	3.5	0.6	0.8	0.1	0.6	31.3
1274051	70.7	10.4	1.0	28.3	12.4	490	97	1.3	0.54	< 0.1	< 1	0.1	0.3	313	14.8	32.6	3.7	17.6	2.4	2.7	0.4	2.0	53.1
1274052	81.0	15.7	9.6	43.3	14.1	530	107	4.1	2.02	< 0.1	< 1	0.2	0.2	352	18.7	42.7	4.8	23.4	3.0	3.4	0.4	2.4	25.5
1274053	87.8	11.1	1.6	25.0	12.0	291	85	0.7	0.50	< 0.1	< 1	0.1	< 0.1	281	17.0	36.7	4.2	20.1	2.4	2.9	0.4	2.0	79.5
1274055	118	21.8	0.7	1.2	11.5	625	119	1.0	0.65	< 0.1	< 1	< 0.1	< 0.1	16	21.5	47.8	5.6	26.8	3.4	3.3	0.4	2.2	86.6
1274056	58.2	11.9	19.2	6.7	7.6	209	22	1.5	0.78	< 0.1	< 1	0.1	0.1	283	1.6	4.4	0.6	3.8	0.8	1.3	0.2	1.3	41.0
1274057	107	17.3	0.6	24.0	13.2	233	154	4.6	1.21	< 0.1	< 1	< 0.1	< 0.1	204	16.9	37.1	4.2	18.7	2.3	2.5	0.4	2.2	42.4
1274058	117	13.4	1.4	73.5	9.3	365	122	5.4	1.61	< 0.1	< 1	0.2	0.7	558	13.2	29.1	3.2	15.1	2.0	2.3	0.3	1.6	34.2
1274059	111	8.9	1.3	26.0	10.0	299	65	0.4	0.22	< 0.1	< 1	0.4	< 0.1	642	13.6	35.7	4.3	21.9	3.3	3.5	0.4	2.1	126
1274061	134	15.2	< 0.1	17.5	13.2	320	75	0.7	0.23	< 0.1	< 1	< 0.1	0.1	348	15.9	39.9	5.0	26.0	3.6	3.9	0.5	2.6	37.9
1274062	73.9	18.5	18.8	55.2	12.7	554	185	0.9	0.51	< 0.1	< 1	< 0.1	< 0.1	709	12.0	42.6	3.2	13.7	2.0	2.4	0.4	2.3	8.3
1274063	103	25.1	0.9	60.9	13.2	477	97	1.6	0.21	< 0.1	< 1	< 0.1	< 0.1	365	12.8	32.5	3.4	16.2	2.2	2.8	0.4	2.3	30.6

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274064	137	8.5	< 0.1	62.3	11.1	346	87	0.6	0.15	< 0.1	< 1	< 0.1	< 0.1	700	12.5	28.9	3.5	18.1	2.7	3.1	0.4	2.1	39.6
1274065	140	16.0	0.2	28.4	16.5	232	46	0.3	0.07	< 0.1	< 1	< 0.1	< 0.1	293	15.1	36.0	4.4	22.7	3.4	4.1	0.6	3.1	107
1274066	108	16.0	0.7	37.9	21.3	849	53	3.9	1.10	< 0.1	< 1	0.1	0.8	432	25.6	55.1	6.2	27.9	3.5	4.0	0.6	3.4	35.2
1274067	136	24.3	< 0.1	5.4	16.1	422	126	2.2	0.58	< 0.1	< 1	0.1	0.4	28	14.1	33.3	4.1	20.9	3.2	3.8	0.5	2.9	51.2
1274068	120	14.5	0.3	39.4	16.4	564	47	3.8	1.06	< 0.1	< 1	0.3	0.2	564	19.5	43.8	5.3	25.6	3.7	3.9	0.5	2.8	32.4
1274069	98.7	11.6	< 0.1	22.0	14.9	379	53	2.1	0.25	< 0.1	< 1	< 0.1	0.1	335	14.9	35.0	4.1	20.4	3.0	3.4	0.4	2.5	22.4
1274070	97.9	12.7	< 0.1	23.9	21.5	630	43	0.7	0.20	< 0.1	< 1	< 0.1	< 0.1	396	29.1	64.1	7.5	35.5	4.4	5.1	0.6	3.5	67.7
1274071	87.2	8.5	0.9	2.1	11.9	506	70	8.7	0.33	< 0.1	< 1	0.2	< 0.1	37	43.9	94.0	10.5	43.7	3.2	3.6	0.4	2.1	40.6
1274072	102	9.8	3.3	55.8	19.9	> 1000	65	4.3	0.81	< 0.1	< 1	< 0.1	< 0.1	654	24.9	57.0	6.8	32.1	4.2	4.6	0.6	3.4	61.9
1274073	83.5	6.7	< 0.1	1.8	24.5	874	13	1.3	0.16	< 0.1	< 1	0.2	< 0.1	37	151	254	28.8	109	7.6	8.7	0.9	4.6	306
1274074	110	13.1	0.4	19.0	21.1	687	34	0.3	< 0.05	< 0.1	< 1	< 0.1	< 0.1	267	29.0	65.3	7.4	35.5	4.7	4.9	0.6	3.6	73.7
1274075	94.5	18.6	< 0.1	18.3	9.9	276	119	1.1	0.83	< 0.1	< 1	< 0.1	0.9	278	14.7	31.8	3.6	16.5	2.0	2.4	0.3	1.6	30.8
1274076	93.1	20.4	< 0.1	20.7	16.9	562	259	4.6	0.57	< 0.1	< 1	0.2	0.4	97	56.2	119	12.9	56.1	6.2	6.4	0.7	3.4	41.6
1274077	121	8.0	2.0	8.7	7.6	588	2	0.9	0.84	< 0.1	< 1	< 0.1	0.3	154	1.6	3.4	0.3	1.6	0.3	0.6	0.1	0.9	23.1
1274078	73.2	0.7	< 0.1	28.8	10.3	603	166	4.0	0.43	< 0.1	< 1	0.1	0.2	1040	52.2	105	10.9	44.1	4.0	3.8	0.4	1.8	20.4
1274079	108	17.3	< 0.1	4.6	15.4	428	83	7.0	1.33	< 0.1	1	0.2	0.1	87	24.7	56.7	6.7	33.1	4.2	4.4	0.5	2.7	86.7
1477527	18.7	0.3	218	1.4	0.5	8.6	7	0.4	2.55	< 0.1	< 1	21.1	5.8	13	0.4	0.8	0.1	0.4	< 0.1	< 0.1	< 0.1	0.1	21.6

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470555	0.2	0.1	0.8	0.1	< 0.1	0.5	0.009	< 0.05	2.1	26	0.6	< 0.1	0.226	0.013	0.16
1470556	< 0.1	0.1	0.7	0.1	< 0.1	0.5	< 0.001	< 0.05	9.3	7	7.8	1.8	0.246	0.064	0.05
1470557	< 0.1	0.1	0.9	0.1	0.5	1.5	0.001	0.25	10.4	5	4.8	1.1	0.225	0.048	0.29
1470558	< 0.1	0.1	0.4	< 0.1	< 0.1	1.3	< 0.001	0.17	4.8	14	0.4	< 0.1	0.0755	0.001	0.15
1470559	0.2	0.1	0.4	0.1	< 0.1	0.3	< 0.001	< 0.05	4.3	21	0.2	0.1	0.152	0.002	0.05
1470560	0.7	0.2	1.4	0.2	< 0.1	0.3	0.020	< 0.05	1.8	35	0.2	< 0.1	0.315	0.017	0.92
1470561	0.2	< 0.1	0.4	0.1	< 0.1	0.3	0.008	< 0.05	3.2	25	0.1	< 0.1	0.196	0.002	0.04
1470562	< 0.1	0.2	1.0	0.1	< 0.1	0.1	0.002	0.16	3.0	15	1.3	0.3	0.308	0.051	0.04
1470563	0.3	0.2	1.5	0.2	0.3	0.4	< 0.001	0.08	3.0	18	1.5	0.3	0.478	0.061	0.12
1470565	< 0.1	0.2	1.2	0.2	0.2	2.7	0.001	0.20	6.7	16	3.3	0.7	0.371	0.107	0.12
1470566	< 0.1	0.1	0.5	0.1	< 0.1	0.6	0.004	0.22	6.2	3	2.5	1.3	0.0777	0.029	0.09
1470567	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	< 0.05	< 0.5	4	0.2	< 0.1	0.0231	0.004	< 0.01
1470568	0.1	0.2	1.6	0.3	0.6	1.1	0.005	0.07	7.6	9	6.5	0.9	0.169	0.032	0.64
1470569	0.3	0.5	2.9	0.4	< 0.1	0.3	0.001	0.06	2.3	51	0.7	0.1	0.367	0.029	0.14
1470570	0.3	0.4	2.6	0.3	< 0.1	0.2	0.001	< 0.05	2.3	52	0.6	0.1	0.299	0.047	0.18
1470571	0.1	0.4	2.4	0.3	< 0.1	0.2	0.001	< 0.05	2.0	44	0.5	0.1	0.412	0.035	0.08
1470572	< 0.1	0.4	2.3	0.3	< 0.1	0.1	0.004	< 0.05	3.0	42	0.4	0.1	0.158	0.042	0.30
1470573	< 0.1	0.1	0.4	< 0.1	< 0.1	0.1	< 0.001	< 0.05	33.6	10	0.4	< 0.1	0.128	0.009	0.03
1470574	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	0.002	< 0.05	1.0	2	0.1	< 0.1	0.0432	0.003	< 0.01
1470575	0.1	0.5	3.1	0.4	< 0.1	0.3	0.002	< 0.05	2.0	44	0.6	0.1	0.441	0.041	0.12
1470576	0.2	0.3	1.7	0.2	< 0.1	0.2	0.008	< 0.05	1.8	41	0.3	0.1	0.320	0.020	0.04
1470577	< 0.1	0.5	2.7	0.3	< 0.1	0.1	0.019	< 0.05	2.1	45	0.5	0.1	0.432	0.046	0.34
1470579	0.1	0.5	3.0	0.4	< 0.1	0.1	0.001	< 0.05	1.3	43	0.5	0.1	0.233	0.040	0.11
1470580	0.1	0.1	0.6	0.1	0.3	1.4	< 0.001	0.25	11.1	12	3.2	0.7	0.279	0.071	< 0.01
1470581	0.1	< 0.1	0.1	< 0.1	< 0.1	0.2	< 0.001	< 0.05	< 0.5	1	0.1	< 0.1	0.0108	0.006	< 0.01
1470582	0.3	< 0.1	0.2	< 0.1	< 0.1	0.5	< 0.001	0.16	2.1	6	1.1	0.4	0.138	0.020	< 0.01
1470584	0.1	0.2	1.5	0.3	< 0.1	0.1	0.005	0.10	2.0	46	0.6	0.2	0.362	0.043	0.04
1470585	0.3	0.3	1.8	0.3	0.1	0.5	0.001	< 0.05	0.8	42	0.3	0.1	0.481	0.022	0.15
1470586	0.2	0.2	1.1	0.1	< 0.1	0.1	0.002	< 0.05	1.0	32	0.2	< 0.1	0.222	0.010	< 0.01
1470587	< 0.1	0.2	1.0	0.1	0.1	0.7	< 0.001	< 0.05	0.9	36	0.3	0.1	0.449	0.018	< 0.01
1470588	0.2	0.3	2.0	0.3	< 0.1	0.1	0.001	< 0.05	1.3	43	0.4	0.1	0.283	0.035	0.15
1470589	< 0.1	0.4	2.7	0.4	< 0.1	< 0.1	0.001	< 0.05	< 0.5	38	0.4	0.1	0.179	0.031	< 0.01
1470590	0.2	0.4	2.6	0.3	< 0.1	0.1	0.001	0.16	5.8	44	0.5	0.1	0.423	0.042	0.13
1470591	0.3	0.3	2.0	0.2	< 0.1	0.2	0.001	< 0.05	0.7	48	0.3	0.1	0.503	0.027	0.11
1470592	0.1	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.4	28	1.2	0.3	0.354	0.050	< 0.01
1470593	0.1	0.4	2.2	0.3	0.6	0.6	< 0.001	0.17	2.1	37	2.1	0.5	0.716	0.085	0.39
1470594	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.001	< 0.05	< 0.5	2	0.1	< 0.1	0.0491	0.008	< 0.01
1470595	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	2	0.1	< 0.1	0.0332	0.018	< 0.01
1470596	0.2	0.2	1.5	0.2	< 0.1	0.1	< 0.001	0.10	1.6	19	1.2	0.3	0.367	0.052	0.06
1470597	< 0.1	0.1	0.4	0.1	< 0.1	0.3	< 0.001	< 0.05	10.7	2	0.3	0.1	0.0465	0.008	0.02
1470598	< 0.1	0.3	1.5	0.2	< 0.1	0.2	0.003	0.13	4.4	24	1.8	0.4	0.198	0.093	0.04
1470599	< 0.1	0.4	2.8	0.4	< 0.1	0.2	0.001	0.05	6.2	31	3.6	0.7	0.374	0.099	< 0.01

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470600	< 0.1	0.1	0.4	< 0.1	< 0.1	0.1	< 0.001	< 0.05	6.3	4	0.2	0.1	0.0525	0.012	0.35
1470901	< 0.1	0.7	4.0	0.5	< 0.1	0.2	0.002	< 0.05	2.2	52	0.8	0.3	0.540	0.058	0.06
1470902	0.5	0.5	3.0	0.4	< 0.1	0.2	0.002	0.21	1.4	55	0.6	9.9	0.671	0.041	0.29
1470903	0.5	0.5	3.1	0.4	0.1	0.3	0.004	0.05	1.6	55	0.4	0.2	0.707	0.042	0.38
1470905	< 0.1	0.6	3.9	0.5	< 0.1	< 0.1	0.003	< 0.05	1.5	49	0.6	0.2	0.302	0.064	0.21
1470906	0.1	0.5	2.9	0.4	< 0.1	< 0.1	0.006	0.09	2.7	50	0.4	0.3	0.503	0.031	0.38
1470907	0.2	0.3	1.9	0.2	< 0.1	< 0.1	0.003	0.45	1.3	38	0.6	0.2	0.564	0.040	0.17
1470909	0.2	0.4	2.8	0.4	< 0.1	< 0.1	0.003	< 0.05	0.8	54	0.4	0.1	0.518	0.037	0.61
1470910	0.4	0.4	2.5	0.4	< 0.1	0.2	0.003	0.05	4.3	45	0.6	0.2	0.507	0.044	0.31
1470911	0.3	0.3	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.6	29	0.3	0.1	0.201	0.027	< 0.01
1470912	0.3	0.4	2.5	0.3	0.2	0.1	0.001	0.11	4.1	47	0.6	0.2	0.645	0.050	0.62
1470913	0.4	0.1	0.8	0.2	0.1	0.1	< 0.001	0.60	6.1	28	1.2	0.4	0.418	0.032	0.10
1470914	0.1	0.2	1.5	0.2	0.3	0.3	0.001	0.06	1.9	30	1.1	0.3	0.562	0.058	0.01
1470630	< 0.1	0.8	5.2	0.8	< 0.1	0.1	0.003	0.06	11.2	40	5.3	1.2	0.723	0.109	1.38
1470631	< 0.1	0.1	0.5	0.1	0.1	< 0.1	0.001	0.12	16.4	5	6.0	0.9	0.185	0.055	< 0.01
1470632	< 0.1	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.001	< 0.05	11.6	1	3.1	1.1	0.108	0.031	< 0.01
1470634	< 0.1	< 0.1	0.2	< 0.1	0.2	1.1	< 0.001	0.05	26.8	2	3.1	2.6	0.114	0.036	0.37
1470635	< 0.1	< 0.1	0.3	< 0.1	0.2	0.3	< 0.001	< 0.05	20.5	3	3.6	1.2	0.143	0.037	0.29
1470636	0.1	0.1	0.6	0.1	0.2	1.0	< 0.001	0.36	4.8	5	3.1	0.5	0.178	0.035	< 0.01
1470637	0.1	0.3	1.7	0.2	< 0.1	0.1	< 0.001	0.46	3.9	25	1.7	0.4	0.385	0.067	0.21
1470638	0.3	0.1	0.9	0.1	0.2	< 0.1	< 0.001	0.06	2.1	15	0.6	0.1	0.213	0.033	0.02
1470639	0.2	0.1	0.9	0.1	0.2	5.2	0.001	0.07	3.4	13	1.7	0.4	0.330	0.067	0.10
1470640	0.3	0.4	2.8	0.4	< 0.1	0.3	0.002	< 0.05	0.9	46	0.6	0.1	0.716	0.048	0.25
1470641	0.1	0.6	3.8	0.5	< 0.1	0.1	0.002	< 0.05	0.9	48	0.6	0.3	0.610	0.058	0.30
1470642	0.1	0.6	3.8	0.5	< 0.1	0.2	0.004	< 0.05	1.7	44	0.6	0.2	0.654	0.052	1.35
1470644	0.3	0.2	1.4	0.2	< 0.1	0.2	0.002	0.08	0.8	31	0.3	0.1	0.312	0.021	< 0.01
1470645	0.2	0.2	1.5	0.2	< 0.1	1.2	0.001	0.48	4.5	31	1.4	0.3	0.554	0.074	0.65
1470785	0.4	0.2	1.2	0.2	< 0.1	0.3	0.001	0.42	4.0	44	0.2	< 0.1	0.351	0.015	0.15
1470786	0.1	0.2	1.3	0.2	0.2	0.3	0.001	0.30	10.6	28	8.8	1.5	0.302	0.024	0.14
1470787	0.1	0.5	3.5	0.5	< 0.1	0.2	0.002	0.38	5.9	38	4.4	0.9	0.359	0.069	0.13
1470788	0.1	0.3	1.7	0.2	0.2	0.6	0.002	0.13	4.5	44	0.3	0.1	0.362	0.018	0.28
1470789	< 0.1	0.3	2.2	0.3	0.1	1.0	0.001	0.07	6.5	69	0.2	0.1	0.332	0.020	0.20
1470790	< 0.1	0.1	1.0	0.1	< 0.1	1.1	0.001	0.14	5.7	28	0.2	0.1	0.243	0.011	0.75
1470791	< 0.1	0.1	0.8	0.1	0.4	5.4	< 0.001	< 0.05	9.1	3	2.6	0.7	0.159	0.060	0.62
1470792	< 0.1	0.1	0.7	0.1	0.4	2.5	< 0.001	0.34	4.1	4	3.0	0.6	0.182	0.031	0.41
1470793	< 0.1	0.1	0.6	0.1	0.3	2.7	< 0.001	0.21	4.3	4	2.6	0.5	0.152	0.029	0.88
1470795	< 0.1	< 0.1	0.3	< 0.1	0.2	3.1	< 0.001	0.11	9.1	4	2.4	0.8	0.127	0.043	1.21
1470796	< 0.1	0.1	0.6	0.1	0.3	1.9	< 0.001	0.38	5.2	5	3.1	0.6	0.186	0.033	0.25
1470797	< 0.1	< 0.1	0.3	< 0.1	0.1	2.9	< 0.001	0.09	7.3	3	3.8	1.0	0.137	0.032	0.51
1470798	< 0.1	0.1	0.9	0.1	0.3	3.0	< 0.001	0.44	9.5	13	8.1	1.8	0.353	0.082	1.18
1470799	< 0.1	0.1	0.4	0.1	0.3	3.4	< 0.001	0.44	7.0	5	3.2	15.9	0.210	0.044	0.36
1470800	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.8	< 0.001	0.14	1.5	2	1.0	0.3	0.0666	0.008	0.12

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470801	0.2	0.1	0.7	0.1	< 0.1	2.7	0.002	0.46	4.4	39	0.3	0.1	0.287	0.013	0.64
1470802	0.1	0.1	0.6	0.1	< 0.1	1.8	0.001	0.60	3.3	44	0.2	< 0.1	0.376	0.017	0.31
1470803	< 0.1	0.2	1.2	0.2	< 0.1	3.8	< 0.001	0.73	6.3	48	0.2	0.3	0.385	0.011	1.72
1470804	0.1	0.1	1.0	0.1	< 0.1	0.3	0.002	0.22	159	32	0.1	< 0.1	0.266	0.010	0.38
1470805	0.4	0.2	1.4	0.2	< 0.1	< 0.1	0.001	0.09	1.4	26	0.5	0.1	0.184	0.030	0.05
1470806	0.5	0.1	0.8	0.1	< 0.1	0.3	0.001	< 0.05	1.4	39	0.3	0.1	0.247	0.014	< 0.01
1470807	0.4	0.2	1.3	0.2	0.1	0.2	< 0.001	0.24	0.7	36	0.4	0.1	0.342	0.020	< 0.01
1470808	0.3	0.3	1.9	0.3	0.2	0.4	0.001	0.33	0.5	43	0.7	0.2	0.523	0.038	0.05
1470810	0.2	0.3	1.7	0.2	0.2	< 0.1	< 0.001	< 0.05	1.8	41	0.5	0.1	0.396	0.028	< 0.01
1470811	0.1	0.4	2.3	0.3	< 0.1	0.1	0.001	< 0.05	1.4	50	0.8	0.2	0.457	0.042	< 0.01
1470812	0.3	0.4	2.4	0.4	< 0.1	< 0.1	0.002	< 0.05	0.8	41	0.8	0.2	0.439	0.044	0.13
1470814	0.1	0.3	1.9	0.3	< 0.1	< 0.1	0.001	< 0.05	0.8	41	0.7	0.1	0.310	0.033	< 0.01
1470815	< 0.1	0.3	1.7	0.2	< 0.1	< 0.1	0.001	< 0.05	1.2	40	0.6	0.1	0.492	0.041	0.08
1470816	< 0.1	0.2	1.3	0.2	0.1	< 0.1	0.001	< 0.05	1.0	13	2.1	0.3	0.245	0.037	0.01
1470817	0.1	0.2	1.6	0.2	< 0.1	0.1	0.001	0.13	0.8	41	0.8	0.2	0.306	0.036	0.05
1470818	0.1	0.3	1.8	0.3	< 0.1	< 0.1	0.001	< 0.05	0.7	32	0.7	3.2	0.433	0.046	0.01
1470819	0.3	0.2	1.6	0.2	0.2	0.5	0.002	0.14	2.4	40	0.6	0.2	0.464	0.037	0.10
1470820	0.7	0.2	1.2	0.2	< 0.1	< 0.1	0.001	0.24	2.5	30	0.5	0.8	0.296	0.026	0.11
1470821	0.7	0.3	1.6	0.2	0.1	0.1	0.001	0.05	1.7	29	0.6	0.1	0.440	0.038	0.08
1470822	0.3	0.4	2.3	0.3	< 0.1	< 0.1	0.001	0.06	1.5	41	0.9	2.0	0.541	0.050	0.05
1470823	0.1	0.2	1.2	0.2	0.2	< 0.1	< 0.001	0.08	1.0	36	0.5	0.1	0.328	0.013	< 0.01
1470824	0.1	< 0.1	0.2	< 0.1	< 0.1	0.1	< 0.001	< 0.05	< 0.5	10	< 0.1	< 0.1	0.0627	0.005	0.04
1470825	0.1	0.1	0.4	0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.2	19	0.2	0.1	0.157	0.019	0.03
1470826	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.1	< 0.001	< 0.05	2.0	11	0.2	< 0.1	0.109	0.010	0.02
1470827	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.3	< 0.001	< 0.05	2.3	16	0.2	0.2	0.0908	0.009	0.02
1470829	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.7	< 0.001	< 0.05	3.2	6	0.1	< 0.1	0.0286	0.015	0.01
1470830	0.1	0.1	0.5	0.1	< 0.1	5.4	< 0.001	< 0.05	2.5	29	0.5	0.1	0.217	0.009	0.07
1470831	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.1	< 0.001	< 0.05	2.8	12	0.1	< 0.1	0.0439	0.007	0.02
1470832	< 0.1	0.1	0.6	0.1	0.1	< 0.1	0.001	< 0.05	0.8	34	0.4	0.1	0.355	0.024	0.13
1470833	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.4	9	0.3	< 0.1	0.0982	0.010	< 0.01
1470834	0.3	0.1	0.4	0.1	< 0.1	0.2	< 0.001	< 0.05	2.7	27	0.4	0.1	0.212	0.020	< 0.01
1274051	0.1	0.2	1.1	0.2	< 0.1	< 0.1	< 0.001	0.15	6.2	15	2.4	0.6	0.282	0.062	0.01
1274052	0.2	0.2	1.2	0.2	0.2	0.4	< 0.001	0.23	7.0	20	2.9	0.7	0.467	0.076	< 0.01
1274053	< 0.1	0.2	1.1	0.1	< 0.1	0.4	< 0.001	0.14	4.4	16	2.3	0.5	0.342	0.062	0.07
1274055	< 0.1	0.2	1.0	0.1	< 0.1	< 0.1	< 0.001	< 0.05	6.4	21	3.8	0.8	0.481	0.085	0.04
1274056	0.3	0.1	0.7	0.1	< 0.1	0.2	0.007	0.05	1.3	22	0.2	0.2	0.342	0.017	0.09
1274057	0.2	0.2	1.3	0.2	0.2	0.1	< 0.001	0.15	5.2	20	3.3	0.7	0.540	0.065	0.22
1274058	0.1	0.1	1.0	0.1	0.3	1.6	< 0.001	0.53	6.5	22	2.4	0.5	0.433	0.056	0.09
1274059	< 0.1	0.1	0.9	0.1	< 0.1	0.2	< 0.001	0.16	5.2	19	1.5	0.4	0.254	0.071	0.04
1274061	< 0.1	0.2	1.1	0.2	< 0.1	< 0.1	< 0.001	0.10	3.4	22	1.7	0.4	0.209	0.078	< 0.01
1274062	< 0.1	0.2	1.3	< 0.1	< 0.1	< 0.1	< 0.001	0.50	11.2	21	5.0	1.3	0.358	0.079	0.02
1274063	1.0	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	0.37	7.2	29	3.1	0.8	0.433	0.080	< 0.01

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1274064	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.36	5.5	18	2.0	3.7	0.404	0.053	0.03
1274065	< 0.1	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	0.12	2.0	22	2.2	0.4	0.632	0.080	0.01
1274066	0.1	0.3	2.0	0.3	0.2	0.2	< 0.001	0.23	6.8	29	4.5	0.9	0.489	0.086	< 0.01
1274067	< 0.1	0.2	1.3	0.2	0.1	0.2	< 0.001	< 0.05	4.2	24	1.8	0.4	0.380	0.084	< 0.01
1274068	0.2	0.2	1.2	0.1	< 0.1	< 0.1	0.001	0.20	5.7	19	2.7	0.6	0.636	0.079	0.02
1274069	< 0.1	0.2	1.2	0.1	< 0.1	< 0.1	< 0.001	0.11	4.4	20	2.1	0.4	0.456	0.078	< 0.01
1274070	< 0.1	0.3	1.8	0.3	< 0.1	< 0.1	< 0.001	0.10	6.7	27	3.9	0.7	0.286	0.090	< 0.01
1274071	0.2	0.2	1.1	0.2	0.3	< 0.1	< 0.001	< 0.05	3.0	22	3.7	0.4	0.206	0.075	< 0.01
1274072	< 0.1	0.3	1.8	0.3	0.1	< 0.1	< 0.001	0.41	21.8	27	3.5	0.8	0.550	0.100	0.19
1274073	< 0.1	0.3	1.9	0.3	< 0.1	0.3	< 0.001	< 0.05	5.3	51	6.6	0.7	0.305	0.427	0.02
1274074	< 0.1	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	0.08	5.4	29	4.1	1.1	0.442	0.098	< 0.01
1274075	0.1	0.1	0.8	0.1	< 0.1	0.1	< 0.001	0.09	3.0	10	2.5	0.5	0.265	0.057	< 0.01
1274076	< 0.1	0.1	0.9	0.1	0.3	0.6	< 0.001	0.15	8.6	12	9.5	1.8	0.325	0.163	< 0.01
1274077	< 0.1	0.1	0.6	0.1	< 0.1	0.4	< 0.001	< 0.05	10.9	4	0.2	0.1	0.169	0.012	0.25
1274078	< 0.1	0.1	0.8	0.1	0.2	0.9	< 0.001	0.14	10.3	9	11.9	1.0	0.293	0.109	< 0.01
1274079	< 0.1	0.2	1.2	0.2	0.4	0.2	< 0.001	< 0.05	3.3	23	3.5	0.8	0.576	0.100	0.02
1477527	0.2	< 0.1	0.1	< 0.1	< 0.1	0.2	0.003	1.22	112	2	0.2	< 0.1	0.0150	0.002	> 20.0

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas																							
GXR-1 Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas																							
GXR-4 Cert																							
SDC-1 Meas	36.7	1.48	0.94	6.96	0.96	1.00		64	60.8	848	4.59	1.3	90	35.6	3.1	2.8	1.1		4.01	16.8	1.30		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas																							
GXR-6 Cert																							
DNC-1a Meas	4.7							143	241					283						56.1	0.50		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	174						0.3	221	73.4			3.4		95.5	3.4	3.3	1.2		8.76	22.9	1.80	0.70	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	22.7	0.10	0.27	7.81	0.43	0.20		135	504	602	16.3	2.6		269	1.3	0.8	0.4		4.03	34.2	0.60	0.38	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
1470555 Orig	51.2	0.03	12.6	3.16	0.01	3.21	< 0.1	50	1700	1160	7.59	0.4	40	1120	0.8	0.1	0.3	0.36	1.60	87.0	0.10	0.21	0.7
1470555 Dup	55.7	0.04	14.2	3.55	0.01	3.72	< 0.1	40	1820	1310	8.66	0.3	20	1250	0.8	0.1	0.3	0.19	1.85	101	0.20	0.24	0.6
1470596 Orig	20.2	2.14	2.23	6.62	0.86	5.83	< 0.1	125	87.0	2780	7.41	1.8	60	68.7	1.4	0.5	0.5	< 0.05	0.48	19.4	0.60	0.08	< 0.1
1470596 Dup	20.1	2.13	2.22	6.56	0.83	5.65	< 0.1	118	103	2730	7.36	1.7	40	66.7	1.4	0.4	0.5	< 0.05	0.47	19.2	0.60	0.07	< 0.1
1470598 Orig	28.5	2.12	3.28	7.80	1.43	3.16	0.2	108	106	1080	7.45	0.6	20	80.2	1.7	0.6	0.6	0.26	0.37	42.6	1.30	0.12	< 0.1
1470598 Dup	27.8	2.12	3.19	7.56	1.31	3.05	0.2	111	99.4	1070	7.25	0.5	50	78.5	1.7	0.6	0.6	0.31	0.36	37.6	1.20	0.21	< 0.1
1470792 Orig	5.1	> 3.00	0.27	6.92	1.57	2.55	< 0.1	28	18.5	237	2.10	2.5	40	10.3	0.8	0.9	0.3	0.25	1.41	6.8	0.70	0.86	< 0.1
1470792 Dup	5.0	> 3.00	0.26	6.62	1.55	2.47	< 0.1	29	16.3	227	2.04	2.5	< 10	9.9	0.8	0.9	0.3	0.05	1.36	6.6	0.70	0.81	< 0.1
1470798 Orig	6.6	> 3.00	1.88	7.27	2.00	4.15	< 0.1	92	111	746	3.79	3.6	10	125	1.0	1.5	0.4	0.13	1.25	23.9	1.50	1.57	< 0.1
1470798 Dup	6.7	> 3.00	1.92	7.57	2.04	4.22	< 0.1	93	112	759	3.84	3.8	< 10	126	1.0	1.6	0.4	< 0.05	1.28	24.0	1.50	1.54	< 0.1
1470832 Orig	16.2	2.26	5.45	5.72	0.01	3.13	0.1	188	367	1030	7.32	1.2	10	167	0.5	0.1	0.2	< 0.05	0.10	49.0	0.40	0.02	0.2
1470832 Dup	16.0	2.26	5.51	5.77	0.01	3.15	0.1	185	378	1040	7.33	1.2	30	165	0.5	0.1	0.2	< 0.05	0.10	48.9	0.40	0.02	0.2
1274059 Orig	16.8	2.70	1.87	6.23	0.88	2.77	0.3	74	214	1810	6.54	2.0	40	144	1.0	0.9	0.4	0.33	1.98	30.2	1.10	0.07	< 0.1
1274059 Dup	15.9	2.48	1.76	5.91	0.80	2.65	0.3	74	193	1600	6.16	1.9	< 10	129	1.0	0.9	0.4	0.39	1.85	28.3	1.10	0.06	< 0.1
1274062 Orig	33.8	1.68	1.49	8.19	1.37	1.07	< 0.1	123	146	438	4.96	4.0	30	112	1.3	1.7	0.4	< 0.05	2.37	23.3	0.60	0.26	< 0.1
1274062 Dup	34.4	1.78	1.50	8.35	1.32	1.13	< 0.1	134	125	439	5.22	4.0	60	115	1.4	1.9	< 0.1	< 0.05	2.43	23.8	0.70	0.24	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	4.2	4	0.01	< 0.1	50	< 0.5	< 0.1	< 0.1	< 0.1	0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas																							
GXR-1 Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas																							
GXR-4 Cert																							
SDC-1 Meas	95.1	14.4	< 0.1	68.4		171	54	2.6			1	< 0.1		509	41.9	92.4		42.3	5.2	6.2	0.9	5.4	29.6
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas																							
GXR-6 Cert																							
DNC-1a Meas	59.2	13.6		3.0	16.7	152	43	1.8				0.7		96	4.1			5.4					97.2
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
SBC-1 Meas	189	17.1	24.1	134	33.8	195	140	14.7	2.34		4	1.3		710	58.2	121	12.8	55.8	7.0	7.8	1.1	6.0	28.4
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	41.3	22.9	8.2	38.1	11.0	31.1	111	0.9	0.88	0.1	< 1	< 0.1		178	18.8	41.0	3.7	16.1	2.0	2.1	0.4	2.2	352
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
1470555 Orig	54.3	9.0	3.5	0.9	7.3	57.6	8	0.5	0.76	< 0.1	< 1	0.7	0.1	12	0.6	1.5	0.2	1.4	0.4	0.9	0.2	1.2	79.1
1470555 Dup	62.2	10.1	4.6	1.1	7.8	66.0	9	0.6	1.04	< 0.1	< 1	0.7	0.2	14	0.7	1.6	0.2	1.6	0.5	0.8	0.2	1.3	77.0
1470596 Orig	72.4	15.0	0.6	25.8	14.0	122	85	2.5	0.59	< 0.1	< 1	0.1	0.2	150	8.5	18.6	2.1	9.8	1.4	1.9	0.3	2.1	64.7
1470596 Dup	71.6	14.4	< 0.1	25.1	13.6	117	81	1.3	0.45	< 0.1	< 1	0.1	0.2	150	8.4	18.2	2.0	9.7	1.4	1.9	0.3	2.1	64.4
1470598 Orig	148	18.2	26.7	29.2	17.6	364	26	0.5	0.59	0.1	< 1	0.1	< 0.1	450	13.6	30.8	3.8	18.7	2.5	3.2	0.5	2.9	382
1470598 Dup	144	17.6	20.8	26.9	17.2	349	22	0.3	0.39	0.1	< 1	< 0.1	< 0.1	441	13.4	30.5	3.6	18.4	2.5	3.2	0.5	2.8	370
1470792 Orig	19.1	17.7	< 0.1	49.1	9.1	192	101	4.9	2.14	< 0.1	1	1.0	0.9	368	17.3	34.0	3.4	14.9	2.0	2.2	0.3	1.7	8.0
1470792 Dup	19.6	17.3	< 0.1	47.2	8.3	190	98	4.9	1.64	< 0.1	< 1	0.2	0.5	362	16.3	32.0	3.1	14.2	1.8	2.1	0.3	1.6	7.8
1470798 Orig	53.0	21.8	3.9	57.9	10.2	545	150	3.9	1.13	< 0.1	1	0.5	1.0	136	41.4	85.7	9.3	41.9	4.6	3.8	0.4	2.0	7.3
1470798 Dup	51.9	22.2	3.4	59.6	10.3	552	153	4.3	0.75	< 0.1	1	0.5	0.7	133	41.9	86.3	9.5	43.0	4.1	3.8	0.4	2.0	7.3
1470832 Orig	57.0	13.8	17.5	0.2	4.6	26.0	55	1.9	0.94	< 0.1	< 1	< 0.1	0.1	17	3.6	8.5	1.1	5.7	1.1	1.3	0.2	0.9	84.1
1470832 Dup	57.8	13.9	15.8	0.2	4.6	25.7	53	2.0	0.41	< 0.1	< 1	< 0.1	0.2	17	3.4	8.2	1.1	5.5	1.0	1.1	0.2	0.9	82.4
1274059 Orig	113	9.4	1.3	27.2	10.2	308	64	0.7	0.29	< 0.1	< 1	0.6	0.1	654	14.2	36.6	4.5	22.8	3.4	3.4	0.4	2.1	128
1274059 Dup	108	8.5	1.3	24.8	9.9	291	66	0.2	0.15	< 0.1	< 1	0.3	< 0.1	630	13.0	34.8	4.2	21.1	3.2	3.6	0.4	2.1	125
1274062 Orig	72.5	18.2	18.0	57.1	12.5	532	181	1.0	0.46	< 0.1	< 1	< 0.1	0.1	683	11.0	40.0	2.9	12.9	1.9	2.2	0.4	2.2	8.1
1274062 Dup	75.4	18.8	19.6	53.2	13.0	577	188	0.9	0.57	< 0.1	< 1	< 0.1	< 0.1	736	13.0	45.1	3.4	14.5	2.1	2.6	0.4	2.4	8.4
Method Blank	< 0.2	0.1	< 0.1	< 0.2	< 0.1	< 0.2	< 1	0.1	0.13	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Method Blank																							
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas										1			0.0332	0.057	0.24
GXR-1 Cert										1.58			0.036	0.0650	0.257
DH-1a Meas											> 500	1980			
DH-1a Cert											910	2629			
GXR-4 Meas										8			0.292	0.134	1.84
GXR-4 Cert										7.70			0.29	0.120	1.77
SDC-1 Meas		0.5	3.0		0.1	0.1		0.65	23.9	16	10.1	2.7	0.360	0.060	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas										28				0.037	0.03
GXR-6 Cert										27.6				0.0350	0.0160
DNC-1a Meas			1.9						5.8	31			0.285		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.5	3.3	0.5	1.0	1.1		0.97	37.3	22	14.6	5.7	0.529		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.4	0.2	< 0.1	0.2		0.28	20.7	58	15.9	2.7	0.349	0.037	0.05
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
SdAR-M2 (U.S.G.S.) Meas										4					
SdAR-M2 (U.S.G.S.) Cert										4.1					
1470555 Orig	0.1	0.1	0.7	0.1	< 0.1	0.6	0.001	< 0.05	1.9	26	0.8	< 0.1	0.228	0.013	0.16
1470555 Dup	0.3	0.1	0.8	0.1	< 0.1	0.4	0.018	< 0.05	2.3	26	0.4	< 0.1	0.224	0.013	0.16
1470596 Orig	0.2	0.2	1.5	0.2	< 0.1	0.1	< 0.001	0.11	1.6	19	1.2	0.3	0.386	0.053	0.06
1470596 Dup	0.2	0.2	1.5	0.2	< 0.1	0.1	0.001	0.09	1.6	19	1.1	0.3	0.349	0.051	0.06
1470598 Orig	< 0.1	0.3	1.6	0.2	< 0.1	0.2	0.003	0.13	4.2	24	1.8	0.4	0.187	0.093	0.04
1470598 Dup	< 0.1	0.2	1.5	0.2	< 0.1	0.1	0.003	0.14	4.6	24	1.8	0.4	0.209	0.093	0.04
1470792 Orig	< 0.1	0.1	0.7	0.1	0.4	2.7	< 0.001	0.34	4.1	4	3.1	0.6	0.178	0.032	0.42
1470792 Dup	< 0.1	0.1	0.7	0.1	0.4	2.3	< 0.001	0.33	4.2	4	2.9	0.5	0.187	0.031	0.40
1470798 Orig	< 0.1	0.1	0.9	0.1	0.3	3.1	< 0.001	0.44	9.5	12	7.8	1.8	0.355	0.082	1.17
1470798 Dup	< 0.1	0.1	0.9	0.1	0.3	3.0	< 0.001	0.43	9.6	13	8.3	1.8	0.351	0.083	1.19
1470832 Orig	0.1	0.1	0.6	0.1	0.1	0.1	0.001	< 0.05	0.8	34	0.5	0.1	0.352	0.024	0.13
1470832 Dup	< 0.1	0.1	0.7	0.1	0.1	< 0.1	0.001	< 0.05	0.9	35	0.4	0.1	0.357	0.025	0.13
1274059 Orig	< 0.1	0.1	0.9	0.1	< 0.1	0.2	0.001	0.17	5.4	19	1.6	0.4	0.323	0.074	0.04
1274059 Dup	< 0.1	0.1	0.9	0.1	< 0.1	0.2	< 0.001	0.16	5.0	18	1.4	0.4	0.185	0.069	0.04
1274062 Orig	< 0.1	0.2	1.2	0.2	0.1	0.4	0.001	0.49	11.0	20	4.7	1.2	0.441	0.083	0.02
1274062 Dup	< 0.1	0.2	1.3	< 0.1	< 0.1	< 0.1	< 0.001	0.50	11.5	22	5.3	1.3	0.276	0.076	0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01



