

YMIP Grant **14-051**

A Summary Technical Report on the **Pirate Project**  
A Focussed Regional Module, Hard Rock Type

A Geochemical/Geological Report

Ten claims staked under this grant.

RGS 1-10, YE71435-YE71444

Location

115P06,

Camps at 377,500E, 7,028,540N, Elev 601 m

And 382,180E, 7,027,420N, Elev 939 m

UTM NAD 83, Zone 8

Grant awarded to Jeff Mieras

Work performed by Gordon Richards & Jeff Mieras

Report written by Gordon Richards

October 6, 2014

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## SUMMARY

Work described in this report was conducted under a YMIP Focussed Regional Grant, Hardrock Type. YMEP 14-051 awarded to Jeff Mieras.

The following is an historical account of events on this project:

June 13, 14. Mob from Whs to Mayo. Buy food and supplies.

June 14. Flew with Trans North to camp #1 on property and staked RGS 1-10 quartz claims on Pirate West Area.

June 15, 16. Staked RGS 11-78 quartz claims on adjacent Lake Project YMEP Grant 14-052 (G Richards).

June 19. Flew with Trans North to Stewart, drove to Dawson and recorded claims. Bought food and drove to Mayo.

June 20. Flew to camp #1 and began twig sampling on Lake Project.

June 21, 22. Collected twig samples on Lake Project.

June 23. Collected MMI and some Twig samples on Pirate West Area.

June 24. Dug pits on anomalous values from 2013 Lake Project.

June 25. Moved from camp #1 to camp #2 on Pirate East Area.

June 26-29. Collected samples on Pirate East Area.

June 30. Flew with Trans North to Stewart and drove to Whitehorse.

July 1. Sorted gear dropped twig samples at Acme, returned sat and radio phones, shipped MMI samples to SGS Labs.

The target area occurs in the underexplored pre-Reid glaciated terrain east of the White Gold District within the Reid Lakes Batholith. The project is located in the drainage of Robbed Creek along the base of a west facing slope 50 km due

west of Stewart Crossing on NTS Map Sheet 115P06 and three km east on a north flowing tributary to Lake Creek.

Richards and Mieras flew by helicopter from Mayo into a campsite used in 2013 on a previous YMIP Grant 13-035 for the staking and initial work on the Pirate West Area as well as work on a separate grant (Lake Project grant number 14-052) awarded to G Richards. Following this work Richards and Mieras moved to a second campsite to conduct sample collection on the Pirate East Area. From this camp the two prospectors made daily traverses for five days before flying out to Stewart and demobbing back to Whitehorse.

In Pirate West Area a target was described based on 2013 prospecting results as a linear feature up to 200 m wide. This target has now been identified as a much larger target with a similar geochemical response to the three porphyry targets found on the adjacent Lake Project that forms part of the RGS claim block. The target is 500 m north-south by 1000 m east-west open to the north and east and has MMI sample results strongly anomalous for Cu, Au, Ag, Ni, and U with anomalous Mo on one line forming a core to the other anomalous elements. Au and Ag are particularly anomalous when compared to the three other porphyry targets on the Lake Project. This may be due to shallower overburden in the Pirate West Area. Twig sampling in general did not provide anomalous patterns.

On the Pirate East Area, one MMI sample collected in 2012 returned strongly anomalous values for Cu, Mo, Au, and U. Other MMI samples collected in 2012 about 500 m north of the 2014 survey area contained moderately anomalous values for Cu and U. An RGS sample collected on the creek draining the survey area was highly anomalous for Cu, Mo, Au, As, Sb, Hg, Pb, and Ag using threshold values derived from a constrained area of pre-Reid glaciations involving 278 RGS samples. An aeromagnetic horizontal derivative map shows a large pattern of low magnetic response measuring 800 m by over 1500 m in the area of the present survey that could be indicative of magnetite destructive hydrothermal alteration. This combined data indicated the potential for Cu-Mo-Au porphyry mineralization in the area. Refer to Figure 2. The target for 2014 prospecting was around the anomalous samples described above.

In the Pirate East Area MMI and twig samples define a large pattern of geochemically anomalous Cu measuring up to 1200 m east-west by 1500 m north-

south and open to the north containing a central core of geochemically anomalous Mo measuring up to 400 m wide by 1400 m north-south. Ag is geochemically anomalous over much of the Cu anomalous zone. Rb and Cs form geochemically anomalous patterns somewhat analogous with Cu that could be related to underlying potassic alteration because of the affinity of these three elements. Ti forms a striking negative anomaly analogous with Cu that could be related to destruction of illmenite in the host quartz monzonite by hydrothermal alteration associated with porphyry mineralization. Au forms a geochemically anomalous cluster of samples on the west portion of the survey area and includes a single sample that has extremely high response values for Au (6134) and Ag (402) that could be related to high-grade mineralization.

Much more work is recommended. Additional soil sampling is recommended to set the limits of the geochemically anomalous zones described followed by induced polarization surveys on both areas to define possible anomalous chargeability and resistivity patterns as a prelude to diamond drilling. Detailed follow-up work is also recommended around samples L223 with the very high Au and Ag response ratios.

All garbage was removed from camp and taken to Mayo for disposal.

#### **CLAIMS.**

Ten quartz claims, RGS 1-10, Grant Numbers YE71435 to YE71444, were staked under this grant. The record date is June 10, 2014. Gordon Richards is the owner of record. Expiry date will be extended by filing of work conducted under this grant as representation work.

#### **GEOLOGY.**

Porphyry style Cu-Au-Mo mineralization is the target sought. The target area lies within the Reid Lakes Batholith best described by Ryan and Colpron in their Geoscience Map 7 of southwestern McQuesten map sheet.

No outcrops were seen anywhere on the West Pirate Area. Between the East and West Pirate Areas most outcrops observed in 2012 were a coarse grained hornblende quartz monzonite with a mafic content of one to four percent. Weakly developed Kspar phenocrysts measuring up to 4 cm in length and

comprising up to 5% of rock volume were noticed in outcrops and float. Some weakly to strongly foliated granodiorite to diorite outcrops with a mafic content of five to twenty percent were also seen usually in areas of aeromagnetic tilt derivative lows. Outcrops were generally fresh with weak chloritic alteration seen in a few exposures. No continuity to this weak chloritic alteration was noted. No fracture style chlorite/epidote or pyrite bearing fractures were seen as might be expected peripheral to a porphyry deposit. On the East Pirate Area outcrops of fresh unaltered quartz monzonite were seen on the two ridges on either side of the main valley on the two southernmost lines and the east end of the northernmost line.

On the two westernmost sample lines of the West Pirate Area, angular chips to fist sized pieces of angular float of quartz muscovite schist were seen in and near many of the MMI soil pits.