Date Submitted: 09-Nov-16
Invoice No.: A16-11882 (i)
Invoice Date: 20-Dec-16
Your Reference: PENG-20161108-010-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

177 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-11882 (i)**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is written in a cursive style with a large, stylized 'E' and 'S'.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470915	3.3	0.23	0.72	5.24	0.04	7.74	< 0.1	304	62.3	1020	5.05	0.3	40	32.8	1.2	< 0.1	0.4	0.13	0.10	10.5	0.50	0.04	< 0.1
1470916	12.4	> 3.00	2.19	6.53	0.06	4.00	0.1	153	29.8	903	6.16	1.6	50	47.0	2.0	0.4	0.7	< 0.05	0.07	26.2	0.90	0.04	< 0.1
1470917	1.8	0.08	0.33	0.51	0.02	0.83	< 0.1	14	23.4	263	1.26	0.1	30	7.4	0.1	< 0.1	< 0.1	< 0.05	0.05	3.2	< 0.05	0.02	< 0.1
1470918	5.1	0.04	0.81	1.61	0.54	1.93	0.3	45	28.0	693	2.50	0.2	40	12.0	0.4	0.2	0.1	< 0.05	0.37	7.1	0.30	< 0.02	< 0.1
1470919	14.5	0.15	1.72	4.20	0.80	1.38	< 0.1	137	58.2	1200	5.57	1.5	20	38.1	0.7	0.5	0.2	< 0.05	0.49	23.9	0.30	0.04	< 0.1
1470920	15.0	0.43	1.54	5.88	1.24	1.95	0.1	254	86.0	659	6.15	4.7	20	57.7	1.1	1.1	0.3	< 0.05	1.12	28.1	0.50	0.78	0.6
1470921	10.8	0.26	1.18	6.43	1.63	4.05	0.2	150	47.3	620	4.31	3.3	20	27.9	1.3	1.3	0.5	0.26	1.28	18.4	0.80	0.28	1.2
1470922	13.0	0.84	1.30	5.11	1.11	0.31	1.9	149	102	328	5.83	4.3	430	67.0	0.6	1.3	0.2	0.45	1.86	7.3	0.40	0.70	2.2
1470923	7.4	0.47	0.84	2.46	0.27	0.49	0.2	38	39.3	338	2.69	1.0	70	24.8	0.3	0.2	0.1	0.23	0.32	7.8	0.20	0.07	< 0.1
1470924	11.3	2.40	1.14	6.31	1.16	4.20	3.1	83	54.8	767	3.94	2.4	220	37.3	1.2	0.8	0.4	0.06	0.89	17.8	1.00	0.09	0.8
1470925	9.8	0.40	1.04	3.21	0.74	3.08	< 0.1	116	37.2	598	3.46	0.2	30	19.9	1.0	0.4	0.3	0.09	0.69	12.0	0.40	0.02	< 0.1
1470926	14.0	1.22	1.99	3.76	0.04	1.76	< 0.1	155	44.4	921	4.45	0.2	40	42.6	1.0	0.1	0.3	0.09	0.17	23.8	0.20	0.02	< 0.1
1470927	11.9	0.28	3.54	4.52	0.03	3.94	0.1	231	129	1730	7.31	0.4	30	62.3	1.7	0.1	0.6	< 0.05	0.14	30.7	0.40	0.02	< 0.1
1470929	5.6	0.15	0.42	4.60	2.12	1.60	0.2	92	33.9	786	2.86	1.6	< 10	44.8	0.5	0.6	0.2	< 0.05	1.55	16.0	0.50	0.26	< 0.1
1470930	10.8	0.15	0.76	9.49	4.27	0.15	< 0.1	131	54.1	447	3.44	3.3	< 10	41.2	0.5	1.1	0.2	< 0.05	3.56	14.5	0.70	0.04	< 0.1
1470931	10.2	0.39	3.76	5.63	0.74	8.43	0.2	256	118	1600	7.35	0.8	60	148	0.8	0.8	0.3	0.69	0.53	64.5	0.50	0.12	0.8
1470932	9.0	0.15	2.77	3.93	1.20	5.99	0.1	168	176	892	5.07	0.5	< 10	123	0.4	0.5	0.1	0.66	0.85	34.4	0.30	0.14	0.5
1470933	5.2	0.15	2.48	3.17	1.05	5.83	0.1	143	234	922	4.60	0.4	< 10	126	0.3	0.3	0.1	0.27	0.74	36.0	0.20	0.12	0.4
1470934	26.1	2.75	2.72	7.10	0.45	2.84	< 0.1	238	48.1	1180	8.68	2.8	30	51.1	2.5	0.5	0.9	< 0.05	0.69	34.7	0.90	0.05	< 0.1
1470935	18.6	2.17	1.23	5.29	1.39	3.49	4.8	103	85.4	905	5.58	2.6	220	49.2	0.9	0.8	0.3	0.52	0.88	28.5	0.60	0.63	2.4
1470936	8.8	1.14	0.78	5.93	1.70	2.83	3.5	63	118	819	6.58	5.8	230	28.4	2.3	1.1	0.8	0.26	0.93	22.6	1.20	0.40	2.6
1470937	27.1	0.03	2.88	3.98	0.53	1.25	< 0.1	122	45.7	562	10.1	1.5	30	48.2	0.5	0.4	0.2	0.19	0.43	27.3	0.40	0.99	2.5
1470939	10.5	0.13	2.71	6.27	2.18	4.34	0.1	274	105	1300	7.11	0.6	40	59.5	0.5	0.3	0.2	0.14	1.93	64.3	0.30	0.04	0.4
1470940	14.6	0.69	2.81	6.36	1.71	2.89	0.2	299	120	1540	7.76	0.6	50	86.3	0.7	0.2	0.2	0.07	1.44	39.9	0.40	0.02	< 0.1
1470941	14.1	0.95	2.89	6.36	1.54	3.15	0.1	301	120	1580	8.05	0.6	50	88.9	0.6	0.2	0.2	0.28	1.37	40.6	0.30	0.27	< 0.1
1470942	20.4	1.95	2.82	6.49	0.87	1.95	0.2	289	122	1500	8.02	0.5	70	117	0.7	0.2	0.2	0.10	0.80	42.2	0.40	0.02	< 0.1
1470943	3.6	0.11	1.24	2.62	0.78	1.43	< 0.1	149	128	1060	3.93	0.3	60	21.4	0.4	0.1	0.1	0.06	0.66	12.2	0.30	< 0.02	< 0.1
1470944	6.7	0.09	3.35	5.53	2.30	6.87	0.2	265	68.5	1630	6.43	0.8	30	47.8	0.7	0.2	0.2	< 0.05	1.58	25.7	0.30	< 0.02	< 0.1
1470945	1.6	0.04	1.18	1.81	0.78	3.32	0.2	107	61.4	796	3.44	0.3	60	12.2	0.3	0.1	0.1	0.07	0.62	10.2	0.20	0.03	1.2
1470946	1.1	0.18	0.24	0.72	0.02	0.69	< 0.1	48	51.7	252	1.44	0.1	30	9.0	0.3	< 0.1	0.1	0.05	0.08	3.7	0.10	0.04	< 0.1
1470947	15.0	0.50	3.58	6.33	0.95	5.22	0.1	267	102	1550	8.14	0.8	40	81.6	0.8	0.1	0.3	< 0.05	0.61	50.5	0.50	< 0.02	< 0.1
1470948	18.1	2.78	2.36	7.41	0.04	4.71	0.1	178	104	1060	7.64	0.9	< 10	50.0	1.9	0.4	0.7	< 0.05	0.19	31.4	0.80	0.05	< 0.1
1470949	21.9	0.81	2.63	6.13	0.08	5.52	0.1	62	52.9	1310	8.11	1.0	110	32.2	2.9	1.3	1.0	0.20	0.31	26.4	1.40	0.17	< 0.1
1470950	9.2	0.41	1.42	3.97	0.09	1.79	< 0.1	101	58.3	552	5.47	0.4	70	26.4	1.4	0.6	0.5	0.11	0.26	11.4	1.10	0.28	< 0.1
1470951	1.4	> 3.00	1.80	5.40	0.05	4.46	< 0.1	193	104	977	9.94	0.5	40	72.1	1.9	0.5	0.6	0.06	0.05	36.4	0.70	0.13	1.2
1470952	6.9	> 3.00	2.69	6.26	0.04	5.07	< 0.1	217	94.3	1330	10.2	0.6	40	85.7	2.8	0.4	0.9	< 0.05	0.11	45.6	0.90	0.05	< 0.1
1470953	6.5	0.24	0.91	4.50	0.03	14.4	0.2	266	46.4	1440	6.40	0.4	50	39.8	1.4	0.3	0.5	< 0.05	0.08	16.6	0.70	0.07	< 0.1
1470955	3.5	0.24	0.61	1.68	0.10	8.53	0.3	144	28.9	1310	2.66	0.3	40	11.8	1.0	0.2	0.3	0.10	0.14	9.5	0.60	0.02	< 0.1
1470956	3.0	0.32	0.32	2.01	0.03	1.98	< 0.1	98	30.3	409	3.30	0.2	40	6.7	0.3	0.2	0.1	< 0.05	0.18	5.4	0.15	0.04	< 0.1
1470957	20.1	1.55	2.10	6.63	0.46	4.61	0.1	326	106	1930	7.98	0.9	90	78.9	0.8	0.2	0.3	0.16	0.36	43.3	0.40	0.03	< 0.1
1470959	12.3	0.11	2.30	5.32	1.35	0.71	< 0.1	182	87.4	1070	6.00	0.6	40	54.7	1.3	0.2	0.4	0.10	0.68	30.4	0.30	< 0.02	< 0.1
1470960	5.4	1.64	4.96	3.63	0.03	2.77	0.2	49	1410	1210	5.89	0.4	40	760	0.4	0.1	0.2	0.06	0.29	81.1	0.20	0.09	0.2

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470961	8.1	1.87	6.96	5.09	0.01	5.46	< 0.1	156	1690	1810	8.94	0.6	< 10	960	0.6	0.1	0.2	< 0.05	0.16	92.2	0.20	0.14	0.1
1470962	2.0	2.36	5.90	3.44	0.06	10.7	< 0.1	76	1470	1520	5.84	0.4	40	905	0.6	< 0.1	0.2	< 0.05	1.38	91.6	0.20	0.07	0.8
1470963	3.2	1.13	8.55	3.41	0.01	10.7	0.1	84	1390	1460	7.61	0.4	20	1150	0.6	< 0.1	0.2	< 0.05	0.10	93.8	0.20	0.03	0.4
1470964	16.2	0.84	6.00	2.90	0.01	17.4	0.2	67	1140	2660	7.46	0.6	20	870	0.7	0.2	0.3	< 0.05	0.28	76.1	0.40	0.04	0.7
1470965	7.3	1.75	4.83	3.96	0.03	8.42	0.1	45	2830	2060	8.32	0.6	100	2100	0.7	0.1	0.2	0.33	0.13	259	0.20	0.06	0.7
1470966	2.8	0.02	7.68	1.33	0.01	13.7	0.2	8	1020	2270	5.01	0.2	70	954	0.5	0.2	0.2	0.19	< 0.05	77.8	0.50	0.04	0.4
1470967	2.3	> 3.00	0.53	8.00	0.70	1.14	< 0.1	44	16.2	374	1.95	2.6	70	47.5	0.6	0.7	0.2	< 0.05	0.19	7.4	0.50	< 0.02	< 0.1
1470968	12.4	0.17	4.08	4.33	1.06	7.20	< 0.1	126	2090	1740	7.93	0.8	60	1650	0.7	0.2	0.2	< 0.05	0.19	166	0.20	0.14	0.3
1470969	8.3	1.82	3.89	4.00	0.29	7.97	< 0.1	89	1770	1980	6.90	0.4	60	1880	0.5	0.1	0.2	0.10	0.13	128	0.20	0.02	0.4
1470970	22.0	1.54	2.67	7.03	0.86	2.50	< 0.1	284	88.8	1070	8.09	1.0	30	92.4	0.9	0.2	0.3	< 0.05	0.35	50.7	0.40	0.03	0.2
1470646	9.3	0.28	1.18	4.79	1.08	2.17	6.4	109	56.2	561	6.14	1.8	40	52.5	0.8	0.7	0.3	1.19	0.62	42.1	0.50	1.62	3.9
1470647	11.0	> 3.00	1.15	7.13	1.61	2.68	1.0	84	31.3	620	4.28	3.6	< 10	30.4	1.0	0.6	0.3	0.17	0.81	18.4	0.70	0.07	0.7
1470648	12.7	0.50	1.39	6.23	2.64	0.50	1.9	127	51.5	391	6.48	2.4	250	40.9	0.6	0.8	0.2	0.53	1.30	11.7	0.30	0.40	3.6
1470649	10.4	1.86	1.11	6.36	1.87	0.43	1.5	120	42.1	370	6.35	3.0	570	43.4	0.8	0.6	0.3	0.35	1.20	17.0	0.60	0.50	3.2
1470650	12.1	0.42	1.21	7.71	2.03	0.34	1.8	170	101	461	6.74	3.5	290	59.4	0.8	1.7	0.3	0.32	2.02	35.4	1.10	0.56	2.5
1470651	11.2	0.49	1.23	6.19	1.75	1.35	1.5	123	94.1	514	5.09	2.4	290	49.2	0.7	1.0	0.2	0.41	1.28	23.0	0.80	0.46	1.4
1470652	10.4	0.34	1.20	4.18	1.50	3.79	1.6	91	82.3	1290	4.86	2.0	110	38.9	1.0	0.9	0.4	0.21	1.10	17.4	0.70	0.19	0.6
1470653	3.0	0.11	0.27	6.71	2.68	0.10	< 0.1	89	23.2	145	4.40	1.7	< 10	24.4	0.4	1.9	0.1	0.27	1.74	14.4	0.20	0.78	6.9
1470654	11.2	0.14	1.10	4.96	1.84	0.04	< 0.1	80	24.8	317	11.9	5.4	20	22.9	1.7	1.0	0.5	0.07	1.18	14.7	0.50	2.21	10.0
1470655	14.8	0.06	1.53	4.60	1.31	0.17	< 0.1	62	28.4	368	10.6	5.8	10	24.1	1.9	0.7	0.6	0.14	0.74	18.1	0.60	1.03	10.6
1470657	15.9	2.40	1.09	6.51	1.81	2.29	5.1	106	66.5	610	5.83	3.1	< 10	56.5	0.9	0.9	0.3	0.44	1.15	33.4	0.80	0.48	4.4
1470658	13.2	2.84	1.35	7.25	1.61	1.38	3.3	120	72.8	691	5.76	3.4	70	49.4	0.9	0.9	0.3	0.39	0.74	27.7	0.80	0.56	2.5
1470660	14.8	2.56	1.54	7.39	1.70	1.37	11.4	145	137	567	6.85	2.8	130	74.4	0.8	1.1	0.3	1.50	0.85	51.0	0.80	1.31	6.7
1470661	4.2	0.55	3.00	4.96	0.09	7.28	0.2	228	89.1	1450	6.26	0.9	< 10	97.7	0.6	0.6	0.2	0.43	0.07	32.8	0.50	0.03	0.2
1470662	2.4	0.18	0.89	1.74	0.12	2.23	0.1	89	35.9	646	2.60	0.1	30	41.3	0.3	0.1	0.1	0.15	0.11	12.3	0.20	< 0.02	< 0.1
1470663	3.1	0.30	2.23	2.69	0.10	5.81	0.2	147	51.6	1150	4.91	0.2	40	59.6	0.3	0.2	0.1	0.08	0.10	19.5	0.30	< 0.02	0.6
1470664	17.8	2.46	1.63	6.51	1.27	0.12	< 0.1	95	38.2	358	5.88	5.4	< 10	29.8	1.6	1.5	0.5	< 0.05	1.06	10.4	0.70	0.15	1.8
1470665	17.4	0.78	1.79	5.86	1.75	4.33	0.2	130	65.0	1020	6.17	2.4	< 10	65.9	1.0	1.3	0.3	0.22	1.02	33.1	0.70	0.22	1.5
1470666	25.7	> 3.00	2.77	7.59	0.05	1.64	< 0.1	209	53.8	698	8.95	2.1	20	53.1	2.5	0.6	0.8	0.07	0.19	51.2	0.90	0.14	1.4
1470667	15.8	> 3.00	1.59	6.83	0.66	1.34	5.6	115	60.2	794	6.35	3.1	370	66.2	1.1	0.9	0.4	< 0.05	0.46	37.5	0.80	0.69	3.8
1470668	18.2	1.76	1.70	6.58	1.87	2.26	4.3	114	53.4	680	5.89	3.2	230	52.7	1.3	1.0	0.5	0.20	1.02	23.5	0.90	0.12	2.0
1470669	31.6	> 3.00	4.23	8.32	0.04	1.00	< 0.1	339	99.3	944	13.2	4.1	70	66.6	1.3	0.4	0.5	< 0.05	0.32	79.1	1.20	0.17	1.2
1470670	6.4	> 3.00	1.75	6.99	0.05	2.14	0.4	104	14.8	1060	11.8	1.7	20	13.0	4.0	1.2	1.3	0.23	0.21	41.5	1.40	0.04	3.3
1470671	17.0	> 3.00	2.01	6.85	0.28	0.61	< 0.1	54	75.1	373	3.56	2.1	< 10	67.2	0.4	1.2	0.1	0.18	0.23	16.1	0.50	0.04	0.5
1470672	0.9	0.02	0.19	0.28	0.01	0.01	< 0.1	16	19.3	159	1.35	< 0.1	50	4.1	0.1	< 0.1	< 0.1	0.10	< 0.05	2.7	< 0.05	< 0.02	0.6
1470673	15.2	> 3.00	2.02	6.25	0.15	2.35	< 0.1	154	98.9	650	7.97	0.3	90	105	2.3	0.7	0.8	0.22	0.64	43.9	0.80	0.21	1.0
1470674	3.8	0.31	0.50	1.15	0.01	0.15	< 0.1	62	24.8	298	2.23	0.1	60	10.4	0.2	< 0.1	0.1	0.11	0.09	8.1	< 0.05	0.02	0.3
1470675	2.5	0.68	0.32	1.35	0.02	0.59	< 0.1	69	24.3	352	2.25	0.2	50	9.4	0.3	0.1	0.1	0.07	0.08	5.8	0.10	0.02	0.3
1470676	13.6	0.06	10.2	4.35	0.02	4.21	< 0.1	86	654	1340	9.98	1.1	30	856	0.7	0.4	0.3	< 0.05	0.50	89.7	0.20	0.03	0.3
1470677	11.7	0.22	4.14	2.88	0.01	5.51	0.4	42	1400	2570	9.60	0.1	30	1270	0.5	0.1	0.2	< 0.05	0.08	96.4	0.20	0.02	0.6
1470678	29.2	1.08	3.23	6.18	0.10	6.49	< 0.1	258	72.7	1540	10.0	0.7	30	98.3	0.8	0.1	0.2	< 0.05	0.12	47.2	0.40	0.02	0.6
1470680	22.7	1.35	3.07	6.86	0.65	7.07	< 0.1	252	89.4	1630	8.21	0.5	40	68.9	0.7	0.2	0.2	< 0.05	0.22	37.8	0.30	0.03	0.7

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470681	27.9	0.38	3.10	6.64	0.88	5.77	0.1	278	130	2100	8.91	0.5	50	85.0	0.7	0.2	0.2	< 0.05	0.35	48.2	0.40	< 0.02	0.7
1470682	21.7	1.09	2.55	6.27	0.64	3.21	< 0.1	251	106	1330	8.47	0.6	80	68.8	0.6	0.1	0.2	0.27	0.18	43.3	0.20	0.06	0.6
1470683	7.1	0.33	2.74	5.38	0.02	5.45	< 0.1	240	14.0	1110	8.63	1.0	80	17.8	3.1	0.1	1.0	0.06	0.08	55.7	0.80	0.03	0.7
1470835	23.7	0.52	7.04	4.08	0.03	4.52	0.4	89	1210	2000	7.71	0.8	40	648	0.5	0.2	0.2	< 0.05	0.24	78.8	0.50	0.13	0.7
1470836	27.4	0.76	5.65	5.49	0.01	0.75	0.2	166	520	1130	7.66	1.2	40	237	0.6	0.2	0.2	< 0.05	0.05	52.6	0.30	0.03	0.4
1470837	16.4	1.44	4.90	5.07	0.01	4.74	< 0.1	163	322	1370	6.92	1.0	20	166	0.6	0.2	0.2	< 0.05	0.08	44.3	0.40	0.02	0.5
1470838	11.4	2.77	5.84	5.81	0.02	3.61	< 0.1	208	416	1060	7.07	0.8	10	124	1.5	0.2	0.6	< 0.05	0.07	40.9	0.40	0.03	0.5
1470839	12.6	2.62	5.34	5.54	0.02	3.80	< 0.1	159	425	1020	6.33	0.6	20	230	1.2	0.2	0.4	< 0.05	0.05	47.4	0.40	0.03	0.4
1470840	26.2	1.28	6.11	6.16	0.01	2.67	< 0.1	170	528	1130	7.97	1.0	< 10	251	1.6	0.2	0.5	< 0.05	0.06	53.7	0.50	0.02	0.2
1470842	13.8	1.73	6.26	4.64	0.02	5.60	< 0.1	189	442	1340	7.25	0.6	< 10	174	1.2	0.1	0.4	< 0.05	< 0.05	43.4	0.30	0.03	0.5
1470843	8.0	1.24	1.70	3.07	0.08	1.31	< 0.1	52	113	493	3.00	0.1	90	52.1	0.2	0.3	0.1	0.24	0.05	15.9	0.20	0.04	0.6
1470844	15.7	2.95	1.54	5.94	0.09	0.72	< 0.1	122	12.9	1170	9.56	2.2	60	2.7	2.5	0.7	0.8	< 0.05	0.81	27.6	0.80	0.04	0.4
1470845	19.0	> 3.00	1.41	6.54	0.67	0.51	< 0.1	172	73.3	614	4.11	2.9	50	48.0	2.1	0.8	0.7	< 0.05	0.33	26.0	0.70	0.08	0.3
1470846	18.1	> 3.00	1.43	6.53	0.31	1.84	< 0.1	91	63.0	1360	4.91	2.0	50	55.9	2.5	0.8	0.8	< 0.05	0.49	29.6	1.10	0.03	0.2
1470847	16.4	1.67	6.02	6.21	0.02	7.30	< 0.1	228	492	1360	8.40	0.8	40	182	1.7	0.2	0.6	0.60	0.05	52.5	0.50	0.09	0.8
1470848	9.9	0.91	1.51	2.54	0.59	4.16	< 0.1	101	36.9	949	4.45	0.3	< 10	11.3	0.5	0.2	0.2	0.30	0.62	19.3	0.50	0.02	0.8
1470849	8.9	> 3.00	0.59	5.84	0.15	0.22	0.3	81	35.5	993	5.79	1.0	20	17.6	0.5	0.2	0.2	0.12	0.76	35.7	0.40	0.02	1.0
1470850	13.3	0.67	1.31	2.32	0.07	1.39	< 0.1	82	39.8	710	3.54	0.4	20	16.3	0.5	0.5	0.2	0.12	0.39	15.3	0.40	0.05	< 0.1
1470851	12.1	1.28	1.85	6.55	0.52	0.35	< 0.1	132	41.4	1430	5.54	0.7	< 10	18.7	0.3	0.6	0.1	0.05	0.37	25.3	0.20	0.02	< 0.1
1470852	27.7	2.59	2.60	6.72	0.70	4.20	0.1	256	29.6	1330	7.86	1.7	90	21.8	1.0	0.2	0.3	0.36	0.46	38.5	0.60	0.05	< 0.1
1470854	28.8	> 3.00	3.81	7.08	0.05	0.27	< 0.1	186	107	724	6.59	3.6	60	71.4	0.9	0.4	0.3	< 0.05	0.20	36.9	0.60	0.05	< 0.1
1470855	17.8	> 3.00	2.10	7.60	0.07	0.29	0.3	176	62.0	924	5.14	3.3	40	49.4	1.1	0.6	0.4	< 0.05	0.24	28.0	0.80	0.06	< 0.1
1470857	12.9	> 3.00	2.09	5.68	0.06	0.05	< 0.1	105	48.7	208	5.38	3.1	50	20.6	0.6	0.3	0.2	< 0.05	0.20	10.7	0.50	0.18	0.9
1470858	19.4	> 3.00	3.58	6.70	0.04	0.07	< 0.1	130	72.0	367	5.91	3.4	50	11.2	0.6	0.3	0.2	< 0.05	0.07	8.9	0.60	0.06	0.5
1470859	5.1	0.02	1.26	0.71	< 0.01	0.39	< 0.1	19	167	361	1.84	0.1	30	130	0.1	< 0.1	< 0.1	0.07	0.10	13.4	0.10	0.02	< 0.1
1470860	27.5	< 0.01	10.1	4.39	< 0.01	3.49	0.1	94	1510	1490	8.37	1.4	30	921	0.5	0.2	0.2	< 0.05	0.17	67.7	0.40	0.06	0.2
1470861	32.2	2.81	3.61	6.96	0.28	1.66	0.1	218	140	1160	7.33	1.0	40	48.5	1.2	0.3	0.4	< 0.05	3.09	40.2	0.60	0.02	< 0.1
1470862	12.3	> 3.00	2.88	6.31	0.21	3.68	< 0.1	273	13.1	1460	10.6	1.7	20	9.6	2.0	0.3	0.6	< 0.05	1.95	32.0	0.60	0.02	< 0.1
1470863	1.1	> 3.00	1.69	6.24	0.07	7.20	0.3	144	8.3	877	9.25	1.6	70	3.0	3.3	0.4	1.1	0.32	0.17	26.5	1.16	0.14	0.6
1470864	13.9	0.10	7.16	1.29	0.02	3.58	0.3	39	701	1060	5.20	0.2	70	708	0.4	< 0.1	0.2	0.24	0.73	57.2	0.30	0.17	0.2
1274001	31.4	1.90	3.29	6.72	1.14	4.19	0.2	51	154	813	5.39	1.5	70	177	0.8	0.6	0.3	0.06	1.01	30.8	0.75	0.02	< 0.1
1274002	18.5	2.05	1.83	7.79	1.81	2.34	< 0.1	85	141	623	3.62	2.3	60	130	0.8	1.0	0.3	< 0.05	2.30	20.5	0.58	0.03	< 0.1
1274004	26.8	1.35	3.03	6.40	1.06	4.88	< 0.1	37	198	884	5.50	1.2	50	191	1.0	0.9	0.4	0.22	1.02	34.5	1.10	0.06	< 0.1
1274005	25.5	2.93	2.80	7.65	1.26	1.09	< 0.1	100	127	461	4.91	2.7	60	153	0.6	1.0	0.2	< 0.05	0.88	29.0	0.70	0.02	< 0.1
1274006	30.4	2.29	3.21	7.01	0.75	2.12	< 0.1	107	288	660	6.90	1.9	50	424	1.0	1.0	0.4	< 0.05	1.51	51.9	1.50	0.05	< 0.1
1274007	17.9	1.86	1.90	7.01	2.14	3.53	< 0.1	83	83.6	735	3.82	2.2	30	78.1	0.7	1.0	0.2	< 0.05	2.29	18.9	0.70	0.03	< 0.1
1274008	18.4	1.67	1.11	6.04	1.14	0.40	0.2	79	105	514	3.89	1.6	20	54.7	0.7	0.8	0.3	< 0.05	1.23	16.2	0.60	1.51	< 0.1
1274010	29.3	2.31	1.58	6.93	1.07	0.90	< 0.1	100	129	627	5.64	1.8	20	81.9	1.0	0.8	0.4	< 0.05	0.99	23.9	0.90	0.25	< 0.1
1274011	19.6	2.14	1.09	6.85	1.47	1.23	0.2	68	124	556	3.93	2.2	70	65.4	0.9	0.8	0.4	< 0.05	1.13	18.0	0.80	0.22	< 0.1
1274012	24.3	1.84	2.70	6.74	1.21	3.90	0.3	154	304	1150	5.76	2.1	60	205	1.0	0.8	0.4	0.10	1.22	38.3	0.80	0.08	< 0.1
1274013	20.7	1.34	1.86	5.78	1.38	1.97	< 0.1	92	286	711	4.07	1.8	50	127	0.6	0.6	0.2	< 0.05	1.81	17.9	0.45	0.11	< 0.1
1274014	33.4	1.09	2.62	8.31	1.85	2.03	< 0.1	119	243	530	4.77	2.4	20	226	1.0	1.2	0.4	< 0.05	2.27	22.9	1.30	0.09	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274015	11.6	> 3.00	0.48	7.05	1.45	1.00	< 0.1	25	42.4	325	2.07	1.3	40	21.0	0.3	0.8	0.1	< 0.05	1.09	5.6	0.40	0.21	< 0.1
1274016	10.2	2.24	1.91	6.05	1.47	4.62	0.2	47	53.5	778	2.53	1.8	< 10	68.8	0.4	0.9	0.1	1.22	1.52	7.8	0.40	0.05	< 0.1
1274017	26.7	1.62	1.94	8.95	2.81	0.86	< 0.1	184	324	484	4.46	3.1	< 10	203	0.8	1.2	0.3	< 0.05	2.91	29.2	0.70	0.27	< 0.1
1274018	18.4	2.52	2.97	6.15	0.73	6.11	< 0.1	234	177	1120	6.82	1.4	20	102	1.8	0.9	0.6	< 0.05	2.96	40.5	1.40	0.04	< 0.1
1274019	18.1	2.48	3.48	6.74	0.38	5.28	< 0.1	244	172	1110	7.69	1.3	70	104	2.0	1.0	0.7	0.41	1.98	40.1	1.40	0.05	< 0.1
1274020	14.4	1.74	6.37	4.29	0.31	8.83	0.1	193	359	1620	7.78	1.2	80	369	1.5	2.2	0.5	0.23	3.25	52.7	1.60	0.04	< 0.1
1274021	14.3	> 3.00	1.81	7.37	0.85	2.19	0.1	73	78.3	630	4.10	2.4	50	66.7	0.9	1.1	0.3	< 0.05	1.67	18.5	0.70	0.04	< 0.1
1274022	22.8	2.70	3.71	7.81	0.13	3.29	0.1	148	232	723	7.02	1.4	50	112	1.6	1.1	0.6	0.06	0.53	37.0	1.30	0.06	< 0.1
1274023	19.9	2.12	3.28	6.42	0.67	6.22	0.2	116	318	1180	6.89	0.9	50	139	1.4	0.7	0.5	< 0.05	2.56	36.1	1.00	0.04	< 0.1
1274024	19.6	1.91	3.38	7.03	0.67	4.55	0.1	73	263	999	6.57	1.1	50	123	1.5	0.9	0.5	< 0.05	0.35	33.2	1.10	0.03	< 0.1
1274025	17.7	2.23	3.47	6.98	0.34	3.16	< 0.1	95	196	890	8.00	0.8	40	174	1.3	0.8	0.5	< 0.05	0.50	46.1	1.00	0.07	< 0.1
1274026	12.5	> 3.00	4.08	6.79	0.33	4.80	< 0.1	102	190	839	5.33	1.8	20	254	1.4	1.3	0.6	< 0.05	1.45	34.0	1.80	0.06	< 0.1
1274027	21.2	2.27	4.05	6.66	0.45	2.33	< 0.1	80	166	851	7.09	0.6	30	178	1.2	0.7	0.4	0.05	1.30	40.2	1.00	0.05	< 0.1
1274028	22.2	2.81	3.89	7.74	0.24	3.51	< 0.1	201	181	1200	8.99	1.7	80	181	1.7	0.9	0.6	0.29	0.41	49.9	1.20	0.04	< 0.1
1274029	0.9	0.04	0.07	0.17	0.04	0.12	< 0.1	4	17.5	298	1.93	< 0.1	50	3.8	0.1	< 0.1	< 0.1	0.22	0.09	1.6	< 0.05	0.03	< 0.1
1274031	25.5	> 3.00	2.34	7.17	1.04	3.23	< 0.1	79	85.5	812	4.55	1.2	70	79.7	1.0	0.8	0.3	0.09	2.92	22.5	0.70	0.11	< 0.1
1274032	19.6	> 3.00	2.18	7.32	0.97	2.97	< 0.1	35	98.3	680	4.94	0.8	40	87.1	1.0	0.9	0.4	0.07	3.30	22.3	0.80	0.05	< 0.1
1274033	12.0	2.13	3.06	6.87	0.40	5.56	< 0.1	29	174	1080	8.16	0.4	50	152	1.7	0.7	0.6	0.08	0.82	40.3	1.70	0.04	< 0.1
1274034	11.3	> 3.00	1.71	6.73	0.61	2.54	0.1	81	79.0	657	3.98	2.7	10	59.0	0.9	1.0	0.3	< 0.05	1.47	16.5	0.90	0.15	< 0.1
1274036	18.5	> 3.00	2.83	7.32	1.34	1.73	< 0.1	40	84.1	616	5.20	1.5	60	106	1.2	1.2	0.4	0.19	5.07	25.5	1.30	0.08	< 0.1
1274037	10.0	1.78	1.44	3.48	0.20	0.41	< 0.1	36	50.9	412	2.56	0.4	30	50.6	0.6	0.5	0.2	0.16	1.58	12.6	0.40	0.05	< 0.1
1274038	16.2	1.27	4.02	7.01	1.49	6.22	< 0.1	107	214	1160	9.41	0.6	30	577	1.3	0.5	0.5	0.14	2.53	78.1	0.90	0.04	0.4
1274039	8.2	> 3.00	0.94	7.61	1.84	1.43	< 0.1	82	30.8	378	4.02	4.4	< 10	5.7	0.6	1.7	0.3	< 0.05	1.50	13.5	1.20	0.08	< 0.1
1274040	11.0	> 3.00	1.03	9.07	2.91	1.46	< 0.1	78	8.8	454	4.56	4.4	20	6.0	0.8	2.0	0.4	< 0.05	3.12	14.0	1.70	0.13	< 0.1
1274041	15.2	2.80	2.89	7.04	0.57	7.05	0.2	165	184	1070	6.13	1.7	10	167	1.2	1.0	0.4	< 0.05	2.71	34.0	1.00	0.26	< 0.1
1274042	18.5	> 3.00	3.47	6.94	1.34	5.62	0.1	128	171	1140	6.24	1.9	50	136	1.3	1.2	0.4	< 0.05	6.16	36.3	1.10	0.13	< 0.1
1274043	20.0	1.33	2.83	6.95	0.84	7.48	< 0.1	91	185	1120	7.55	0.6	70	151	1.5	0.8	0.5	0.12	2.35	41.3	1.40	0.08	< 0.1
1274044	21.2	1.58	4.50	6.93	0.79	6.13	0.1	186	331	1180	8.29	2.1	70	241	1.3	0.9	0.5	0.09	2.61	59.9	1.50	0.36	0.2
1274045	22.3	2.00	3.67	6.83	0.94	6.20	< 0.1	86	317	879	5.94	0.8	70	266	1.3	1.2	0.5	0.09	2.73	40.0	1.20	0.09	< 0.1
1274046	6.9	> 3.00	3.51	6.72	0.58	5.86	< 0.1	33	172	907	6.82	0.4	60	231	1.2	1.1	0.5	0.08	0.69	35.6	1.10	0.03	< 0.1
1274047	7.5	> 3.00	3.66	6.65	0.69	5.55	< 0.1	113	177	913	6.67	1.1	30	238	1.2	1.0	0.5	< 0.05	0.58	38.6	1.00	0.02	< 0.1
1274048	22.9	2.45	4.12	6.89	0.16	4.84	< 0.1	114	198	1020	7.19	1.1	50	245	1.2	0.8	0.4	< 0.05	1.49	41.2	1.00	0.03	< 0.1
1274049	23.7	2.33	4.80	7.23	0.11	5.44	< 0.1	124	216	1050	7.09	1.1	10	248	1.3	0.9	0.5	< 0.05	0.26	44.3	1.10	0.02	< 0.1
1274080	15.9	2.01	2.67	6.64	1.45	5.11	0.1	63	156	865	6.03	0.9	20	172	1.1	1.0	0.4	< 0.05	6.53	33.0	1.20	0.09	< 0.1
1274081	13.7	1.39	1.87	6.46	1.14	5.31	0.2	48	252	911	5.39	1.4	110	145	1.1	1.0	0.4	0.37	1.68	31.6	1.20	0.15	< 0.1
1274083	17.9	2.64	3.19	6.98	0.63	3.35	< 0.1	52	155	778	6.01	1.0	90	164	1.3	0.8	0.5	0.14	0.66	35.2	1.10	0.06	< 0.1
1274084	15.1	2.97	3.61	7.14	0.12	2.93	< 0.1	50	230	889	7.66	1.0	50	183	1.7	1.0	0.7	0.06	0.75	40.5	2.00	0.08	< 0.1
1274085	48.5	> 3.00	2.79	7.29	1.01	3.18	< 0.1	145	133	861	5.96	3.0	< 10	124	1.3	1.4	0.5	< 0.05	4.18	31.0	1.20	0.10	< 0.1
1274086	46.9	2.09	1.87	6.73	1.28	1.55	< 0.1	115	311	1010	7.38	2.6	70	163	1.4	0.8	0.5	0.47	5.25	36.0	0.80	0.13	0.2
1274087	40.8	2.34	1.14	5.93	1.52	0.36	0.1	81	137	845	5.38	2.1	50	104	0.8	0.8	0.3	0.17	4.88	28.3	0.70	0.10	< 0.1
1274088	40.1	2.70	1.08	6.70	1.09	0.16	< 0.1	71	180	615	5.52	1.2	40	114	1.0	0.7	0.4	0.08	3.31	27.7	0.90	0.12	< 0.1
1274089	47.1	2.04	2.20	6.86	1.25	0.52	0.1	77	292	558	5.97	1.5	40	175	1.0	0.7	0.3	< 0.05	3.54	36.5	0.80	0.20	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274090	14.3	2.58	2.80	7.25	0.79	5.79	< 0.1	109	147	1040	6.39	1.5	20	146	1.4	0.9	0.5	< 0.05	1.93	34.0	1.00	0.08	< 0.1
1274093	0.8	0.05	0.09	0.17	0.02	0.14	0.2	9	20.7	457	1.89	< 0.1	110	3.9	< 0.1	< 0.1	< 0.1	0.36	0.13	2.9	0.10	0.06	0.1
1274094	24.1	2.14	3.95	7.15	1.09	7.04	< 0.1	187	230	1140	7.36	1.7	50	241	1.3	1.0	0.5	0.13	2.61	49.6	1.20	0.10	< 0.1
1274095	23.9	1.58	5.50	7.49	0.45	5.95	< 0.1	205	211	1200	9.52	1.1	50	325	1.6	0.7	0.6	0.09	0.90	62.0	1.60	0.17	< 0.1
1274096	21.7	> 3.00	0.53	6.78	1.43	0.78	< 0.1	43	54.6	320	2.57	1.9	40	38.5	0.5	1.0	0.2	< 0.05	3.26	9.8	0.50	0.06	< 0.1
1274097	15.1	> 3.00	4.23	7.03	0.22	5.87	< 0.1	202	187	1230	7.90	1.2	20	45.9	1.5	0.3	0.5	< 0.05	0.91	42.7	0.80	0.03	< 0.1
1274098	14.6	1.78	3.52	6.12	0.45	3.84	< 0.1	31	218	937	6.74	0.3	40	223	1.5	0.9	0.6	0.10	2.09	40.0	1.40	0.61	< 0.1
1274099	42.2	2.14	2.40	6.92	1.68	0.75	< 0.1	83	180	492	4.63	2.7	60	120	0.8	1.2	0.3	< 0.05	5.64	27.6	0.60	0.05	< 0.1
1274100	46.3	2.16	3.47	7.27	0.88	2.82	< 0.1	122	271	632	6.23	2.3	10	219	0.7	1.1	0.3	< 0.05	0.79	36.3	0.80	0.03	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470915	14.8	17.7	12.4	1.3	11.9	545	14	0.5	1.19	< 0.1	< 1	3.4	0.3	19	1.0	2.6	0.4	2.1	0.5	1.0	0.2	1.4	9.6
1470916	145	18.9	1.1	0.7	19.5	153	88	0.6	0.38	< 0.1	< 1	< 0.1	0.1	22	10.9	25.7	3.1	14.8	2.3	3.1	0.5	3.1	34.3
1470917	16.8	1.6	2.1	0.7	0.5	12.7	2	0.2	0.76	< 0.1	< 1	0.2	0.1	5	0.3	0.7	0.1	0.3	< 0.1	0.1	< 0.1	0.1	3.9
1470918	127	3.0	8.3	11.6	4.2	25.0	7	0.9	2.53	< 0.1	1	0.4	< 0.1	104	3.3	7.5	0.8	4.2	0.7	0.9	0.1	0.7	29.8
1470919	150	8.8	6.5	17.0	6.4	40.9	66	3.0	0.91	< 0.1	1	0.4	< 0.1	166	4.2	10.7	1.0	5.0	0.8	1.2	0.2	1.2	33.4
1470920	191	15.4	19.1	19.1	8.1	146	197	2.9	5.21	0.3	4	0.1	0.2	342	3.8	9.9	1.1	5.7	0.9	1.4	0.2	1.5	58.6
1470921	177	10.3	11.4	39.7	11.8	142	155	4.8	2.73	0.3	4	0.8	0.9	349	10.8	24.2	2.8	12.9	1.8	2.4	0.4	2.1	84.3
1470922	852	17.3	42.1	19.0	4.5	127	198	6.1	3.15	1.1	8	0.7	1.2	399	4.7	13.0	1.5	6.8	0.9	1.1	0.2	1.0	329
1470923	247	5.6	4.9	7.1	3.4	63.1	46	1.0	1.24	< 0.1	1	0.3	0.4	65	4.2	9.2	1.0	4.7	0.6	0.8	0.1	0.6	5.1
1470924	1160	8.9	7.5	27.9	13.3	281	116	2.9	1.33	0.5	3	0.3	0.3	265	9.5	23.3	2.6	12.6	1.8	2.5	0.4	2.2	150
1470925	53.2	5.2	4.5	18.5	9.0	94.9	11	1.1	0.72	< 0.1	< 1	0.1	0.1	212	4.6	10.9	1.3	6.6	1.1	1.5	0.2	1.5	52.3
1470926	56.4	7.5	< 0.1	1.1	8.8	41.8	6	0.1	0.11	< 0.1	< 1	0.1	0.1	16	1.5	3.9	0.5	3.1	0.8	1.1	0.2	1.4	37.3
1470927	122	12.0	0.2	1.1	16.5	99.8	13	0.2	0.16	< 0.1	< 1	0.3	< 0.1	19	1.8	4.9	0.8	4.1	1.0	1.8	0.3	2.3	49.8
1470929	50.9	6.0	17.8	48.5	5.2	37.9	64	2.6	7.27	< 0.1	1	0.5	0.2	351	9.5	21.2	2.3	10.4	1.5	1.5	0.2	1.0	18.5
1470930	41.9	18.4	3.1	96.1	4.6	44.6	141	4.9	0.59	< 0.1	1	0.5	< 0.1	587	15.0	33.6	3.8	17.3	1.9	1.8	0.2	0.9	5.3
1470931	83.5	11.0	10.8	16.9	7.2	184	36	1.4	1.33	< 0.1	< 1	0.5	0.8	113	2.4	5.9	0.8	4.7	1.1	1.4	0.2	1.3	556
1470932	62.1	6.1	9.7	27.5	3.7	101	21	0.9	1.76	< 0.1	1	0.8	0.4	175	0.9	2.4	0.4	2.2	0.6	0.7	0.1	0.6	839
1470933	33.6	4.7	15.8	23.6	2.4	101	15	0.6	0.81	< 0.1	1	0.7	0.3	150	0.8	2.2	0.3	1.9	0.5	0.5	0.1	0.4	28.3
1470934	110	17.5	2.7	8.1	23.8	211	131	6.1	0.54	< 0.1	5	0.3	0.3	163	9.4	23.9	2.9	14.1	2.4	3.4	0.6	3.8	61.7
1470935	2350	10.7	< 0.1	29.5	8.6	104	121	3.3	1.95	0.9	7	0.4	1.2	420	8.9	22.0	2.4	11.6	1.5	1.7	0.3	1.4	315
1470936	1970	15.0	6.9	39.2	21.5	135	269	11.2	2.19	0.7	8	0.4	0.8	342	25.3	55.2	6.4	29.4	4.0	5.3	0.8	4.2	294
1470937	143	9.7	14.3	13.5	4.9	44.2	71	1.4	1.08	< 0.1	2	0.2	0.4	227	5.2	11.0	1.3	6.2	0.9	1.1	0.2	0.8	85.9
1470939	39.1	9.6	2.6	53.6	4.3	47.8	26	0.6	0.44	< 0.1	< 1	0.5	0.1	275	1.8	4.9	0.7	3.9	0.8	0.9	0.1	0.7	10.0
1470940	64.4	9.8	< 0.1	40.5	6.0	43.2	20	0.5	0.24	< 0.1	< 1	0.1	< 0.1	272	1.6	4.6	0.7	3.9	0.8	1.1	0.2	1.0	331
1470941	62.9	10.2	12.6	38.2	5.7	49.1	21	0.7	1.93	< 0.1	< 1	0.2	0.5	255	1.7	4.7	0.7	4.0	0.9	1.0	0.2	1.0	225
1470942	71.7	12.9	4.5	20.0	6.5	46.7	21	0.5	0.99	< 0.1	< 1	0.1	0.3	123	2.3	6.5	1.0	5.6	1.1	1.2	0.2	1.1	16.2
1470943	17.7	4.6	2.3	18.9	4.1	16.6	12	0.4	1.17	< 0.1	< 1	0.4	0.2	114	1.2	3.0	0.4	2.1	0.6	0.7	0.1	0.7	151
1470944	36.2	7.6	< 0.1	55.3	6.3	58.4	35	0.2	0.40	< 0.1	< 1	0.1	< 0.1	284	2.3	5.9	0.9	4.8	1.0	1.2	0.2	1.1	89.4
1470945	12.2	2.8	3.5	19.2	3.0	24.5	10	0.5	1.62	< 0.1	< 1	0.8	< 0.1	99	1.1	2.8	0.4	2.2	0.5	0.6	0.1	0.5	1560
1470946	6.7	2.1	1.4	0.3	3.1	31.0	3	0.2	1.28	< 0.1	< 1	0.2	< 0.1	15	0.4	1.0	0.2	0.9	0.2	0.4	0.1	0.5	38.4
1470947	84.1	11.2	< 0.1	23.9	6.9	38.9	33	0.1	0.19	< 0.1	< 1	< 0.1	< 0.1	271	2.3	6.5	0.9	5.6	1.3	1.6	0.3	1.4	108
1470948	106	18.2	6.9	1.0	19.0	282	42	3.3	0.41	< 0.1	< 1	1.3	< 0.1	11	10.2	23.4	2.8	13.6	2.2	3.1	0.5	3.1	56.1
1470949	112	20.5	< 0.1	1.7	28.8	471	46	0.3	0.76	< 0.1	2	< 0.1	0.7	43	23.2	53.0	6.3	30.2	4.0	5.1	0.7	4.7	26.8
1470950	64.5	13.0	44.1	1.8	14.3	368	15	0.2	0.55	< 0.1	1	< 0.1	0.4	37	13.9	29.5	3.3	15.2	2.0	2.5	0.4	2.4	39.5
1470951	39.6	16.1	7.2	0.3	18.3	132	18	0.6	0.34	< 0.1	< 1	< 0.1	0.2	15	3.4	8.8	1.3	7.7	1.8	2.7	0.5	3.1	18.4
1470952	63.5	18.9	0.6	0.5	27.1	117	22	0.4	0.23	< 0.1	1	< 0.1	0.2	24	4.8	13.1	1.9	10.8	2.3	3.6	0.6	4.3	72.9
1470953	24.0	20.0	9.4	1.1	13.4	931	16	0.2	0.37	< 0.1	< 1	0.6	< 0.1	11	2.9	7.1	1.0	6.0	1.2	2.0	0.3	2.1	46.4
1470955	25.7	4.3	4.3	2.7	10.0	175	11	0.6	0.95	< 0.1	< 1	0.3	< 0.1	58	2.3	5.5	0.7	4.4	0.9	1.6	0.2	1.6	111
1470956	7.4	8.1	4.6	0.9	3.0	77.4	8	0.7	1.13	< 0.1	< 1	0.4	< 0.1	10	1.4	3.2	0.4	1.9	0.3	0.4	0.1	0.5	6.4
1470957	69.4	14.1	14.2	13.1	6.6	82.8	34	0.6	2.10	< 0.1	< 1	1.3	0.6	136	2.0	5.6	0.8	4.6	0.9	1.0	0.2	1.1	191
1470959	53.5	6.3	2.8	37.2	11.5	6.3	22	0.1	0.45	< 0.1	< 1	< 0.1	0.2	376	0.5	1.8	0.3	2.1	0.7	1.2	0.2	1.7	40.2
1470960	97.4	8.2	91.4	2.0	3.6	20.4	14	0.4	0.75	< 0.1	< 1	0.2	0.2	43	1.1	2.7	0.3	2.0	0.5	0.6	0.1	0.6	25.0