Expected porphyry target size is in the 500 m to 2000 m diameter range. On the East Pirate Area this expected size was used to lay out soil lines at 300 m spacing and sample interval at 100 m in order to cover as much ground as possible with the soil grid yet exclude overlooking a porphyry target. On the West Pirate Area sample lines were run to cross the expected linear anomaly using 400 to 600 spaced lines with a 50 m sample interval. Results were a surprise with another porphyry target identified and not a linear anomaly as expected.

## **SURVEY METHODS**

### **General**

Geochemical sampling used selective leach methods because the area had been glaciated during one or more pre-Reid glacial periods and MMI and twig sampling can, where they are effective methods, "see through" deep overburden including glacial till. Also MMI sampling involved collection of relatively shallow soils (10 to 20 cm deep) thereby improving success of collecting samples in this area of shallow permafrost with a slow thawing process in summer months. Based on previous work in the area, MMI sampling was known to be an effective method for identifying porphyry style geochemically anomalous patterns for several elements.

There were **110 MMI** samples and **65 black spruce twig** samples collected on the two Pirate Areas. In Pirate West there were 41 MMI and 13 twig samples collected on four UTM north-south lines spaced 600 and 400 m apart with a sample interval of 50 m. In Pirate East there were 69 MMI and 52 black spruce twig samples collected on seven UTM east-west lines with a sample interval of 100 m. In both areas MMI samples were the preferred sampling method with twig samples collected where MMI samples could not be collected because of shallow frost. Some additional twig samples were also collected beside MMI samples for comparative purposes. Also in Pirate East, both MMI and twig samples were collected at 25 m intervals at thirteen sample sites around the original anomalous sample P190 that was collected in 2012 and was anomalous for Cu, Mo, Au and U. Results in both areas were highly encouraging.

MMI sample details such as rock-chip type, soil colour, texture, depth, dampness and site slope were described in notes. Their locations were recorded in a handheld Garmin GPSmap 60Cx unit. Some UTM co-ordinates were also recorded in notebooks as a backup in case of loss of the GPS unit or loss of data stored on the unit. No such loss occurred. Sampled material was placed into numbered bags as described below.

### **MMI Soil Samples.**

MMI analysis uses a weak partial extraction to improve the conventional geochemical response over buried ore deposits. The process measures the mobile metal ions from mineralization, which have moved toward the surface and become loosely attached to the surfaces of soil particles. They concentrate within the 10 to 20 cm soil depth which on the Project Area is a mixture of loess and minor till. Its effectiveness has been documented in over 1000 case histories on six continents and includes numerous commercial successes. The anomalies are sharply bounded and in most cases directly overlie and define the extent of the surface projection of buried primary mineralized zones. The MMI process is a proprietary method developed by Wamtech of Australia. SGS Minerals Services in Toronto purchased all rights to the method and provides analyses in Vancouver and Toronto.

Watch and ring were removed prior to sampling. Pits were dug by shovel to a depth of 30 cm in order to expose the soil profile for sampling. The profile was scraped clean with a plastic scoop to remove any metal effect from the shovel. A continuous strip of soil was collected by plastic scoop over the interval of 10 to 20 cm below the top of true soil, placed in a pre-numbered ziplock baggie and placed in an 11 inch by 20 inch 2 mil plastic bag. Loess was present at nearly all sample sites and was the sample medium for the bulk of all of the 110 MMI soils collected. Samples were kept cool until they were shipped to SGS Minerals Services, 3260 Production Way, Burnaby, B.C., V5A 4W4.

In the SGS Lab, samples are not dried or prepared in any way. The MMI process includes analyses of an unscreened 50-g sample using multi-component extractants. Metal contents are determined for 53 elements by ICP-MS.

Response Ratios were calculated for 17 elements as shown on Table 1. The average value for results of the lower quartile was calculated for each element. One-half of detection limit was used for those samples with values reported as less than detection limit. Then each result was divided by the lower quartile average to obtain its response ratio. A response ratio of 10 or more is considered very significant for indicating underlying mineralization. Lesser values of 5 to 10 can also be important particularly where more than one element has such a value. Response ratios can best be thought of as a multiple of background in interpreting results.

### **Black Spruce Twig Samples.**

Samples of black spruce twigs comprising the most recent two years of growth were snipped from around the circumference of a single tree. Black spruce was easily identified by observing with aid of a hand lens minute red hairs on the circumference of twigs of the past few years growth. In central Yukon, this amount of growth is typically about a hand-span in length, at which point, the twig diameter is 4–5mm. This diameter is quite critical because many trace elements concentrate in the bark part of the twig, whereas the woody tissue (the cortex) has lower concentrations of most elements. Consequently, unless there is a consistency in the diameters of the twigs that are collected, any analysis of twig tissue can result in variability among samples simply because of the differing



ratios of woody tissue to twig bark. About ten black spruce twigs with needles were placed into porous polypropylene bags ('Hubco' Inc.'s Sentry II). The use of plastic bags was avoided to minimize the chance of moulds forming thereby losing sample integrity.

Analysis of the black spruce twig samples was carried out at Acme Analytical Laboratories Ltd. (Vancouver) using their VG101-EXT method. In the laboratory, twig samples were thoroughly dried at 60°C in an oven with a forced-air fan for 24 hours to remove moisture. The needles could then be separated from the twigs. In preparation for chemical analysis, each twig sample was then milled to a powder using a Wiley mill. A 1 g split of milled material was digested in nitric acid then aqua-regia digestion, and analyzed by ICP-MS ultralow detection limits for 53 elements and selected REE.

Absolute values of Cu, Mo, Ag, and Rb are plotted on Figures 3 to 19. Values of other elements were also plotted but lack of discernible patterns made presenting their results of no usefulness.

### **Rock Samples.**

**Two rock samples** were collected from two of the MMI soil pits. Rock chips from angular float were collected in a numbered kraft sample bag. They were sent to Acme Labs in Vancouver, B.C., where the sample was weighed, crushed, split and pulverized to 200 mesh, and 15 grams digested in 1:1:1 Aqua Regia and sent for ICP-MS analysis. This is Acme's 1DX method using a 15 g sample size.

### **Silt Samples.**

**Three stream sediment samples** were collected from the north flowing creek within the Pirate East Area. Samples were collected by plastic scoop, placed into numbered gusseted kraft sample bags and stored in 11 by 20 cm plastic bags. These samples were collected to corroborate grid soil results and establish effectiveness of silt sampling in the general area. Samples were sent to Acme Labs in Vancouver, B.C., where samples were dried at 60°C, 100g sieved through an 80 mesh screen, digested in 1:1:1 Aqua Regia and then sent for Acme's Ultratrace MS-ICP analysis.