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470961	135	14.2	112	0.6	4.7	32.9	27	1.0	0.73	< 0.1	< 1	0.1	0.1	17	1.2	3.1	0.4	2.6	0.6	0.8	0.1	0.8	20.1
1470962	138	7.7	50.4	3.4	4.5	70.8	14	0.6	0.50	< 0.1	< 1	0.2	0.1	51	0.7	2.0	0.3	1.9	0.5	0.7	0.1	0.8	60.7
1470963	90.2	8.8	44.0	0.3	5.1	75.1	32	0.6	0.65	< 0.1	< 1	0.2	0.1	6	0.5	1.5	0.3	1.5	0.4	0.6	0.1	0.8	191
1470964	73.1	8.2	75.3	0.4	7.8	89.7	26	0.9	0.74	< 0.1	< 1	0.3	< 0.1	16	1.8	4.3	0.6	3.0	0.7	1.2	0.2	1.2	48.0
1470965	101	11.2	209	0.7	6.4	38.0	28	0.6	1.49	< 0.1	< 1	0.1	0.7	14	0.7	2.0	0.3	1.9	0.5	1.0	0.2	1.0	51.2
1470966	38.1	3.7	36.7	0.2	4.7	190	6	0.3	0.73	< 0.1	< 1	0.1	0.4	6	0.7	2.0	0.3	1.9	0.6	0.9	0.1	0.8	71.9
1470967	16.1	16.5	2.2	16.0	6.3	129	118	2.1	0.62	< 0.1	1	0.2	0.2	216	10.6	24.1	2.6	11.8	1.4	1.5	0.2	1.0	17.5
1470968	71.5	5.5	154	27.4	6.3	35.2	32	0.4	0.69	< 0.1	< 1	< 0.1	0.2	282	0.8	2.3	0.4	2.2	0.6	0.9	0.2	1.1	58.6
1470969	102	8.1	62.5	7.9	4.0	50.5	13	0.5	0.62	< 0.1	< 1	0.4	0.1	76	0.7	2.0	0.3	1.9	0.4	0.6	0.1	0.7	53.2
1470970	88.0	14.4	2.7	24.1	7.3	28.5	43	1.1	0.31	< 0.1	< 1	0.3	< 0.1	222	2.6	7.3	1.0	5.9	1.1	1.2	0.2	1.2	129
1470646	2450	10.9	61.9	21.0	7.8	94.4	90	2.6	3.80	1.5	6	1.1	1.7	178	7.2	15.9	1.8	8.3	1.1	1.4	0.2	1.3	446
1470647	811	11.4	8.5	29.3	9.6	92.3	171	5.2	0.76	0.2	7	0.4	0.4	257	10.7	24.0	2.7	12.4	1.8	1.9	0.3	1.6	105
1470648	1280	11.3	34.8	49.5	5.8	39.6	112	3.9	2.83	1.1	11	0.4	1.3	443	6.5	13.1	1.4	6.0	0.8	1.0	0.2	1.0	236
1470649	1010	13.8	22.7	39.5	7.6	46.0	138	4.7	2.01	1.1	12	0.6	0.8	309	9.2	19.8	2.1	9.3	1.3	1.7	0.2	1.3	215
1470650	918	21.9	48.0	57.9	8.0	131	167	5.2	2.26	0.8	11	1.0	0.9	333	19.9	46.1	5.2	23.1	2.6	3.0	0.3	1.7	134
1470651	690	11.7	33.4	42.6	6.8	167	115	3.9	3.04	0.6	7	0.7	0.8	402	9.5	22.3	2.5	11.4	1.4	1.7	0.2	1.2	192
1470652	732	7.5	15.0	36.3	10.3	127	90	3.0	1.93	0.4	5	0.6	0.5	352	12.3	27.3	3.2	14.1	2.0	2.4	0.3	1.7	177
1470653	21.3	7.3	21.6	64.9	4.0	36.8	76	3.2	4.15	0.3	8	0.5	0.7	815	2.6	6.3	0.5	2.5	0.3	0.6	0.1	0.7	319
1470654	103	16.1	35.8	42.4	14.1	52.4	267	10.0	8.94	0.5	9	0.6	1.1	337	16.0	31.0	2.6	8.8	1.1	1.9	0.4	2.4	181
1470655	119	14.3	17.3	29.3	16.4	24.2	277	10.9	6.43	0.8	7	0.7	0.7	369	10.3	19.3	1.9	8.4	1.5	2.5	0.4	2.8	298
1470657	2370	13.9	2.0	38.3	9.4	156	146	4.9	2.61	0.9	9	0.5	0.9	400	14.8	34.8	3.7	16.5	2.0	2.4	0.3	1.6	401
1470658	1720	15.6	1.8	34.7	8.2	114	162	5.0	3.31	0.8	8	0.5	1.5	372	15.2	34.8	3.9	17.6	2.0	2.4	0.3	1.5	320
1470660	4870	18.3	1.1	38.2	7.3	110	134	4.3	2.58	2.3	18	0.5	2.0	386	14.4	32.9	3.7	16.8	2.0	2.2	0.3	1.4	815
1470661	67.7	12.5	5.6	2.1	5.4	178	39	1.4	0.70	< 0.1	< 1	0.8	0.4	22	3.1	7.9	1.0	6.0	1.1	1.3	0.2	0.9	126
1470662	33.8	4.0	3.3	2.9	2.9	51.3	5	0.3	0.55	< 0.1	< 1	0.3	0.2	32	0.7	2.0	0.3	1.9	0.4	0.6	0.1	0.5	7.7
1470663	41.2	6.0	4.0	2.5	10.8	122	9	0.7	0.80	< 0.1	< 1	0.4	0.1	22	0.7	1.9	0.3	1.5	0.3	0.6	0.1	0.6	2.9
1470664	115	10.3	10.6	34.5	14.4	64.5	256	8.7	5.51	0.2	6	0.4	0.2	482	10.9	26.9	2.9	12.3	1.7	2.3	0.4	2.4	167
1470665	115	8.0	12.4	38.5	9.4	169	118	3.9	3.95	0.4	7	0.5	0.2	509	12.6	27.5	3.0	14.2	1.8	2.1	0.3	1.5	390
1470666	106	22.1	24.7	0.7	24.1	92.8	99	2.7	0.30	< 0.1	2	0.1	0.1	10	9.6	24.4	2.7	13.5	2.4	3.3	0.6	3.7	37.0
1470667	2240	15.1	7.0	9.1	10.8	75.5	150	4.2	1.86	1.0	10	0.8	0.8	398	13.5	31.8	3.2	14.3	1.8	2.2	0.3	1.8	409
1470668	1530	< 0.1	6.8	31.1	13.4	110	149	5.8	3.00	1.1	7	0.5	0.9	1060	15.6	33.9	4.0	18.3	2.2	2.6	0.4	2.3	186
1470669	130	27.5	9.5	0.9	12.1	87.3	188	5.8	1.30	< 0.1	< 1	< 0.1	0.4	15	12.3	27.4	3.3	15.9	2.4	3.1	0.5	2.5	223
1470670	170	22.2	5.8	1.6	36.8	91.3	66	9.6	0.93	0.1	3	0.6	0.3	13	32.7	71.9	8.6	39.4	4.5	6.4	1.0	6.0	519
1470671	74.5	17.4	1.4	7.3	4.5	283	93	4.3	0.59	< 0.1	1	0.4	0.2	119	15.7	34.8	3.9	17.3	1.6	1.5	0.2	0.8	7.6
1470672	5.2	1.2	6.3	0.5	0.5	1.0	< 1	0.2	0.66	< 0.1	< 1	0.3	< 0.1	5	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	17.2
1470673	71.8	17.6	10.0	7.9	21.0	545	11	0.5	0.93	< 0.1	1	< 0.1	0.8	75	3.5	10.0	1.4	7.0	1.6	3.0	0.5	3.3	75.0
1470674	19.5	4.2	4.6	0.7	1.6	5.7	4	0.3	0.89	< 0.1	< 1	0.2	0.3	5	0.3	0.9	0.1	0.5	0.1	0.2	< 0.1	0.3	12.6
1470675	12.2	3.6	5.2	0.6	2.9	22.8	5	0.6	1.13	< 0.1	< 1	0.3	0.2	5	0.2	0.4	0.1	0.4	0.2	0.4	0.1	0.5	9.9
1470676	123	11.9	2.1	1.1	7.0	10.6	50	2.3	1.02	< 0.1	< 1	0.3	0.1	7	1.4	5.4	0.5	2.5	0.5	1.1	0.2	1.1	9.7
1470677	113	7.6	3.7	0.4	5.0	15.6	7	0.3	0.69	< 0.1	< 1	< 0.1	0.5	55	0.6	1.8	0.3	1.6	0.5	0.8	0.1	0.8	15.0
1470678	118	17.5	2.2	3.4	6.3	43.1	30	0.3	0.34	< 0.1	< 1	< 0.1	0.1	37	2.4	6.8	1.0	5.5	1.0	1.2	0.2	1.0	140
1470680	77.3	13.1	< 0.1	18.2	6.1	52.2	24	0.2	0.15	< 0.1	< 1	< 0.1	< 0.1	152	2.0	5.7	0.8	4.5	0.8	1.1	0.2	1.0	73.2

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470681	95.2	12.9	< 0.1	24.2	6.0	42.4	25	0.4	0.16	< 0.1	< 1	0.2	< 0.1	188	2.2	6.2	0.9	5.1	1.0	1.2	0.2	1.0	135
1470682	78.6	12.4	0.4	16.6	4.9	25.2	30	1.1	1.17	< 0.1	< 1	0.2	0.7	170	2.0	5.7	0.9	4.6	0.8	1.0	0.1	0.8	119
1470683	65.1	18.8	5.2	0.5	28.0	251	39	0.3	0.37	< 0.1	< 1	0.1	0.3	7	3.6	10.7	1.6	8.6	2.0	3.5	0.6	4.2	155
1470835	94.4	11.0	84.9	0.7	4.2	30.8	35	0.5	1.58	< 0.1	< 1	< 0.1	0.3	40	2.7	6.8	0.9	4.1	0.7	0.8	0.1	0.8	19.8
1470836	77.8	14.2	33.2	0.2	4.8	8.5	52	0.7	0.42	< 0.1	< 1	< 0.1	0.1	18	3.7	10.6	1.0	4.9	0.8	1.1	0.2	0.9	21.7
1470837	72.6	12.7	14.8	0.3	4.9	42.1	41	1.6	0.43	< 0.1	< 1	< 0.1	0.1	17	2.7	6.7	0.9	4.3	0.8	1.1	0.2	0.9	57.6
1470838	69.2	12.2	< 0.1	0.2	14.2	36.9	30	2.5	0.47	< 0.1	1	0.3	0.1	18	1.9	5.4	0.8	4.2	1.1	2.0	0.4	2.3	59.9
1470839	65.4	10.8	8.9	< 0.2	11.7	43.4	26	2.0	0.42	< 0.1	< 1	0.4	< 0.1	15	2.0	5.4	0.7	3.7	0.9	1.6	0.3	1.8	82.9
1470840	94.2	16.9	12.9	< 0.2	14.7	28.1	44	2.1	0.27	< 0.1	< 1	< 0.1	< 0.1	10	2.5	6.7	0.9	4.8	1.1	2.2	0.4	2.4	187
1470842	68.8	11.2	1.4	0.2	11.8	40.6	21	1.9	0.42	< 0.1	< 1	0.3	< 0.1	10	2.9	7.2	0.9	4.6	0.9	1.6	0.3	1.9	21.3
1470843	20.8	7.6	1.1	1.4	2.3	44.9	5	0.5	1.28	< 0.1	< 1	0.3	0.7	74	0.8	1.7	0.2	1.0	0.2	0.3	0.1	0.4	4.6
1470844	53.9	23.9	3.5	10.3	24.0	61.7	114	2.0	0.65	< 0.1	< 1	0.1	0.4	46	5.6	14.1	1.7	9.6	1.8	2.8	0.5	3.6	6.5
1470845	39.9	16.4	32.7	15.0	19.9	116	166	0.2	0.52	< 0.1	1	< 0.1	0.2	177	5.6	18.1	1.7	8.7	1.5	2.7	0.5	3.1	31.6
1470846	79.4	17.4	7.5	6.5	25.0	160	114	1.0	0.20	< 0.1	< 1	< 0.1	0.1	83	9.9	24.9	2.9	14.8	2.4	3.6	0.6	3.9	43.6
1470847	73.3	17.1	2.5	0.3	16.5	87.4	29	1.0	0.78	< 0.1	1	0.2	0.4	12	3.5	8.3	1.0	5.8	1.3	2.1	0.4	2.5	52.4
1470848	29.1	4.0	31.9	11.5	5.0	38.7	17	1.3	0.57	< 0.1	1	0.2	0.2	185	1.6	4.0	0.5	3.2	0.8	1.0	0.2	0.8	15.6
1470849	55.4	14.4	15.1	4.9	4.8	37.0	50	0.6	0.34	< 0.1	< 1	0.1	< 0.1	58	4.2	9.3	1.0	5.2	0.9	0.9	0.1	0.8	15.9
1470850	37.6	6.7	16.0	3.4	5.4	11.6	17	1.0	0.83	< 0.1	1	0.2	< 0.1	22	2.6	5.3	0.6	3.4	0.7	1.0	0.2	0.8	30.8
1470851	35.9	12.5	14.3	10.1	3.0	169	34	1.5	1.51	< 0.1	3	0.6	< 0.1	388	1.2	4.5	0.3	1.6	0.3	0.6	0.1	0.5	9.4
1470852	90.6	13.5	27.1	12.2	8.7	62.1	77	2.5	1.30	< 0.1	< 1	0.1	0.8	183	4.7	12.1	1.5	7.7	1.5	1.8	0.3	1.5	38.9
1470854	56.6	18.7	13.7	0.9	8.5	13.0	170	3.7	1.36	< 0.1	< 1	< 0.1	0.4	23	13.8	31.4	3.6	16.6	2.1	2.3	0.3	1.6	5.1
1470855	70.4	21.4	12.2	0.9	9.8	23.7	155	3.1	1.28	< 0.1	1	0.1	0.2	47	17.0	38.8	4.1	19.0	2.5	2.9	0.4	1.9	18.0
1470857	50.6	17.5	8.9	1.0	5.8	11.6	143	4.2	2.66	< 0.1	2	0.2	0.2	30	14.0	31.2	3.2	14.5	1.7	1.7	0.2	1.0	82.2
1470858	58.3	20.6	8.0	0.2	5.5	9.3	172	3.9	1.18	< 0.1	1	< 0.1	0.2	14	11.4	27.1	2.8	12.5	1.5	1.5	0.2	0.9	38.4
1470859	22.9	2.3	22.0	0.2	1.0	0.3	2	0.2	0.76	< 0.1	< 1	0.2	< 0.1	8	0.5	1.1	0.1	0.6	0.1	0.1	< 0.1	0.2	29.0
1470860	113	12.8	183	< 0.2	4.4	16.8	63	1.2	1.72	< 0.1	< 1	0.1	< 0.1	24	3.8	9.0	1.1	5.6	1.0	1.1	0.1	0.8	12.5
1470861	66.1	14.6	2.5	10.4	11.9	56.9	47	0.4	0.12	< 0.1	< 1	0.1	< 0.1	112	4.2	9.9	1.2	6.2	1.3	1.9	0.3	2.0	6.7
1470862	92.7	18.5	7.7	19.4	19.2	121	81	0.5	0.44	< 0.1	< 1	< 0.1	< 0.1	83	4.3	10.4	1.2	6.3	1.3	2.2	0.4	2.8	25.2
1470863	39.2	25.4	231	1.1	31.0	326	57	0.5	1.09	0.1	2	0.1	0.7	26	11.5	24.5	2.9	13.6	2.7	4.2	0.7	4.8	105
1470864	87.1	3.5	46.2	0.5	4.1	12.5	8	0.4	1.77	< 0.1	1	0.5	0.4	16	1.4	2.8	0.3	1.8	0.4	0.7	0.1	0.7	141
1274001	77.0	14.4	11.6	33.6	7.3	246	68	0.6	0.48	< 0.1	< 1	< 0.1	0.2	259	9.4	21.8	2.8	13.3	2.0	2.3	0.3	1.4	6.6
1274002	59.7	14.8	2.0	60.1	7.1	329	102	3.9	0.78	< 0.1	1	0.6	0.2	391	8.9	20.7	2.5	11.2	1.4	1.7	0.2	1.4	61.6
1274004	89.7	10.4	9.7	28.9	10.6	311	55	0.3	1.41	< 0.1	< 1	< 0.1	0.3	402	17.7	41.6	4.9	23.9	2.9	3.2	0.4	2.0	49.0
1274005	79.0	9.5	2.8	24.6	6.0	259	120	1.9	0.86	< 0.1	< 1	0.4	0.2	640	10.9	26.5	3.0	14.5	1.8	1.9	0.2	1.2	44.6
1274006	92.2	15.9	4.4	24.5	10.5	291	88	0.8	1.12	< 0.1	< 1	< 0.1	0.2	230	18.9	45.6	5.5	25.7	3.1	3.3	0.4	2.2	143
1274007	69.3	15.2	0.5	61.7	7.3	231	98	1.3	0.44	< 0.1	< 1	0.1	< 0.1	374	13.6	29.9	3.3	15.4	1.8	2.1	0.3	1.3	27.4
1274008	66.9	12.5	5.2	39.7	7.4	185	70	0.2	0.38	< 0.1	< 1	0.1	0.1	282	13.9	31.2	3.4	15.0	1.6	1.9	0.2	1.3	47.8
1274010	83.0	15.2	6.8	36.1	9.7	184	79	0.2	0.20	< 0.1	< 1	< 0.1	< 0.1	278	20.7	46.1	5.1	22.7	2.6	2.8	0.3	1.9	69.1
1274011	73.7	10.7	0.7	44.1	9.7	187	86	0.7	0.65	< 0.1	1	0.2	< 0.1	329	18.5	40.8	4.4	19.1	2.1	2.3	0.3	1.7	35.0
1274012	90.0	11.4	< 0.1	36.1	10.0	225	103	3.5	0.98	< 0.1	1	0.3	0.4	340	14.6	33.4	3.9	18.1	2.1	2.3	0.3	1.8	37.0
1274013	73.3	10.4	12.4	37.5	5.7	314	79	1.5	1.22	< 0.1	< 1	0.4	0.2	309	10.1	22.5	2.3	10.3	1.0	1.3	0.2	1.0	24.9
1274014	121	14.1	26.2	46.9	10.0	351	104	2.4	0.52	< 0.1	< 1	0.1	0.1	483	33.4	72.6	7.7	34.8	3.4	3.7	0.4	2.0	19.2

Results

Activation Laboratories Ltd.

Report: A16-11882

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274015	50.8	12.4	3.5	34.3	3.2	374	51	0.3	0.34	< 0.1	< 1	0.1	0.1	425	8.2	19.1	1.9	8.3	1.0	1.0	0.1	0.6	9.5
1274016	56.1	9.8	6.6	37.6	4.2	484	78	2.0	1.38	< 0.1	1	0.3	< 0.1	319	10.5	22.9	2.4	10.7	1.1	1.3	0.1	0.8	7.7
1274017	89.0	17.8	20.3	66.8	7.3	389	128	3.8	2.12	< 0.1	1	0.2	< 0.1	520	13.4	32.5	3.7	15.9	1.8	1.8	0.3	1.4	61.6
1274018	98.1	12.0	< 0.1	14.8	17.9	808	64	8.2	1.00	< 0.1	2	0.5	< 0.1	366	25.6	60.0	7.1	33.6	3.9	4.4	0.6	3.2	55.7
1274019	109	16.9	0.1	10.6	20.2	501	51	8.1	1.52	< 0.1	2	0.2	0.7	232	25.7	60.3	7.1	34.2	4.1	4.7	0.6	3.5	67.2
1274020	102	10.1	< 0.1	11.5	15.6	565	50	11.7	0.98	< 0.1	< 1	0.1	0.4	110	58.6	128	14.2	58.3	3.9	4.4	0.5	2.8	15.9
1274021	70.3	14.6	< 0.1	25.6	9.2	491	108	2.1	0.42	< 0.1	< 1	0.1	0.2	414	10.5	24.8	2.8	13.0	1.9	1.9	0.3	1.6	21.1
1274022	98.3	23.0	< 0.1	4.8	16.0	588	55	6.2	0.68	< 0.1	1	0.2	0.2	60	20.0	49.7	5.8	28.1	3.4	3.7	0.5	2.9	23.8
1274023	89.8	12.1	< 0.1	22.4	14.1	444	39	0.9	0.24	< 0.1	< 1	< 0.1	0.1	281	15.8	38.6	4.6	22.3	3.0	3.1	0.4	2.5	60.6
1274024	91.1	12.4	< 0.1	10.9	14.6	399	49	0.5	0.12	< 0.1	< 1	< 0.1	< 0.1	366	16.2	39.7	4.8	22.5	2.9	3.4	0.4	2.6	49.6
1274025	105	19.9	< 0.1	8.5	13.3	384	35	0.2	0.09	< 0.1	< 1	< 0.1	< 0.1	84	14.6	36.3	4.3	21.1	2.7	3.1	0.4	2.4	88.6
1274026	80.1	15.8	< 0.1	9.7	15.7	413	85	1.2	0.30	< 0.1	1	0.2	< 0.1	135	30.4	76.3	9.4	47.0	5.4	5.6	0.6	3.1	37.1
1274027	102	14.4	< 0.1	15.1	12.5	233	27	0.6	0.30	< 0.1	< 1	< 0.1	< 0.1	196	14.5	35.2	4.3	20.5	2.7	3.1	0.4	2.2	47.5
1274028	115	21.6	< 0.1	5.4	17.0	395	80	5.9	1.13	< 0.1	< 1	< 0.1	0.8	111	17.6	43.1	5.2	25.4	3.1	3.5	0.5	3.0	68.0
1274029	2.0	0.5	1.7	0.8	0.4	8.3	1	0.5	1.18	< 0.1	< 1	0.3	0.4	25	0.4	1.0	0.1	0.5	< 0.1	0.1	< 0.1	0.1	13.8
1274031	92.9	18.3	10.6	28.2	10.1	425	58	2.5	0.63	< 0.1	1	0.2	0.3	334	10.6	24.7	2.9	14.0	1.9	2.3	0.3	1.8	51.6
1274032	86.4	20.7	0.1	32.7	10.6	466	33	0.9	0.28	< 0.1	< 1	< 0.1	0.1	236	11.9	27.8	3.2	15.8	2.2	2.3	0.3	1.9	42.8
1274033	109	22.7	1.0	13.3	17.7	568	13	0.2	0.16	< 0.1	< 1	< 0.1	< 0.1	163	8.8	25.4	3.6	22.2	3.9	4.6	0.6	3.5	120
1274034	59.3	17.0	1.5	18.5	10.0	641	126	5.0	0.58	< 0.1	1	1.0	0.1	209	17.4	38.5	4.3	19.6	2.3	2.4	0.3	1.8	20.5
1274036	81.1	8.9	11.5	44.4	13.0	488	65	0.6	1.58	< 0.1	< 1	< 0.1	0.3	599	23.7	53.1	6.0	27.4	3.2	3.7	0.4	2.4	44.3
1274037	37.7	8.7	4.0	13.1	6.1	200	13	1.4	0.80	< 0.1	1	0.1	0.2	72	4.9	11.8	1.3	6.3	0.9	1.1	0.2	1.0	9.5
1274038	97.5	7.2	3.9	49.3	13.2	329	25	1.1	2.82	< 0.1	1	0.3	0.1	569	10.5	26.6	3.3	17.4	2.7	2.9	0.4	2.4	186
1274039	58.0	3.7	0.6	38.9	8.2	345	218	7.6	2.77	< 0.1	2	0.5	0.1	875	45.6	99.4	9.4	38.4	3.3	3.3	0.3	1.6	23.1
1274040	90.0	< 0.1	0.7	77.5	10.5	443	228	2.5	0.57	< 0.1	1	< 0.1	0.1	1360	62.3	134	13.0	54.1	4.6	4.4	0.5	2.2	2.7
1274041	61.7	21.6	2.4	20.8	11.9	> 1000	74	1.0	0.87	< 0.1	1	0.3	< 0.1	200	19.8	45.3	5.1	23.3	2.6	2.8	0.3	2.1	84.8
1274042	75.4	8.5	0.3	48.2	13.1	643	80	0.6	1.07	< 0.1	1	0.3	< 0.1	443	22.6	51.5	5.8	26.1	3.0	3.2	0.4	2.3	43.0
1274043	87.3	10.9	0.9	23.1	15.4	839	67	1.4	0.63	< 0.1	< 1	0.2	0.3	425	27.9	62.7	7.4	34.3	4.2	4.2	0.5	2.8	45.8
1274044	89.5	14.8	2.7	23.3	13.7	831	92	5.3	8.57	< 0.1	2	0.4	0.3	306	28.7	62.4	7.2	33.3	3.5	3.8	0.5	2.4	234
1274045	66.7	6.6	1.6	27.1	13.2	663	35	0.2	0.39	< 0.1	< 1	< 0.1	0.1	517	30.4	64.4	7.2	32.5	3.5	3.7	0.4	2.4	83.6
1274046	59.4	15.5	< 0.1	5.0	12.9	606	17	0.3	0.24	< 0.1	< 1	< 0.1	0.1	249	11.7	29.1	3.7	18.5	2.8	3.2	0.4	2.4	55.0
1274047	63.2	12.4	< 0.1	5.0	13.4	459	52	0.7	0.53	< 0.1	< 1	< 0.1	< 0.1	302	11.6	28.5	3.7	18.5	2.9	3.3	0.4	2.4	92.1
1274048	88.8	19.1	< 0.1	5.5	12.1	444	48	1.9	0.56	< 0.1	< 1	< 0.1	< 0.1	86	11.5	28.4	3.6	18.6	2.4	3.1	0.4	2.3	76.9
1274049	95.7	20.0	< 0.1	2.3	13.1	469	46	2.0	0.77	< 0.1	< 1	< 0.1	< 0.1	60	11.7	28.7	3.7	18.8	2.8	3.1	0.4	2.4	117
1274080	72.4	8.5	< 0.1	45.9	11.8	465	41	0.8	0.62	< 0.1	< 1	0.1	< 0.1	545	24.5	55.2	6.5	29.7	3.3	3.5	0.4	2.2	65.5
1274081	80.2	14.3	1.2	30.6	12.0	290	66	0.6	0.91	< 0.1	1	0.2	0.6	244	24.4	54.9	6.4	30.3	3.3	3.4	0.4	2.2	46.5
1274083	94.1	15.7	< 0.1	17.6	13.6	232	51	0.3	0.54	< 0.1	< 1	< 0.1	0.3	244	14.0	34.0	4.0	19.3	3.1	3.4	0.4	2.4	45.1
1274084	126	21.0	< 0.1	5.8	18.4	255	46	0.3	0.30	< 0.1	< 1	< 0.1	0.2	66	16.4	41.0	5.2	27.4	4.5	5.1	0.7	3.5	42.9
1274085	86.8	6.7	64.9	29.6	13.0	698	148	2.7	0.37	< 0.1	1	0.2	0.1	600	35.3	74.6	7.8	34.0	3.2	3.6	0.4	2.3	60.3
1274086	113	9.4	3.8	38.2	12.6	263	124	0.1	0.50	< 0.1	< 1	< 0.1	< 0.1	515	14.0	32.5	3.7	17.0	2.4	3.0	0.4	2.5	53.8
1274087	81.1	9.5	15.4	37.8	7.8	204	107	0.1	0.12	< 0.1	< 1	< 0.1	< 0.1	452	13.9	32.4	3.4	16.1	2.0	2.3	0.3	1.5	25.7
1274088	88.5	13.1	13.4	30.5	9.9	185	66	0.2	0.10	< 0.1	< 1	< 0.1	< 0.1	272	18.2	46.6	4.5	20.7	2.1	2.9	0.4	1.9	39.7
1274089	102	15.8	2.0	37.3	9.5	229	71	0.1	0.12	< 0.1	< 1	< 0.1	< 0.1	344	19.6	40.1	4.4	20.2	2.0	2.8	0.3	1.9	58.5