**Table 1. Response Ratios for MMI samples on the Pirate Project. Yellow IDs are from Pirate West, Uncoloured are from Pirate East. Blue & grey RRS=anomaly**

ID	UTN83E	UTM83N	Ag	As	Au	Ca	Co	Cu	Fe	K	Mg	Mn	Mo	Ni	Pb	Ti	U	Zn
K108	378103	7030052	6	1	3	9	3	3	1	3	8	12	3	5	0	0	3	2
K109	378100	7030109	4	4	6	4	4	3	3	3	3	3	2	4	5	39	3	3
K110	378096	7030153	3	1	10	8	20	15	1	3	9	28	4	7	1	2	13	2
K111	378089	7030269	23	1	11	13	3	24	0	1	8	7	26	7	2	0	23	1
K112	378074	7030310	16	1	6	14	5	31	1	2	7	6	20	27	2	0	64	1
K113	378053	7030358	2	1	6	9	5	8	0	5	6	7	10	4	2	0	19	1
K114	378069	7030402	14	1	13	13	9	24	1	2	10	17	9	24	1	0	30	1
K115	378063	7030447	15	1	8	11	7	15	2	3	7	13	8	20	1	0	108	1
K116	378101	7030500	7	1	15	10	7	7	0	14	7	2	13	6	3	0	40	1
K117	377504	7030809	11	1	5	5	4	2	2	11	5	0	1	3	1	12	1	2
K118	377495	7030753	48	1	3	6	11	3	0	19	7	4	3	6	1	0	1	1
K119	377504	7030699	8	4	1	3	2	1	2	11	2	3	2	1	2	23	0	5
K120	377506	7030633	26	2	2	4	2	1	1	12	3	1	1	2	3	17	1	2
K121	377500	7030583	24	2	3	4	1	2	1	15	5	4	1	2	2	30	1	7
K122	377512	7030538	18	1	2	7	1	2	1	9	6	2	1	2	1	0	1	1
K123	377503	7030491	9	1	8	7	4	4	0	2	8	3	2	4	3	0	3	1
K124	377469	7030291	3	1	5	6	1	8	1	2	5	2	1	7	1	0	11	1
K125	377486	7030249	2	6	5	5	3	4	6	2	3	4	1	4	4	17	4	2
K130	380914	7026393	3	2	5	5	4	4	4	1	4	3	1	5	2	42	13	3
K131	381040	7026406	2	4	1	1	5	1	18	6	2	4	1	3	1	74	0	4
K132	381140	7026395	2	1	1	2	6	0	7	4	3	7	1	2	3	39	1	3
K133	381232	7026390	2	4	3	1	2	2	8	3	1	2	1	2	4	98	1	3
K134	381496	7026395	1	6	2	1	1	1	7	1	1	1	1	1	4	141	2	2
K135	381607	7026390	1	2	1	1	3	0	5	2	0	8	1	1	3	37	1	4
K136	381705	7026390	0	4	1	1	4	0	7	1	1	16	1	1	3	111	1	6
K137	381811	7026397	1	4	2	1	5	1	4	1	1	10	1	1	5	53	1	13
K138	381899	7026404	3	4	15	1	2	3	3	1	1	5	1	1	4	63	2	3
K139	381997	7026400	1	2	2	2	4	2	6	1	2	12	1	2	2	44	3	18
K140	382099	7026396	2	6	5	3	3	4	7	1	3	9	1	6	3	49	5	17
K141	382190	7026395	4	2	5	3	6	10	6	1	2	6	1	13	4	22	20	11
K142	382342	7026401	5	1	2	5	4	4	3	3	2	15	1	10	2	4	24	13
K143	382446	7026395	4	2	3	2	21	6	11	1	1	32	5	6	3	37	14	13
K144	382611	7026396	2	8	2	1	2	2	7	2	2	3	3	2	11	233	4	4
K145	382707	7026399	2	4	2	3	2	3	4	1	2	3	1	3	5	122	8	2
K146	382801	7026398	2	8	5	2	11	5	11	3	2	14	2	3	6	209	10	8
K147	383191	7027894	2	8	6	1	4	6	9	1	1	2	1	3	5	110	4	10
K148	383092	7027893	1	2	2	0	2	1	4	2	0	3	1	1	13	94	1	6
K149	383000	7027890	1	4	1	1	4	1	7	2	2	5	1	2	5	229	1	4

K150	382902	7027904	2	1	8	0	2	3	2	4	0	2	1	1	11	32	2	4
K151	382797	7027893	2	1	3	2	2	2	2	2	3	1	1	1	14	66	1	1
ID	UTN83E	UTM83N	Ag	As	Au	Ca	Co	Cu	Fe	K	Mg	Mn	Mo	Ni	Pb	Ti	U	Zn
K152	382700	7027905	5	1	6	3	1	2	1	2	2	1	1	1	9	28	6	1
K154	382267	7027887	4	4	5	4	4	8	4	1	3	13	2	8	1	21	17	10
K155	381994	7027890	6	1	5	4	28	19	7	2	3	57	2	28	2	8	15	11
K156	381800	7027875	4	10	5	2	11	17	23	2	2	6	1	14	9	41	15	17
K157	381682	7027895	6	6	3	2	5	1	5	7	2	6	2	1	8	133	3	4
K158	381596	7027919	1	4	1	3	3	1	7	8	2	8	1	2	4	65	2	7
K159	381498	7027897	2	4	1	1	4	1	5	9	1	5	1	1	5	138	1	6
K160	381506	7027598	1	2	3	1	3	1	5	8	1	4	1	1	2	82	1	7
K161	381603	7027606	1	4	5	2	9	3	3	5	2	15	1	2	2	83	4	2
K162	381698	7027607	5	6	2	1	8	6	13	10	1	5	1	7	14	200	5	8
K163	381830	7027592	4	4	3	3	11	10	9	1	2	17	1	24	5	57	5	13
K164	382061	7027592	1	4	1	3	2	1	4	3	2	5	15	1	2	41	14	8
K165	382200	7027593	1	1	1	2	1	1	1	2	1	5	1	0	2	24	2	1
K166	382302	7027594	2	8	3	1	14	2	11	2	1	50	3	4	5	281	3	31
K167	382401	7027594	1	6	5	1	2	2	6	2	1	2	2	2	9	262	4	3
K168	382502	7027604	1	4	6	4	2	5	4	1	2	1	1	4	6	92	8	2
K169	382595	7027596	5	4	6	3	6	10	7	1	2	4	1	26	5	57	16	16
K170	382696	7027592	2	1	1	4	1	2	3	1	3	1	1	3	3	35	5	6
K171	382800	7027594	4	1	1	1	4	2	12	0	1	4	1	4	5	11	2	19
K172	382900	7027602	3	1	6	1	1	3	2	1	0	0	1	1	7	29	3	1
K173	383004	7027597	3	1	3	0	2	2	10	1	1	1	1	3	5	12	2	14
K174	383095	7027608	1	2	1	1	2	1	4	2	1	3	1	1	5	60	1	5
K175	383204	7027592	1	2	3	0	2	2	7	3	0	2	1	2	5	33	3	6
K176	383198	7027302	1	4	1	0	2	1	6	2	0	4	1	1	5	93	1	5
K177	383099	7027298	0	4	1	2	4	1	5	1	2	7	1	1	4	104	1	2
K178	383004	7027302	1	1	2	5	1	1	2	2	5	3	1	4	2	7	2	10
K179	382914	7027292	2	4	1	1	2	1	6	2	1	6	1	1	7	152	1	4
K180	382801	7027295	1	4	2	3	2	1	6	2	2	2	1	2	5	147	2	4
K181	382680	7027297	1	4	1	1	2	1	10	3	1	25	1	1	12	68	2	35
K182	382608	7027310	1	1	6	5	1	3	1	1	4	2	1	3	2	11	4	5
K183	382499	7027300	5	1	5	6	1	6	3	2	4	3	1	9	2	12	29	5
K184	382184	7027321	2	10	5	2	14	3	8	1	2	18	2	3	7	172	4	8
K185	381848	7027207	3	10	5	2	3	8	8	2	2	2	1	4	5	110	4	3
K186	381844	7027249	1	4	2	2	1	2	5	2	2	3	1	2	2	57	2	2
K187	381846	7027302	2	6	3	2	10	2	10	2	2	20	1	2	6	115	1	12
K188	381840	7027349	2	4	3	3	3	2	4	1	3	1	1	3	6	101	2	3
K189	381802	7027203	4	6	5	2	4	17	9	1	1	2	1	16	5	40	9	2
K190	381755	7027205	1	1	3	3	1	1	2	6	3	1	1	1	2	24	1	4

K191	381700	7027208	3	4	11	2	1	4	4	3	2	1	1	1	5	100	2	2
K192	381852	7027154	5	1	6	10	2	13	2	1	6	3	1	14	1	1	7	6
ID	UTN83E	UTM83N	Ag	As	Au	Ca	Co	Cu	Fe	K	Mg	Mn	Mo	Ni	Pb	Ti	U	Zn
K193	381850	7027103	10	1	5	8	6	25	5	1	6	8	1	59	2	0	24	22
K194	381858	7027049	5	1	6	6	3	19	3	1	5	8	1	23	1	3	7	7
K198	381880	7027163	8	1	10	10	0	14	1	1	5	1	1	24	1	1	8	2
L127	379091	7029573	3	1	2	19	1	1	1	5	11	3	1	2	1	0	4	1
L128	379085	7029660	3	2	2	5	4	2	3	6	5	0	1	5	7	53	3	1
L129	379090	7029718	1	6	1	2	4	1	7	6	2	1	6	3	6	153	1	2
L130	379081	7029764	4	6	2	3	6	1	6	3	3	1	3	4	7	97	5	4
L131	379090	7029806	14	1	18	15	3	14	1	3	9	5	1	25	6	0	12	1
L132	379088	7029853	13	1	21	12	6	23	1	3	8	8	1	18	2	0	36	1
L133	379084	7029904	8	1	5	11	1	9	1	3	6	3	6	7	1	0	73	2
L134	379079	7029952	11	1	18	13	1	12	1	1	10	2	1	7	0	0	40	1
L135	379096	7030001	10	1	15	13	1	17	1	2	7	3	1	20	1	0	36	1
L136	379080	7030056	5	1	8	10	1	9	1	2	6	1	1	7	0	0	19	1
L137	379079	7030103	7	1	6	9	3	7	3	2	6	3	1	7	2	2	13	3
L138	379097	7030150	6	1	8	10	1	15	1	2	6	2	1	20	1	1	18	2
L139	379075	7030207	3	1	3	5	1	9	1	1	3	2	1	12	0	4	9	1
L143	378714	7030049	12	1	8	13	1	17	1	3	4	4	5	16	0	0	75	1
L144	378699	7030002	11	1	11	12	5	10	1	3	3	4	3	9	1	0	16	2
L145	378703	7029942	7	1	1	10	17	1	1	7	10	4	1	8	3	1	2	2
L146	378703	7029894	5	1	18	5	6	3	1	1	5	0	1	5	16	15	11	1
L147	378699	7029838	7	1	5	5	9	4	2	7	7	0	1	13	11	9	2	2
L148	378702	7029794	2	2	1	2	1	1	2	4	2	1	1	1	4	63	1	2
L149	378694	7029736	63	1	8	2	5	10	1	17	3	0	1	5	20	14	6	3
L150	378706	7029648	12	8	6	3	2	16	5	3	3	2	4	6	13	74	19	4
L151	378696	7029596	1	1	3	7	1	3	1	1	7	1	1	6	1	2	4	1
L152	378701	7029543	1	1	1	7	5	1	2	8	7	1	1	6	4	6	2	1
L153	381216	7026119	1	6	1	3	8	1	5	9	3	3	1	4	2	68	0	4
L154	381297	7026099	1	6	1	2	7	1	8	11	2	1	1	3	8	80	0	3
L155	381403	7026097	2	6	1	1	1	1	4	8	3	1	1	1	6	245	1	2
L156	381500	7026101	1	4	3	1	1	1	4	2	1	1	1	1	12	75	1	2
L157	381599	7026105	1	4	6	1	1	3	4	2	1	3	1	1	9	103	2	4
L158	381704	7026102	0	6	1	0	9	1	6	2	0	13	1	1	3	112	1	3
L159	381805	7026098	0	4	2	1	2	2	1	2	2	1	1	0	4	79	2	2
L160	381900	7026102	2	4	3	1	2	3	3	4	2	1	1	0	12	100	4	1
L161	382010	7026095	2	1	1	5	6	1	1	1	3	15	1	2	3	2	1	1
L162	382104	7026092	1	1	3	2	2	4	2	1	2	1	1	1	13	59	4	1
L163	382208	7026104	1	8	6	1	2	3	7	2	1	5	1	1	3	158	4	4
L164	382320	7026095	5	1	5	4	3	14	5	1	3	2	1	21	2	13	46	3