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274090	88.7	15.6	< 0.1	22.9	14.0	575	62	1.2	0.37	< 0.1	< 1	< 0.1	< 0.1	341	14.4	32.9	3.9	19.0	2.8	3.3	0.4	2.5	24.6
1274093	4.2	0.9	1.6	0.6	0.4	14.9	2	0.3	2.90	< 0.1	< 1	0.4	0.7	13	3.0	8.5	0.7	3.1	0.3	0.3	< 0.1	0.1	17.6
1274094	77.6	6.8	< 0.1	25.4	13.8	523	71	4.7	2.07	< 0.1	1	0.2	0.5	535	30.4	64.5	7.0	32.4	3.2	3.7	0.5	2.4	91.9
1274095	109	17.0	< 0.1	10.4	16.2	561	46	5.5	2.02	< 0.1	< 1	0.1	0.3	242	28.5	64.4	7.4	35.9	4.2	4.5	0.5	3.0	161
1274096	59.9	10.2	0.2	37.4	5.4	377	93	0.6	1.53	< 0.1	1	0.1	0.1	476	15.5	33.0	3.4	14.3	1.3	1.4	0.2	1.0	24.7
1274097	79.5	13.6	5.1	4.0	15.0	235	53	0.8	0.40	< 0.1	< 1	< 0.1	0.1	103	2.8	7.1	1.0	5.3	1.1	2.0	0.3	2.3	26.1
1274098	108	15.3	< 0.1	20.1	16.2	356	14	0.1	0.19	< 0.1	< 1	< 0.1	< 0.1	180	16.0	37.5	4.7	24.4	3.4	4.2	0.6	3.0	39.7
1274099	66.0	12.5	1.5	44.5	7.4	165	120	0.2	0.47	< 0.1	< 1	< 0.1	< 0.1	523	9.1	23.1	2.5	11.8	1.7	1.8	0.2	1.4	82.4
1274100	95.8	17.0	4.0	25.0	6.5	246	108	4.3	0.52	< 0.1	< 1	0.4	< 0.1	209	10.7	25.5	3.1	15.3	2.3	2.3	0.3	1.3	43.8

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470915	0.4	0.2	1.3	0.2	< 0.1	0.4	< 0.001	< 0.05	4.3	16	0.2	< 0.1	0.149	0.009	< 0.01
1470916	< 0.1	0.3	1.9	0.3	< 0.1	0.2	< 0.001	< 0.05	2.2	25	1.6	0.3	0.291	0.050	0.19
1470917	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	1	0.1	< 0.1	0.0167	0.002	< 0.01
1470918	< 0.1	0.1	0.4	< 0.1	< 0.1	0.5	0.001	0.08	1.7	5	0.4	0.1	0.109	0.027	0.02
1470919	< 0.1	0.1	0.7	0.1	0.2	0.8	< 0.001	0.13	2.0	16	0.8	0.2	0.351	0.038	0.15
1470920	0.1	0.2	1.3	0.2	0.1	0.6	0.003	0.35	4.8	22	1.7	0.6	0.565	0.052	0.24
1470921	< 0.1	0.2	1.5	0.2	0.3	2.6	0.003	0.36	3.8	14	2.0	0.5	0.358	0.048	0.74
1470922	< 0.1	0.1	0.8	0.1	0.4	1.6	0.005	0.65	22.5	14	1.2	0.5	0.450	0.063	0.14
1470923	0.1	< 0.1	0.4	0.1	< 0.1	0.3	< 0.001	0.08	4.0	3	0.6	0.2	0.128	0.028	0.05
1470924	0.1	0.2	1.2	0.2	0.1	0.7	0.006	0.30	8.0	11	1.5	0.4	0.325	0.059	0.25
1470925	< 0.1	0.2	1.1	0.2	< 0.1	0.3	0.005	0.17	1.5	14	0.6	0.1	0.324	0.048	0.03
1470926	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.001	< 0.05	0.9	30	0.1	0.1	0.233	0.012	< 0.01
1470927	0.2	0.3	1.7	0.2	< 0.1	< 0.1	0.001	< 0.05	3.5	38	0.2	< 0.1	0.268	0.018	0.02
1470929	< 0.1	0.1	0.6	0.1	0.1	3.6	0.004	0.35	2.9	11	0.9	0.5	0.278	0.031	0.12
1470930	< 0.1	0.1	0.5	0.1	0.3	4.9	< 0.001	0.74	2.3	9	2.7	0.8	0.362	0.057	0.03
1470931	0.1	0.1	0.9	0.1	0.1	2.0	< 0.001	0.15	3.2	32	0.2	0.1	0.305	0.012	0.84
1470932	0.1	0.1	0.5	0.1	< 0.1	3.9	0.008	0.19	2.0	25	0.1	0.1	0.236	0.003	0.40
1470933	< 0.1	< 0.1	0.3	< 0.1	< 0.1	3.6	< 0.001	0.16	1.3	21	0.1	0.8	0.179	0.006	0.78
1470934	1.6	0.4	2.5	0.4	0.4	0.6	0.001	0.05	3.4	32	1.4	0.3	0.643	0.072	0.14
1470935	< 0.1	0.2	1.0	0.1	0.2	0.8	0.002	0.40	53.5	10	1.3	0.4	0.306	0.060	0.97
1470936	< 0.1	0.4	2.8	0.5	0.8	0.6	0.002	0.40	23.4	12	3.7	0.9	0.319	0.042	1.34
1470937	< 0.1	0.1	0.6	0.1	0.1	0.3	< 0.001	0.35	3.5	10	1.1	0.3	0.198	0.050	1.08
1470939	0.3	0.1	0.6	0.1	< 0.1	< 0.1	0.001	0.25	1.1	44	0.2	0.1	0.378	0.018	0.44
1470940	0.5	0.1	0.8	0.1	< 0.1	< 0.1	0.001	0.21	2.0	46	0.2	0.1	0.328	0.017	0.04
1470941	0.5	0.1	0.7	0.1	< 0.1	0.3	0.001	0.18	2.0	46	0.3	0.1	0.311	0.016	0.04
1470942	0.6	0.1	0.8	0.1	< 0.1	0.1	< 0.001	0.12	1.8	49	0.2	0.1	0.353	0.019	0.01
1470943	0.5	0.1	0.5	0.1	< 0.1	< 0.1	< 0.001	0.09	1.0	21	0.1	< 0.1	0.169	0.010	< 0.01
1470944	0.3	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.22	1.6	41	0.2	0.3	0.277	0.018	0.02
1470945	< 0.1	0.1	0.4	0.1	< 0.1	< 0.1	0.011	0.08	1.6	15	0.1	< 0.1	0.154	0.007	0.15
1470946	0.1	< 0.1	0.3	< 0.1	< 0.1	0.1	0.001	< 0.05	0.6	9	< 0.1	< 0.1	0.0450	0.004	0.01
1470947	0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.001	0.06	0.7	47	0.2	< 0.1	0.369	0.021	0.09
1470948	0.5	0.3	1.8	0.3	0.2	0.4	< 0.001	< 0.05	4.9	30	1.2	0.3	0.317	0.046	0.02
1470949	< 0.1	0.4	2.7	0.4	< 0.1	< 0.1	0.001	< 0.05	8.6	27	2.1	0.5	0.161	0.082	< 0.01
1470950	0.1	0.2	1.2	0.1	< 0.1	< 0.1	0.003	< 0.05	6.4	19	1.0	0.2	0.208	0.034	0.10
1470951	< 0.1	0.3	1.7	0.3	< 0.1	< 0.1	0.002	< 0.05	4.9	40	0.4	0.4	0.454	0.037	3.12
1470952	< 0.1	0.4	2.7	0.4	< 0.1	< 0.1	0.002	< 0.05	< 0.5	45	0.4	0.1	0.425	0.042	2.97
1470953	1.1	0.2	1.3	0.2	< 0.1	< 0.1	0.001	< 0.05	4.6	22	0.2	0.3	0.307	0.018	0.09
1470955	0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.001	< 0.05	1.4	21	0.1	< 0.1	0.162	0.015	0.03
1470956	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.4	5	0.2	0.1	0.0988	0.009	< 0.01
1470957	0.3	0.1	0.9	0.1	< 0.1	0.5	0.001	0.07	< 0.5	58	0.3	< 0.1	0.355	0.019	0.10
1470959	0.1	0.2	1.4	0.2	< 0.1	< 0.1	0.001	0.09	< 0.5	38	0.2	< 0.1	0.158	0.012	< 0.01
1470960	0.5	0.1	0.7	0.1	< 0.1	0.1	< 0.001	< 0.05	6.7	20	0.1	< 0.1	0.237	0.010	0.07

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470961	0.4	0.1	0.7	0.1	< 0.1	0.3	< 0.001	< 0.05	< 0.5	33	0.1	< 0.1	0.378	0.016	0.01
1470962	0.2	0.1	0.6	0.1	< 0.1	< 0.1	0.001	< 0.05	1.3	22	0.1	< 0.1	0.262	0.015	0.29
1470963	0.3	0.1	0.7	0.1	< 0.1	0.2	0.001	< 0.05	< 0.5	23	0.1	< 0.1	0.246	0.009	0.06
1470964	< 0.1	0.1	0.7	0.1	< 0.1	0.1	0.001	< 0.05	0.8	20	0.2	0.1	0.193	0.013	0.35
1470965	0.1	0.1	0.8	0.1	0.2	< 0.1	0.001	< 0.05	3.6	30	0.1	< 0.1	0.177	0.010	0.24
1470966	< 0.1	0.1	0.4	0.1	0.1	< 0.1	< 0.001	< 0.05	2.1	12	< 0.1	< 0.1	0.0957	0.010	0.06
1470967	< 0.1	0.1	0.6	0.1	0.2	0.1	< 0.001	0.07	18.0	4	1.8	0.6	0.219	0.040	< 0.01
1470968	0.2	0.1	0.8	0.1	< 0.1	< 0.1	0.001	0.12	2.3	35	0.1	0.1	0.191	0.007	0.22
1470969	0.1	0.1	0.5	0.1	< 0.1	< 0.1	0.001	0.05	< 0.5	29	0.1	0.1	0.199	0.015	0.24
1470970	0.5	0.1	1.1	0.2	< 0.1	< 0.1	0.001	0.08	< 0.5	50	0.2	0.1	0.297	0.025	0.08
1470646	< 0.1	0.1	0.8	0.1	0.2	0.8	0.015	0.15	6.5	10	1.2	0.3	0.260	0.038	1.15
1470647	< 0.1	0.2	1.1	0.2	0.4	1.7	< 0.001	0.21	2.5	10	1.9	0.5	0.339	0.050	0.30
1470648	0.2	0.1	0.7	0.1	0.2	2.1	0.001	0.39	3.4	15	1.3	0.3	0.396	0.045	0.43
1470649	< 0.1	0.1	1.0	0.2	0.3	1.9	0.002	0.28	5.7	13	1.9	0.4	0.369	0.057	0.77
1470650	< 0.1	0.1	0.9	0.2	0.4	3.4	0.001	0.83	12.4	17	2.4	0.7	0.423	0.082	1.26
1470651	< 0.1	0.1	0.7	0.1	0.2	2.3	0.001	0.50	9.9	12	1.7	0.4	0.311	0.056	0.52
1470652	< 0.1	0.1	1.0	0.2	0.2	1.2	0.002	0.39	16.0	10	1.9	0.5	0.251	0.060	0.23
1470653	0.1	0.1	0.5	0.1	0.2	3.3	0.001	0.60	3.9	9	1.1	0.3	0.246	0.038	0.19
1470654	0.7	0.3	2.2	0.4	0.7	1.7	0.002	0.48	8.7	14	3.2	0.9	0.346	0.061	1.77
1470655	0.4	0.3	2.4	0.4	0.8	1.4	0.002	0.44	5.7	14	3.2	0.7	0.333	0.057	0.93
1470657	< 0.1	0.1	1.0	0.1	0.3	1.1	0.005	0.46	55.2	12	2.2	0.5	0.316	0.062	1.39
1470658	< 0.1	0.1	1.1	0.2	0.3	1.4	0.009	0.45	39.7	14	2.4	0.6	0.378	0.070	0.55
1470660	< 0.1	0.1	0.9	0.2	0.3	1.0	0.003	0.54	125	17	1.9	0.5	0.406	0.064	1.37
1470661	0.1	0.1	0.7	0.1	< 0.1	3.6	< 0.001	< 0.05	1.8	26	0.3	1.6	0.295	0.020	0.21
1470662	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.2	< 0.001	< 0.05	0.6	7	0.1	0.2	0.0741	0.006	< 0.01
1470663	0.1	< 0.1	0.3	< 0.1	< 0.1	0.7	< 0.001	< 0.05	1.2	12	0.1	< 0.1	0.0975	0.009	0.05
1470664	< 0.1	0.3	2.0	0.3	0.6	3.1	0.009	0.39	7.6	12	3.2	1.2	0.347	0.043	0.40
1470665	< 0.1	0.2	1.1	0.2	0.2	2.5	0.015	0.36	13.0	12	1.6	0.4	0.322	0.051	0.37
1470666	0.3	0.4	2.5	0.4	< 0.1	0.2	0.001	< 0.05	2.2	30	1.2	0.3	0.613	0.072	1.76
1470667	< 0.1	0.2	1.2	0.2	0.3	0.7	0.003	0.11	5.9	12	1.8	0.5	0.344	0.064	1.17
1470668	< 0.1	0.2	1.3	0.2	0.3	1.4	0.001	0.30	4.8	14	1.9	0.5	0.399	0.062	0.70
1470669	0.1	0.2	1.4	0.2	0.3	0.3	0.002	< 0.05	1.5	40	1.8	0.5	0.722	0.070	0.83
1470670	< 0.1	0.6	3.7	0.5	0.2	1.0	0.003	0.08	8.0	36	3.0	0.8	0.746	0.133	1.26
1470671	0.1	0.1	0.4	0.1	0.2	0.2	< 0.001	0.05	2.7	6	2.6	0.5	0.225	0.067	0.01
1470672	0.1	< 0.1	0.1	< 0.1	< 0.1	0.3	< 0.001	< 0.05	< 0.5	2	< 0.1	< 0.1	0.0113	0.002	< 0.01
1470673	< 0.1	0.3	2.3	0.3	< 0.1	0.1	0.001	0.08	3.0	36	0.4	0.1	0.643	0.043	1.25
1470674	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.1	< 0.001	< 0.05	< 0.5	10	0.1	< 0.1	0.0791	0.004	0.01
1470675	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.1	0.001	< 0.05	< 0.5	11	0.1	< 0.1	0.0891	0.022	< 0.01
1470676	0.5	0.1	0.8	0.1	0.1	0.2	< 0.001	< 0.05	0.8	22	0.6	0.1	0.352	0.036	< 0.01
1470677	0.1	0.1	0.4	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	23	0.1	< 0.1	0.0916	0.009	0.04
1470678	0.4	0.1	0.9	0.2	< 0.1	< 0.1	0.001	< 0.05	< 0.5	46	0.2	< 0.1	0.409	0.020	0.08
1470680	0.2	0.1	0.8	0.1	< 0.1	< 0.1	0.001	0.07	< 0.5	46	0.2	< 0.1	0.279	0.016	0.04

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470681	0.3	0.1	0.8	0.1	< 0.1	< 0.1	0.001	0.09	< 0.5	49	0.2	0.1	0.356	0.020	0.06
1470682	0.1	0.1	0.7	0.1	< 0.1	0.1	0.001	0.08	< 0.5	53	0.2	0.1	0.483	0.023	0.10
1470683	0.1	0.5	3.0	0.4	< 0.1	< 0.1	0.001	< 0.05	2.8	50	0.3	0.1	0.434	0.035	0.85
1470835	0.1	0.1	0.6	0.1	< 0.1	0.6	0.001	< 0.05	6.6	27	0.4	0.1	0.117	0.013	0.03
1470836	0.1	0.1	0.7	0.1	0.1	0.1	< 0.001	< 0.05	1.0	36	0.5	0.2	0.144	0.025	0.04
1470837	0.1	0.1	0.7	0.1	0.1	< 0.1	< 0.001	< 0.05	0.9	31	0.3	0.1	0.334	0.021	0.09
1470838	0.2	0.2	1.4	0.2	0.2	0.3	0.001	< 0.05	0.8	41	0.4	0.1	0.461	0.023	0.11
1470839	0.1	0.2	1.1	0.1	0.2	0.1	0.001	< 0.05	0.8	36	0.3	0.1	0.385	0.020	0.08
1470840	0.4	0.2	1.5	0.2	0.2	0.1	0.001	< 0.05	0.7	43	0.5	0.1	0.482	0.026	0.03
1470842	0.5	0.2	1.2	0.2	0.1	0.1	0.001	< 0.05	1.1	42	0.3	0.1	0.423	0.015	0.06
1470843	0.5	< 0.1	0.2	< 0.1	0.1	< 0.1	< 0.001	< 0.05	2.2	8	0.1	0.1	0.0860	0.006	< 0.01
1470844	0.4	0.4	2.4	0.3	0.2	0.3	0.001	< 0.05	2.3	32	1.2	0.2	0.431	0.072	0.07
1470845	< 0.1	0.4	2.3	0.3	0.1	< 0.1	0.001	0.14	1.6	26	0.6	0.2	0.797	0.104	0.04
1470846	< 0.1	0.4	2.4	0.4	0.2	0.1	0.001	0.06	5.8	24	0.8	0.2	0.408	0.096	0.15
1470847	0.5	0.3	1.6	0.2	0.3	1.2	0.002	< 0.05	1.7	37	0.7	0.1	0.295	0.017	0.08
1470848	0.1	0.1	0.5	0.1	0.1	1.4	0.001	0.07	0.7	15	0.2	< 0.1	0.190	0.112	0.03
1470849	0.3	0.1	0.6	0.1	< 0.1	0.6	0.001	< 0.05	1.3	27	0.4	0.1	0.252	0.010	0.02
1470850	0.9	0.1	0.5	0.1	0.3	0.4	< 0.001	< 0.05	0.8	14	0.2	0.1	0.147	0.021	< 0.01
1470851	0.4	< 0.1	0.3	< 0.1	0.2	1.3	< 0.001	0.05	2.8	14	0.4	0.2	0.127	0.018	< 0.01
1470852	0.4	0.2	1.1	0.2	0.2	0.7	0.001	0.07	0.7	33	0.6	0.1	0.432	0.033	0.03
1470854	0.2	0.1	1.2	0.2	0.3	0.5	< 0.001	< 0.05	1.0	24	2.0	0.5	0.292	0.054	< 0.01
1470855	0.1	0.2	1.2	0.2	0.1	0.3	< 0.001	< 0.05	1.4	24	1.6	0.4	0.414	0.049	< 0.01
1470857	< 0.1	0.1	0.8	0.1	0.2	0.5	0.002	< 0.05	1.5	13	1.9	0.5	0.316	0.041	0.14
1470858	< 0.1	0.1	0.8	0.1	0.3	0.2	0.001	< 0.05	1.6	15	1.7	0.4	0.400	0.045	0.04
1470859	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.3	0.001	< 0.05	< 0.5	3	0.1	< 0.1	0.0228	0.008	< 0.01
1470860	0.5	0.1	0.6	0.1	< 0.1	0.4	0.002	< 0.05	0.6	27	0.7	0.1	0.215	0.022	0.01
1470861	0.2	0.2	1.1	0.2	< 0.1	< 0.1	0.001	0.07	1.3	42	0.5	0.1	0.220	0.018	< 0.01
1470862	0.4	0.3	2.2	0.3	< 0.1	0.1	0.001	< 0.05	0.6	37	0.7	0.2	0.450	0.037	0.05
1470863	< 0.1	0.5	3.1	0.5	< 0.1	0.4	0.001	< 0.05	28.2	35	1.1	0.3	0.334	0.068	0.45
1470864	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.3	0.002	< 0.05	10.4	11	0.2	0.1	0.0690	0.022	0.02
1274001	< 0.1	0.1	0.9	0.1	< 0.1	0.2	< 0.001	0.18	6.8	18	1.3	0.3	0.152	0.047	< 0.01
1274002	0.6	0.1	0.7	0.1	0.2	0.3	< 0.001	0.30	6.0	15	1.6	0.5	0.334	0.043	0.01
1274004	< 0.1	0.1	0.9	0.1	< 0.1	0.2	< 0.001	0.12	3.8	17	2.1	0.5	0.0823	0.056	0.02
1274005	0.2	0.1	0.5	0.1	< 0.1	0.2	0.001	0.09	3.2	14	1.9	0.5	0.341	0.052	< 0.01
1274006	< 0.1	0.1	0.9	0.1	< 0.1	< 0.1	0.001	0.10	2.7	20	2.3	0.5	0.324	0.062	0.10
1274007	0.2	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	0.23	3.0	10	1.5	0.4	0.255	0.060	0.02
1274008	0.1	0.1	0.8	0.1	< 0.1	< 0.1	0.001	0.22	7.4	14	1.8	0.5	0.189	0.047	0.03
1274010	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.001	0.22	4.0	16	2.5	0.5	0.232	0.056	0.12
1274011	< 0.1	0.2	1.0	0.2	< 0.1	< 0.1	< 0.001	0.25	11.3	13	2.5	0.6	0.205	0.045	0.21
1274012	< 0.1	0.2	1.0	0.2	0.2	0.2	0.001	0.21	10.2	21	2.1	0.5	0.384	0.064	0.11
1274013	< 0.1	0.1	0.6	0.1	< 0.1	0.6	0.001	0.28	5.0	12	1.7	0.5	0.262	0.036	0.02
1274014	0.1	0.1	0.9	0.1	0.2	0.6	< 0.001	0.31	6.3	22	3.6	0.8	0.246	0.074	< 0.01

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1274015	0.4	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	0.23	5.2	4	1.4	0.4	0.121	0.029	< 0.01
1274016	0.1	0.1	0.4	< 0.1	0.2	1.1	< 0.001	0.24	4.4	5	1.8	0.4	0.181	0.048	< 0.01
1274017	0.1	0.1	0.9	0.1	0.3	1.1	0.001	0.50	7.4	23	2.7	0.8	0.295	0.042	0.04
1274018	< 0.1	0.3	1.6	0.2	0.4	0.2	0.001	0.09	6.9	29	3.3	0.8	0.608	0.098	< 0.01
1274019	< 0.1	0.3	1.8	0.2	0.3	0.5	< 0.001	0.08	4.9	28	3.4	0.8	0.591	0.096	< 0.01
1274020	< 0.1	0.2	1.3	0.2	0.3	0.1	0.001	0.07	3.3	25	3.8	0.6	0.395	0.113	< 0.01
1274021	0.3	0.1	0.8	0.1	0.2	0.2	0.001	0.09	5.9	10	1.7	0.5	0.238	0.040	< 0.01
1274022	0.3	0.2	1.4	0.2	0.3	0.2	0.001	< 0.05	4.9	25	2.6	0.7	0.484	0.064	< 0.01
1274023	< 0.1	0.2	1.2	0.2	< 0.1	< 0.1	0.001	0.11	3.8	22	2.0	0.4	0.299	0.066	< 0.01
1274024	< 0.1	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	4.1	24	2.0	0.4	0.143	0.062	< 0.01
1274025	< 0.1	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	0.05	5.1	25	2.1	0.5	0.148	0.063	0.16
1274026	< 0.1	0.2	1.0	0.2	< 0.1	< 0.1	< 0.001	< 0.05	4.0	15	4.3	1.1	0.437	0.100	< 0.01
1274027	< 0.1	0.2	1.0	0.1	< 0.1	< 0.1	0.001	0.06	2.9	19	2.1	0.5	0.276	0.053	< 0.01
1274028	0.1	0.2	1.4	0.2	0.3	0.3	< 0.001	< 0.05	3.8	26	2.6	0.6	0.703	0.088	< 0.01
1274029	0.3	< 0.1	0.1	< 0.1	< 0.1	0.2	0.001	< 0.05	0.6	< 1	< 0.1	< 0.1	0.0580	0.003	< 0.01
1274031	0.2	0.1	0.8	0.1	0.1	0.1	0.001	0.13	5.2	12	1.4	0.5	0.408	0.047	< 0.01
1274032	< 0.1	0.2	0.9	0.1	< 0.1	< 0.1	< 0.001	0.12	5.0	13	1.7	0.5	0.182	0.049	0.02
1274033	< 0.1	0.2	1.2	0.1	< 0.1	< 0.1	< 0.001	0.05	4.2	22	0.8	0.2	0.227	0.053	0.02
1274034	0.3	0.1	0.9	0.1	0.4	0.1	< 0.001	0.11	6.9	9	3.5	1.9	0.324	0.063	< 0.01
1274036	< 0.1	0.2	1.1	0.2	< 0.1	0.4	0.004	0.27	4.8	14	3.8	0.9	0.268	0.076	< 0.01
1274037	0.1	0.1	0.5	0.1	< 0.1	0.3	< 0.001	0.06	4.7	5	1.0	0.4	0.253	0.046	< 0.01
1274038	0.3	0.2	1.0	0.1	< 0.1	0.2	0.034	0.26	3.5	22	1.5	0.3	0.433	0.051	0.31
1274039	< 0.1	0.1	0.5	0.1	0.4	1.8	0.026	0.20	4.4	5	7.3	1.1	0.552	0.154	0.70
1274040	< 0.1	0.1	0.6	0.1	0.1	0.5	0.001	0.38	7.0	6	11.4	1.6	0.489	0.161	0.08
1274041	0.4	0.2	1.1	0.2	< 0.1	0.1	0.013	0.10	8.3	23	4.2	0.9	0.439	0.072	0.04
1274042	0.2	0.2	1.2	0.2	< 0.1	0.3	< 0.001	0.25	5.5	24	4.4	0.9	0.372	0.073	< 0.01
1274043	< 0.1	0.2	1.2	0.2	< 0.1	0.3	< 0.001	0.15	6.7	26	4.0	0.9	0.194	0.088	< 0.01
1274044	< 0.1	0.2	1.2	0.2	0.3	0.5	0.012	0.18	10.0	25	4.7	1.1	0.496	0.080	0.34
1274045	< 0.1	0.2	1.1	0.1	< 0.1	0.1	0.008	0.18	5.9	25	5.7	1.4	0.150	0.080	0.01
1274046	< 0.1	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	2.5	22	1.4	0.3	0.124	0.043	< 0.01
1274047	< 0.1	0.2	1.1	0.1	< 0.1	< 0.1	0.009	< 0.05	2.0	22	1.3	0.3	0.400	0.047	0.02
1274048	< 0.1	0.2	1.0	0.1	< 0.1	< 0.1	0.001	< 0.05	2.4	22	1.3	0.3	0.468	0.051	0.01
1274049	< 0.1	0.2	1.1	0.1	< 0.1	< 0.1	0.019	< 0.05	2.7	22	1.3	0.3	0.489	0.050	0.01
1274080	< 0.1	0.1	0.9	0.1	< 0.1	< 0.1	0.027	0.32	5.5	15	3.3	0.8	0.274	0.075	0.06
1274081	< 0.1	0.2	1.0	0.1	< 0.1	0.1	0.001	0.23	5.0	16	3.3	0.8	0.234	0.083	0.04
1274083	< 0.1	0.2	1.1	0.1	< 0.1	0.1	0.019	0.08	2.9	19	2.2	0.5	0.502	0.059	< 0.01
1274084	< 0.1	0.2	1.4	0.2	< 0.1	< 0.1	0.001	< 0.05	2.8	18	2.5	0.5	0.304	0.080	< 0.01
1274085	< 0.1	0.2	1.3	0.2	0.3	1.7	0.001	0.27	7.9	17	5.7	1.3	0.354	0.101	0.19
1274086	< 0.1	0.2	1.4	0.2	< 0.1	< 0.1	0.024	0.37	6.6	25	1.7	0.5	0.388	0.074	0.10
1274087	< 0.1	0.1	0.9	0.1	< 0.1	< 0.1	0.001	0.29	3.9	18	1.9	0.4	0.223	0.052	0.02
1274088	< 0.1	0.2	1.1	0.2	< 0.1	< 0.1	0.001	0.19	4.4	15	2.8	0.7	0.222	0.050	0.03
1274089	< 0.1	0.1	1.0	0.2	< 0.1	< 0.1	0.001	0.25	4.7	21	2.3	0.6	0.210	0.051	0.07

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1274090	0.1	0.2	1.2	0.2	< 0.1	< 0.1	0.001	0.11	5.5	21	2.1	1.0	0.409	0.057	< 0.01
1274093	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.005	< 0.05	2.2	< 1	0.1	< 0.1	0.0275	0.010	< 0.01
1274094	< 0.1	0.2	1.2	0.2	0.3	0.4	0.013	0.16	4.2	27	5.7	1.3	0.511	0.080	0.01
1274095	< 0.1	0.2	1.4	0.2	0.3	0.2	0.014	0.08	4.4	32	4.0	1.0	0.546	0.095	0.02
1274096	0.1	0.1	0.5	0.1	< 0.1	< 0.1	0.006	0.31	6.0	6	2.3	0.6	0.186	0.026	0.03
1274097	0.4	0.2	1.4	0.2	< 0.1	0.3	0.001	< 0.05	1.9	38	0.5	0.1	0.371	0.011	0.04
1274098	< 0.1	0.2	1.3	0.2	< 0.1	< 0.1	0.001	0.07	5.1	20	1.9	0.5	0.124	0.060	< 0.01
1274099	< 0.1	0.1	0.8	0.1	< 0.1	< 0.1	0.014	0.29	2.8	15	1.8	0.5	0.350	0.052	< 0.01
1274100	0.4	0.1	0.9	0.2	0.3	0.3	< 0.001	0.14	3.4	19	1.5	0.4	0.434	0.050	< 0.01

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	10.4	0.06	0.29	3.67	0.05	0.95	2.7	70	9.4	801	23.0	0.9	640	39.1		0.9		32.2	2.93	7.2	0.51	1110	16.7
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
GXR-1 Meas	7.1	0.05	0.22	1.74	0.05	0.96	2.4	77	19.6	867	25.0	0.4	810	46.1		0.9		36.9	3.13	7.6	0.60	1240	15.8
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
GXR-1 Meas	7.3	0.05	0.21	1.85	0.05	0.95	2.8	78	13.5	848	25.3	0.5	< 10	41.0		0.9		39.1	3.01	7.8	0.60	1310	15.1
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	11.5	0.52	1.57	5.39	2.24	0.97	0.1	81	50.7	164	3.05	1.0	< 10	41.5		2.0		2.53	2.41	13.6	1.22	18.5	5.0
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
GXR-4 Meas	11.8	0.56	1.70	6.14	3.95	1.07	0.1	88	41.7	181	3.25	1.1	< 10	45.6		2.1		3.31	2.84	15.2	1.30	20.0	5.7
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	36.6	1.52	0.82	6.92	1.56	0.97		54	56.8	826	4.92	1.7	60	36.3	3.0	2.9	1.0		4.17	18.6	1.20		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
SDC-1 Meas	36.8	1.59	0.98	7.49	2.59	1.03		33	36.0	810	4.85	0.6	90	34.2	3.3	3.0	1.1		4.21	17.8	1.40		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	38.6	0.11	0.64	> 10.0	1.15	0.18	0.1	154	71.6	959	5.31	2.4	50	23.5		1.1		< 0.05	4.05	12.7	0.54	0.17	0.7
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
GXR-6 Meas	39.1	0.11	0.64	> 10.0	1.65	0.20	< 0.1	84	31.4	912	5.38	1.4	120	24.9		1.1		0.50	4.15	13.3	0.50	0.20	0.3
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
GXR-6 Meas	38.8	0.10	0.65	> 10.0	1.81	0.17	< 0.1	132	53.5	1020	5.78	2.1	30	27.0		1.2		< 0.05	4.49	14.0	0.60	0.19	0.5
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	4.4							137	238					270						57.5	0.49		
DNC-1a Cert	5.2							148	270					247						57	0.59		
DNC-1a Meas	4.5							148	134					285						59.2	0.50		
DNC-1a Cert	5.2							148	270					247						57	0.59		
DNC-1a Meas	4.6							146	130					287						57.2	0.50		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	160						0.2	197	91.7			2.9		84.8	3.1	3.0	1.1		8.24	22.7	1.63	0.66	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
SBC-1 Meas	171						0.2	216	97.4			3.2		89.8	3.2	3.1	1.1		8.90	22.9	1.70	0.72	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
OREAS 45d (4-Acid) Meas	20.3	0.09	0.23	6.69	0.37	0.17		119	456	535	14.5	2.3		244	1.2	0.7	0.4		3.46	27.9	0.52	0.33	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
OREAS 45d (4-Acid) Meas	21.3	0.10	0.25	7.18	0.39	0.19		75	411	531	14.6	1.0		247	1.3	0.7	0.4		4.03	29.4	0.50	0.35	
OREAS 45d	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549		14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
(4-Acid) Cert										490.000													
OREAS 45d (4-Acid) Meas	21.1	0.10	0.25	7.27	0.40	0.19		119	498	495	15.2	2.1		253	1.3	0.8	0.4		4.31	30.1	0.60	0.38	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549		14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	18.2						4.3	22	43.7				2.9	1110	47.0	2.5	6.8	0.8		1.66	12.6	1.13	1.01
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6				7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05
SdAR-M2 (U.S.G.S.) Meas	19.1						4.6	24	35.3				1.5	1150	51.6	2.6	6.9	0.9		1.85	13.3	1.20	1.10
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6				7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
1470915 Orig	3.3	0.23	0.71	5.25	0.04	7.75	< 0.1	305	66.5	1020	5.08	0.3	40	33.5	1.2	0.1	0.4	0.17	0.10	10.5	0.50	0.05	< 0.1
1470915 Dup	3.4	0.23	0.72	5.24	0.04	7.73	< 0.1	303	58.2	1010	5.02	0.3	30	32.0	1.2	< 0.1	0.4	0.09	0.10	10.5	0.50	0.03	< 0.1
1470956 Orig	2.9	0.32	0.32	1.97	0.03	1.93	< 0.1	96	26.3	395	3.22	0.2	40	6.5	0.3	0.1	0.1	0.06	0.19	5.3	0.10	0.04	< 0.1
1470956 Dup	3.0	0.33	0.33	2.04	0.03	2.03	< 0.1	99	34.2	423	3.37	0.2	40	6.9	0.3	0.2	0.1	< 0.05	0.17	5.6	0.20	0.04	< 0.1
1470959 Orig	13.0	0.11	2.34	5.36	1.36	0.72	< 0.1	163	89.2	1080	6.05	0.5	50	55.6	1.3	0.2	0.4	0.13	0.68	30.5	0.30	0.02	< 0.1
1470959 Dup	11.6	0.10	2.26	5.29	1.34	0.70	< 0.1	200	85.7	1050	5.95	0.6	20	53.9	1.3	0.2	0.4	0.07	0.68	30.3	0.30	< 0.02	< 0.1
1470672 Orig	1.0	0.02	0.20	0.28	0.01	0.01	< 0.1	16	21.5	162	1.38	< 0.1	40	4.2	0.1	< 0.1	< 0.1	0.13	< 0.05	2.7	< 0.05	0.02	0.7
1470672 Dup	0.9	0.02	0.19	0.28	0.01	0.01	< 0.1	15	17.1	155	1.32	< 0.1	50	4.1	0.1	< 0.1	< 0.1	0.07	0.05	2.7	< 0.05	< 0.02	0.5
1470677 Orig	12.4	0.22	4.30	3.01	0.01	5.73	0.4	45	1460	2690	10.0	0.1	40	1330	0.5	0.1	0.2	0.06	0.08	99.6	0.20	0.03	0.6
1470677 Dup	11.0	0.21	3.98	2.75	0.01	5.28	0.4	39	1330	2450	9.20	0.1	20	1210	0.5	0.1	0.2	< 0.05	0.07	93.3	0.20	0.02	0.5
1274011 Orig	20.4	2.19	1.13	7.08	1.52	1.27	0.2	66	130	576	4.07	2.2	30	68.6	1.0	0.9	0.4	< 0.05	1.16	18.5	0.80	0.22	< 0.1
1274011 Dup	18.8	2.08	1.04	6.62	1.43	1.19	0.2	69	118	536	3.79	2.1	110	62.3	0.9	0.7	0.3	0.34	1.10	17.4	0.80	0.22	0.1
1274013 Orig	20.2	1.30	1.81	5.41	1.26	1.92	< 0.1	91	307	711	4.00	1.8	60	124	0.6	0.6	0.2	< 0.05	1.80	17.6	0.40	0.11	< 0.1
1274013 Dup	21.1	1.38	1.91	6.15	1.50	2.02	< 0.1	93	265	711	4.14	1.8	50	130	0.6	0.6	0.2	< 0.05	1.82	18.2	0.50	0.12	< 0.1
1274042 Orig	18.5	> 3.00	3.50	6.97	1.31	5.62	0.2	139	173	1130	6.17	2.0	10	135	1.3	1.1	0.4	< 0.05	6.16	36.1	1.10	0.12	< 0.1
1274042 Dup	18.6	2.96	3.45	6.91	1.36	5.62	0.1	116	169	1160	6.30	1.7	80	138	1.3	1.2	0.5	0.36	6.17	36.5	1.10	0.14	< 0.1
1274100 Orig	47.0	2.18	3.50	7.33	0.89	2.88	< 0.1	127	289	642	6.28	2.4	20	221	0.7	1.1	0.3	< 0.05	0.77	36.8	0.80	0.03	< 0.1
1274100 Dup	45.6	2.14	3.44	7.21	0.88	2.76	< 0.1	117	254	621	6.17	2.3	10	216	0.7	1.1	0.3	< 0.05	0.81	35.9	0.80	0.03	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 1	0.9	8	< 0.01	< 0.1	30	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
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Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	662	< 0.1	377	2.6	25.8	277	41	0.8	16.2	0.8	24	20.9	5.8	1000	7.9	15.7		8.8	1.9	3.2	0.6	3.8	1030
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
GXR-1 Meas	722	< 0.1	436	2.5	29.3	321	22	0.7	19.1	0.9	25	17.8	6.5	637	8.1	16.3		9.6	2.4	3.8	0.7	4.3	1060
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
GXR-1 Meas	721	< 0.1	447	2.4	28.9	311	22	0.8	19.1	0.9	28	37.5	8.7	660	8.3	16.7		9.9	2.3	3.9	0.7	4.4	1220
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	64.4	15.6	95.5	96.2	12.5	206	39	9.3	316	0.2	7	5.1	1.0	169	58.9	107		43.2	3.3	4.0	0.4	2.3	5190
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
GXR-4 Meas	67.1	16.8	112	135	14.0	239	41	9.8	343	0.3	8	5.2	1.2	170	65.3	124		47.8	4.2	4.4	0.5	2.5	6060
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	94.1	12.9	1.3	72.6		163	65	2.8			1	< 0.1		528	33.8	83.9		36.2	5.0	5.2	0.8	5.0	29.1
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
SDC-1 Meas	95.1	11.9	< 0.1	105		178	29	0.5			< 1	< 0.1		571	43.6	96.4		42.3	5.3	6.2	0.9	5.5	38.1
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	114	6.1	277	55.5	10.8	37.8	107	5.7	1.77	< 0.1	2	2.6	0.2	1230	12.7	34.2		12.6	1.6	1.9	0.3	2.0	63.2
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
GXR-6 Meas	114	7.1	198	63.1	11.1	44.2	55	0.4	1.14	< 0.1	< 1	0.3	0.8	1310	12.1	32.2		12.4	1.8	2.2	0.3	1.9	73.6
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
GXR-6 Meas	123	6.5	283	71.6	11.9	40.9	84	0.9	0.82	< 0.1	1	0.6	0.1	1230	13.7	38.3		13.8	1.8	2.1	0.3	2.1	74.2
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	58.6	13.3		2.9	15.9	144	46	2.7				1.0		91	3.8			5.1					92.7
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
DNC-1a Meas	57.7	13.4		2.9	15.9	142	47	2.3				1.1		93	3.9			5.2					99.5
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
DNC-1a Meas	58.2	13.7		3.1	16.2	150	46	2.3				0.8		93	4.1			5.5					102
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
SBC-1 Meas	169	14.1	21.3	91.2	29.1	174	131	12.3	2.42		3	1.0		626	50.7	110	11.8	49.7	5.9	6.9	1.0	5.4	26.0
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
SBC-1 Meas	172	14.5	26.5	128	31.4	184	143	15.7	2.32		4	1.2		730	54.8	117	12.3	54.1	6.4	7.6	1.0	5.8	30.3
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
OREAS 45d (4-Acid) Meas	39.5	20.4	6.7	34.1	10.3	29.3	99	3.0	2.03	< 0.1	1	0.1		155	17.1	35.3	3.7	14.8	1.8	2.2	0.3	2.0	362
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
OREAS 45d	39.9	20.5	5.2	35.3	11.0	29.0	44	1.1	0.99	0.1	< 1	< 0.1		170	17.6	38.9	3.6	15.0	2.1	2.3	0.4	2.1	340

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
(4-Acid) Meas																							
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
OREAS 45d (4-Acid) Meas	40.4	21.5	9.8	36.9	11.0	32.5	93	1.8	2.16	0.1	1	< 0.1		174	18.6	40.5	3.8	16.0	1.9	2.4	0.3	2.1	407
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas	714	< 0.1		80.5	23.4	139	128	11.4	11.4					807	47.0	99.3	10.0	39.7	4.1	4.5	0.7	4.2	235
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
SdAR-M2 (U.S.G.S.) Meas	730	< 0.1		129	23.8	152	76	5.4	12.2					903	48.3	106	10.4	41.5	4.6	5.2	0.7	4.4	237
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00 00
SdAR-M2 (U.S.G.S.) Meas																							
SdAR-M2 (U.S.G.S.) Cert																							
1470915 Orig	14.4	17.8	16.9	1.3	12.1	545	18	0.5	1.67	< 0.1	< 1	3.2	0.4	19	1.0	2.7	0.4	2.1	0.6	1.1	0.2	1.4	9.9
1470915 Dup	15.2	17.5	7.8	1.2	11.7	545	10	0.5	0.72	< 0.1	< 1	3.6	0.2	19	1.0	2.6	0.3	2.2	0.4	1.0	0.2	1.4	9.4
1470956 Orig	6.9	8.0	4.4	0.9	3.0	78.4	5	0.7	1.09	< 0.1	1	0.3	< 0.1	11	1.4	3.2	0.4	2.0	0.3	0.4	0.1	0.5	5.9
1470956 Dup	7.9	8.3	4.8	0.9	3.0	76.5	11	0.7	1.16	< 0.1	< 1	0.5	< 0.1	10	1.4	3.2	0.4	1.9	0.3	0.4	0.1	0.5	6.9
1470959 Orig	53.9	6.1	3.9	37.1	11.5	6.0	19	0.1	0.56	< 0.1	< 1	< 0.1	0.3	379	0.5	1.8	0.3	2.1	0.6	1.2	0.2	1.7	41.0
1470959 Dup	53.1	6.5	1.8	37.3	11.5	6.5	26	0.1	0.35	< 0.1	< 1	< 0.1	0.2	373	0.5	1.8	0.3	2.1	0.7	1.1	0.2	1.7	39.3
1470672 Orig	4.2	1.2	6.8	0.5	0.5	1.0	1	0.2	0.78	< 0.1	< 1	0.3	< 0.1	5	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	17.7
1470672 Dup	6.2	1.1	5.7	0.5	0.5	1.0	< 1	0.1	0.55	< 0.1	< 1	0.3	< 0.1	5	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	16.6
1470677 Orig	119	7.9	3.8	0.4	5.3	16.8	6	0.4	0.81	< 0.1	< 1	0.1	0.9	59	0.7	1.9	0.3	1.7	0.5	0.9	0.1	0.9	15.9
1470677 Dup	107	7.3	3.6	0.4	4.8	14.5	7	0.2	0.58	< 0.1	< 1	< 0.1	0.2	51	0.6	1.8	0.3	1.5	0.5	0.7	0.1	0.7	14.0
1274011 Orig	76.9	11.1	0.3	45.7	10.0	190	84	0.5	0.25	< 0.1	1	0.2	< 0.1	338	19.0	42.1	4.5	19.6	2.2	2.4	0.3	1.8	35.4
1274011 Dup	70.4	10.3	1.1	42.4	9.5	184	88	0.9	1.05	< 0.1	1	0.2	0.8	321	17.9	39.6	4.3	18.6	1.9	2.3	0.3	1.6	34.7
1274013 Orig	72.8	10.3	13.1	35.1	5.5	302	78	2.1	1.42	< 0.1	< 1	0.6	0.3	300	9.3	21.2	2.2	9.8	0.9	1.2	0.2	1.0	26.3
1274013 Dup	73.7	10.4	11.6	40.0	5.9	325	80	1.0	1.02	< 0.1	< 1	0.1	0.2	318	10.8	23.8	2.4	10.9	1.1	1.4	0.2	1.0	23.4
1274042 Orig	74.3	8.6	0.3	47.5	13.0	635	87	0.7	1.09	< 0.1	1	0.3	< 0.1	436	22.1	51.6	5.7	25.9	3.1	3.1	0.4	2.3	42.8
1274042 Dup	76.5	8.3	0.3	48.8	13.2	650	73	0.6	1.05	< 0.1	1	0.2	0.7	451	23.1	51.4	5.9	26.4	3.0	3.2	0.4	2.3	43.2
1274100 Orig	97.5	17.0	3.9	25.0	6.3	247	109	4.6	0.86	< 0.1	1	0.4	< 0.1	209	10.7	25.0	3.0	15.3	2.2	2.2	0.2	1.4	47.0
1274100 Dup	94.0	16.9	4.1	24.9	6.6	244	108	4.0	0.18	< 0.1	< 1	0.3	< 0.1	209	10.7	26.1	3.2	15.2	2.3	2.4	0.3	1.3	40.6
Method Blank	< 0.2	0.1	< 0.1	< 0.2	< 0.1	< 0.2	< 1	< 0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.3	1.9	0.3	< 0.1	109		0.39	616	1	2.9	29.6	0.0297	0.053	0.22
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
GXR-1 Meas		0.3	2.1	0.3	< 0.1	102		0.43	661	1	3.0	32.7	0.0282	0.058	0.24
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
GXR-1 Meas		0.4	2.1	0.3	< 0.1	117		0.46	754	1	3.0	34.4	0.0277	0.059	0.25
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	1820			
DH-1a Cert											910	2629			
DH-1a Meas											> 500	2010			
DH-1a Cert											910	2629			
DH-1a Meas											> 500	1920			
DH-1a Cert											910	2629			
GXR-4 Meas		0.1	0.9	0.1	0.5	22.3		3.25	48.1	8	18.6	5.4	0.311	0.129	1.77
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
GXR-4 Meas		0.2	1.0	0.1	0.6	31.1		3.50	52.3	8	19.6	5.6	0.290	0.129	1.77
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.5	2.9		< 0.1	0.3		0.64	25.7	17	14.4	2.3	0.0793	0.052	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
SDC-1 Meas		0.5	3.1		< 0.1	0.1		0.65	24.0	17	10.1	2.7	0.0888	0.052	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			1.5	0.2	0.3	1.3		2.01	88.4	28	5.1	1.3		0.035	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
GXR-6 Meas			1.5	0.2	< 0.1	0.2		2.17	87.9	26	4.8	1.3		0.028	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
GXR-6 Meas			1.6	0.3	< 0.1	< 0.1		2.24	105	28	4.6	1.4		0.036	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			1.7						7.1	31			0.299		
DNC-1a Cert			2.0						6.3	31			0.29		
DNC-1a Meas			1.8						5.7	31			0.296		
DNC-1a Cert			2.0						6.3	31			0.29		
DNC-1a Meas			1.8						5.9						
DNC-1a Cert			2.0						6.3						
SBC-1 Meas		0.5	3.0	0.4	1.0	1.2		0.87	33.5	22	15.5	5.2	0.538		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
SBC-1 Meas		0.5	3.2	0.4	1.1	1.7		0.94	36.4	22	13.7	5.7	0.557		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
OREAS 45d (4-Acid) Meas			1.3	0.2	0.2	0.7		0.25	20.4	55	15.1	2.5	0.307	0.035	0.04
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
OREAS 45d (4-Acid) Meas			1.3	0.2	< 0.1	0.4		0.33	19.4	55	14.4	2.7	0.113	0.032	0.04
OREAS 45d			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
(4-Acid) Cert															
OREAS 45d (4-Acid) Meas			1.3	0.2	< 0.1	1.5		0.28	22.2	58	16.3	3.9	0.285	0.036	0.05
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8	49.30	14.5	2.63	0.773	0.042	0.049
SdAR-M2 (U.S.G.S.) Meas		0.4	2.4	0.4	0.7	0.8			666	4	13.5	2.3			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
SdAR-M2 (U.S.G.S.) Meas		0.4	2.5	0.4	0.2	0.5			691	4	14.4	2.5			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
SdAR-M2 (U.S.G.S.) Meas										4					
SdAR-M2 (U.S.G.S.) Cert										4.1					
1470915 Orig	0.4	0.2	1.3	0.2	< 0.1	0.5	0.001	< 0.05	4.3	16	0.3	< 0.1	0.149	0.009	< 0.01
1470915 Dup	0.4	0.2	1.3	0.2	< 0.1	0.3	< 0.001	< 0.05	4.3	16	0.1	< 0.1	0.149	0.009	< 0.01
1470956 Orig	< 0.1	< 0.1	0.3	< 0.1	0.2	< 0.1	< 0.001	0.12	1.4	5	0.2	0.1	0.101	0.008	< 0.01
1470956 Dup	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.4	5	0.2	0.1	0.0962	0.009	< 0.01
1470959 Orig	0.1	0.2	1.4	0.2	< 0.1	< 0.1	0.001	0.09	< 0.5	39	0.2	< 0.1	0.143	0.012	< 0.01
1470959 Dup	0.1	0.2	1.4	0.2	< 0.1	< 0.1	0.001	0.10	0.6	38	0.2	< 0.1	0.174	0.012	< 0.01
1470672 Orig	0.1	< 0.1	0.1	< 0.1	< 0.1	0.2	< 0.001	< 0.05	< 0.5	2	0.1	< 0.1	0.0118	0.003	< 0.01
1470672 Dup	0.1	< 0.1	0.1	< 0.1	< 0.1	0.3	< 0.001	< 0.05	< 0.5	2	< 0.1	< 0.1	0.0107	0.002	< 0.01
1470677 Orig	0.1	0.1	0.5	0.1	< 0.1	0.1	< 0.001	< 0.05	0.9	23	0.1	< 0.1	0.0930	0.009	0.04
1470677 Dup	0.1	0.1	0.4	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	23	0.1	< 0.1	0.0901	0.009	0.04
1274011 Orig	< 0.1	0.2	1.1	0.2	< 0.1	< 0.1	< 0.001	0.24	11.4	13	2.6	0.6	0.204	0.045	0.21
1274011 Dup	< 0.1	0.1	1.0	0.1	< 0.1	0.1	0.001	0.27	11.2	12	2.5	0.6	0.207	0.045	0.21
1274013 Orig	< 0.1	0.1	0.6	0.1	0.1	0.9	0.001	0.26	4.9	11	1.6	0.4	0.266	0.035	0.02
1274013 Dup	0.1	0.1	0.7	0.1	< 0.1	0.3	0.001	0.30	5.1	12	1.7	0.6	0.258	0.036	0.01
1274042 Orig	0.2	0.2	1.2	0.2	< 0.1	0.2	0.001	0.21	5.4	24	4.4	0.9	0.404	0.074	< 0.01
1274042 Dup	0.1	0.2	1.2	0.2	< 0.1	0.3	< 0.001	0.28	5.6	24	4.5	0.9	0.341	0.072	< 0.01
1274100 Orig	0.4	0.1	0.9	0.1	0.3	0.4	0.017	0.14	3.4	19	1.5	0.4	0.450	0.050	0.01
1274100 Dup	0.4	0.1	0.8	0.2	0.3	0.2	< 0.001	0.14	3.3	19	1.5	0.3	0.418	0.049	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0010	< 0.001	< 0.01
Method Blank										< 1			0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0005	< 0.001	< 0.01

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			0.0133	< 0.001	< 0.01



Date Submitted: 22-Nov-16
Invoice No.: A16-12462-UT6
Invoice Date: 18-Jan-17
Your Reference: PENG-20161120-013-UT6

Rapier Gold
2270-1055 West Georgia Street
P.O. Box 11144
Vancouver BC V6E 3P3

ATTN: Gary Wong

CERTIFICATE OF ANALYSIS

190 Pulp samples were submitted for analysis.

The following analytical package(s) were requested:

Code UT-6 Total Digestion ICP & ICP/MS

REPORT **A16-12462-UT6**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is written over a horizontal line.

Emmanuel Esemé , Ph.D.
Quality Control

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

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470971	14.4	2.52	1.90	5.53	0.13	4.59	< 0.1	341	20.4	1540	10.2	1.5	< 10	6.4	0.8	0.4	0.3	< 0.05	0.64	52.2	0.60	0.05	0.3
1470972	17.3	> 3.00	1.58	7.00	2.03	2.29	< 0.1	89	122	639	3.63	4.6	< 10	42.0	1.1	2.0	0.4	< 0.05	0.99	15.5	1.00	0.22	0.1
1470973	22.5	> 3.00	1.72	6.60	1.83	2.22	< 0.1	90	90.4	677	3.88	4.3	< 10	41.8	1.0	1.5	0.4	< 0.05	0.97	18.0	0.90	0.15	< 0.1
1470974	4.5	0.04	3.34	0.45	0.08	5.52	< 0.1	11	227	977	2.24	0.1	< 10	79.2	0.3	0.1	0.1	0.15	0.39	7.6	0.40	0.29	< 0.1
1470975	7.1	1.39	1.67	4.22	0.63	6.25	< 0.1	219	13.6	1560	8.38	2.3	50	2.6	0.8	0.6	0.3	0.19	0.27	29.3	0.70	0.13	< 0.1
1470976	2.1	0.49	13.2	3.88	0.02	4.49	< 0.1	106	2040	1370	7.30	0.7	20	924	0.8	0.1	0.3	0.14	0.12	81.7	0.20	0.04	< 0.1
1470977	2.2	0.22	15.8	3.05	0.01	3.67	< 0.1	84	1800	1100	7.17	0.3	20	1230	0.6	0.1	0.2	0.10	0.46	86.6	0.20	0.02	< 0.1
1470978	2.0	0.49	13.9	3.58	0.03	5.15	0.1	102	2290	1260	8.54	0.5	10	1080	0.8	0.1	0.3	0.08	0.20	99.2	0.10	0.02	0.2
1470979	4.3	0.03	19.2	1.94	0.01	1.71	< 0.1	44	1360	856	6.09	0.3	20	1690	0.4	0.1	0.1	0.07	1.49	92.4	0.10	0.02	< 0.1
1470980	13.3	1.84	2.76	7.34	0.02	4.47	0.1	130	150	1210	8.64	0.6	< 10	186	2.0	0.5	0.7	< 0.05	0.12	43.6	0.90	0.23	< 0.1
1470981	8.7	2.13	0.79	4.11	0.14	0.61	< 0.1	87	46.7	601	5.12	0.3	< 10	11.6	1.0	0.5	0.4	< 0.05	0.26	14.8	0.30	0.02	< 0.1
1470982	27.6	2.59	3.16	> 10.0	0.28	2.70	0.2	184	141	916	8.59	0.8	< 10	131	1.8	0.6	0.7	< 0.05	0.23	37.2	0.80	0.03	< 0.1
1470984	2.2	0.08	1.16	4.04	0.02	4.84	< 0.1	90	100	582	3.29	0.2	< 10	37.3	0.6	0.1	0.2	< 0.05	0.05	9.4	0.30	0.03	< 0.1
1470985	4.2	2.21	5.34	4.31	0.01	8.45	0.3	112	1490	1750	5.75	1.1	40	806	1.1	0.2	0.4	0.30	0.11	75.7	0.30	0.06	0.1
1470986	8.7	> 3.00	2.64	> 10.0	0.01	3.60	0.2	142	11.2	1110	4.88	3.6	30	21.3	1.8	0.6	0.7	< 0.05	0.08	26.6	0.90	0.02	< 0.1
1470988	1.4	> 3.00	0.21	> 10.0	0.02	0.42	0.1	24	23.2	329	1.06	2.4	10	33.3	0.4	0.3	0.2	< 0.05	0.09	2.1	0.60	0.02	< 0.1
1470989	1.7	> 3.00	0.17	6.23	0.02	0.20	0.1	21	45.7	431	1.37	2.0	< 10	72.6	0.4	0.2	0.2	< 0.05	0.06	9.1	0.30	0.04	< 0.1
1470990	0.6	> 3.00	0.12	6.60	0.02	0.54	< 0.1	32	43.5	368	0.80	2.0	< 10	34.5	0.5	0.3	0.2	< 0.05	< 0.05	5.1	0.20	0.04	< 0.1
1470991	2.5	0.13	3.06	1.64	< 0.01	6.75	1.5	49	806	2830	6.00	0.4	80	416	0.7	0.1	0.2	0.07	< 0.05	56.9	0.30	0.05	< 0.1
1470992	1.0	> 3.00	0.23	6.63	0.02	0.45	0.1	49	41.4	506	1.27	2.5	< 10	65.4	0.4	0.3	0.2	< 0.05	< 0.05	6.0	0.20	0.02	< 0.1
1470993	17.2	0.24	4.03	5.32	0.01	3.71	< 0.1	157	2800	1000	9.92	0.8	< 10	1660	0.6	0.1	0.2	< 0.05	0.05	206	0.20	0.08	0.5
1470994	19.4	< 0.01	5.00	5.64	< 0.01	3.17	0.3	161	2640	1750	12.3	0.7	< 10	1740	0.6	0.2	0.2	0.17	0.08	120	0.20	0.05	0.9
1470995	17.6	2.27	0.94	> 10.0	0.72	1.20	0.3	172	83.3	1690	7.28	0.9	30	91.0	1.0	0.6	0.3	0.26	0.40	47.1	0.50	0.06	< 0.1
1470996	23.8	1.32	1.94	6.05	0.49	2.62	< 0.1	210	88.4	1250	10.1	0.6	10	129	0.9	0.3	0.3	0.14	0.31	69.4	0.40	0.04	0.2
1470997	5.7	0.95	1.11	2.37	0.04	1.24	0.2	69	95.0	671	2.42	0.2	10	35.3	0.4	0.1	0.1	0.18	0.12	11.7	0.10	0.06	0.6
1470998	9.4	2.22	3.47	7.07	0.03	5.95	0.3	179	90.9	1820	7.79	0.5	10	79.2	1.9	0.2	0.7	0.10	0.13	48.2	0.50	0.02	0.3
1470999	9.1	2.44	3.77	7.40	0.04	5.58	< 0.1	183	89.9	1510	8.19	0.6	10	82.7	1.9	0.2	0.7	0.06	0.12	60.3	0.50	0.03	0.4
1471000	7.8	0.14	1.37	2.92	0.35	14.1	0.1	82	38.0	1830	3.21	0.2	< 10	28.5	1.2	0.1	0.4	0.05	0.35	13.5	0.30	< 0.02	< 0.1
1274201	1.4	0.02	0.28	0.40	0.01	3.50	0.6	8	58.1	327	1.17	< 0.1	< 10	10.4	0.1	0.3	< 0.1	0.05	0.06	5.5	< 0.05	0.18	< 0.1
1274203	2.4	0.36	0.68	1.25	0.11	1.82	0.2	40	63.4	352	1.71	0.1	< 10	13.7	0.3	0.1	0.1	< 0.05	0.05	7.6	0.10	< 0.02	< 0.1
1274204	9.3	1.45	4.05	5.56	0.05	7.30	0.1	103	433	1540	7.13	2.8	40	246	1.3	1.0	0.6	0.26	0.11	51.7	1.80	0.14	0.7
1274205	25.9	0.05	5.06	5.75	0.01	2.18	0.2	134	45.1	1850	11.7	0.1	30	127	0.1	< 0.1	< 0.1	0.44	0.10	47.1	< 0.05	0.04	10.0
1274207	9.5	0.32	2.03	3.05	0.01	1.46	< 0.1	96	170	797	4.19	0.2	< 10	54.6	0.7	0.2	0.3	0.19	0.14	16.6	0.60	0.03	< 0.1
1274208	14.7	0.71	4.53	4.92	0.01	2.93	0.2	146	1830	941	7.09	0.5	< 10	1330	0.5	0.1	0.2	0.10	< 0.05	128	0.20	0.10	0.3
1274209	8.4	0.02	7.52	5.18	< 0.01	3.43	0.2	133	1430	1120	8.36	0.3	< 10	932	0.3	0.1	0.1	0.13	< 0.05	89.2	0.10	0.02	1.5
1274210	19.4	0.44	2.51	6.47	2.51	0.16	0.2	258	3490	216	5.08	1.2	10	1440	0.4	0.4	0.1	0.07	0.41	160	0.10	0.03	0.3
1274211	2.8	0.91	4.36	3.27	0.01	4.94	0.6	73	1220	1150	5.14	0.2	< 10	763	0.3	0.1	0.1	0.09	< 0.05	67.9	0.20	0.02	0.2
1274212	5.9	1.24	4.68	4.90	0.02	4.65	0.4	138	1680	2070	8.60	0.6	< 10	1000	0.7	0.1	0.2	< 0.05	0.07	115	0.30	0.02	0.2
1274213	3.4	0.77	5.73	1.89	0.01	11.2	0.4	55	808	2520	7.33	0.3	< 10	563	0.6	0.1	0.2	< 0.05	< 0.05	61.0	0.25	0.04	< 0.1
1274214	7.8	0.98	2.42	5.37	0.91	6.74	0.1	189	89.1	2030	7.00	0.9	< 10	177	0.8	0.2	0.3	0.12	0.15	36.0	0.30	< 0.02	0.3
1274215	12.5	1.40	1.04	> 10.0	1.59	3.84	< 0.1	169	133	720	5.80	1.1	< 10	208	0.6	0.4	0.2	< 0.05	0.32	58.7	0.30	< 0.02	0.2
1274216	15.5	1.15	1.06	6.95	1.07	4.51	< 0.1	91	118	823	5.57	0.6	< 10	81.6	0.7	0.4	0.2	< 0.05	0.36	37.7	0.30	0.04	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274217	9.3	0.47	6.60	5.17	0.01	4.65	0.2	156	1750	1290	8.21	0.7	< 10	1260	0.4	0.1	0.1	0.06	< 0.05	112	0.20	0.02	0.5
1274218	6.9	0.04	6.37	4.26	0.01	3.20	0.2	119	1550	1140	7.67	0.6	< 10	1550	0.4	0.1	0.1	< 0.05	< 0.05	132	0.20	0.02	0.5
1274219	13.4	0.21	4.30	5.75	0.01	3.93	0.5	170	2130	1140	9.92	0.5	40	913	0.6	0.1	0.2	0.26	< 0.05	98.3	0.20	0.05	< 0.1
1274220	7.5	1.84	3.03	4.41	0.02	4.65	< 0.1	127	1820	1500	7.19	0.6	20	1470	0.5	0.1	0.2	0.11	0.05	146	0.20	0.05	0.2
1274221	12.0	0.68	1.91	7.25	1.03	4.27	0.3	187	86.1	1600	8.71	0.6	10	89.4	0.7	0.3	0.2	0.08	0.45	42.2	0.40	0.02	< 0.1
1274222	13.6	0.51	2.31	7.89	1.61	2.55	0.1	268	114	757	7.98	1.3	< 10	64.8	0.8	0.3	0.3	< 0.05	0.39	46.9	0.50	0.06	< 0.1
1274223	10.8	1.83	1.94	7.04	0.54	5.07	0.1	217	156	1960	8.05	1.1	< 10	75.0	0.7	0.2	0.2	< 0.05	0.23	35.3	0.40	0.02	< 0.1
1274224	14.2	0.93	2.02	6.31	0.34	5.70	0.1	190	48.6	1920	10.3	0.7	< 10	104	0.8	0.2	0.3	< 0.05	0.29	42.5	0.50	0.03	< 0.1
1274225	2.6	0.26	1.04	3.36	0.05	3.68	< 0.1	96	65.3	542	3.45	0.3	< 10	30.9	0.6	0.3	0.2	< 0.05	0.06	11.6	0.20	0.04	< 0.1
1274226	31.9	2.21	1.98	> 10.0	1.46	1.28	< 0.1	158	115	637	5.18	0.7	< 10	284	0.7	0.3	0.2	< 0.05	0.38	81.1	0.20	0.02	< 0.1
1274228	34.3	0.77	1.78	0.92	2.76	0.46	0.4	136	130	418	4.43	1.0	< 10	403	0.9	0.3	0.3	< 0.05	0.52	103	0.30	0.03	< 0.1
1274229	6.1	1.53	1.24	5.94	0.09	5.77	< 0.1	144	30.3	9000	4.00	0.5	30	20.0	1.5	41.4	0.3	0.27	0.17	15.6	0.10	0.03	< 0.1
1274230	4.6	> 3.00	0.14	7.12	1.37	0.70	< 0.1	10	25.8	84	0.67	2.0	< 10	4.0	< 0.1	1.3	< 0.1	0.06	0.58	1.9	0.10	0.05	< 0.1
1274231	2.2	> 3.00	0.04	6.29	0.34	0.19	< 0.1	8	23.3	54	0.63	1.5	< 10	5.3	< 0.1	1.2	< 0.1	< 0.05	0.19	1.8	< 0.05	0.07	< 0.1
1274232	1.8	< 0.01	0.05	4.09	0.30	0.19	< 0.1	10	13.6	50	1.13	2.8	< 10	2.8	0.1	1.9	< 0.1	< 0.05	0.13	3.7	0.10	0.50	0.2
1274233	1.7	0.65	0.05	6.24	0.23	0.19	< 0.1	8	28.7	63	1.58	2.5	< 10	7.3	0.1	1.8	< 0.1	< 0.05	0.10	15.0	0.30	0.41	0.8
1274234	2.3	1.33	0.17	> 10.0	0.14	0.49	< 0.1	9	40.4	54	0.81	2.2	< 10	4.8	0.1	1.7	< 0.1	< 0.05	0.07	3.3	0.10	0.30	< 0.1
1274235	2.9	> 3.00	0.18	> 10.0	2.29	0.73	< 0.1	10	24.7	70	1.07	1.9	< 10	4.6	0.1	1.5	< 0.1	< 0.05	0.19	3.7	0.10	0.14	< 0.1
1274236	1.5	> 3.00	0.14	> 10.0	1.95	1.12	< 0.1	7	16.3	82	0.73	2.3	< 10	4.1	0.1	1.3	< 0.1	< 0.05	0.65	2.3	0.10	0.06	< 0.1
1274238	6.3	> 3.00	0.42	6.70	1.14	1.29	< 0.1	16	16.7	149	5.23	2.1	20	30.5	0.1	1.1	< 0.1	0.14	0.43	37.1	0.10	0.71	0.4
1274239	2.6	> 3.00	0.12	5.40	1.29	0.31	< 0.1	7	39.3	65	0.98	1.4	10	4.4	0.1	1.0	< 0.1	0.06	0.21	2.9	0.10	0.15	< 0.1
1274240	0.6	1.82	0.03	3.12	0.51	0.19	< 0.1	2	65.9	65	0.73	0.7	< 10	3.2	< 0.1	0.4	< 0.1	< 0.05	0.06	1.9	< 0.05	0.08	< 0.1
1274241	1.7	2.19	0.08	3.30	0.30	0.37	< 0.1	6	42.6	99	1.34	0.6	< 10	2.2	0.2	1.1	0.1	0.05	0.10	2.2	0.30	0.20	< 0.1
1274242	6.0	> 3.00	0.18	6.19	1.57	1.47	< 0.1	8	22.6	81	0.69	2.4	< 10	3.2	0.1	1.6	< 0.1	< 0.05	0.27	1.2	0.10	0.04	< 0.1
1274243	0.7	0.11	0.02	0.41	0.14	0.11	< 0.1	< 1	84.5	81	0.68	0.1	< 10	3.4	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	0.8	< 0.05	< 0.02	< 0.1
1274244	2.5	1.52	0.06	2.94	0.43	0.30	< 0.1	2	64.6	63	0.53	0.1	< 10	2.2	0.1	0.9	< 0.1	< 0.05	0.12	0.6	< 0.05	0.26	< 0.1
1274245	7.4	1.19	0.57	2.71	0.34	1.20	< 0.1	16	97.4	176	1.24	0.9	< 10	20.9	0.2	0.6	0.1	< 0.05	0.11	4.8	0.30	0.03	< 0.1
1274246	44.3	0.28	2.52	2.77	0.15	0.20	< 0.1	40	76.6	361	3.42	0.1	< 10	88.4	< 0.1	0.2	< 0.1	< 0.05	1.56	15.9	< 0.05	0.04	< 0.1
1274247	1.8	0.04	0.13	0.21	0.05	2.38	0.1	8	63.2	540	0.98	< 0.1	20	3.4	0.3	0.1	0.1	0.90	0.18	3.7	< 0.05	0.10	< 0.1
1274248	27.3	2.45	2.16	7.26	0.69	3.23	< 0.1	151	15.4	1260	9.27	1.2	< 10	18.1	2.5	0.4	0.9	0.23	1.19	43.5	0.80	0.20	< 0.1
1274249	10.5	1.35	2.03	6.79	0.49	6.08	0.1	164	20.9	1420	9.09	1.2	< 10	16.4	2.5	0.9	0.9	0.11	2.86	26.9	0.70	1.14	< 0.1
1274250	25.9	1.43	2.75	6.47	0.94	4.19	0.1	215	46.2	1220	8.99	1.9	< 10	34.0	2.0	0.6	0.7	0.25	1.75	51.9	0.70	0.51	0.8
1274251	21.0	2.45	2.71	7.22	0.91	4.60	0.1	246	9.9	1470	9.58	2.1	< 10	27.1	2.2	0.6	0.8	0.19	1.86	36.5	0.80	0.41	0.1
1274252	19.6	1.81	0.97	7.37	0.86	3.89	< 0.1	70	69.2	2530	5.71	2.8	< 10	33.7	0.8	0.8	0.3	< 0.05	4.83	15.7	0.60	0.81	< 0.1
1274254	20.0	1.67	0.74	> 10.0	1.42	3.53	< 0.1	61	54.5	1570	4.52	2.8	< 10	39.0	0.9	0.9	0.4	< 0.05	3.24	18.4	0.55	0.44	< 0.1
1274255	30.8	0.66	1.13	5.96	0.91	2.66	< 0.1	74	51.3	1390	7.50	2.1	30	42.6	0.8	1.6	0.3	0.16	1.96	28.8	0.60	2.28	0.4
1274256	13.1	0.48	0.46	5.10	1.42	1.97	< 0.1	53	60.9	888	2.84	1.2	< 10	22.6	0.6	0.5	0.2	0.10	1.14	12.0	0.70	0.44	< 0.1
1274257	16.6	2.04	0.59	> 10.0	1.67	2.45	< 0.1	90	50.2	879	3.94	3.6	< 10	43.0	0.8	0.8	0.3	< 0.05	2.86	18.8	0.60	0.70	< 0.1
1274259	10.7	0.20	0.35	5.14	1.38	1.99	< 0.1	69	59.0	1100	12.0	2.1	380	25.4	0.6	0.4	0.2	0.41	1.22	29.8	0.40	9.17	1.0
1274260	11.9	0.73	0.41	4.31	1.00	1.19	< 0.1	41	60.3	560	2.82	1.5	< 10	24.3	0.4	0.6	0.1	0.10	0.97	9.6	0.30	0.45	< 0.1
1274261	22.3	0.69	0.82	5.85	1.22	2.65	< 0.1	77	77.2	1320	5.96	2.8	< 10	41.0	0.8	0.7	0.3	< 0.05	1.58	22.7	0.60	2.01	0.4
1470684	4.1	0.14	0.34	2.53	0.86	5.74	0.3	38	20.7	747	2.99	1.0	30	36.9	0.8	0.6	0.3	0.32	0.68	24.9	0.30	0.21	0.7

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470685	10.9	0.83	2.16	3.91	0.03	2.83	< 0.1	108	63.0	958	5.69	0.5	10	31.3	0.5	0.6	0.2	0.17	0.48	26.0	0.20	0.03	< 0.1
1470686	11.4	2.63	2.14	7.45	0.04	2.22	< 0.1	139	11.8	1230	10.6	2.9	< 10	15.1	3.7	1.0	1.3	< 0.05	0.13	39.5	1.20	0.05	0.1
1470687	2.3	< 0.01	3.69	4.84	0.12	0.32	< 0.1	195	338	654	16.5	0.7	20	113	1.0	0.1	0.4	1.24	0.60	104	0.20	0.16	10.6
1470688	10.1	0.95	3.75	7.52	0.55	7.19	0.1	130	182	1490	7.94	0.3	< 10	130	2.0	0.3	0.7	0.33	0.81	50.9	0.60	0.46	0.2
1470689	13.5	0.39	1.42	7.85	0.56	8.89	< 0.1	106	53.4	5320	12.7	2.2	< 10	17.7	1.4	0.7	0.5	0.10	0.60	18.1	1.10	1.55	< 0.1
1470690	22.1	1.03	1.49	6.64	0.65	5.00	< 0.1	94	33.0	3710	11.3	2.4	< 10	18.1	1.1	0.7	0.4	0.06	2.45	13.0	0.70	1.22	0.1
1470691	41.9	0.84	1.91	8.06	1.06	5.26	< 0.1	111	36.2	5610	14.8	2.6	< 10	22.4	1.5	0.5	0.5	< 0.05	0.81	13.0	0.80	1.07	0.1
1470692	15.9	2.87	0.58	6.10	2.39	2.14	< 0.1	13	33.5	1250	2.49	3.2	< 10	5.9	0.9	0.8	0.3	< 0.05	0.90	3.4	0.60	0.04	< 0.1
1470693	27.7	1.65	3.66	7.33	1.95	5.85	< 0.1	252	85.1	2100	9.41	3.0	10	82.6	2.4	0.7	0.9	0.27	1.41	48.2	1.00	0.81	< 0.1
1470695	21.2	1.40	3.63	7.58	0.49	7.22	0.2	214	74.3	1520	9.38	2.7	< 10	84.3	2.3	0.6	0.9	< 0.05	0.97	49.9	1.10	0.03	< 0.1
1470696	12.2	1.60	3.24	7.47	0.44	6.99	0.2	100	68.9	1700	10.8	1.5	< 10	63.4	3.2	0.9	1.2	< 0.05	1.05	52.4	1.50	0.04	< 0.1
1470697	17.7	1.77	3.43	7.48	0.57	6.69	0.1	133	72.4	1630	10.1	1.3	< 10	79.2	2.7	0.9	1.0	< 0.05	1.42	54.0	1.30	0.05	< 0.1
1470698	25.3	1.23	2.73	6.33	0.89	5.16	0.1	197	145	2040	7.14	1.1	< 10	73.8	2.2	0.8	0.8	< 0.05	0.66	42.2	0.90	0.73	< 0.1
1470699	7.8	0.52	2.23	6.50	0.47	6.01	< 0.1	89	46.3	> 10000	19.4	2.6	< 10	27.0	1.3	0.4	0.5	< 0.05	1.55	15.9	0.60	0.13	< 0.1
1470700	9.8	0.74	1.46	7.02	0.36	6.78	0.1	107	37.1	3330	9.70	2.4	< 10	25.3	1.2	1.0	0.4	< 0.05	0.74	14.6	0.60	1.57	< 0.1
1274151	13.4	1.95	2.33	6.78	1.10	5.48	0.2	193	20.4	1660	12.0	2.4	< 10	35.4	4.7	1.3	1.7	< 0.05	3.37	52.3	1.60	0.07	< 0.1
1274152	9.4	2.19	0.49	5.29	0.68	1.94	< 0.1	51	65.8	459	2.74	1.6	< 10	3.6	0.7	1.4	0.3	< 0.05	0.72	6.4	0.50	0.11	< 0.1
1274153	12.8	1.83	2.24	6.92	1.09	5.22	0.2	224	16.5	1630	12.1	4.0	20	33.9	4.7	1.2	1.7	< 0.05	3.18	50.7	1.60	0.09	< 0.1
1274155	2.5	0.19	0.05	1.16	0.37	0.04	0.2	14	82.9	93	1.78	0.3	< 10	9.6	0.1	0.5	< 0.1	0.37	0.20	9.7	0.10	0.25	0.4
1470865	21.4	1.59	2.79	5.40	0.02	0.95	0.4	135	1800	1940	7.69	0.6	< 10	505	0.4	0.2	0.1	0.13	0.76	71.1	0.20	0.03	< 0.1
1470866	7.3	1.50	1.72	3.39	0.02	2.70	< 0.1	83	1370	1970	5.71	0.4	< 10	507	0.3	0.1	0.1	0.07	0.33	68.8	0.10	0.02	0.2
1470867	30.1	1.20	5.35	4.98	0.02	6.11	< 0.1	148	1640	2120	7.50	0.7	< 10	831	0.4	0.2	0.1	< 0.05	0.48	89.5	0.20	0.03	< 0.1
1470868	24.9	1.64	10.9	5.76	0.03	1.64	0.2	128	1350	1620	7.90	1.2	< 10	600	0.3	0.2	0.1	< 0.05	1.34	76.1	0.20	0.02	< 0.1
1470869	22.1	1.57	9.04	5.59	0.02	0.21	0.1	130	1440	809	6.69	1.3	< 10	495	0.5	0.2	0.2	< 0.05	0.56	57.1	0.20	0.02	< 0.1
1470870	16.3	0.19	5.25	2.55	0.01	3.55	0.3	64	1300	1020	5.02	0.3	< 10	583	0.2	0.4	0.1	< 0.05	0.28	56.7	0.10	0.04	< 0.1
1470871	13.6	0.05	4.82	2.15	0.01	0.21	0.2	47	921	834	4.04	0.2	< 10	441	0.1	0.2	< 0.1	< 0.05	0.27	39.8	0.10	0.03	< 0.1
1470872	16.6	1.57	1.83	5.16	2.13	2.30	< 0.1	114	90.3	1080	4.40	0.1	20	41.8	1.3	4.0	0.5	0.32	4.80	21.6	1.30	0.15	< 0.1
1470873	11.5	> 3.00	0.61	6.38	2.69	0.94	< 0.1	49	47.0	441	2.11	3.0	< 10	28.5	0.6	1.9	0.3	< 0.05	1.80	9.7	0.70	0.27	< 0.1
1470874	3.9	1.25	0.28	2.95	1.04	0.15	< 0.1	21	53.4	183	1.42	0.2	< 10	9.8	0.2	0.9	0.1	< 0.05	0.94	5.9	0.40	0.25	< 0.1
1470875	10.8	> 3.00	0.72	7.12	2.33	0.95	< 0.1	51	54.6	456	2.20	2.9	< 10	22.8	0.5	1.8	0.2	< 0.05	1.45	11.0	0.60	0.31	< 0.1
1470876	7.4	2.77	0.50	5.68	1.83	0.32	< 0.1	44	49.7	283	1.98	2.1	< 10	16.3	0.4	1.4	0.2	< 0.05	1.29	6.8	0.50	0.13	< 0.1
1470877	26.6	1.18	1.02	> 10.0	0.02	0.67	< 0.1	102	52.0	197	2.20	3.8	< 10	60.4	1.1	0.9	0.4	< 0.05	0.12	13.6	0.90	3.67	< 0.1
1470878	63.7	1.79	4.28	7.10	0.82	4.28	< 0.1	94	141	1080	5.31	2.5	< 10	203	1.2	0.9	0.4	< 0.05	1.93	35.6	0.90	0.06	< 0.1
1470880	76.7	2.44	3.57	7.23	0.63	1.80	0.2	134	154	1040	5.97	2.8	< 10	235	1.2	1.2	0.5	< 0.05	1.70	36.1	1.10	0.15	< 0.1
1470881	55.7	1.85	2.66	6.40	0.63	2.24	0.3	93	169	1350	5.23	2.3	< 10	184	0.9	0.8	0.3	< 0.05	1.70	30.4	0.70	1.66	< 0.1
1470882	39.1	2.69	1.38	0.05	1.95	0.29	< 0.1	118	83.4	319	3.69	3.8	< 10	42.9	1.0	1.5	0.4	< 0.05	5.23	14.4	1.00	0.43	< 0.1
1470883	40.1	> 3.00	1.53	> 10.0	1.12	0.38	< 0.1	67	85.9	404	4.36	2.5	< 10	52.3	1.0	0.9	0.4	< 0.05	3.09	19.0	1.00	0.21	< 0.1
1470884	50.6	1.90	2.01	6.32	0.99	0.24	0.1	42	212	635	5.17	2.0	< 10	97.5	0.9	0.8	0.4	< 0.05	2.95	19.5	1.00	0.07	< 0.1
1470885	83.7	2.63	3.95	> 10.0	0.28	1.20	0.1	149	183	956	6.85	2.8	< 10	235	1.0	0.8	0.4	< 0.05	0.81	40.0	1.10	0.09	< 0.1
1470886	33.8	> 3.00	1.07	0.85	0.52	0.35	0.2	131	120	1250	4.53	3.4	20	139	1.1	1.2	0.4	< 0.05	2.07	31.7	1.00	0.27	< 0.1
1470887	2.7	0.01	22.0	0.77	0.01	0.72	< 0.1	6	1010	701	4.78	0.2	< 10	2750	0.1	0.1	< 0.1	0.12	0.47	109	< 0.05	0.12	< 0.1
1470888	2.1	0.02	23.0	0.44	0.01	0.27	< 0.1	< 1	3450	783	4.03	0.1	< 10	2290	0.1	0.1	< 0.1	0.07	0.21	96.9	< 0.05	0.06	0.2