L165	382406	7026100	1	8	5	2	2	3	4	3	2	4	1	1	10	217	4	3
L166	382500	7026095	1	4	1	2	1	1	3	3	1	1	1	1	4	98	2	2
ID	UTN83E	UTM83N	Ag	As	Au	Ca	Co	Cu	Fe	K	Mg	Mn	Mo	Ni	Pb	Ti	U	Zn
L167	382602	7026102	1	4	1	1	2	1	3	1	1	4	1	0	4	104	1	2
L168	382736	7026112	2	6	1	1	3	2	8	2	1	6	6	2	4	116	8	15
L169	382903	7026092	2	10	2	1	24	3	11	3	1	37	3	2	5	255	4	11
L170	383003	7026098	1	8	3	1	5	2	6	2	2	6	1	1	5	231	2	4
L171	383104	7026096	2	8	2	1	45	4	8	3	1	102	2	2	5	152	2	8
L172	383196	7026102	1	6	3	2	4	5	4	1	2	3	1	2	9	192	3	2
L173	383200	7026399	26	4	5	1	3	3	4	1	1	3	1	1	147	141	2	6
L174	383103	7026399	10	8	3	3	4	2	5	2	2	1	1	2	14	323	3	4
L175	383003	7026409	14	6	5	2	5	4	5	2	2	4	1	1	10	203	4	3
L176	382896	7026390	2	4	1	2	7	3	10	3	2	8	1	3	3	173	5	4
L178	381000	7026698	5	1	6	5	4	7	1	3	3	3	1	6	5	3	4	2
L180	381210	7026698	1	4	2	1	3	1	8	1	2	2	1	3	7	122	2	6
L181	381309	7026699	1	6	2	2	7	1	5	2	2	25	1	2	3	89	1	8
L182	381403	7026698	1	2	2	3	1	2	3	1	2	1	1	1	6	69	1	2
L194	382603	7026702	1	4	1	2	2	1	4	2	2	3	1	1	2	136	8	3
L195	382705	7026698	2	1	3	4	5	3	1	1	3	2	1	2	4	26	7	2
L196	382801	7026702	6	10	3	1	4	3	8	1	2	3	1	2	10	319	4	4
L197	382901	7026692	4	8	5	1	2	3	6	2	1	4	1	2	7	240	3	5
L198	383006	7026700	5	6	6	3	18	10	6	1	2	51	1	15	4	60	3	9
L199	383104	7026698	1	1	1	1	2	2	3	2	1	2	1	1	3	47	2	8
L200	383191	7026695	2	4	1	1	2	2	3	2	1	1	1	1	7	74	1	2
L201	383195	7027002	1	2	8	2	2	5	1	1	2	1	1	1	9	35	4	1
L202	383093	7026999	4	6	3	2	2	4	3	1	2	1	1	1	12	122	3	2
L203	383003	7026996	1	2	2	2	2	2	2	1	2	1	1	1	7	66	2	2
L204	382909	7027003	2	10	3	2	3	3	8	1	2	4	1	3	6	246	3	6
L205	382779	7026995	2	4	1	1	4	2	4	2	1	13	1	3	8	50	2	4
L206	382700	7027002	1	1	2	5	4	1	2	2	4	2	1	3	2	21	2	15
L207	382608	7026990	1	4	1	0	2	1	9	5	1	8	3	1	5	144	1	3
L209	382404	7027001	5	1	6	6	0	10	2	1	5	2	1	15	1	4	21	3
L210	382298	7026997	7	1	5	8	1	12	2	1	7	3	1	33	1	1	24	7
L215	381697	7027039	3	1	15	7	0	9	1	1	7	1	1	14	1	0	2	4
L216	381588	7027057	4	1	3	4	4	4	2	2	6	4	1	8	2	14	3	2
L217	381493	7027085	1	1	10	11	0	10	0	3	12	1	1	15	0	0	2	1
L218	381403	7027098	3	2	6	4	1	5	2	4	5	1	1	3	1	36	4	2
L219	381305	7027122	5	1	13	11	0	10	0	3	10	1	1	13	1	0	4	3
L220	381201	7027133	1	1	5	6	0	3	1	2	5	1	1	5	1	8	3	2
L221	381198	7027350	10	1	1	7	1	1	1	24	7	0	1	1	1	1	1	1
L222	381307	7027363	5	6	2	1	3	2	5	24	3	1	1	3	5	186	1	2

L223	381402	7027344	402	2	6134	3	3	1	4	27	5	7	3	2	3	148	1	2
L224	381607	7027345	1	1	10	1	2	1	4	5	2	2	1	1	1	86	1	1
ID	UTN83E	UTM83N	Ag	As	Au	Ca	Co	Cu	Fe	K	Mg	Mn	Mo	Ni	Pb	Ti	U	Zn
L225	381697	7027338	2	4	6	3	3	3	5	2	2	6	1	2	3	96	4	2
L230	417203	7015392	15	1	11	9	18	27	1	2	4	28	6	26	1	1	6	3
L231	417198	7015348	16	1	6	9	9	18	1	1	6	20	3	27	1	0	13	2
L232	417209	7015296	14	1	8	8	1	16	1	1	4	1	1	27	1	0	10	3
L233	417204	7015239	4	2	6	5	0	8	2	3	3	2	1	11	1	5	4	6
L234	417199	7015191	6	4	3	4	1	4	2	3	3	2	1	4	2	14	2	2
L235	417199	7015146	5	2	6	5	2	5	2	5	4	3	1	10	6	8	4	3
L236	417200	7015103	6	1	3	8	1	7	4	3	2	2	1	13	1	2	7	1
L237	417199	7015040	2	4	3	4	1	2	2	12	2	2	1	2	3	12	2	2
L238	417199	7015000	8	1	10	10	4	8	0	4	6	9	3	7	0	0	3	1
L239	417207	7014946	5	2	3	6	1	2	1	3	2	4	20	3	0	2	25	2

**Figure 2. Black Spruce Twig Sample values in ppm (ppb for Ag and Au, & % for K) for Pirate and Lake Projects. Yellow IDs-Pirate West, Blue IDs-Pirate East, Uncoloured-Lake Project. Anomalous values:Red high;magenta mod;yellow low.**

ID	UTM83_E	UTM83_N	Mo	Cu	Pb	Zn	Ag	Ni	Mn	As	Au	Ba	K	Rb
B1	378100	7030206	0.005	1.27	0.06	36.5	49	0.2	1039	0.05	0.1	38	0.27	1.4
B2	378087	7030258	0.05	1.35	0.06	65.3	29	0.05	233	0.05	0.1	109.2	0.26	1.6
B3	378072	7030310	0.29	1.65	0.08	34.3	37	0.05	282	0.05	0.1	147.7	0.41	1.8
B4	378054	7030357	0.16	2.25	0.05	33	32	0.4	229	0.05	0.1	107.6	0.44	2.2
B5	377492	7030435	0.02	1.4	0.08	62.7	21	0.05	438	0.05	0.1	46.3	0.37	0.8
B6	377483	7030397	0.01	1.21	0.05	57	14	0.05	243	0.05	0.1	62.4	0.39	1.2
B7	377479	7030349	0.005	1.05	0.05	47.8	33	0.1	1262	0.05	0.1	49.1	0.26	1.9
B8	377467	7030289	0.005	1.63	0.07	34.2	53	0.5	860	0.05	0.1	174.4	0.38	3.8
B9	377486	7030249	0.005	1.58	0.04	25.4	17	0.2	1008	0.05	0.1	41.7	0.38	2.1
B10	377504	7030194	0.005	1.06	0.06	56.8	27	0.05	783	0.05	0.1	23.3	0.27	1.1
B11	381402	7026403	0.02	1.96	0.04	39.4	16	0.5	688	0.05	0.1	37.2	0.34	3.9
B12	382570	7026404	0.01	1.81	0.05	46.7	15	0.5	1098	0.05	0.1	42	0.35	3.1
B13	382485	7027884	0.005	1.66	0.03	39.1	19	0.5	1307	0.05	0.1	48.6	0.32	3.3
B14	382403	7027899	0.03	1.17	0.03	31.6	25	0.3	1035	0.05	0.1	34.6	0.33	3.1
B15	382302	7027894	0.15	1.47	0.04	51.4	5	0.2	847	0.05	0.1	60.2	0.29	2.7
B16	382203	7027899	0.09	1.48	0.04	31.7	15	0.05	1267	0.05	0.1	25.1	0.28	5
B17	382101	7027899	0.01	1.82	0.04	36.5	15	0.1	2334	0.05	0.1	82.4	0.23	7.1
B18	381998	7027893	0.02	1.19	0.05	37.5	21	0.2	617	0.05	0.1	44.5	0.29	1
B19	381897	7027893	0.005	1.68	0.05	44.6	11	0.1	1616	0.05	0.1	23.4	0.24	2.8
B20	381801	7027879	0.02	2.73	0.05	34.8	34	0.7	1109	0.05	0.1	37.9	0.51	3.9
B21	381800	7027596	0.005	1.54	0.04	44	18	0.2	1722	0.05	0.1	35.6	0.29	2.5