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470889	0.5	0.01	24.9	0.22	< 0.01	0.09	< 0.1	1	303	1050	4.33	< 0.1	< 10	2510	< 0.1	< 0.1	< 0.1	< 0.05	0.17	102	< 0.05	0.14	< 0.1
1470891	2.6	< 0.01	24.3	0.17	< 0.01	0.34	< 0.1	< 1	255	840	3.69	< 0.1	< 10	2360	< 0.1	0.2	< 0.1	< 0.05	0.10	92.0	< 0.05	0.08	< 0.1
1470892	2.1	< 0.01	22.8	0.23	< 0.01	0.39	< 0.1	< 1	241	985	3.81	< 0.1	< 10	2500	0.1	< 0.1	< 0.1	< 0.05	0.09	96.1	< 0.05	0.06	< 0.1
1470893	0.6	< 0.01	26.0	0.25	< 0.01	0.13	< 0.1	< 1	281	640	4.11	< 0.1	< 10	2490	< 0.1	< 0.1	< 0.1	< 0.05	0.17	95.7	< 0.05	0.08	< 0.1
1470894	5.3	2.89	2.76	6.79	0.83	5.08	< 0.1	215	12.7	1130	7.50	1.3	< 10	28.0	1.7	1.6	0.6	< 0.05	6.31	23.6	0.60	1.55	< 0.1
1470895	26.3	1.76	4.05	7.37	1.40	3.10	0.1	237	25.9	1140	9.29	1.1	< 10	45.8	1.9	0.4	0.7	0.52	10.4	44.6	0.50	0.71	< 0.1
1470896	24.1	2.05	2.65	7.16	0.96	3.86	< 0.1	267	16.7	1330	9.80	2.2	< 10	25.7	2.5	0.6	0.9	0.05	5.73	40.0	0.90	0.28	< 0.1
1470897	6.6	> 3.00	0.40	> 10.0	0.53	1.35	< 0.1	30	17.2	137	1.26	3.0	< 10	14.1	0.2	1.6	0.1	< 0.05	2.12	4.6	0.30	0.06	< 0.1
1470898	18.5	2.45	0.97	6.90	1.04	2.32	< 0.1	77	85.8	526	3.11	2.8	< 10	33.6	1.0	1.4	0.4	< 0.05	1.55	10.5	0.60	0.46	< 0.1
1470899	2.7	1.64	0.41	2.85	0.31	0.51	< 0.1	27	57.9	275	2.65	1.1	< 10	9.4	0.3	0.4	0.1	< 0.05	0.76	4.8	0.20	0.29	< 0.1
1470900	7.7	1.56	2.75	5.14	0.39	4.60	< 0.1	154	174	827	5.38	1.9	< 10	50.3	1.7	0.3	0.6	< 0.05	3.34	26.6	0.50	0.60	< 0.1
1274101	12.0	> 3.00	0.89	6.42	0.13	3.35	< 0.1	27	23.7	1010	6.50	2.7	< 10	2.3	1.6	0.4	0.5	< 0.05	0.46	25.3	0.90	< 0.02	< 0.1
1274102	13.1	> 3.00	1.70	> 10.0	1.58	1.07	< 0.1	101	59.2	557	3.71	5.1	< 10	42.2	1.3	0.9	0.5	< 0.05	0.38	16.8	1.40	0.31	< 0.1
1274104	23.6	> 3.00	1.60	6.38	1.53	1.84	< 0.1	95	62.8	744	3.78	4.8	< 10	39.4	1.3	2.0	0.5	< 0.05	2.35	17.4	1.40	0.10	< 0.1
1274105	21.3	> 3.00	1.37	7.21	1.88	2.66	0.1	77	73.1	868	3.75	4.1	< 10	32.0	1.2	1.8	0.5	< 0.05	0.97	14.7	1.30	0.22	< 0.1
1274106	25.4	> 3.00	1.54	> 10.0	1.76	1.76	0.1	103	98.6	777	3.99	5.0	< 10	43.4	1.3	2.8	0.5	< 0.05	1.18	20.1	1.60	0.14	< 0.1
1274107	18.7	> 3.00	2.06	6.60	0.26	2.80	< 0.1	234	11.4	862	9.14	2.1	< 10	5.2	1.0	0.5	0.4	< 0.05	1.82	41.5	0.60	0.06	< 0.1
1274109	62.0	0.83	7.57	7.19	0.03	0.61	< 0.1	202	235	624	7.64	3.8	< 10	81.0	1.2	0.4	0.5	< 0.05	0.09	21.7	1.10	0.04	0.3
1274110	16.9	0.17	5.60	2.40	0.02	6.35	0.2	51	636	1840	4.17	0.4	< 10	403	0.3	0.2	0.1	< 0.05	0.23	37.9	0.30	0.04	< 0.1
1274111	18.3	> 3.00	2.10	7.25	0.02	0.20	< 0.1	54	363	317	3.79	5.8	< 10	65.5	1.8	0.5	0.6	< 0.05	0.06	12.3	1.00	0.12	< 0.1
1274112	11.6	> 3.00	1.35	5.92	0.02	0.25	< 0.1	23	79.8	238	2.39	2.7	< 10	45.2	1.7	0.6	0.6	< 0.05	0.08	6.0	0.80	0.09	< 0.1
1274113	9.5	0.04	12.1	3.39	0.01	8.71	0.2	98	1680	2830	7.85	0.6	< 10	1460	0.7	0.3	0.2	0.06	< 0.05	104	0.40	0.04	< 0.1
1274114	24.2	1.28	2.01	4.90	0.13	1.15	< 0.1	93	115	814	3.69	0.3	< 10	101	0.6	0.3	0.2	0.05	0.16	24.2	0.30	0.05	< 0.1
1274115	23.2	1.31	1.53	6.76	1.91	1.78	5.6	72	86.9	1020	4.47	2.6	< 10	65.2	1.1	1.0	0.4	< 0.05	0.78	20.7	0.80	0.14	< 0.1
1274116	12.9	2.96	0.93	6.69	1.15	0.29	< 0.1	44	84.9	519	3.96	2.2	< 10	54.9	0.9	1.0	0.3	< 0.05	1.32	15.9	0.60	0.79	< 0.1
1274117	23.0	> 3.00	1.56	> 10.0	1.17	1.31	< 0.1	76	147	571	5.07	3.6	< 10	110	1.5	1.5	0.6	< 0.05	1.55	27.4	1.25	0.11	< 0.1
1274118	14.2	2.90	1.49	7.48	1.61	2.28	< 0.1	65	79.5	864	4.07	3.2	20	79.4	1.2	1.3	0.5	0.08	1.97	19.0	1.10	0.07	< 0.1
1274119	7.2	2.64	0.53	4.53	0.58	1.01	0.3	54	68.5	1620	5.15	1.7	< 10	54.8	1.5	1.4	0.7	0.39	1.17	47.0	1.40	0.12	0.3
1274120	13.5	> 3.00	1.32	7.47	1.00	2.15	< 0.1	62	150	742	3.79	3.3	< 10	73.8	1.1	1.0	0.4	< 0.05	1.50	16.8	0.90	0.04	< 0.1
1274121	22.4	> 3.00	1.23	7.73	1.64	1.05	< 0.1	58	82.8	491	3.95	3.4	< 10	79.8	1.1	1.3	0.4	< 0.05	2.35	18.7	0.90	0.05	< 0.1
1274122	28.0	1.86	1.85	7.87	1.13	2.01	< 0.1	92	130	636	6.25	2.8	< 10	132	1.2	1.0	0.5	< 0.05	0.82	30.7	1.00	0.22	< 0.1
1274123	27.0	> 3.00	3.08	8.24	0.48	2.46	0.1	53	171	823	5.10	2.9	< 10	133	1.2	0.8	0.5	< 0.05	0.53	27.5	1.20	0.08	< 0.1
1274124	13.2	0.59	1.95	6.27	2.12	3.51	0.2	41	110	1040	4.25	1.5	< 10	87.9	0.7	1.2	0.3	< 0.05	2.44	19.1	0.70	0.07	< 0.1
1274125	19.8	> 3.00	1.01	7.86	1.38	0.75	< 0.1	49	72.3	457	3.78	2.6	< 10	72.1	1.0	1.1	0.4	< 0.05	1.97	22.8	0.80	0.15	< 0.1
1274126	32.5	1.15	2.27	6.67	2.31	1.00	< 0.1	117	187	493	7.17	4.1	< 10	79.3	1.0	1.5	0.4	< 0.05	3.67	23.7	0.80	0.32	< 0.1
1274128	44.1	2.42	1.95	0.34	1.85	1.38	< 0.1	151	122	649	5.32	5.1	20	65.9	1.5	1.7	0.5	< 0.05	2.26	26.8	0.60	0.37	< 0.1
1274129	20.4	> 3.00	1.59	8.29	1.38	5.82	0.2	111	153	1400	4.71	1.3	< 10	115	2.6	2.7	1.3	0.22	2.26	49.0	1.80	0.05	< 0.1
1274130	53.5	1.19	3.19	7.23	0.02	3.70	< 0.1	128	52.2	1340	9.96	1.0	< 10	52.9	1.7	0.5	0.7	< 0.05	0.12	43.1	0.90	0.02	< 0.1
1274131	26.0	2.91	1.76	7.46	1.56	3.30	< 0.1	87	145	460	3.92	3.1	< 10	88.9	0.7	1.1	0.3	< 0.05	2.84	23.9	0.80	0.08	< 0.1
1274132	61.9	2.09	4.96	7.36	0.09	5.25	< 0.1	134	236	1300	6.50	0.6	< 10	267	0.9	0.3	0.3	< 0.05	0.29	47.2	0.20	0.02	< 0.1
1274133	45.3	> 3.00	2.95	4.96	0.56	2.83	< 0.1	224	190	1250	5.63	1.4	< 10	211	1.6	0.5	0.5	< 0.05	0.80	47.5	0.50	0.02	< 0.1
1274134	17.5	2.57	4.40	7.62	0.03	7.02	< 0.1	98	105	1430	5.76	0.3	< 10	217	1.4	0.3	0.5	< 0.05	0.17	52.9	0.60	< 0.02	< 0.1

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274135	25.2	1.09	4.90	> 10.0	0.26	7.07	< 0.1	157	132	1480	6.94	0.5	< 10	242	1.7	0.3	0.6	< 0.05	0.13	59.1	0.60	0.02	< 0.1
1274136	20.2	2.20	4.48	7.97	0.37	6.77	< 0.1	166	92.6	1420	6.41	0.5	< 10	263	1.3	0.2	0.5	< 0.05	0.35	48.3	0.60	< 0.02	< 0.1
1274138	13.6	0.82	1.58	2.73	0.01	23.5	< 0.1	68	187	2880	2.60	0.4	30	150	0.8	0.2	0.3	0.24	0.16	27.6	0.20	0.24	< 0.1
1274139	15.9	2.39	2.77	7.08	0.16	3.18	< 0.1	183	15.2	1470	10.0	1.9	< 10	10.8	2.7	0.5	1.0	< 0.05	0.21	46.7	0.80	0.02	< 0.1
1274140	33.3	2.49	3.85	7.53	0.05	2.65	< 0.1	195	110	960	8.01	1.5	< 10	43.9	0.9	0.3	0.3	< 0.05	0.17	44.1	0.50	0.05	< 0.1
1274141	29.0	0.98	4.20	7.18	1.90	3.38	< 0.1	54	810	797	3.65	3.8	< 10	208	1.0	0.7	0.4	< 0.05	0.94	13.6	0.80	0.04	< 0.1
1274142	21.0	2.08	2.08	6.66	0.10	2.84	< 0.1	145	13.7	1160	10.5	1.4	< 10	5.6	1.2	0.3	0.4	< 0.05	0.23	44.7	0.60	0.03	< 0.1
1274143	19.2	> 3.00	1.86	8.09	1.25	1.97	< 0.1	92	90.6	721	3.86	4.7	< 10	41.5	1.2	2.1	0.5	< 0.05	0.90	18.4	1.30	0.06	< 0.1
1274144	17.8	> 3.00	2.10	> 10.0	0.53	1.54	< 0.1	97	69.2	561	4.22	4.8	< 10	42.8	1.3	1.8	0.5	< 0.05	0.42	18.3	1.55	0.02	< 0.1
1274145	1.6	0.01	22.4	1.25	< 0.01	1.14	< 0.1	20	614	535	8.91	0.1	20	2070	0.2	< 0.1	0.1	0.26	0.17	52.5	0.10	0.05	< 0.1
1274146	13.8	> 3.00	0.70	7.46	0.64	1.31	< 0.1	9	83.1	1120	8.90	3.1	< 10	1.4	2.0	0.7	0.7	< 0.05	0.26	21.7	1.20	< 0.02	< 0.1
1274147	9.3	2.56	0.99	4.54	0.06	2.25	< 0.1	81	32.8	482	3.63	1.1	< 10	9.9	0.9	0.3	0.3	< 0.05	0.20	16.3	0.40	0.02	< 0.1
1274148	4.4	0.95	0.54	2.04	0.04	2.14	< 0.1	62	97.4	511	2.22	0.1	< 10	10.9	0.7	0.2	0.2	< 0.05	0.22	7.4	0.30	0.03	< 0.1
1274149	1.9	1.25	0.17	1.81	0.02	9.44	< 0.1	54	35.0	767	1.51	0.5	< 10	1.1	0.8	0.3	0.3	< 0.05	0.08	4.4	0.50	0.06	< 0.1
1274150	6.6	1.87	0.71	3.39	0.05	1.91	< 0.1	58	38.8	486	2.79	1.5	< 10	6.7	0.8	0.2	0.3	< 0.05	0.15	10.4	0.30	0.05	< 0.1
1132701	15.0	> 3.00	0.86	6.66	0.14	1.54	< 0.1	9	20.3	478	8.14	3.1	< 10	1.1	2.0	0.6	0.7	< 0.05	0.22	19.5	0.90	1.13	< 0.1
1132702	3.5	0.10	1.28	0.80	0.24	4.88	0.1	54	54.3	1650	4.93	0.3	30	3.5	0.4	0.2	0.2	0.23	0.20	13.8	0.40	0.06	< 0.1
1132703	26.6	2.58	2.03	7.20	0.36	3.42	< 0.1	148	13.7	957	10.1	2.1	< 10	7.0	1.3	0.5	0.4	< 0.05	1.20	45.9	0.70	0.03	< 0.1
1132704	31.7	0.52	9.13	5.01	1.74	4.55	0.1	135	1050	1240	7.58	1.1	< 10	508	0.3	0.5	0.1	< 0.05	10.5	73.7	0.20	0.05	< 0.1
1132705	16.4	> 3.00	3.28	7.35	0.21	4.36	< 0.1	147	27.1	1430	8.19	1.0	< 10	21.8	2.0	0.4	0.7	< 0.05	1.76	40.7	0.60	0.12	< 0.1
1477528	22.1	2.72	6.46	6.70	0.05	4.86	< 0.1	148	406	1230	7.20	1.2	< 10	227	1.4	0.2	0.5	< 0.05	0.57	45.5	0.40	< 0.02	< 0.1
1477529	12.8	1.63	2.88	6.99	0.99	6.33	< 0.1	93	40.6	1880	10.8	1.8	< 10	61.5	3.2	1.2	1.2	< 0.05	4.52	54.2	1.50	0.02	< 0.1

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470971	55.0	15.7	16.3	4.4	7.9	80.6	60	0.2	0.99	< 0.1	< 1	< 0.1	0.2	43	6.8	15.3	2.0	8.3	2.0	2.0	0.3	1.5	25.3
1470972	52.7	13.9	1.3	28.0	12.3	362	201	5.9	0.93	< 0.1	1	0.3	0.1	521	32.5	75.4	7.4	25.9	3.6	3.4	0.4	2.1	49.5
1470973	90.4	14.7	1.3	25.2	11.4	485	191	5.4	0.77	< 0.1	1	0.2	0.1	456	29.6	71.9	6.7	23.5	3.3	3.0	0.3	1.9	46.6
1470974	17.3	0.3	93.4	2.6	3.0	443	5	0.3	2.34	< 0.1	< 1	0.3	< 0.1	125	1.0	2.0	0.3	1.2	0.4	0.5	0.1	0.5	35.4
1470975	22.2	12.0	22.0	12.8	8.0	124	91	1.9	2.14	< 0.1	< 1	< 0.1	0.9	108	5.6	14.2	2.0	8.4	2.0	1.9	0.2	1.4	2.7
1470976	87.0	7.8	< 0.1	0.7	8.6	15.6	18	1.5	0.88	< 0.1	< 1	< 0.1	0.4	9	0.9	2.4	0.4	1.8	0.6	0.9	0.2	1.3	9.4
1470977	88.6	6.2	2.9	0.9	6.7	28.1	8	0.7	0.67	< 0.1	< 1	< 0.1	0.3	11	0.4	1.3	0.2	1.1	0.5	0.7	0.1	1.0	8.6
1470978	62.6	7.8	0.9	1.2	7.9	19.3	12	0.8	0.75	< 0.1	< 1	< 0.1	0.2	8	1.0	2.0	0.3	1.3	0.5	0.8	0.2	1.2	220
1470979	50.0	3.7	2.3	1.6	3.8	23.3	8	0.6	0.57	< 0.1	< 1	0.3	0.1	8	0.7	1.8	0.3	1.1	0.3	0.5	0.1	0.6	10.9
1470980	140	20.0	4.9	0.3	20.5	265	23	0.2	0.19	< 0.1	< 1	< 0.1	0.1	9	7.8	19.4	2.7	10.9	2.6	3.1	0.5	3.5	82.7
1470981	48.6	7.7	0.6	5.3	10.1	61.8	11	0.3	1.84	< 0.1	< 1	< 0.1	< 0.1	39	3.2	9.2	1.1	4.2	0.9	1.3	0.2	1.6	9.8
1470982	138	17.5	2.6	5.6	18.1	181	32	0.6	0.46	< 0.1	< 1	< 0.1	< 0.1	57	5.9	14.5	2.1	8.8	2.3	2.7	0.5	3.2	48.0
1470984	22.0	11.5	1.4	0.6	6.3	129	8	0.2	2.01	< 0.1	< 1	1.0	< 0.1	9	0.9	2.4	0.4	1.7	0.5	0.8	0.1	0.9	16.9
1470985	50.9	8.0	14.0	0.5	10.6	77.2	41	0.3	1.15	< 0.1	< 1	< 0.1	0.8	16	2.3	5.4	0.7	2.9	0.8	1.2	0.2	1.7	369
1470986	47.0	14.8	5.2	0.4	18.5	177	164	1.7	0.77	< 0.1	< 1	< 0.1	0.4	80	29.7	69.7	8.8	32.6	6.0	5.3	0.6	3.5	665
1470988	13.5	8.1	18.8	0.8	5.0	85.6	99	1.2	1.21	< 0.1	< 1	0.1	0.2	37	15.6	34.2	4.3	15.6	2.6	1.8	0.2	0.9	4.0
1470989	20.6	7.3	49.5	0.5	4.8	58.1	87	1.6	1.35	< 0.1	< 1	0.3	0.2	29	5.5	12.5	1.5	5.5	1.1	1.0	0.1	0.8	7.4
1470990	6.8	6.7	16.8	0.5	4.8	31.9	82	1.7	1.21	< 0.1	< 1	0.1	0.2	29	5.0	11.4	1.4	5.0	1.0	1.0	0.1	0.8	4.4
1470991	133	5.7	227	0.2	7.8	33.8	15	0.3	1.84	< 0.1	< 1	0.4	0.1	11	1.2	3.1	0.5	2.2	0.8	1.1	0.2	1.2	13.1
1470992	28.3	9.2	37.0	0.5	4.6	41.7	102	2.2	1.23	< 0.1	1	0.3	0.1	40	5.2	11.8	1.3	4.7	0.9	0.9	0.1	0.7	4.6
1470993	106	11.4	323	0.4	6.6	12.1	29	0.6	0.78	< 0.1	< 1	< 0.1	0.1	7	1.2	3.1	0.5	2.2	0.7	0.9	0.1	1.0	26.6
1470994	119	13.1	197	0.3	5.7	9.0	31	0.4	0.72	< 0.1	< 1	< 0.1	< 0.1	4	1.2	3.2	0.5	2.3	0.7	0.8	0.1	0.9	252
1470995	75.2	17.6	3.6	24.1	9.4	122	35	0.2	0.93	< 0.1	< 1	< 0.1	0.9	179	4.2	11.7	1.6	7.1	1.7	1.6	0.2	1.6	166
1470996	122	19.1	5.2	14.1	7.7	80.6	23	0.4	0.59	< 0.1	< 1	< 0.1	0.5	91	3.4	9.8	1.5	6.7	1.7	1.6	0.2	1.4	83.0
1470997	30.8	4.0	13.2	1.5	3.7	30.2	6	0.5	3.79	< 0.1	< 1	0.4	0.3	21	0.5	1.5	0.2	0.9	0.3	0.4	0.1	0.6	64.1
1470998	91.9	12.4	4.2	0.7	18.5	70.8	15	0.1	0.61	< 0.1	< 1	0.2	0.2	22	2.4	6.8	1.0	4.9	1.5	2.3	0.4	2.9	117
1470999	76.2	13.4	10.5	1.4	18.4	110	18	0.1	0.37	< 0.1	< 1	0.3	0.2	31	2.2	6.3	1.0	4.7	1.4	2.1	0.4	2.9	120
1471000	39.0	6.0	< 0.1	15.7	13.6	34.3	5	0.2	0.70	< 0.1	< 1	0.4	< 0.1	62	1.2	3.0	0.4	2.1	0.6	1.1	0.2	1.7	38.2
1274201	30.4	1.1	0.6	0.5	0.4	6.2	< 1	0.1	1.90	< 0.1	< 1	0.1	< 0.1	3	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	336
1274203	28.0	2.4	1.2	2.1	2.3	14.3	4	0.3	1.88	< 0.1	< 1	0.3	< 0.1	26	0.4	1.0	0.1	0.7	0.2	0.3	0.1	0.4	45.8
1274204	75.3	10.4	< 0.1	1.6	15.3	683	127	17.0	1.54	< 0.1	< 1	0.4	1.0	27	70.8	165	20.7	74.2	9.8	6.5	0.6	3.2	44.6
1274205	117	12.6	1.0	0.4	0.7	8.0	4	0.9	1.94	< 0.1	< 1	0.3	0.6	6	0.1	0.3	< 0.1	0.2	< 0.1	0.1	< 0.1	0.1	9180
1274207	44.1	6.0	< 0.1	0.6	7.5	106	7	2.6	2.73	< 0.1	< 1	0.2	0.3	8	15.2	35.7	4.4	15.6	2.1	1.9	0.2	1.4	7.3
1274208	113	9.7	76.2	0.3	4.8	37.1	18	0.7	0.77	< 0.1	< 1	< 0.1	0.2	11	1.1	2.9	0.4	2.0	0.5	0.6	0.1	0.8	204
1274209	109	10.3	2.1	0.2	2.5	60.3	11	0.7	0.69	< 0.1	< 1	< 0.1	0.2	6	0.8	2.1	0.3	1.6	0.4	0.5	0.1	0.4	1590
1274210	122	12.3	55.8	60.7	2.9	18.0	38	0.2	0.43	< 0.1	< 1	< 0.1	0.1	507	0.5	1.5	0.2	1.0	0.2	0.4	0.1	0.5	70.7
1274211	111	5.7	1.0	0.3	3.1	69.9	8	0.4	1.08	< 0.1	< 1	< 0.1	0.1	15	0.4	1.3	0.2	1.1	0.3	0.4	0.1	0.5	219
1274212	134	9.0	1.7	0.9	7.1	50.3	21	0.4	0.59	< 0.1	< 1	0.1	0.1	39	1.0	2.9	0.5	2.5	0.8	1.0	0.2	1.1	77.6
1274213	91.8	3.7	18.0	0.3	6.3	82.6	14	0.3	0.90	< 0.1	< 1	< 0.1	< 0.1	28	0.6	1.8	0.3	1.6	0.6	0.9	0.1	0.9	8.3
1274214	47.6	8.5	12.3	20.9	7.5	49.5	34	0.8	1.82	< 0.1	< 1	0.3	0.4	173	1.7	4.8	0.7	3.5	1.0	1.2	0.2	1.2	45.0
1274215	58.1	15.6	3.4	33.3	5.7	78.8	40	0.2	0.45	< 0.1	< 1	< 0.1	0.2	176	1.8	5.0	0.8	3.6	1.0	1.0	0.2	1.0	114
1274216	59.5	14.6	1.2	19.5	6.2	133	25	0.1	0.20	< 0.1	< 1	< 0.1	< 0.1	209	2.0	5.1	0.8	3.3	0.9	1.2	0.2	1.2	171

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274217	112	10.5	36.6	0.6	3.8	55.3	24	0.9	0.73	< 0.1	< 1	0.1	0.2	10	1.0	2.7	0.4	2.1	0.6	0.7	0.1	0.7	213
1274218	108	8.3	58.9	0.4	3.5	44.9	25	0.5	0.86	< 0.1	< 1	0.1	0.2	15	0.7	1.9	0.3	1.5	0.5	0.6	0.1	0.6	181
1274219	145	11.9	23.6	0.4	5.3	19.0	18	0.6	1.19	< 0.1	< 1	< 0.1	0.9	15	1.4	3.2	0.5	2.1	0.6	0.8	0.1	0.9	18.0
1274220	205	8.6	19.9	1.0	4.7	31.4	22	0.5	0.73	< 0.1	< 1	0.2	< 0.1	8	0.8	2.3	0.4	2.0	0.6	0.7	0.1	0.8	99.5
1274221	82.9	11.6	5.9	26.6	6.5	70.5	20	0.3	0.33	< 0.1	< 1	1.0	0.2	216	1.9	5.3	0.8	4.0	1.1	1.1	0.2	1.1	128
1274222	84.5	13.6	1.7	30.6	7.7	52.6	56	2.0	0.54	< 0.1	< 1	5.7	0.2	330	3.2	9.2	1.5	6.7	1.6	1.5	0.2	1.3	45.2
1274223	67.4	11.6	0.5	16.8	6.5	69.0	42	0.9	0.24	< 0.1	< 1	0.7	0.1	123	2.5	7.3	1.1	5.1	1.4	1.2	0.2	1.1	47.9
1274224	95.6	13.1	< 0.1	11.3	7.6	64.2	31	0.1	0.10	< 0.1	< 1	0.2	0.1	88	3.1	8.7	1.3	6.3	1.5	1.5	0.2	1.3	22.4
1274225	22.5	7.4	1.9	1.8	5.9	126	8	0.6	2.22	< 0.1	< 1	1.1	< 0.1	17	0.8	1.9	0.2	1.1	0.3	0.5	0.1	0.8	10.0
1274226	123	18.4	2.5	31.0	5.7	76.6	28	0.1	0.16	< 0.1	< 1	< 0.1	< 0.1	211	1.5	4.5	0.7	3.0	0.8	0.8	0.1	0.9	60.6
1274228	135	18.5	28.8	47.5	7.3	61.8	37	0.1	0.12	< 0.1	< 1	< 0.1	< 0.1	320	1.3	3.8	0.6	2.8	0.8	1.1	0.2	1.5	144
1274229	78.3	5.7	1.6	2.9	10.4	34.6	13	1.0	3.02	0.2	< 1	0.2	0.9	24	1.1	3.0	0.5	2.0	0.6	0.8	0.2	1.2	19.6
1274230	10.7	13.5	10.2	31.9	0.6	302	71	1.8	2.33	< 0.1	< 1	0.1	0.4	480	1.0	2.4	0.3	1.0	0.2	0.2	< 0.1	0.1	9.2
1274231	9.6	12.3	3.5	6.2	0.6	169	52	2.0	3.22	< 0.1	1	0.1	0.3	178	0.7	1.5	0.2	0.6	0.2	0.2	< 0.1	0.1	21.8
1274232	2.8	21.3	1.6	8.2	1.1	269	95	3.7	6.26	< 0.1	< 1	< 0.1	0.3	120	2.4	5.3	0.6	2.2	0.4	0.4	< 0.1	0.2	6.5
1274233	4.5	20.3	0.7	6.0	1.3	245	85	2.8	8.49	< 0.1	< 1	< 0.1	0.3	90	10.3	22.2	2.4	7.9	1.1	0.7	0.1	0.3	16.5
1274234	2.9	15.4	0.8	2.1	1.3	322	79	2.4	3.66	< 0.1	< 1	< 0.1	0.2	230	1.6	4.0	0.5	1.8	0.4	0.4	< 0.1	0.2	7.3
1274235	6.7	12.6	0.1	30.7	1.0	461	70	1.9	6.59	< 0.1	< 1	0.1	0.2	809	1.7	4.2	0.5	1.6	0.3	0.3	< 0.1	0.2	5.8
1274236	10.8	15.1	< 0.1	40.0	0.9	231	85	1.4	0.99	< 0.1	< 1	< 0.1	< 0.1	385	2.3	5.4	0.6	2.2	0.3	0.4	< 0.1	0.2	2.1
1274238	20.3	15.6	21.9	16.7	0.8	297	78	1.8	1.92	< 0.1	1	0.5	1.2	152	0.9	2.1	0.2	0.9	0.2	0.2	< 0.1	0.1	9.9
1274239	5.6	9.4	0.9	23.2	0.8	302	46	1.4	2.21	< 0.1	1	0.1	0.5	456	1.4	3.8	0.4	1.6	0.3	0.2	< 0.1	0.1	7.4
1274240	2.4	4.8	< 0.1	7.6	0.5	212	23	0.8	2.50	< 0.1	< 1	< 0.1	0.3	580	1.0	2.1	0.3	0.9	0.2	0.1	< 0.1	0.1	4.6
1274241	4.2	8.3	1.0	6.2	2.6	155	24	3.2	3.56	< 0.1	< 1	< 0.1	0.2	105	18.1	30.3	3.2	9.9	0.9	0.8	0.1	0.5	5.7
1274242	10.1	13.6	< 0.1	22.3	0.8	601	79	2.7	1.22	< 0.1	< 1	< 0.1	0.2	665	1.5	4.3	0.5	1.6	0.3	0.3	< 0.1	0.1	4.1
1274243	2.5	1.4	0.6	2.8	0.3	13.5	3	0.3	0.73	< 0.1	< 1	0.2	0.1	54	0.5	1.1	0.1	0.4	< 0.1	0.1	< 0.1	0.1	11.6
1274244	3.9	5.0	< 0.1	11.6	1.0	135	13	0.6	2.14	< 0.1	< 1	< 0.1	0.1	176	0.9	2.5	0.3	1.3	0.3	0.3	< 0.1	0.2	4.2
1274245	28.0	6.1	< 0.1	6.9	2.3	114	36	1.7	3.68	< 0.1	< 1	< 0.1	< 0.1	94	8.0	16.5	1.9	6.8	0.9	0.7	0.1	0.4	5.1
1274246	133	7.0	< 0.1	8.2	0.3	54.5	4	0.3	2.27	< 0.1	< 1	< 0.1	< 0.1	223	0.3	0.6	0.1	0.3	< 0.1	0.1	< 0.1	< 0.1	4.6
1274247	12.8	1.1	1.9	2.2	2.8	56.1	2	0.2	3.41	< 0.1	< 1	0.2	1.0	17	0.2	0.5	0.1	0.2	< 0.1	0.1	< 0.1	0.3	394
1274248	73.5	17.6	< 0.1	27.0	23.8	161	44	0.3	0.69	< 0.1	< 1	< 0.1	0.5	135	10.7	23.4	2.9	11.7	2.6	3.4	0.6	4.1	9.9
1274249	77.1	19.1	< 0.1	23.0	22.4	325	43	0.2	0.47	< 0.1	< 1	< 0.1	0.3	169	8.6	20.5	2.7	10.6	2.4	3.1	0.5	3.9	64.1
1274250	68.6	14.8	< 0.1	29.9	19.0	191	64	0.5	1.64	< 0.1	1	< 0.1	0.2	148	8.2	18.7	2.4	9.5	2.1	2.8	0.5	3.3	288
1274251	85.5	17.5	< 0.1	26.7	21.4	207	78	1.7	1.16	< 0.1	1	< 0.1	0.2	153	8.8	20.2	2.5	10.4	2.3	3.1	0.5	3.6	105
1274252	54.3	15.3	0.3	24.7	8.1	262	113	3.4	2.23	< 0.1	1	< 0.1	0.2	210	10.5	21.9	2.6	9.7	1.5	1.6	0.2	1.4	48.9
1274254	64.5	17.0	< 0.1	34.5	9.2	312	120	1.0	1.13	< 0.1	< 1	< 0.1	< 0.1	302	12.9	27.5	3.2	11.4	1.9	1.9	0.3	1.7	33.6
1274255	65.0	15.3	12.3	24.5	8.4	216	82	4.5	7.47	< 0.1	1	0.2	0.6	43	9.0	19.7	2.3	8.4	1.4	1.5	0.2	1.4	128
1274256	40.1	9.4	3.1	32.2	6.7	165	48	2.8	4.69	< 0.1	< 1	0.1	0.3	282	10.9	23.0	2.6	9.3	1.5	1.5	0.2	1.2	43.4
1274257	62.1	17.0	2.2	36.0	8.4	315	149	5.2	5.10	< 0.1	1	0.1	0.3	264	10.4	23.3	2.6	9.5	1.5	1.5	0.2	1.4	93.8
1274259	38.3	13.8	5.0	27.1	6.0	171	89	4.6	4.03	< 0.1	1	0.1	2.5	29	5.7	12.5	1.3	4.5	0.8	0.9	0.1	0.9	38.4
1274260	28.2	7.6	1.3	21.0	4.2	134	61	3.0	12.6	< 0.1	1	0.1	0.4	188	6.6	13.7	1.5	5.4	0.8	0.9	0.1	0.7	40.5
1274261	52.6	15.4	1.2	23.9	8.9	213	115	5.0	4.89	< 0.1	1	< 0.1	0.3	61	9.0	20.2	2.4	8.5	1.3	1.5	0.2	1.5	86.3
1470684	56.3	4.7	13.0	25.1	7.6	145	39	2.0	1.59	< 0.1	1	0.3	1.1	197	4.7	9.9	1.2	4.2	0.7	0.9	0.1	1.1	129

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470685	81.2	10.6	3.9	1.8	5.6	69.5	21	1.6	1.74	< 0.1	< 1	0.2	0.5	13	3.5	8.1	1.0	3.8	0.7	0.9	0.1	0.9	14.4
1470686	178	20.2	0.2	1.0	34.2	97.3	112	1.8	0.70	< 0.1	< 1	< 0.1	0.3	14	21.8	52.9	7.0	26.9	5.1	5.7	0.9	6.1	154
1470687	78.6	13.8	58.7	5.8	10.7	6.1	33	0.3	1.41	< 0.1	< 1	0.3	0.2	32	1.4	3.4	0.5	2.3	0.9	1.2	0.2	1.7	264
1470688	108	14.8	< 0.1	24.3	19.1	155	8	0.1	0.52	< 0.1	< 1	< 0.1	0.1	58	2.4	6.8	1.1	5.2	1.6	2.4	0.4	3.1	90.3
1470689	73.6	20.2	0.1	11.9	15.9	730	90	5.1	21.4	< 0.1	1	0.2	0.2	104	20.6	42.0	5.2	18.3	2.7	2.8	0.4	2.5	68.8
1470690	88.8	13.6	< 0.1	17.0	11.4	183	98	4.4	26.9	< 0.1	1	0.1	0.2	168	13.2	28.5	3.5	12.6	2.0	2.0	0.3	1.9	72.3
1470691	94.8	13.1	< 0.1	23.9	14.8	210	106	6.1	20.9	< 0.1	1	< 0.1	0.2	412	23.6	46.6	5.7	19.5	2.7	3.0	0.4	2.4	34.9
1470692	71.3	16.3	< 0.1	49.8	11.2	213	125	0.4	0.27	< 0.1	< 1	< 0.1	< 0.1	523	13.0	34.6	3.7	14.3	2.0	2.3	0.3	1.8	11.2
1470693	58.5	14.0	< 0.1	61.6	23.2	483	111	7.8	1.52	< 0.1	< 1	< 0.1	0.8	350	11.5	27.1	3.7	15.2	3.3	4.1	0.7	4.3	125
1470695	101	16.3	< 0.1	19.7	23.2	214	103	3.8	0.82	< 0.1	< 1	< 0.1	0.4	175	11.7	27.0	3.7	15.0	3.3	4.0	0.6	4.3	139
1470696	127	17.6	< 0.1	15.9	31.7	250	57	0.3	0.33	0.1	< 1	< 0.1	0.3	208	16.7	37.7	5.1	21.1	4.6	5.6	0.9	5.9	115
1470697	121	16.6	< 0.1	22.3	26.6	220	48	0.2	0.23	< 0.1	< 1	< 0.1	0.2	206	13.6	31.3	4.3	17.5	4.0	4.7	0.7	4.9	129
1470698	121	13.5	< 0.1	19.7	20.0	229	34	0.5	1.05	< 0.1	< 1	< 0.1	0.1	359	4.3	11.5	1.7	7.8	2.2	2.8	0.5	3.6	19.4
1470699	96.5	13.4	< 0.1	14.6	14.3	120	113	1.3	1.85	< 0.1	< 1	< 0.1	< 0.1	125	10.9	25.0	3.1	11.0	1.8	2.0	0.3	2.0	7.0
1470700	90.5	14.0	< 0.1	5.7	12.2	316	98	3.4	2.71	< 0.1	1	0.1	0.1	138	13.4	29.9	3.6	13.0	1.9	2.1	0.3	1.9	58.8
1274151	148	15.8	< 0.1	44.3	43.7	157	95	0.2	0.12	0.1	< 1	< 0.1	< 0.1	419	26.5	54.8	7.3	27.9	5.5	6.8	1.1	7.6	151
1274152	39.5	9.5	< 0.1	20.8	7.6	257	63	0.5	2.29	< 0.1	< 1	< 0.1	< 0.1	210	8.9	20.3	2.6	9.1	1.4	1.4	0.2	1.3	9.8
1274153	145	15.6	< 0.1	44.8	45.1	158	163	0.6	1.03	0.1	< 1	< 0.1	0.9	403	25.9	53.1	7.0	27.0	5.8	6.8	1.1	7.5	144
1274155	102	2.5	22.7	10.6	1.0	21.8	10	1.9	3.91	< 0.1	3	0.2	0.6	72	1.0	2.3	0.3	1.0	0.2	0.2	< 0.1	0.2	183
1470865	141	9.6	22.9	1.1	4.3	10.6	20	1.0	1.58	< 0.1	< 1	< 0.1	0.3	53	1.4	3.9	0.6	2.8	0.8	0.8	0.1	0.7	73.4
1470866	64.0	5.4	52.2	0.7	3.0	21.9	17	0.7	1.73	< 0.1	< 1	0.5	0.2	17	0.9	2.4	0.4	1.7	0.5	0.5	0.1	0.5	59.6
1470867	64.4	9.4	70.2	0.5	3.7	38.4	23	0.7	0.78	< 0.1	< 1	< 0.1	0.2	40	1.0	2.9	0.4	2.2	0.7	0.7	0.1	0.7	157
1470868	121	9.8	5.8	3.1	3.2	20.3	45	0.9	0.43	< 0.1	< 1	< 0.1	0.1	41	1.4	3.4	0.5	2.0	0.6	0.6	0.1	0.5	42.4
1470869	103	9.7	27.5	1.3	4.7	1.8	53	2.5	0.72	< 0.1	1	0.2	0.1	26	2.9	7.4	1.0	4.2	1.0	0.9	0.1	0.8	20.1
1470870	64.5	5.1	388	0.8	2.0	32.1	10	0.2	1.73	< 0.1	< 1	0.3	0.1	37	0.3	0.9	0.1	0.6	0.2	0.3	< 0.1	0.3	19.6
1470871	68.3	4.0	70.2	1.4	1.3	2.3	7	0.4	3.33	< 0.1	< 1	0.3	< 0.1	44	0.4	1.2	0.1	0.6	0.2	0.2	< 0.1	0.2	20.2
1470872	57.8	8.1	1.8	73.0	14.6	479	9	2.0	2.33	< 0.1	2	1.9	0.8	1230	20.7	48.8	6.7	26.8	5.0	4.5	0.5	2.8	40.9
1470873	21.1	12.8	3.0	58.9	7.4	523	113	1.2	2.85	< 0.1	1	0.1	0.4	1200	20.6	43.6	4.9	17.3	2.8	2.6	0.3	1.4	15.0
1470874	18.5	5.3	1.7	24.6	3.0	197	14	1.0	5.09	< 0.1	< 1	0.6	0.2	476	13.4	27.3	2.9	10.0	1.5	1.3	0.1	0.6	11.7
1470875	15.0	14.7	0.5	47.0	5.7	408	108	3.1	2.44	< 0.1	1	0.8	0.2	1090	15.4	33.4	3.6	12.9	2.0	1.9	0.2	1.1	13.9
1470876	14.9	12.5	10.0	43.1	4.6	265	78	2.1	4.29	< 0.1	< 1	0.7	0.2	1070	14.6	29.0	3.5	11.9	1.9	1.6	0.2	0.9	17.0
1470877	20.0	15.6	9.8	0.8	11.4	342	153	2.7	2.63	< 0.1	< 1	0.1	0.1	9	24.9	54.0	6.9	24.9	3.6	3.0	0.3	2.0	10.5
1470878	86.5	14.8	40.3	23.4	12.0	610	100	0.2	1.86	< 0.1	< 1	< 0.1	0.6	115	17.0	38.9	5.3	21.1	3.8	3.4	0.4	2.3	3.4
1470880	114	17.6	33.1	19.8	12.2	605	115	1.4	1.08	< 0.1	< 1	< 0.1	0.3	107	16.4	39.1	5.2	21.1	3.8	3.5	0.4	2.4	5.8
1470881	90.4	13.6	38.4	18.5	9.5	388	95	2.6	1.15	< 0.1	< 1	< 0.1	0.7	145	13.6	31.9	4.2	16.5	2.9	2.7	0.3	1.8	6.1
1470882	63.4	18.5	2.0	60.7	10.3	326	164	0.3	1.18	< 0.1	1	< 0.1	0.2	913	25.7	57.0	7.2	26.1	4.1	3.2	0.3	1.9	21.9
1470883	81.3	16.6	0.3	35.0	10.7	335	98	< 0.1	0.29	< 0.1	< 1	< 0.1	< 0.1	446	28.3	61.3	7.6	27.8	4.1	3.4	0.4	2.0	34.2
1470884	107	13.9	9.1	29.7	10.4	259	81	0.1	0.23	< 0.1	< 1	< 0.1	0.1	462	23.1	50.7	6.7	25.1	4.0	3.4	0.4	2.0	14.4
1470885	105	19.2	40.1	9.1	11.0	299	136	4.3	0.89	< 0.1	< 1	0.2	< 0.1	94	19.9	45.5	6.2	24.8	4.3	3.7	0.4	2.1	25.2
1470886	94.5	19.2	23.3	21.3	10.6	341	137	0.5	2.01	< 0.1	1	1.1	0.8	199	25.7	58.8	7.4	27.7	4.4	3.7	0.4	2.1	45.6
1470887	48.6	1.6	1.5	0.8	1.1	25.4	7	0.5	0.81	< 0.1	< 1	0.2	0.3	8	0.9	1.8	0.2	0.7	0.1	0.2	< 0.1	0.2	8.1
1470888	46.0	1.1	3.2	0.6	0.7	12.4	4	0.2	0.56	< 0.1	< 1	0.3	0.1	15	0.2	0.6	0.1	0.3	< 0.1	0.1	< 0.1	0.1	2.1

Results

Activation Laboratories Ltd.