B22	381900	7027607	0.005	1.56	0.04	32	16	0.4	953	0.05	0.1	31.7	0.35	3.8
ID	UTM83_E	UTM83_N	Mo	Cu	Pb	Zn	Ag	Ni	Mn	As	Au	Ba	K	Rb
B23	381996	7027597	0.005	1.54	0.03	43	33	0.2	899	0.05	0.1	19.2	0.24	1.7
B24	382094	7027588	0.04	1.69	0.03	65.2	26	0.05	684	0.05	0.1	47.8	0.34	1.7
B25	382399	7027289	0.005	1.6	0.14	47.8	17	0.2	1294	0.05	0.1	29.6	0.31	2.5
B26	382302	7027298	0.02	1.51	0.04	28.4	22	0.6	1050	0.05	0.1	28.7	0.29	5.1
B27	382204	7027305	0.07	1.23	0.06	36.1	32	0.3	1526	0.05	0.1	43.9	0.26	1.6
B28	381849	7027208	0.05	2.1	0.03	23.5	17	1.2	1258	0.05	0.1	41.7	0.36	5.9
B29	381844	7027249	0.03	1.46	0.03	20.9	22	0.5	1223	0.05	0.1	28.8	0.28	3.2
B30	381846	7027302	0.005	1.62	0.04	30.1	17	0.8	1275	0.05	0.1	57.3	0.25	2.7
B31	381840	7027349	0.005	1.95	0.03	31.4	14	0.7	1641	0.05	0.1	55.3	0.26	1.6
B32	381802	7027203	0.04	1.69	0.04	33.4	27	0.4	1480	0.05	0.1	54.3	0.33	3.1
B33	381755	7027205	0.02	1.72	0.03	28.6	32	0.5	434	0.05	0.1	21.1	0.33	5.1
B34	381700	7027208	0.06	2.15	0.04	36.1	28	1.2	529	0.05	0.2	30.1	0.49	8.4
B35	381852	7027154	0.04	1.25	0.05	65.2	23	0.2	1046	0.05	0.3	66.3	0.3	3
B36	381850	7027103	0.02	1.86	0.03	41.5	20	0.6	1012	0.05	0.1	12.5	0.38	2.7
B37	381858	7027049	0.06	1.35	0.05	47	17	0.3	1413	0.05	0.1	77.2	0.28	2.5
B39	381931	7027174	0.04	2.3	0.04	68.3	39	0.4	1169	0.05	0.1	123.2	0.4	8
B40	381979	7027198	0.005	1.68	0.04	54	8	0.4	2056	0.05	0.1	27	0.28	3
B41	381880	7027163	0.04	1.78	0.04	60.2	17	0.4	865	0.05	0.1	52.1	0.34	4
K1	376903	7028091	0.005	1.44	0.11	85.1	19	0.05	434	0.05	0.1	44.9	0.27	0.9
K2	376793	7028102	0.005	1.29	0.1	66.3	22	0.1	1014	0.1	0.1	76.5	0.31	0.9
K3	376703	7028103	0.005	1.65	0.08	79.7	14	0.2	768	0.05	0.1	65.8	0.32	1.2
K4	376590	7028085	0.005	1.35	0.06	69	10	0.2	651	0.05	0.1	108.2	0.33	1.6
K5	376498	7028095	0.005	1.56	0.06	84.5	8	0.1	695	0.05	0.1	86.5	0.36	0.8
K6	376394	7028096	0.005	2.18	0.05	63.5	17	0.7	82	0.05	0.1	121	0.47	1.4
K7	376294	7028103	0.005	1.85	0.04	69.2	11	0.3	660	0.05	0.1	96.1	0.38	2.7
K8	376200	7028109	0.02	1.4	0.04	63.8	6	0.2	760	0.05	0.1	40.2	0.33	1.8
K9	376095	7028103	0.005	1.25	0.04	65.1	8	0.2	695	0.05	0.1	65.8	0.32	1
K10	376000	7028098	0.04	1.27	0.05	53	4	0.1	542	0.05	0.1	49.7	0.24	1.5
K11	375900	7028098	0.01	1.6	0.06	52.7	14	0.2	850	0.05	0.1	22.1	0.31	1.5
K12	375796	7028100	0.01	1.74	0.07	57.5	17	0.3	811	0.05	0.1	108.3	0.43	2.7
K13	375698	7028094	0.005	1.31	0.07	62.4	8	0.2	840	0.05	0.1	90.9	0.28	1.5
K14	375599	7028104	0.005	1.42	0.06	73.9	21	0.1	1321	0.1	0.1	71.4	0.3	1.7
K15	375500	7028100	0.005	1.8	0.03	52.7	11	0.1	805	0.05	0.1	32.3	0.39	3.3
K16	375496	7028390	0.02	1.4	0.07	69.2	7	0.1	826	0.05	0.1	75.7	0.27	1.5
K17	375598	7028394	0.02	1.14	0.04	47.8	3	0.05	658	0.1	0.1	37.8	0.25	1.1
K18	375705	7028394	0.005	1.44	0.05	59.9	11	0.2	661	0.05	0.1	24.4	0.27	1.4
K19	375807	7028394	0.005	1.31	0.05	58	10	0.05	1073	0.05	0.1	37.7	0.25	1.3
K20	375900	7028400	0.005	1.34	0.06	72.8	9	0.1	639	0.05	0.1	75.9	0.28	1.6
K21	375998	7028398	0.005	1.45	0.09	87.9	6	0.1	1141	0.05	0.1	72.1	0.24	1.2