Report: A16-12462

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1470889	54.0	0.5	3.3	0.4	0.5	3.2	3	0.2	0.52	< 0.1	< 1	0.2	0.2	25	0.3	0.6	0.1	0.3	< 0.1	0.1	< 0.1	0.1	4.1
1470891	61.2	0.4	0.6	0.4	0.4	9.2	2	0.1	0.39	< 0.1	< 1	0.4	0.1	14	0.2	0.5	< 0.1	0.2	< 0.1	0.1	< 0.1	< 0.1	3.3
1470892	70.5	0.4	0.1	0.3	1.0	7.7	2	0.1	0.38	< 0.1	< 1	< 0.1	< 0.1	30	0.2	0.4	0.1	0.2	< 0.1	0.1	< 0.1	< 0.1	2.5
1470893	44.8	0.6	1.9	0.2	0.4	5.4	2	0.1	0.41	< 0.1	< 1	0.2	< 0.1	10	0.1	0.3	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	3.5
1470894	75.5	15.4	< 0.1	47.0	16.8	180	61	2.2	0.91	< 0.1	2	< 0.1	0.1	276	4.9	11.9	1.6	5.9	1.5	2.1	0.4	2.7	17.2
1470895	380	13.7	1.3	52.2	18.2	114	43	3.2	15.1	< 0.1	1	0.2	1.1	389	5.9	14.1	1.8	6.9	1.5	2.2	0.4	2.9	107
1470896	98.7	15.6	< 0.1	64.1	24.9	196	87	1.1	6.08	< 0.1	< 1	< 0.1	0.5	256	9.6	23.1	3.0	11.8	2.7	3.4	0.6	4.2	17.6
1470897	17.4	17.0	0.5	19.7	2.3	614	109	1.5	1.34	< 0.1	< 1	< 0.1	0.2	287	5.7	12.9	1.5	5.5	0.9	0.8	0.1	0.4	1.5
1470898	48.5	13.0	< 0.1	30.2	10.2	291	113	2.9	1.73	< 0.1	2	0.1	0.2	333	12.7	27.4	3.3	11.6	1.8	1.9	0.3	1.7	16.6
1470899	13.5	5.6	0.5	9.5	3.7	76.7	58	2.0	6.55	< 0.1	< 1	0.1	0.2	64	1.8	4.1	0.5	1.9	0.4	0.5	0.1	0.6	8.8
1470900	44.7	11.1	< 0.1	15.5	16.5	153	71	1.5	9.68	< 0.1	< 1	< 0.1	0.1	128	6.3	14.4	1.8	6.9	1.5	2.1	0.4	2.7	54.2
1274101	41.2	14.0	< 0.1	2.9	15.0	118	113	0.3	0.41	< 0.1	< 1	< 0.1	< 0.1	45	7.9	19.4	2.3	11.8	2.9	2.8	0.4	2.5	7.6
1274102	45.8	12.9	2.2	12.4	13.4	244	213	4.9	0.53	< 0.1	1	0.1	0.1	1090	57.4	112	12.7	44.5	6.1	4.4	0.4	2.4	103
1274104	99.0	16.5	8.0	35.9	13.9	652	201	6.1	0.48	< 0.1	1	0.4	< 0.1	250	53.0	103	11.9	41.9	5.7	4.4	0.5	2.6	20.6
1274105	74.5	14.1	59.3	34.9	13.1	605	172	5.5	2.04	< 0.1	1	0.5	0.9	158	46.5	90.3	10.7	37.2	5.4	4.1	0.4	2.4	20.8
1274106	78.2	2.1	0.2	29.1	14.3	375	209	7.1	0.99	< 0.1	1	0.2	0.5	2650	52.1	105	10.2	36.1	5.2	4.6	0.5	2.7	39.6
1274107	34.5	17.3	< 0.1	6.5	9.4	86.9	86	1.4	0.39	< 0.1	< 1	< 0.1	0.2	58	5.3	14.6	2.0	8.8	2.2	2.1	0.3	1.8	2.6
1274109	176	15.0	0.5	0.6	12.9	16.3	150	2.9	1.02	< 0.1	1	0.3	0.2	41	24.0	53.5	7.5	30.5	5.6	4.5	0.5	2.6	40.0
1274110	61.5	3.8	175	0.9	4.3	91.7	14	0.3	0.95	< 0.1	< 1	0.1	0.2	62	1.1	2.4	0.3	1.2	0.3	0.4	0.1	0.4	4.1
1274111	62.7	17.5	14.2	0.4	18.0	11.6	244	6.8	3.67	< 0.1	1	0.5	0.7	29	16.0	36.6	4.4	15.9	2.7	2.9	0.4	2.9	33.3
1274112	54.9	12.8	4.0	0.6	19.0	8.4	135	3.5	3.92	< 0.1	< 1	0.3	0.3	19	11.7	27.7	3.5	12.8	2.3	2.8	0.4	2.8	16.9
1274113	106	8.0	25.1	0.4	7.1	15.6	21	0.8	0.87	< 0.1	< 1	0.2	0.2	24	0.7	2.1	0.3	1.7	0.6	0.9	0.2	1.1	2.1
1274114	36.0	8.8	2.0	3.4	6.0	62.7	11	0.2	1.52	< 0.1	< 1	0.1	0.2	91	1.7	7.1	0.6	2.4	0.6	0.9	0.1	1.0	31.6
1274115	1860	8.9	3.8	41.9	12.4	63.3	99	0.4	0.86	0.4	1	0.1	0.1	610	22.8	48.0	5.8	20.9	2.9	2.7	0.3	2.0	47.0
1274116	61.8	12.9	1.9	33.0	9.9	381	86	0.1	0.56	< 0.1	< 1	< 0.1	0.1	410	12.7	29.3	3.6	13.3	2.4	2.3	0.3	1.7	40.0
1274117	129	19.1	20.5	33.0	16.4	310	143	1.4	0.39	< 0.1	< 1	< 0.1	< 0.1	353	27.1	59.5	7.7	29.3	4.9	4.4	0.5	3.0	42.0
1274118	68.3	12.1	< 0.1	48.9	12.7	374	125	3.2	1.37	< 0.1	< 1	0.2	0.9	493	24.8	52.8	6.6	23.8	3.9	3.3	0.4	2.4	21.6
1274119	56.8	9.6	1.8	21.7	18.6	381	71	14.1	1.83	< 0.1	1	0.9	0.4	147	23.3	49.2	6.0	22.5	4.6	5.0	0.7	4.0	284
1274120	69.1	13.6	< 0.1	31.0	11.3	503	123	2.6	0.75	< 0.1	< 1	< 0.1	0.2	425	22.1	47.6	5.9	21.6	3.7	3.1	0.4	2.1	24.9
1274121	99.1	16.4	< 0.1	47.7	11.4	396	135	0.3	0.29	< 0.1	< 1	< 0.1	0.2	526	21.6	47.6	5.9	21.0	3.5	3.0	0.4	2.1	26.0
1274122	144	17.4	18.2	31.5	12.6	415	109	4.0	0.53	< 0.1	< 1	0.2	0.2	309	23.6	50.3	6.5	23.9	4.2	3.7	0.4	2.4	46.9
1274123	127	18.0	16.6	13.3	13.7	296	116	1.2	0.22	< 0.1	< 1	< 0.1	< 0.1	210	24.2	51.7	6.8	25.3	4.3	3.8	0.5	2.7	39.8
1274124	102	9.7	9.4	58.4	7.6	488	57	0.1	0.15	< 0.1	< 1	< 0.1	< 0.1	519	13.7	30.3	3.8	13.9	2.3	2.1	0.3	1.5	34.0
1274125	94.3	16.1	0.7	39.9	10.9	412	101	0.1	0.13	< 0.1	< 1	< 0.1	< 0.1	531	19.3	44.8	5.5	19.3	3.2	2.8	0.4	2.0	32.3
1274126	103	13.0	0.1	68.1	10.5	234	166	4.0	0.56	< 0.1	1	< 0.1	< 0.1	838	18.6	41.6	5.0	17.7	3.0	2.6	0.3	1.9	103
1274128	133	20.2	27.0	52.9	14.2	363	193	4.6	1.90	< 0.1	2	< 0.1	0.8	493	14.9	29.9	3.5	12.1	2.0	2.0	0.3	2.3	56.5
1274129	77.3	10.6	46.0	42.4	31.5	175	46	11.0	0.56	< 0.1	< 1	0.1	0.4	545	3.5	9.7	1.5	7.5	4.2	7.3	1.3	8.0	88.7
1274130	111	19.6	7.3	0.6	17.7	89.7	40	0.3	0.21	< 0.1	< 1	< 0.1	0.2	10	6.8	17.5	2.5	10.4	2.6	3.3	0.6	3.5	52.6
1274131	68.6	13.4	< 0.1	49.7	7.7	277	119	5.3	0.49	< 0.1	1	0.2	0.2	475	15.0	35.1	4.3	15.8	2.7	2.3	0.3	1.5	4.1
1274132	93.0	13.4	13.2	2.4	8.6	145	21	1.2	0.30	< 0.1	< 1	< 0.1	0.1	41	1.0	2.6	0.4	1.6	0.5	0.8	0.2	1.3	35.4
1274133	128	16.1	9.0	16.1	14.5	215	53	1.2	0.21	< 0.1	< 1	< 0.1	0.1	194	2.3	6.0	0.8	3.4	0.9	1.1	0.3	2.2	29.4
1274134	72.9	15.7	0.5	0.8	14.3	185	10	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	38	2.6	7.0	1.1	4.7	1.4	2.0	0.3	2.3	75.4

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274135	71.0	15.7	1.2	5.4	16.1	263	13	0.3	0.09	< 0.1	< 1	< 0.1	< 0.1	152	3.0	8.1	1.2	5.5	1.6	2.2	0.4	2.7	74.8
1274136	89.8	9.3	0.4	6.3	13.0	153	16	1.2	0.25	< 0.1	< 1	0.1	< 0.1	455	2.4	6.6	1.0	4.7	1.4	1.9	0.3	2.2	141
1274138	36.0	5.5	1.5	0.6	8.0	155	13	0.4	0.91	< 0.1	< 1	< 0.1	0.7	20	2.4	5.5	0.7	3.1	0.7	1.0	0.2	1.2	22.2
1274139	68.6	17.0	< 0.1	2.7	26.3	84.5	79	0.2	0.48	< 0.1	< 1	0.1	0.4	33	6.8	18.2	2.5	10.7	2.8	3.7	0.6	4.4	3.8
1274140	82.8	14.5	25.1	1.4	8.8	93.4	66	2.5	0.89	< 0.1	< 1	< 0.1	0.2	28	4.4	11.3	1.6	6.5	1.5	1.7	0.3	1.6	41.3
1274141	29.4	11.0	70.3	41.5	10.1	79.8	158	1.5	0.58	< 0.1	< 1	< 0.1	0.2	328	15.7	33.0	3.9	14.2	2.5	2.4	0.3	1.8	4.8
1274142	95.9	18.3	0.1	3.1	11.9	81.5	57	0.1	0.08	< 0.1	< 1	< 0.1	< 0.1	38	7.0	18.3	2.4	10.5	2.4	2.5	0.3	2.1	39.3
1274143	63.4	< 0.1	5.1	20.2	13.1	568	199	5.9	0.37	< 0.1	1	0.1	< 0.1	2090	51.7	101	11.7	41.0	5.3	4.3	0.4	2.4	29.9
1274144	93.1	12.0	< 0.1	9.8	15.4	237	211	4.8	0.44	< 0.1	< 1	0.1	< 0.1	775	59.6	114	13.3	46.3	6.1	4.9	0.5	2.8	13.9
1274145	56.7	2.5	35.6	0.8	2.4	6.2	4	0.4	1.24	< 0.1	< 1	0.2	0.7	11	0.4	0.9	0.1	0.5	0.2	0.3	< 0.1	0.3	1.1
1274146	49.8	20.4	7.1	10.3	19.0	50.6	126	0.6	0.53	< 0.1	< 1	< 0.1	0.4	105	15.2	35.5	4.7	19.5	4.5	4.3	0.5	3.1	3.6
1274147	27.8	10.1	0.9	2.4	8.8	67.3	39	< 0.1	2.22	< 0.1	< 1	< 0.1	0.2	26	4.0	10.8	1.5	6.1	1.3	1.4	0.2	1.4	8.1
1274148	12.1	4.7	1.1	2.0	6.5	59.7	12	0.1	0.87	< 0.1	< 1	< 0.1	0.1	25	2.9	7.3	1.0	4.0	1.0	1.1	0.2	1.1	6.1
1274149	4.3	3.0	< 0.1	0.8	9.3	135	22	< 0.1	0.49	< 0.1	< 1	< 0.1	0.2	12	3.6	8.1	1.0	4.3	1.0	1.3	0.2	1.5	3.5
1274150	14.9	7.3	0.3	1.8	7.8	63.5	51	< 0.1	0.24	< 0.1	< 1	< 0.1	< 0.1	21	3.6	9.8	1.3	5.4	1.2	1.3	0.2	1.3	6.4
1132701	50.6	20.4	2.4	4.0	19.6	49.8	146	0.4	0.10	< 0.1	< 1	< 0.1	< 0.1	46	12.8	30.3	4.1	16.9	3.7	3.9	0.5	3.2	2.8
1132702	32.3	1.1	6.9	5.3	4.7	67.4	10	0.4	4.05	< 0.1	1	0.4	0.9	118	2.3	5.7	0.8	3.2	0.9	1.0	0.1	0.8	6.4
1132703	80.9	18.7	4.6	9.6	11.9	86.3	85	0.2	0.68	< 0.1	< 1	< 0.1	0.5	124	7.6	18.8	2.5	10.5	2.5	2.5	0.3	2.1	27.0
1132704	87.1	3.9	332	45.3	3.2	172	36	1.1	0.91	< 0.1	< 1	0.1	0.3	418	1.9	4.8	0.6	2.9	0.8	0.7	0.1	0.6	59.5
1132705	92.8	16.3	13.7	8.5	19.7	105	40	0.1	0.36	< 0.1	< 1	0.2	0.2	67	6.0	14.1	1.8	7.4	1.9	2.6	0.4	3.2	81.9
1477528	78.1	13.0	1.5	1.1	13.8	111	41	0.8	0.34	< 0.1	< 1	< 0.1	0.1	21	2.9	7.9	1.1	4.6	1.2	1.8	0.3	2.3	1.7
1477529	92.7	17.4	0.4	46.0	31.8	185	65	0.2	0.13	< 0.1	< 1	< 0.1	< 0.1	264	19.5	43.6	5.8	23.5	4.9	5.9	0.9	5.8	160

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470971	< 0.1	0.1	0.9	0.1	< 0.1	0.2	0.002	< 0.05	1.4	40	0.9	0.3	0.434	0.036	0.20
1470972	< 0.1	0.2	1.2	0.2	0.3	4.2	< 0.001	0.23	17.8	10	7.2	1.9	0.284	0.104	0.50
1470973	< 0.1	0.2	1.2	0.2	0.3	3.5	< 0.001	0.24	16.8	10	6.6	1.6	0.260	0.108	0.48
1470974	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.5	< 0.001	< 0.05	74.4	5	0.1	0.1	0.0277	0.045	0.01
1470975	< 0.1	0.1	1.1	0.2	0.1	1.1	< 0.001	0.10	1.2	28	0.7	0.2	0.510	0.041	0.12
1470976	0.1	0.1	0.9	0.1	0.2	0.4	< 0.001	< 0.05	0.9	27	0.2	0.1	0.225	0.010	0.02
1470977	0.1	0.1	0.7	0.1	< 0.1	0.2	< 0.001	< 0.05	0.8	22	0.1	< 0.1	0.173	0.009	0.03
1470978	0.1	0.1	0.8	0.1	< 0.1	0.4	< 0.001	< 0.05	0.6	25	0.1	< 0.1	0.192	0.008	0.05
1470979	0.1	0.1	0.4	< 0.1	< 0.1	0.1	< 0.001	< 0.05	0.8	14	0.1	< 0.1	0.109	0.005	0.07
1470980	< 0.1	0.3	2.0	0.2	< 0.1	< 0.1	< 0.001	< 0.05	6.1	29	0.9	1.4	0.332	0.050	0.19
1470981	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	0.002	< 0.05	2.0	9	0.7	0.2	0.425	0.052	< 0.01
1470982	< 0.1	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	0.05	4.4	27	0.8	0.2	0.426	0.048	0.16
1470984	0.1	0.1	0.6	0.1	< 0.1	< 0.1	0.002	< 0.05	3.1	14	0.1	0.1	0.160	0.008	< 0.01
1470985	0.3	0.2	1.2	0.2	< 0.1	< 0.1	0.003	< 0.05	2.1	27	0.4	0.1	0.233	0.016	0.05
1470986	< 0.1	0.3	1.9	0.3	< 0.1	0.3	< 0.001	< 0.05	2.5	13	3.8	1.3	0.465	0.192	0.05
1470988	< 0.1	0.1	0.5	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.3	4	1.6	0.5	0.163	0.033	< 0.01
1470989	< 0.1	0.1	0.5	0.1	< 0.1	0.1	< 0.001	< 0.05	1.6	4	1.1	0.4	0.144	0.032	< 0.01
1470990	< 0.1	0.1	0.6	0.1	0.1	0.2	< 0.001	< 0.05	0.9	7	1.0	0.4	0.145	0.046	< 0.01
1470991	< 0.1	0.1	0.7	0.1	< 0.1	< 0.1	< 0.001	< 0.05	9.6	20	0.1	< 0.1	0.0659	0.003	0.04
1470992	< 0.1	0.1	0.5	0.1	0.1	0.3	< 0.001	< 0.05	1.2	8	1.2	0.5	0.164	0.040	0.01
1470993	0.1	0.1	0.8	0.1	< 0.1	< 0.1	< 0.001	< 0.05	4.7	33	0.1	< 0.1	0.203	0.011	0.15
1470994	0.1	0.1	0.7	0.1	< 0.1	< 0.1	< 0.001	< 0.05	7.0	47	0.1	< 0.1	0.140	0.008	0.32
1470995	< 0.1	0.2	1.4	0.2	< 0.1	< 0.1	0.003	0.10	1.2	57	0.4	0.1	0.159	0.026	0.06
1470996	0.2	0.2	1.2	0.2	< 0.1	< 0.1	< 0.001	0.06	0.9	61	0.3	0.1	0.230	0.026	0.13
1470997	0.1	0.1	0.4	0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.1	12	0.1	0.1	0.112	0.011	0.01
1470998	0.1	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	< 0.05	2.6	52	0.2	0.1	0.221	0.021	0.18
1470999	0.1	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	< 0.05	4.0	51	0.2	0.1	0.246	0.020	0.24
1471000	0.1	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	0.05	1.4	17	0.1	0.1	0.130	0.008	< 0.01
1274201	< 0.1	< 0.1	0.2	< 0.1	0.1	< 0.1	< 0.001	< 0.05	1.4	< 1	< 0.1	0.1	0.0052	0.001	< 0.01
1274203	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.6	8	< 0.1	< 0.1	0.0777	0.005	< 0.01
1274204	< 0.1	0.2	1.1	0.2	0.4	0.3	< 0.001	< 0.05	6.4	21	10.2	2.2	0.324	0.145	0.05
1274205	0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	2	0.2	< 0.1	0.0244	0.009	1.05
1274207	< 0.1	0.1	0.7	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.7	20	2.3	0.4	0.209	0.073	< 0.01
1274208	0.1	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	32	0.2	< 0.1	0.158	0.010	0.10
1274209	0.1	< 0.1	0.3	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.7	26	0.1	< 0.1	0.177	0.014	0.18
1274210	0.4	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	0.38	0.9	53	0.1	0.2	0.220	0.005	0.04
1274211	0.1	< 0.1	0.3	< 0.1	0.1	< 0.1	< 0.001	< 0.05	1.0	21	< 0.1	< 0.1	0.0982	0.009	0.05
1274212	0.1	0.1	0.8	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	29	0.1	0.1	0.141	0.013	0.08
1274213	0.1	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	17	< 0.1	< 0.1	0.0947	0.009	0.03
1274214	< 0.1	0.1	1.0	0.1	< 0.1	0.1	< 0.001	0.10	0.5	42	0.2	0.1	0.309	0.016	0.25
1274215	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.16	1.0	42	0.2	0.1	0.168	0.024	0.17
1274216	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.10	1.1	39	0.2	0.3	0.105	0.021	0.04

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1274217	0.1	0.1	0.5	0.1	0.4	< 0.1	< 0.001	< 0.05	1.5	34	0.1	< 0.1	0.183	0.013	0.15
1274218	0.1	0.1	0.5	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.3	27	0.1	0.1	0.176	0.017	0.11
1274219	0.2	0.1	0.7	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	38	0.1	< 0.1	0.197	0.011	0.01
1274220	0.1	0.1	0.7	0.1	0.2	< 0.1	< 0.001	< 0.05	1.1	32	0.1	0.1	0.151	0.007	0.37
1274221	0.2	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.11	1.3	46	0.2	0.5	0.295	0.023	0.27
1274222	0.3	0.1	1.1	0.2	0.3	< 0.1	< 0.001	0.13	1.0	51	0.3	0.1	0.571	0.026	0.14
1274223	0.2	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.05	0.6	44	0.2	0.1	0.435	0.024	0.09
1274224	0.1	0.1	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	41	0.2	0.1	0.295	0.027	0.11
1274225	0.1	0.1	0.8	0.1	0.1	< 0.1	< 0.001	< 0.05	2.4	13	0.2	0.1	0.104	0.008	0.02
1274226	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.15	1.1	51	0.2	0.1	0.118	0.025	0.10
1274228	0.2	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.25	0.9	39	0.2	0.1	0.126	0.017	0.07
1274229	< 0.1	0.4	4.5	0.9	0.1	< 0.1	< 0.001	0.05	3.2	38	0.1	< 0.1	0.218	0.015	< 0.01
1274230	0.1	< 0.1	0.1	< 0.1	0.3	0.6	< 0.001	0.24	4.8	1	0.3	0.2	0.0842	0.015	0.02
1274231	< 0.1	< 0.1	0.1	< 0.1	0.2	0.2	< 0.001	0.05	2.7	< 1	0.2	0.4	0.0673	0.008	0.07
1274232	< 0.1	< 0.1	0.1	< 0.1	0.3	0.9	< 0.001	0.07	3.9	< 1	0.5	0.9	0.105	0.022	0.24
1274233	< 0.1	< 0.1	0.1	< 0.1	0.3	0.7	< 0.001	< 0.05	3.7	< 1	0.8	1.3	0.0928	0.022	0.96
1274234	< 0.1	< 0.1	0.1	< 0.1	0.5	0.3	< 0.001	< 0.05	2.3	< 1	0.3	0.4	0.0866	0.016	0.31
1274235	< 0.1	< 0.1	0.1	< 0.1	0.2	0.3	< 0.001	0.17	6.9	< 1	0.4	3.0	0.0789	0.016	0.35
1274236	< 0.1	< 0.1	0.1	< 0.1	0.1	0.1	< 0.001	0.22	3.7	1	0.4	1.0	0.0894	0.019	0.06
1274238	0.1	< 0.1	0.1	< 0.1	0.2	1.8	< 0.001	0.30	11.0	< 1	0.3	0.4	0.0800	0.016	2.21
1274239	< 0.1	< 0.1	0.1	< 0.1	0.1	0.6	< 0.001	0.13	3.5	< 1	0.4	0.2	0.0598	0.013	0.33
1274240	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.001	0.05	2.5	< 1	0.2	0.1	0.0317	0.006	0.18
1274241	< 0.1	< 0.1	0.2	< 0.1	0.4	1.0	< 0.001	0.05	4.2	< 1	1.1	0.6	0.0557	0.032	0.35
1274242	0.1	< 0.1	0.1	< 0.1	0.3	0.4	< 0.001	0.19	9.3	< 1	0.4	0.2	0.0936	0.019	< 0.01
1274243	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.9	< 1	0.1	< 0.1	0.0130	0.003	0.01
1274244	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	0.07	1.9	< 1	0.1	0.2	0.0356	0.027	< 0.01
1274245	< 0.1	< 0.1	0.2	< 0.1	0.1	< 0.1	< 0.001	0.06	3.0	3	1.0	0.6	0.0861	0.023	< 0.01
1274246	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.001	0.07	1.8	3	0.1	0.1	0.0115	0.004	0.03
1274247	< 0.1	0.1	0.4	0.1	< 0.1	0.5	< 0.001	0.05	2.9	3	0.1	0.1	0.0201	0.006	0.05
1274248	< 0.1	0.4	2.7	0.3	< 0.1	< 0.1	0.001	0.17	3.3	35	1.5	0.4	0.181	0.053	0.19
1274249	0.1	0.4	2.7	0.4	< 0.1	< 0.1	< 0.001	0.11	9.0	34	1.3	0.4	0.197	0.049	0.32
1274250	0.1	0.3	2.2	0.3	< 0.1	< 0.1	< 0.001	0.26	4.3	33	1.1	0.3	0.461	0.047	1.15
1274251	0.2	0.3	2.4	0.3	< 0.1	< 0.1	0.001	0.16	4.5	34	1.2	0.3	0.586	0.053	0.83
1274252	< 0.1	0.1	0.9	0.1	0.3	0.1	< 0.001	0.16	5.2	9	1.4	0.5	0.288	0.048	0.13
1274254	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.23	8.1	11	2.3	0.6	0.226	0.053	0.06
1274255	< 0.1	0.1	0.8	0.1	2.1	0.7	< 0.001	0.43	6.7	9	1.6	0.5	0.243	0.038	2.49
1274256	< 0.1	0.1	0.6	0.1	0.1	0.6	< 0.001	0.18	6.0	8	1.4	0.4	0.207	0.040	0.35
1274257	< 0.1	0.1	0.9	0.1	0.4	0.9	0.001	0.36	8.3	12	2.2	0.7	0.353	0.058	0.86
1274259	< 0.1	0.1	0.6	0.1	0.5	0.6	< 0.001	2.22	11.0	7	1.3	0.5	0.253	0.063	4.10
1274260	< 0.1	0.1	0.4	< 0.1	0.4	0.4	0.002	0.18	3.9	5	1.2	0.4	0.171	0.025	1.02
1274261	< 0.1	0.1	0.9	0.1	0.5	0.6	< 0.001	0.35	6.9	8	1.9	0.7	0.310	0.033	2.31
1470684	< 0.1	0.1	0.9	0.1	0.3	0.3	< 0.001	0.17	11.0	7	0.7	0.2	0.117	0.020	0.42

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470685	< 0.1	0.1	0.6	0.1	0.1	< 0.1	< 0.001	< 0.05	1.3	13	0.3	0.1	0.152	0.027	0.01
1470686	< 0.1	0.5	3.9	0.5	< 0.1	< 0.1	< 0.001	< 0.05	3.7	31	2.1	0.7	0.485	0.137	0.28
1470687	0.2	0.2	1.1	0.1	< 0.1	< 0.1	0.002	0.13	130	31	0.2	0.1	0.489	0.025	1.30
1470688	0.1	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	0.29	2.5	45	0.2	0.1	0.170	0.023	0.26
1470689	< 0.1	0.2	1.5	0.2	0.5	0.1	0.001	0.10	7.7	13	2.1	0.5	0.361	0.074	0.55
1470690	< 0.1	0.2	1.3	0.2	0.4	< 0.1	0.002	0.14	8.6	12	1.8	0.5	0.327	0.063	0.58
1470691	< 0.1	0.2	1.8	0.3	0.6	0.1	0.001	0.17	5.1	17	2.1	0.5	0.376	0.084	0.66
1470692	0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.26	11.4	6	2.1	0.5	0.201	0.067	0.01
1470693	0.1	0.4	2.5	0.3	0.3	< 0.1	< 0.001	0.36	6.1	40	1.7	0.6	0.828	0.059	1.00
1470695	0.1	0.3	2.4	0.3	0.1	< 0.1	< 0.001	0.12	2.7	38	1.6	0.6	0.653	0.051	0.11
1470696	< 0.1	0.5	3.4	0.4	< 0.1	< 0.1	< 0.001	0.10	2.8	42	2.4	0.8	0.249	0.067	0.11
1470697	< 0.1	0.4	2.9	0.4	< 0.1	< 0.1	< 0.001	0.13	2.5	40	2.0	0.7	0.253	0.056	0.13
1470698	0.2	0.3	2.4	0.3	< 0.1	< 0.1	< 0.001	0.14	4.6	38	0.3	0.1	0.399	0.037	0.06
1470699	< 0.1	0.2	1.5	0.2	< 0.1	< 0.1	< 0.001	0.06	2.9	14	1.5	0.4	0.273	0.073	0.01
1470700	< 0.1	0.2	1.4	0.2	0.3	0.1	< 0.001	0.08	8.8	15	1.7	0.5	0.355	0.066	0.37
1274151	< 0.1	0.7	5.2	0.7	< 0.1	< 0.1	< 0.001	0.27	10.9	39	6.0	1.6	0.225	0.076	0.11
1274152	< 0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.10	4.5	7	1.2	0.3	0.238	0.040	0.03
1274153	< 0.1	0.7	5.2	0.7	< 0.1	< 0.1	0.001	0.33	10.9	40	6.3	1.7	0.418	0.084	0.12
1274155	0.2	< 0.1	0.2	< 0.1	0.9	0.2	< 0.001	0.26	15.3	3	0.3	7.0	0.0799	0.007	1.22
1470865	0.2	0.1	0.6	0.1	0.1	< 0.1	< 0.001	< 0.05	2.6	31	0.2	< 0.1	0.198	0.013	0.02
1470866	< 0.1	< 0.1	0.4	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	23	0.1	< 0.1	0.202	0.004	0.10
1470867	0.1	0.1	0.5	0.1	0.2	< 0.1	< 0.001	< 0.05	1.2	32	0.1	0.1	0.195	0.011	0.02
1470868	0.4	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.5	25	0.3	0.1	0.273	0.018	0.01
1470869	0.1	0.1	0.6	0.1	0.3	< 0.1	< 0.001	0.23	1.4	30	0.5	0.1	0.329	0.018	< 0.01
1470870	< 0.1	< 0.1	0.3	< 0.1	< 0.1	0.1	< 0.001	< 0.05	2.2	17	0.1	0.1	0.0877	0.005	< 0.01
1470871	< 0.1	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.001	< 0.05	3.0	12	0.1	0.1	0.0536	0.010	< 0.01
1470872	< 0.1	0.2	1.3	0.2	< 0.1	2.8	< 0.001	0.54	8.2	19	4.0	1.4	0.273	0.160	0.02
1470873	< 0.1	0.1	0.7	0.1	< 0.1	0.1	< 0.001	0.32	8.2	7	4.6	1.4	0.198	0.075	0.04
1470874	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	0.15	9.6	3	1.7	0.6	0.0768	0.025	0.02
1470875	< 0.1	0.1	0.5	0.1	0.1	< 0.1	< 0.001	0.25	6.1	6	4.5	1.4	0.177	0.066	0.12
1470876	< 0.1	0.1	0.4	0.1	< 0.1	0.3	< 0.001	0.23	5.9	5	3.5	1.3	0.143	0.048	0.06
1470877	< 0.1	0.2	1.2	0.2	< 0.1	1.3	< 0.001	< 0.05	9.5	16	5.2	1.5	0.391	0.071	0.02
1470878	< 0.1	0.2	1.2	0.2	< 0.1	0.2	< 0.001	0.17	8.3	22	2.5	0.7	0.268	0.072	< 0.01
1470880	< 0.1	0.2	1.2	0.2	< 0.1	1.5	< 0.001	0.14	11.6	23	2.7	0.8	0.401	0.079	< 0.01
1470881	0.2	0.1	1.0	0.1	0.2	3.5	< 0.001	0.13	10.4	19	2.1	0.7	0.316	0.066	< 0.01
1470882	< 0.1	0.1	1.1	0.1	< 0.1	< 0.1	< 0.001	0.37	9.3	18	5.4	1.5	0.387	0.078	0.02
1470883	< 0.1	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	0.22	9.5	16	4.8	1.4	0.146	0.073	0.05
1470884	< 0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.19	6.7	17	3.3	1.2	0.137	0.079	< 0.01
1470885	< 0.1	0.2	1.2	0.2	0.2	< 0.1	< 0.001	0.08	4.8	23	3.2	0.9	0.413	0.090	< 0.01
1470886	< 0.1	0.2	1.2	0.2	< 0.1	< 0.1	< 0.001	0.18	9.4	20	4.2	1.3	0.391	0.087	0.05
1470887	0.1	< 0.1	0.1	< 0.1	0.1	< 0.1	< 0.001	< 0.05	1.2	7	0.2	< 0.1	0.0483	0.005	0.06
1470888	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	5	0.1	< 0.1	0.0222	0.006	0.03