K22	376106	7028401	0.14	1.56	0.05	67.2	7	0.2	352	0.05	0.1	62.4	0.4	1.4
<b>ID</b>	<b>UTM83_E</b>	<b>UTM83_N</b>	<b>Mo</b>	<b>Cu</b>	<b>Pb</b>	<b>Zn</b>	<b>Ag</b>	<b>Ni</b>	<b>Mn</b>	<b>As</b>	<b>Au</b>	<b>Ba</b>	<b>K</b>	<b>Rb</b>
K23	376200	7028389	0.005	1.29	0.05	56.3	9	0.3	1303	0.05	0.1	44.8	0.31	2
K24	376307	7028402	0.005	1.41	0.04	75	8	0.1	594	0.05	0.1	80.1	0.32	0.9
K25	376402	7028400	0.005	1.4	0.04	47.4	17	0.1	928	0.1	0.1	40.5	0.3	1.1
K26	376492	7028388	0.005	1.27	0.05	64.9	12	0.1	596	0.05	0.1	66.5	0.3	1.3
K27	376605	7028401	0.005	1.53	0.02	61.4	29	0.2	974	0.05	0.1	87.7	0.47	2.3
K28	376704	7028403	0.005	1.56	0.05	50.2	19	0.1	353	0.2	0.1	53	0.42	2.3
K29	376806	7028392	0.005	1.5	0.08	31.8	14	0.2	1037	0.05	0.1	72.9	0.35	4.7
K30	376898	7028396	0.04	1.4	0.05	63.4	5	0.2	1214	0.1	0.1	150.8	0.41	4.6
K31	377190	7028997	0.005	1.85	0.09	77.2	19	0.4	755	0.3	0.1	88.1	0.31	1.4
K32	377100	7028995	0.005	1.51	0.05	77.6	23	0.2	1750	0.05	0.1	97.7	0.33	1.2
K33	376994	7028999	0.005	1.42	0.03	50.1	19	0.1	1674	0.05	0.1	120.3	0.3	1.4
K34	376896	7028993	0.005	1.27	0.1	57.2	27	0.05	731	0.05	0.1	75.2	0.29	1.3
K35	376795	7029004	0.04	1.38	0.06	42.1	33	0.3	970	0.05	0.1	127.3	0.37	2.1
K36	376694	7029001	0.005	1.52	0.08	49.3	19	0.2	714	0.05	0.1	107.8	0.35	1.6
K37	376605	7029008	0.005	1.13	0.06	51.5	8	0.05	861	0.05	0.1	24.5	0.27	0.8
K38	376498	7029002	0.005	0.97	0.04	41.9	11	0.05	696	0.05	0.1	32.3	0.31	1.4
K39	376398	7029005	0.005	1.3	0.04	31	14	0.1	1614	0.05	0.1	60	0.27	1.2
K40	376295	7028992	0.005	1.28	0.05	79.2	11	0.1	620	0.1	0.1	89.9	0.34	0.8
K41	376195	7029006	0.005	1.36	0.06	45.1	9	0.1	942	0.1	0.1	51.2	0.31	1.1
K42	376088	7029009	0.005	1.36	0.1	53.4	17	0.2	206	0.05	0.1	181	0.39	0.9
K43	375994	7029005	0.005	1.46	0.07	53.6	11	0.1	547	0.05	0.1	228.8	0.29	2.9
K44	375902	7028997	0.005	1.64	0.06	91.4	6	0.1	567	0.2	0.1	78.6	0.36	3.6
K45	375791	7029001	0.005	1.34	0.07	53.5	11	0.05	1260	0.05	0.1	64.6	0.34	2.8
K46	375701	7029000	0.005	1.56	0.05	53.5	20	0.1	921	0.1	0.1	37.1	0.32	2.4
K47	375596	7029007	0.15	1.29	0.06	45.9	12	0.05	502	0.05	0.1	75.5	0.3	2
K48	375501	7028998	0.005	1.15	0.05	64.6	9	0.05	1116	0.05	0.1	56.7	0.28	1.9
K49	375490	7028898	0.02	1.41	0.05	51	11	0.05	1242	0.1	0.1	66.1	0.32	2.1
K50	375503	7028796	0.005	1.83	0.05	48	10	0.1	2038	0.05	0.1	44.2	0.26	2.1
K51	375496	7028695	0.02	1.45	0.07	91.3	12	0.1	920	0.1	0.1	75.9	0.32	1.5
K52	375596	7028706	0.005	1.15	0.06	56.8	18	0.1	576	0.05	0.1	40.4	0.24	1.7
K53	375696	7028703	0.005	1.38	0.05	44.8	13	0.2	576	0.1	0.1	23.2	0.34	2.4
K54	375816	7028697	0.005	1.53	0.06	74.2	14	0.2	2694	0.05	0.1	65.5	0.22	1.5
K55	375931	7028695	0.005	1.48	0.05	64.9	7	0.2	809	0.05	0.1	76.4	0.31	2
K56	376007	7028701	0.005	1.4	0.05	58.1	8	0.2	1369	0.05	0.1	47.8	0.28	0.8
K57	376111	7028693	0.005	1.23	0.08	104.1	16	0.1	1478	0.1	0.1	80.7	0.32	1.2
K58	376201	7028710	0.005	1.73	0.04	59	8	0.2	705	0.05	0.1	56.4	0.41	1.6
K59	376301	7028712	0.005	1.32	0.07	64.8	12	0.05	537	0.05	0.1	37.8	0.33	1.3
K60	376404	7028713	0.005	1.48	0.05	87.1	16	0.2	641	0.05	0.1	113	0.34	1
K61	376496	7028709	0.005	1.11	0.07	65	9	0.2	532	0.05	0.1	138.1	0.37	0.9