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1470889	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.9	4	0.1	0.1	0.0092	0.004	0.03
1470891	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	3	< 0.1	< 0.1	0.0105	0.005	0.02
1470892	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	4	< 0.1	< 0.1	0.0078	0.004	< 0.01
1470893	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.7	4	< 0.1	< 0.1	0.0095	0.002	< 0.01
1470894	0.3	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	0.16	4.8	36	0.8	0.3	0.459	0.034	0.15
1470895	0.1	0.3	2.0	0.2	0.4	0.4	< 0.001	0.35	3.3	34	1.0	0.3	0.503	0.042	0.42
1470896	0.2	0.4	2.7	0.3	< 0.1	< 0.1	0.002	0.25	3.3	37	1.3	0.4	0.596	0.062	0.23
1470897	< 0.1	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.001	0.10	7.1	2	1.6	0.8	0.141	0.029	0.02
1470898	< 0.1	0.2	1.1	0.1	0.2	0.3	< 0.001	0.17	5.8	12	1.7	0.6	0.310	0.055	0.14
1470899	< 0.1	0.1	0.4	< 0.1	0.2	< 0.1	< 0.001	0.06	6.1	4	0.5	0.2	0.137	0.017	0.26
1470900	< 0.1	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	0.09	4.7	26	0.9	0.4	0.291	0.023	0.21
1274101	< 0.1	0.3	2.0	0.3	< 0.1	< 0.1	< 0.001	< 0.05	0.8	24	1.2	0.3	0.206	0.058	0.06
1274102	< 0.1	0.2	1.4	0.2	0.2	4.1	< 0.001	0.11	13.6	11	11.0	3.1	0.300	0.130	0.10
1274104	< 0.1	0.2	1.4	0.2	0.3	0.5	< 0.001	0.34	15.6	11	10.4	2.9	0.299	0.120	0.54
1274105	< 0.1	0.2	1.3	0.2	0.4	6.5	< 0.001	0.28	63.3	10	9.6	2.6	0.258	0.097	0.84
1274106	< 0.1	0.2	1.5	0.2	0.5	0.9	< 0.001	0.24	14.0	12	10.1	2.7	0.334	0.124	0.07
1274107	0.2	0.2	1.1	0.2	0.1	< 0.1	< 0.001	0.10	0.8	37	0.7	0.2	0.495	0.051	< 0.01
1274109	< 0.1	0.2	1.3	0.2	0.3	0.3	< 0.001	< 0.05	4.6	36	3.0	1.2	0.243	0.196	0.10
1274110	0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	6.3	13	0.1	< 0.1	0.0616	0.009	< 0.01
1274111	< 0.1	0.3	2.1	0.3	0.4	0.6	< 0.001	< 0.05	4.2	19	2.7	0.7	0.244	0.040	0.02
1274112	< 0.1	0.3	1.8	0.2	< 0.1	0.2	< 0.001	< 0.05	5.3	7	2.3	0.7	0.149	0.026	0.10
1274113	0.2	0.1	0.7	0.1	0.2	0.1	< 0.001	< 0.05	3.3	23	0.2	< 0.1	0.177	0.010	< 0.01
1274114	0.4	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	< 0.05	3.3	16	0.3	0.1	0.173	0.017	< 0.01
1274115	< 0.1	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	0.27	6.1	13	4.0	1.1	0.220	0.051	0.17
1274116	0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.19	11.0	10	3.9	1.4	0.149	0.056	0.03
1274117	< 0.1	0.2	1.5	0.2	< 0.1	0.2	< 0.001	0.23	10.8	16	5.7	1.5	0.310	0.081	0.06
1274118	0.1	0.2	1.2	0.2	0.2	0.3	< 0.001	0.34	8.7	12	4.0	1.1	0.307	0.072	< 0.01
1274119	< 0.1	0.2	1.4	0.2	0.2	1.6	< 0.001	0.16	10.3	9	11.0	2.1	0.202	0.127	1.12
1274120	< 0.1	0.2	1.1	0.1	0.1	< 0.1	< 0.001	0.18	5.2	11	3.6	1.0	0.330	0.063	0.02
1274121	< 0.1	0.2	1.1	0.2	< 0.1	< 0.1	< 0.001	0.32	8.6	10	4.0	1.2	0.252	0.063	0.02
1274122	0.3	0.2	1.2	0.1	0.3	0.1	< 0.001	0.24	10.4	16	2.7	1.0	0.399	0.057	0.08
1274123	< 0.1	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	0.09	5.0	19	3.1	1.1	0.213	0.066	< 0.01
1274124	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.41	14.2	12	2.0	0.6	0.163	0.045	0.01
1274125	< 0.1	0.1	1.1	0.1	< 0.1	< 0.1	< 0.001	0.29	6.8	11	3.7	1.3	0.162	0.060	0.04
1274126	0.1	0.2	1.2	0.2	0.1	< 0.1	< 0.001	0.42	11.0	18	3.9	1.3	0.422	0.115	0.16
1274128	0.3	0.2	1.7	0.2	0.3	0.2	< 0.001	0.39	13.1	23	5.1	1.5	0.531	0.096	0.07
1274129	0.1	0.3	1.8	0.2	< 0.1	< 0.1	< 0.001	0.60	8.9	35	2.2	0.2	0.232	0.022	0.19
1274130	< 0.1	0.2	1.8	0.3	< 0.1	< 0.1	< 0.001	< 0.05	2.5	41	0.7	0.2	0.165	0.050	0.14
1274131	< 0.1	0.1	0.8	0.1	0.3	0.1	< 0.001	0.32	5.1	13	1.8	0.7	0.318	0.077	0.59
1274132	0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.6	24	0.3	< 0.1	0.333	0.017	< 0.01
1274133	0.3	0.2	1.7	0.2	0.1	0.5	< 0.001	0.14	1.7	44	0.3	0.1	0.387	0.028	< 0.01
1274134	0.1	0.2	1.5	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.1	35	0.2	0.1	0.193	0.018	< 0.01

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1274135	0.1	0.2	1.7	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.7	40	0.2	0.1	0.239	0.020	0.03
1274136	0.4	0.2	1.3	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.4	29	0.2	0.1	0.389	0.018	0.02
1274138	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.05	0.7	15	0.2	0.1	0.153	0.013	0.01
1274139	0.1	0.4	2.8	0.4	< 0.1	< 0.1	< 0.001	< 0.05	0.7	42	0.8	0.2	0.354	0.043	0.01
1274140	0.1	0.1	1.0	0.1	0.4	0.3	< 0.001	< 0.05	1.4	39	0.5	0.1	0.392	0.034	0.10
1274141	< 0.1	0.2	1.2	0.2	< 0.1	< 0.1	< 0.001	0.28	1.1	14	1.9	0.5	0.257	0.047	< 0.01
1274142	0.1	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.1	37	0.9	0.3	0.205	0.049	0.18
1274143	< 0.1	0.2	1.4	0.2	0.4	0.7	< 0.001	0.20	12.5	12	10.0	2.8	0.298	0.115	0.06
1274144	< 0.1	0.2	1.5	0.2	0.2	0.3	< 0.001	0.09	9.2	12	12.4	3.0	0.307	0.120	0.14
1274145	0.2	< 0.1	0.2	< 0.1	< 0.1	0.1	< 0.001	< 0.05	0.7	10	0.1	< 0.1	0.0788	0.008	0.01
1274146	< 0.1	0.3	2.5	0.3	< 0.1	< 0.1	< 0.001	0.08	1.5	27	2.3	0.6	0.180	0.080	< 0.01
1274147	0.3	0.1	1.1	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.1	19	0.9	0.3	0.236	0.028	0.08
1274148	0.6	0.1	0.8	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.9	10	0.4	0.1	0.185	0.015	< 0.01
1274149	0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.9	7	0.3	0.1	0.140	0.013	< 0.01
1274150	0.4	0.1	1.1	0.1	< 0.1	< 0.1	< 0.001	< 0.05	0.8	15	0.8	0.2	0.212	0.019	0.04
1132701	< 0.1	0.3	2.5	0.3	< 0.1	< 0.1	< 0.001	< 0.05	2.6	24	2.1	0.6	0.245	0.092	0.02
1132702	0.1	0.1	0.5	0.1	< 0.1	0.3	< 0.001	0.06	2.6	6	0.2	< 0.1	0.0827	0.013	0.01
1132703	0.1	0.2	1.6	0.2	< 0.1	< 0.1	< 0.001	0.08	1.7	41	1.0	0.2	0.220	0.055	0.05
1132704	0.3	0.1	0.5	0.1	0.1	< 0.1	< 0.001	0.59	3.1	29	0.4	0.1	0.257	0.014	0.09
1132705	0.1	0.3	2.1	0.3	< 0.1	< 0.1	< 0.001	0.08	4.6	40	0.6	0.2	0.247	0.033	0.19
1477528	0.2	0.2	1.4	0.2	< 0.1	< 0.1	< 0.001	< 0.05	1.0	38	0.5	0.1	0.286	0.021	< 0.01
1477529	< 0.1	0.5	3.3	0.4	< 0.1	< 0.1	< 0.001	0.23	1.9	42	3.1	0.9	0.234	0.076	0.04

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	12.0	0.07	0.32	5.12	0.06	0.92	2.6	83	15.3	914	25.0	1.1	2740	43.0		0.9		35.1	2.94	8.3	0.50	1250	14.9
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
GXR-1 Meas	11.3	0.07	0.31	4.77	0.06	0.88	2.3	77	12.1	893	24.6	1.0	1290	40.1		0.9		35.2	2.88	8.1	0.50	1230	15.1
GXR-1 Cert	8.20	0.0520	0.217	3.52	0.050	0.960	3.30	80.0	12.0	852	23.6	0.960	3900	41.0		1.22		31.0	3.00	8.20	0.690	1380	16.6
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	11.2	0.54	1.72	7.04	4.07	0.98	0.1	88	63.3	155	3.06	1.4	< 10	43.3		1.9		3.58	2.78	14.6	1.20	19.0	5.3
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
GXR-4 Meas	10.7	0.51	1.69	6.97	4.09	0.94	0.2	83	43.6	151	3.10	1.4	< 10	42.5		1.9		3.63	2.66	14.3	1.20	18.9	5.4
GXR-4 Cert	11.1	0.564	1.66	7.20	4.01	1.01	0.860	87.0	64.0	155	3.09	6.30	110	42.0		1.90		4.00	2.80	14.6	1.63	19.0	5.60
SDC-1 Meas	35.2	1.62	1.04	8.28	2.94	0.98		28	50.5	870	4.88	0.9	< 10	38.5	3.3	2.9	1.2		4.16	20.0	1.30		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
SDC-1 Meas	34.8	1.52	1.02	6.04	2.51	0.94		45	50.8	816	4.74	1.2	< 10	36.4	3.2	2.9	1.2		4.03	18.8	1.30		
SDC-1 Cert	34.00	1.52	1.02	8.34	2.72	1.00		102.00	64.00	880.00	4.82	8.30	200.00	38.0	4.10	3.00	1.50		4.00	18.0	1.70		
GXR-6 Meas	37.0	0.11	0.62	< 0.01	1.91	0.20	< 0.1	129	47.7	1000	5.45	2.5	40	26.6		1.1		0.09	4.30	14.2	0.50	0.20	< 0.1
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
GXR-6 Meas	36.9	0.10	0.61	< 0.01	1.90	0.18	< 0.1	119	51.8	982	5.62	2.4	20	25.5		1.7		< 0.05	4.27	14.1	0.50	0.19	0.3
GXR-6 Cert	32.0	0.104	0.609	17.7	1.87	0.180	1.00	186	96.0	1010	5.58	4.30	68.0	27.0		1.40		1.30	4.20	13.8	0.760	0.290	0.940
DNC-1a Meas	4.6							131	242					272						58.3	0.50		
DNC-1a Cert	5.2							148	270					247						57	0.59		
DNC-1a Meas	4.7							134	149					277						59.6	0.50		
DNC-1a Cert	5.2							148	270					247						57	0.59		
SBC-1 Meas	156						0.4	208	75.1			3.6		92.0	3.2	3.4	1.2		8.40	23.4	1.60	0.77	
SBC-1 Cert	163.0						0.40	220.0	109			3.7		82.8	3.80	3.20	1.40		8.2	22.7	1.98	0.70	
SBC-1 Meas																							
SBC-1 Cert																							
OREAS 45d (4-Acid) Meas	22.0	0.10	0.21	8.57	0.44	0.19		152	512	540	14.8	3.9		252	1.3	0.8	0.4		3.99	31.6	0.50	0.39	
OREAS 45d (4-Acid) Cert	21.5	0.101	0.245	8.150	0.412	0.185		235.0	549	490.000	14.5	3.830		231.0	1.38	0.79	0.46		3.910	29.50	0.57	0.31	
SdAR-M2 (U.S.G.S.) Meas	18.9						5.6	26	44.7			4.1	1070	54.1	2.7	6.8	1.0		1.84	13.7	1.10	1.11	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
SdAR-M2 (U.S.G.S.) Meas	18.6						5.2	25	40.2			3.9	740	53.5	2.5	6.8	0.9		1.82	13.7	1.00	1.06	
SdAR-M2 (U.S.G.S.) Cert	17.9						5.1	25.2	49.6			7.29	1440.00	48.8	3.58	6.6	1.21		1.82	12.4	1.44	1.05	
1470971 Orig	14.1	2.40	1.85	5.39	0.13	4.56	< 0.1	336	14.5	1530	10.3	1.5	10	6.6	0.8	0.4	0.3	< 0.05	0.64	51.6	0.60	0.05	0.3
1470971 Dup	14.7	2.63	1.95	5.68	0.14	4.61	< 0.1	346	26.2	1540	10.1	1.4	< 10	6.3	0.8	0.5	0.3	< 0.05	0.64	52.7	0.60	0.05	0.3
1274213 Orig	3.4	0.76	5.66	1.90	0.01	11.4	0.4	54	807	2510	7.35	0.3	< 10	552	0.5	0.1	0.2	< 0.05	< 0.05	60.2	0.20	0.02	< 0.1
1274213 Dup	3.4	0.77	5.80	1.88	0.01	11.0	0.5	56	809	2520	7.31	0.3	40	574	0.6	0.1	0.2	0.27	< 0.05	61.7	0.30	0.05	< 0.1

Analyte Symbol	Li	Na	Mg	Al	K	Ca	Cd	V	Cr	Mn	Fe	Hf	Hg	Ni	Er	Be	Ho	Ag	Cs	Co	Eu	Bi	Se
Unit Symbol	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.1	1	0.5	1	0.01	0.1	10	0.5	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.02	0.1
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274215 Orig	12.1	1.39	1.03	6.03	1.58	3.82	< 0.1	177	129	702	5.69	1.2	< 10	202	0.7	0.5	0.2	< 0.05	0.33	57.9	0.30	0.03	0.2
1274215 Dup	12.9	1.40	1.05	> 10.0	1.59	3.86	< 0.1	160	137	737	5.90	1.0	< 10	214	0.6	0.3	0.2	< 0.05	0.32	59.5	0.30	< 0.02	0.2
1274220 Orig	7.5	1.84	3.03	4.41	0.02	4.65	< 0.1	127	1820	1500	7.19	0.6	20	1470	0.5	0.1	0.2	0.11	0.05	146	0.20	0.05	0.2
1274220 Split PREP DUP	7.0	1.87	3.04	4.13	0.02	4.75	< 0.1	134	1960	1410	7.08	0.7	< 10	1450	0.6	0.1	0.2	< 0.05	0.05	154	0.20	0.02	0.1
1274254 Orig	20.2	1.70	0.70	> 10.0	1.38	3.48	< 0.1	64	56.9	1600	4.53	3.0	< 10	39.4	0.9	0.8	0.3	< 0.05	3.21	17.8	0.50	0.46	< 0.1
1274254 Dup	19.9	1.64	0.77	5.30	1.46	3.59	< 0.1	57	52.1	1550	4.50	2.7	< 10	38.6	1.0	0.9	0.4	< 0.05	3.28	19.0	0.60	0.43	< 0.1
1274260 Orig	11.9	0.68	0.41	4.10	1.02	1.19	< 0.1	40	60.1	538	2.74	1.5	< 10	23.9	0.4	0.6	0.1	0.14	0.98	9.2	0.30	0.46	< 0.1
1274260 Dup	11.8	0.78	0.42	4.52	0.99	1.19	< 0.1	41	60.5	581	2.90	1.4	< 10	24.8	0.4	0.6	0.1	0.07	0.96	10.0	0.30	0.44	< 0.1
1470692 Orig	15.9	2.87	0.58	6.10	2.39	2.14	< 0.1	13	33.5	1250	2.49	3.2	< 10	5.9	0.9	0.8	0.3	< 0.05	0.90	3.4	0.60	0.04	< 0.1
1470692 Split PREP DUP	16.3	2.91	0.58	6.66	2.47	2.21	< 0.1	16	32.5	1270	2.64	3.6	< 10	5.8	1.1	0.9	0.4	< 0.05	0.96	3.5	0.80	0.04	< 0.1
1470874 Orig	4.1	1.26	0.29	2.95	1.06	0.15	< 0.1	21	54.0	187	1.44	0.1	< 10	9.7	0.2	0.8	0.1	0.11	0.95	6.1	0.40	0.22	< 0.1
1470874 Dup	3.7	1.24	0.28	2.94	1.02	0.14	< 0.1	21	52.8	178	1.40	0.3	< 10	10.0	0.2	0.9	0.1	< 0.05	0.92	5.8	0.40	0.27	< 0.1
1470885 Orig	83.3	2.62	3.91	4.63	0.27	1.19	0.1	150	185	958	6.81	2.9	< 10	235	1.0	0.8	0.4	< 0.05	0.80	39.5	1.10	0.10	< 0.1
1470885 Dup	84.1	2.64	3.98	> 10.0	0.28	1.20	0.1	147	182	954	6.89	2.8	< 10	236	1.0	0.8	0.4	< 0.05	0.82	40.5	1.10	0.09	< 0.1
1470887 Orig	2.5	0.01	21.6	0.77	0.01	0.71	< 0.1	6	1000	688	4.69	0.2	10	2690	0.1	0.1	< 0.1	0.14	0.47	106	< 0.05	0.11	< 0.1
1470887 Dup	2.8	0.01	22.5	0.78	0.01	0.73	< 0.1	5	1020	714	4.86	0.1	< 10	2800	0.1	0.1	< 0.1	0.10	0.48	112	< 0.05	0.13	< 0.1
1274106 Orig	25.4	> 3.00	1.54	> 10.0	1.76	1.76	0.1	103	98.6	777	3.99	5.0	< 10	43.4	1.3	2.8	0.5	< 0.05	1.18	20.1	1.60	0.14	< 0.1
1274106 Split PREP DUP	25.2	> 3.00	1.55	7.93	1.69	1.64	0.2	99	98.3	801	3.95	4.8	40	42.5	1.2	2.6	0.5	< 0.05	1.16	19.3	1.40	0.15	< 0.1
1274117 Orig	22.7	> 3.00	1.53	> 10.0	1.13	1.29	0.1	85	148	563	5.00	3.9	< 10	110	1.5	1.4	0.6	< 0.05	1.49	27.1	1.20	0.11	< 0.1
1274117 Dup	23.2	> 3.00	1.58	> 10.0	1.21	1.32	< 0.1	66	145	578	5.13	3.3	< 10	111	1.5	1.6	0.6	< 0.05	1.61	27.7	1.30	0.10	< 0.1
1274144 Orig	17.4	> 3.00	2.04	> 10.0	0.52	1.48	< 0.1	93	72.0	548	4.10	4.7	< 10	40.9	1.3	1.8	0.5	< 0.05	0.43	17.9	1.50	0.02	0.5
1274144 Dup	18.2	> 3.00	2.16	5.25	0.55	1.59	< 0.1	100	66.4	574	4.35	4.9	< 10	44.8	1.4	1.9	0.5	< 0.05	0.40	18.6	1.60	0.02	< 0.1
1132701 Orig	15.0	> 3.00	0.86	6.66	0.14	1.54	< 0.1	9	20.3	478	8.14	3.1	< 10	1.1	2.0	0.6	0.7	< 0.05	0.22	19.5	0.90	1.13	< 0.1
1132701 Split PREP DUP	16.7	> 3.00	0.98	7.54	0.16	1.69	< 0.1	16	24.8	539	9.13	3.9	< 10	1.6	2.3	0.6	0.8	< 0.05	0.27	21.7	1.00	0.02	< 0.1
1477529 Orig	12.5	1.60	2.84	6.86	0.97	6.22	< 0.1	90	41.4	1870	10.8	1.6	< 10	60.8	3.1	1.2	1.2	< 0.05	4.54	53.8	1.50	0.03	< 0.1
1477529 Dup	13.0	1.67	2.93	7.13	1.00	6.44	< 0.1	95	39.8	1900	10.8	1.9	< 10	62.3	3.2	1.1	1.2	< 0.05	4.50	54.5	1.50	0.02	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.1	< 1	2.3	4	< 0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank	< 0.5	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.1	1	2.9	3	0.01	< 0.1	< 10	< 0.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05	< 0.02	< 0.1
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
GXR-1 Meas	754	4.4	438	3.3	30.0	324	45	0.8	18.1	0.9	30	31.2	8.2	1040	7.9	15.9		8.1	2.3	3.6	0.7	4.4	1030
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
GXR-1 Meas	733	9.1	430	3.2	27.5	318	39	1.3	19.6	0.8	31	30.8	11.1	1020	7.9	15.9		8.0	2.3	3.5	0.6	4.1	991
GXR-1 Cert	760	13.8	427	14.0	32.0	275	38.0	0.800	18.0	0.770	54.0	122	13.0	750	7.50	17.0		18.0	2.70	4.20	0.830	4.30	1110
DH-1a Meas																							
DH-1a Cert																							
DH-1a Meas																							
DH-1a Cert																							
GXR-4 Meas	73.9	17.1	111	123	14.1	208	46	10.6	307	0.2	8	5.0	1.1	84	52.7	99.2		39.5	5.2	4.5	0.5	2.7	5920
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
GXR-4 Meas	73.6	13.0	109	126	13.5	215	46	10.0	310	0.2	8	5.0	1.5	349	53.7	100		39.5	5.2	4.5	0.5	2.6	5830
GXR-4 Cert	73.0	20.0	98.0	160	14.0	221	186	10.0	310	0.270	5.60	4.80	0.970	1640	64.5	102		45.0	6.60	5.25	0.360	2.60	6520
SDC-1 Meas	113	14.9	< 0.1	105		176	34	0.7			< 1	< 0.1		630	35.9	80.3		35.8	6.2	6.3	0.9	5.9	32.5
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
SDC-1 Meas	112	16.0	< 0.1	98.0		170	44	0.6			< 1	< 0.1		609	38.0	80.3		37.3	6.6	6.3	0.9	5.8	31.6
SDC-1 Cert	103.00	21.00	0.220	127.00		180.00	290.00	21.00			3.00	0.54		630	42.00	93.00		40.00	8.20	7.00	1.20	6.70	30.000
GXR-6 Meas	136	16.2	246	70.6	12.6	37.8	89	1.7	0.87	< 0.1	< 1	0.9	0.3	1200	12.3	33.9		11.6	2.0	2.1	0.3	2.2	72.0
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
GXR-6 Meas	139	20.4	266	69.2	12.1	38.7	85	1.0	0.73	< 0.1	1	1.2	0.1	1190	12.3	33.8		11.6	2.1	2.1	0.3	2.2	70.7
GXR-6 Cert	118	35.0	330	90.0	14.0	35.0	110	7.50	2.40	0.260	1.70	3.60	0.0180	1300	13.9	36.0		13.0	2.67	2.97	0.415	2.80	66.0
DNC-1a Meas	66.9	12.8		3.6	17.1	150	47	4.0				0.9		101	4.0			4.7					100
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
DNC-1a Meas	70.0	12.3		3.7	16.9	151	45	2.2				0.2		105	3.9			4.7					101
DNC-1a Cert	70	15		5	18.0	144	38.0	3				0.96		118	3.6			5.20					100
SBC-1 Meas	200	18.0	25.3	119	31.5	176	136	12.2	2.93		4	1.0		636	46.4	96.1	12.0	44.7	7.6	7.3	1.0	6.0	31.8
SBC-1 Cert	186.0	27.0	25.7	147	36.5	178.0	134.0	15.3	2.40		3.3	1.01		788.0	52.5	108.0	12.6	49.2	9.6	8.5	1.20	7.10	31.0000
SBC-1 Meas																							
SBC-1 Cert																							
OREAS 45d (4-Acid) Meas	45.8	20.0	11.8	37.7	11.4	31.3	139	3.9	2.08	0.1	2	< 0.1		186	15.8	35.5	3.7	13.3	2.3	2.3	0.3	2.2	378
OREAS 45d (4-Acid) Cert	45.7	21.20	13.8	42.1	9.53	31.30	141	14.50	2.500	0.096	2.78	0.82		183.0	16.9	37.20	3.70	13.4	2.80	2.42	0.400	2.26	371
SdAR-M2 (U.S.G.S.) Meas	804	7.1		108	25.6	142	137	4.9	11.8					940	42.5	90.8	10.4	36.3	5.6	5.4	0.7	4.7	249
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00
SdAR-M2 (U.S.G.S.) Meas	775	10.8		125	23.4	138	119	6.7	11.9					921	36.6	81.9	8.9	31.7	5.3	4.8	0.7	4.3	243
SdAR-M2 (U.S.G.S.) Cert	760	17.6		149	32.7	144	259	26.2	13.3					990	46.6	98.8	11.0	39.4	7.18	6.28	0.97	5.88	236.00
1470971 Orig	55.5	15.6	19.1	4.3	7.9	80.2	66	0.3	1.40	< 0.1	< 1	< 0.1	0.3	42	6.7	15.1	2.0	8.3	2.0	1.9	0.3	1.5	27.8
1470971 Dup	54.6	15.8	13.4	4.5	7.9	80.9	55	0.1	0.58	< 0.1	< 1	< 0.1	0.2	44	6.8	15.5	2.0	8.4	2.0	2.0	0.3	1.5	22.8
1274213 Orig	89.6	3.6	17.7	0.3	6.3	82.6	13	0.3	0.61	< 0.1	< 1	< 0.1	< 0.1	28	0.7	1.9	0.3	1.6	0.6	0.9	0.1	0.9	8.1

Analyte Symbol	Zn	Ga	As	Rb	Y	Sr	Zr	Nb	Mo	In	Sn	Sb	Te	Ba	La	Ce	Pr	Nd	Sm	Gd	Tb	Dy	Cu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.2	0.1	0.1	0.2	0.1	0.2	1	0.1	0.05	0.1	1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS
1274213 Dup	93.9	3.7	18.3	0.3	6.4	82.5	15	0.3	1.19	< 0.1	< 1	< 0.1	0.8	29	0.6	1.8	0.3	1.6	0.6	0.9	0.1	1.0	8.4
1274215 Orig	56.8	15.6	4.1	33.7	5.6	78.6	43	0.2	0.58	< 0.1	< 1	< 0.1	0.2	175	1.8	5.0	0.8	3.6	1.0	1.1	0.2	1.0	114
1274215 Dup	59.4	15.7	2.8	32.9	5.7	79.0	38	0.2	0.33	< 0.1	< 1	< 0.1	0.2	177	1.7	5.0	0.8	3.5	0.9	1.0	0.2	1.0	115
1274220 Orig	205	8.6	19.9	1.0	4.7	31.4	22	0.5	0.73	< 0.1	< 1	0.2	< 0.1	8	0.8	2.3	0.4	2.0	0.6	0.7	0.1	0.8	99.5
1274220 Split PREP DUP	202	8.6	18.9	0.7	4.9	32.9	22	0.4	0.80	< 0.1	< 1	0.2	< 0.1	8	0.9	2.6	0.4	2.0	0.6	0.7	0.1	0.9	97.9
1274254 Orig	65.7	17.0	< 0.1	32.3	8.6	308	126	1.1	1.34	< 0.1	1	< 0.1	0.1	302	11.7	25.5	2.9	10.4	1.8	1.8	0.2	1.6	34.0
1274254 Dup	63.3	16.9	< 0.1	36.7	9.8	316	114	1.0	0.93	< 0.1	< 1	< 0.1	< 0.1	303	14.1	29.6	3.4	12.4	2.0	2.0	0.3	1.7	33.2
1274260 Orig	27.2	7.3	1.6	20.8	4.1	133	65	3.3	12.4	< 0.1	1	0.1	0.5	214	6.4	13.5	1.5	5.3	0.8	0.9	0.1	0.7	40.7
1274260 Dup	29.2	8.0	0.9	21.3	4.3	136	57	2.8	12.9	< 0.1	1	0.1	0.3	162	6.7	13.9	1.6	5.4	0.9	0.9	0.1	0.7	40.2
1470692 Orig	71.3	16.3	< 0.1	49.8	11.2	213	125	0.4	0.27	< 0.1	< 1	< 0.1	< 0.1	523	13.0	34.6	3.7	14.3	2.0	2.3	0.3	1.8	11.2
1470692 Split PREP DUP	70.8	18.0	< 0.1	53.0	11.6	228	127	0.3	0.24	< 0.1	< 1	< 0.1	< 0.1	558	12.4	39.5	4.8	17.1	2.4	2.4	0.3	2.0	11.4
1470874 Orig	18.5	5.2	1.9	24.8	3.0	197	3	1.1	4.15	< 0.1	< 1	0.7	0.3	479	13.4	27.5	2.9	10.0	1.5	1.3	0.1	0.6	11.7
1470874 Dup	18.4	5.4	1.5	24.5	3.0	196	24	0.9	6.02	< 0.1	< 1	0.5	0.2	472	13.3	27.2	2.9	9.9	1.5	1.2	0.1	0.6	11.6
1470885 Orig	104	19.1	40.9	9.6	10.8	295	137	4.6	0.92	< 0.1	< 1	0.2	< 0.1	93	19.7	45.2	6.1	24.6	4.4	3.7	0.4	2.1	25.5
1470885 Dup	105	19.2	39.3	8.7	11.1	303	135	3.9	0.87	< 0.1	< 1	0.1	< 0.1	95	20.0	45.9	6.3	25.0	4.3	3.7	0.4	2.1	25.0
1470887 Orig	47.7	1.5	1.5	0.7	1.1	25.0	9	0.5	0.96	< 0.1	< 1	0.2	0.4	8	0.8	1.6	0.2	0.7	0.1	0.1	< 0.1	0.2	8.0
1470887 Dup	49.4	1.6	1.5	0.8	1.1	25.7	5	0.5	0.67	< 0.1	< 1	0.2	0.2	8	0.9	1.9	0.2	0.7	0.1	0.2	< 0.1	0.2	8.2
1274106 Orig	78.2	2.1	0.2	29.1	14.3	375	209	7.1	0.99	< 0.1	1	0.2	0.5	2650	52.1	105	10.2	36.1	5.2	4.6	0.5	2.7	39.6
1274106 Split PREP DUP	72.2	< 0.1	< 0.1	27.7	13.4	360	199	6.4	1.21	< 0.1	2	0.2	0.8	2490	44.4	98.6	10.1	36.1	5.0	4.2	0.4	2.5	41.7
1274117 Orig	126	18.7	22.3	32.8	16.1	308	156	2.2	0.52	< 0.1	< 1	< 0.1	0.1	348	26.8	58.7	7.6	28.9	4.9	4.3	0.5	2.9	41.1
1274117 Dup	132	19.5	18.6	33.3	16.8	313	130	0.5	0.26	< 0.1	< 1	< 0.1	< 0.1	359	27.5	60.3	7.8	29.7	5.0	4.4	0.5	3.0	42.9
1274144 Orig	90.1	11.3	0.2	9.7	15.0	230	204	4.2	0.56	< 0.1	1	0.1	< 0.1	760	57.6	111	12.9	44.9	5.9	4.7	0.5	2.7	11.1
1274144 Dup	96.0	12.7	< 0.1	9.8	15.8	245	219	5.5	0.31	< 0.1	< 1	0.2	0.1	791	61.6	117	13.7	47.8	6.3	5.1	0.5	2.8	16.6
1132701 Orig	50.6	20.4	2.4	4.0	19.6	49.8	146	0.4	0.10	< 0.1	< 1	< 0.1	< 0.1	46	12.8	30.3	4.1	16.9	3.7	3.9	0.5	3.2	2.8
1132701 Split PREP DUP	54.0	23.7	2.3	4.7	22.3	55.0	178	0.2	0.45	0.1	< 1	< 0.1	0.4	53	14.1	33.1	4.4	18.5	4.1	4.4	0.6	3.6	5.9
1477529 Orig	91.8	17.3	0.2	45.2	31.0	180	58	0.2	0.14	< 0.1	< 1	< 0.1	< 0.1	260	19.3	43.5	5.8	23.5	4.8	5.9	0.9	5.7	158
1477529 Dup	93.5	17.4	0.6	46.8	32.6	190	71	0.2	0.12	< 0.1	< 1	< 0.1	< 0.1	267	19.6	43.7	5.7	23.5	5.0	5.9	0.9	5.9	162
Method Blank	0.7	0.2	< 0.1	0.2	< 0.1	< 0.2	< 1	0.1	< 0.05	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Method Blank	0.7	0.2	0.1	0.3	< 0.1	< 0.2	< 1	0.1	0.25	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
GXR-1 Meas		0.4	2.3	0.3	< 0.1	130		0.42	723	2	2.9	33.0	0.0338	0.058	0.24
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
GXR-1 Meas		0.3	2.1	0.2	< 0.1	138		0.43	685	2	2.4	32.2	0.0355	0.056	0.24
GXR-1 Cert		0.430	1.90	0.280	0.175	164		0.390	730	1.58	2.44	34.9	0.036	0.0650	0.257
DH-1a Meas											> 500	2270			
DH-1a Cert											910	2629			
DH-1a Meas											> 500	2190			
DH-1a Cert											910	2629			
GXR-4 Meas		0.2	1.1	0.1	0.7	36.3		3.40	53.7	8	17.5	6.0	0.290	0.133	1.76
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
GXR-4 Meas		0.2	1.1	0.1	0.7	37.1		3.39	50.6	8	19.4	6.0	0.299	0.137	1.81
GXR-4 Cert		0.210	1.60	0.170	0.790	30.8		3.20	52.0	7.70	22.5	6.20	0.29	0.120	1.77
SDC-1 Meas		0.5	3.6		< 0.1	< 0.1		0.69	29.2	16	14.0	2.9	0.0886	0.055	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
SDC-1 Meas		0.5	3.4		< 0.1	< 0.1		0.68	26.2	16	14.0	3.0	0.188	0.054	
SDC-1 Cert		0.65	4.00		1.20	0.80		0.70	25.00	17.00	12.00	3.10	0.606	0.0690	
GXR-6 Meas			1.8	0.2	0.1	0.1		2.34	106	25	5.1	1.6		0.034	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
GXR-6 Meas			1.8	0.2	< 0.1	< 0.1		2.27	102	25	5.0	1.6		0.035	0.02
GXR-6 Cert			2.40	0.330	0.485	1.90		2.20	101	27.6	5.30	1.54		0.0350	0.0160
DNC-1a Meas			2.0						7.2	31			0.284		
DNC-1a Cert			2.0						6.3	31			0.29		
DNC-1a Meas			2.0						6.6	32			0.293		
DNC-1a Cert			2.0						6.3	31			0.29		
SBC-1 Meas		0.5	3.6	0.4	1.5	1.3		0.97	39.3	21	15.1	6.0	0.507		
SBC-1 Cert		0.56	3.64	0.54	1.10	1.60		0.89	35.0	20.0	15.8	5.76	0.51		
SBC-1 Meas										21			0.535		
SBC-1 Cert										20.0			0.51		
OREAS 45d (4-Acid) Meas			1.5	0.2	0.1	0.9		0.31	24.4		14.5	3.0			
OREAS 45d (4-Acid) Cert			1.33	0.18	1.02	1.62		0.27	21.8		14.5	2.63			
SdAR-M2 (U.S.G.S.) Meas		0.4	3.1	0.4	0.1	< 0.1			762	4	13.9	2.7			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
SdAR-M2 (U.S.G.S.) Meas		0.4	2.8	0.4	0.2	0.1			740	5	11.6	2.3			
SdAR-M2 (U.S.G.S.) Cert		0.54	3.63	0.54	1.8	2.8			808	4.1	14.2	2.53			
1470971 Orig	< 0.1	0.1	0.9	0.1	< 0.1	0.3	0.002	0.05	1.4	39	0.9	0.3	0.417	0.036	0.21
1470971 Dup	< 0.1	0.1	0.9	0.1	< 0.1	0.1	0.003	< 0.05	1.4	40	0.8	0.3	0.451	0.036	0.19
1274213 Orig	0.1	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	< 0.05	1.1	17	< 0.1	< 0.1	0.0901	0.008	0.03
1274213 Dup	0.1	0.1	0.6	0.1	< 0.1	< 0.1	< 0.001	0.05	1.1	17	0.1	< 0.1	0.0992	0.009	0.03

Analyte Symbol	Ge	Tm	Yb	Lu	Ta	W	Re	Tl	Pb	Sc	Th	U	Ti	P	S
Unit Symbol	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	0.001	0.05	0.5	1	0.1	0.1	0.0005	0.001	0.01
Method Code	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-MS	TD-ICP	TD-MS	TD-MS	TD-ICP	TD-ICP	TD-ICP
1274215 Orig	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.16	1.0	42	0.2	0.1	0.182	0.024	0.17
1274215 Dup	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.16	0.9	41	0.2	0.1	0.154	0.024	0.17
1274220 Orig	0.1	0.1	0.7	0.1	0.2	< 0.1	< 0.001	< 0.05	1.1	32	0.1	0.1	0.151	0.007	0.37
1274220 Split PREP DUP	0.1	0.1	0.8	0.1	0.1	< 0.1	< 0.001	< 0.05	1.2	33	0.1	0.1	0.160	0.008	0.38
1274254 Orig	0.1	0.1	0.9	0.1	< 0.1	< 0.1	< 0.001	0.24	8.3	10	2.0	0.6	0.244	0.052	0.06
1274254 Dup	0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.22	8.0	12	2.5	0.7	0.208	0.054	0.06
1274260 Orig	< 0.1	0.1	0.4	< 0.1	0.5	0.4	0.003	0.19	3.9	5	1.2	0.4	0.172	0.025	1.03
1274260 Dup	< 0.1	0.1	0.4	< 0.1	0.3	0.3	0.002	0.17	3.8	5	1.2	0.4	0.169	0.024	1.01
1470692 Orig	0.1	0.1	1.0	0.1	< 0.1	< 0.1	< 0.001	0.26	11.4	6	2.1	0.5	0.201	0.067	0.01
1470692 Split PREP DUP	< 0.1	0.2	1.1	0.1	< 0.1	< 0.1	< 0.001	0.27	11.6	7	2.4	0.6	0.246	0.078	0.02
1470874 Orig	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.001	0.15	9.6	3	1.6	0.5	0.0791	0.025	0.02
1470874 Dup	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.001	0.14	9.6	3	1.7	0.6	0.0745	0.025	0.02
1470885 Orig	< 0.1	0.2	1.1	0.1	0.2	< 0.1	< 0.001	0.08	4.7	23	3.0	0.9	0.409	0.090	< 0.01
1470885 Dup	0.1	0.2	1.2	0.2	0.1	< 0.1	< 0.001	0.08	4.8	23	3.4	0.9	0.417	0.090	< 0.01
1470887 Orig	0.1	< 0.1	0.1	< 0.1	0.1	< 0.1	< 0.001	< 0.05	1.8	7	0.2	< 0.1	0.0526	0.005	0.06
1470887 Dup	0.1	< 0.1	0.1	< 0.1	0.1	< 0.1	< 0.001	< 0.05	0.6	7	0.1	0.4	0.0439	0.004	0.06
1274106 Orig	< 0.1	0.2	1.5	0.2	0.5	0.9	< 0.001	0.24	14.0	12	10.1	2.7	0.334	0.124	0.07
1274106 Split PREP DUP	< 0.1	0.2	1.4	0.2	0.4	0.5	< 0.001	0.23	14.1	11	9.2	2.7	0.321	0.122	0.07
1274117 Orig	< 0.1	0.2	1.5	0.2	< 0.1	0.2	< 0.001	0.23	10.6	16	5.7	1.5	0.378	0.082	0.06
1274117 Dup	< 0.1	0.2	1.5	0.2	< 0.1	0.1	< 0.001	0.23	11.0	16	5.7	1.5	0.241	0.081	0.06
1274144 Orig	< 0.1	0.2	1.4	0.2	0.2	0.5	< 0.001	0.09	9.1	12	12.1	2.9	0.300	0.119	0.14
1274144 Dup	< 0.1	0.2	1.5	0.2	0.3	0.1	< 0.001	0.08	9.4	13	12.7	3.0	0.314	0.122	0.15
1132701 Orig	< 0.1	0.3	2.5	0.3	< 0.1	< 0.1	< 0.001	< 0.05	2.6	24	2.1	0.6	0.245	0.092	0.02
1132701 Split PREP DUP	< 0.1	0.4	2.8	0.4	< 0.1	< 0.1	< 0.001	< 0.05	2.7	24	2.3	0.9	0.402	0.095	0.02
1477529 Orig	< 0.1	0.5	3.2	0.4	< 0.1	< 0.1	< 0.001	0.23	1.9	42	3.0	0.9	0.216	0.077	0.04
1477529 Dup	< 0.1	0.5	3.3	0.4	< 0.1	< 0.1	< 0.001	0.23	1.9	42	3.2	0.9	0.253	0.076	0.04
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	< 0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.05	< 0.5	< 1	0.1	< 0.1	< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01
Method Blank										< 1			< 0.0005	< 0.001	< 0.01