K62	376605	7028709	0.005	1.13	0.07	64.7	8	0.2	588	0.05	0.1	85.1	0.33	0.7
ID	UTM83_E	UTM83_N	Mo	Cu	Pb	Zn	Ag	Ni	Mn	As	Au	Ba	K	Rb
K63	376698	7028698	0.005	1.3	0.08	84.5	27	0.2	725	0.1	0.1	124.8	0.31	1
K64	376804	7028697	0.005	1.47	0.05	55.8	22	0.05	287	0.05	0.1	44.5	0.42	3.9
K65	376905	7028702	0.005	1.35	0.06	65.8	27	0.2	677	0.05	0.1	17.5	0.31	1.9
K66	376994	7028688	0.005	1.45	0.03	40.6	31	0.3	865	0.05	0.1	112.2	0.34	4
K67	377118	7028700	0.02	1.77	0.04	30.1	20	0.3	436	0.05	0.1	146.5	0.37	8
K68	377201	7028698	0.01	1.76	0.04	32.1	12	0.2	658	0.05	0.1	76.6	0.4	5.8
K69	376494	7029592	0.005	1.17	0.07	39.4	12	0.1	301	0.05	0.1	58.6	0.25	0.8
K70	376394	7029595	0.005	1.5	0.1	94.4	23	0.2	1449	0.1	0.1	76	0.22	0.7
K71	376296	7029603	0.005	1.33	0.05	90.7	14	0.1	384	0.05	0.1	101.1	0.38	1.1
K72	376198	7029585	0.005	1.38	0.04	61.2	8	0.05	413	0.05	0.1	57.7	0.35	1.9
K73	376088	7029597	0.01	1.94	0.06	29.4	23	0.7	1404	0.05	0.1	121.1	0.39	10.6
K74	375995	7029589	0.005	1.46	0.08	109.6	17	0.1	869	0.05	0.1	96	0.39	2.7
K75	375894	7029592	0.005	1.61	0.06	49.4	6	0.1	705	0.1	0.1	36.4	0.29	1.8
K76	375760	7029551	0.005	1.46	0.07	56.6	13	0.1	848	0.05	0.1	47.1	0.32	3
K77	375664	7029585	0.04	1.19	0.05	61.6	12	0.05	757	0.05	0.1	47.9	0.35	4.3
K78	375502	7029519	0.005	1.37	0.05	53.5	15	0.05	166	0.05	0.1	86.7	0.39	4.2
K79	375502	7029392	0.04	1.55	0.06	60.1	23	0.4	1418	0.05	0.1	145.7	0.39	4.8
K80	375499	7029292	0.005	1.77	0.05	70.6	10	0.1	1712	0.05	0.1	60.8	0.29	3.5
K81	375600	7029298	0.01	1.36	0.06	74	43	0.1	724	0.05	0.1	129.1	0.26	3.7
K82	375704	7029291	0.02	1.62	0.04	57.6	14	0.3	954	0.05	0.1	71.3	0.35	5
K83	375808	7029292	0.005	1.3	0.07	67.4	10	0.05	411	0.05	0.1	115.3	0.38	2.9
K84	375926	7029314	0.01	1.9	0.06	32.9	18	0.5	910	0.05	0.1	100.1	0.52	12.3
K85	376000	7029319	0.005	1.41	0.04	26	21	0.4	1059	0.05	0.1	65.7	0.34	6.3
K86	376103	7029332	0.005	1.59	0.05	78.6	11	0.1	574	0.05	0.1	51.7	0.35	1.3
K87	376204	7029334	0.005	1.55	0.05	52	5	0.1	1377	0.05	0.1	41.1	0.27	1.6
K88	376307	7029323	0.005	1.36	0.06	62.7	20	0.05	602	0.05	0.1	70.4	0.37	1.7
K89	376396	7029329	0.005	1.89	0.05	56.1	10	0.2	1709	0.05	0.1	43.1	0.27	3
K90	376507	7029315	0.01	1.82	0.04	112.3	21	0.2	1274	0.1	0.1	67.6	0.37	2.4
K91	376602	7029310	0.01	1.66	0.04	61.2	18	0.3	1532	0.05	0.1	60.4	0.31	4.1
K92	376704	7029312	0.005	1.23	0.08	56.4	9	0.2	767	0.1	0.1	99.5	0.15	1.2
K93	376798	7029309	0.005	1.6	0.05	73.9	19	0.2	1031	0.05	0.1	71.9	0.28	3.4
K94	376904	7029291	0.005	1.53	0.05	79.8	15	0.1	1384	0.05	0.1	73.8	0.25	2.9
K95	377000	7029305	0.005	1.54	0.07	72.9	19	0.2	1690	0.05	0.1	64	0.22	3.2
K96	377106	7029328	0.02	1.35	0.07	87.3	10	0.2	410	0.05	0.1	67.5	0.35	2.2
K97	377199	7029319	0.005	1.97	0.05	47.1	10	0.05	1405	0.05	0.1	63.2	0.23	1.6
K98	377320	7029318	0.12	1.77	0.04	40.5	7	0.3	387	0.05	0.1	113.2	0.47	1.4
K99	377405	7029316	0.02	1.4	0.03	26.7	7	0.2	475	0.05	0.1	118.2	0.42	1.4
K100	377519	7029313	0.005	1.74	0.04	44.5	41	0.2	1147	0.05	0.1	212.6	0.3	1.1
K101	377498	7029204	0.07	1.89	0.04	35.1	12	0.3	731	0.05	0.1	106.7	0.43	1.9

K102	377502	7029098	0.005	1.88	0.06	55.6	6	0.05	1054	0.05	0.1	35.1	0.31	1.4
ID	UTM83_E	UTM83_N	Mo	Cu	Pb	Zn	Ag	Ni	Mn	As	Au	Ba	K	Rb
K103	377507	7029001	0.01	1.64	0.08	61.8	12	0.1	315	0.05	0.1	72.9	0.36	1.5
K104	377499	7028898	0.005	1.32	0.09	82.4	28	0.2	334	0.05	0.1	112	0.33	0.5
K105	377501	7028802	0.005	1.71	0.08	59.7	12	0.3	955	0.05	0.1	111.1	0.26	0.9
K106	377500	7028692	0.005	1.48	0.07	61.8	17	0.1	554	0.05	0.1	26.8	0.34	0.7
K107	377517	7028580	0.02	1.54	0.06	30	12	0.3	506	0.05	0.1	133.5	0.43	2.9
L01	375604	7026005	0.07	1.17	0.12	77.9	17	0.2	135	0.05	0.1	85.7	0.3	1
L02	375696	7026001	0.005	1.74	0.11	81.7	22	0.2	1307	0.2	0.1	39.7	0.19	0.7
L03	375828	7026032	0.005	1.95	0.07	69.9	31	0.2	878	0.05	0.1	61.8	0.23	1.9
L04	375907	7026017	0.005	1.42	0.09	60.5	51	0.2	1635	0.05	0.1	45.8	0.22	1.1
L05	376024	7025999	0.01	1.55	0.11	78.6	19	0.2	928	0.05	0.1	49.8	0.22	1.4
L06	376125	7025976	0.03	1.24	0.1	62.9	34	0.2	1127	0.05	0.1	124.9	0.29	3.1
L07	376226	7025984	0.03	1.43	0.08	52.1	27	0.3	521	0.05	0.1	162.3	0.25	3.1
L08	376313	7025991	0.005	1.47	0.08	53.1	14	0.1	612	0.05	0.1	37.3	0.24	1.2
L09	376396	7025999	0.005	1.14	0.09	76.6	36	0.2	783	0.05	0.1	83.4	0.26	1
L10	376501	7026007	0.005	1.5	0.12	72.6	20	0.2	526	0.05	0.1	73.6	0.3	1.1
L11	376609	7026011	0.005	1.31	0.09	113.5	13	0.2	2313	0.05	0.1	95.7	0.21	1.6
L12	376709	7026001	0.14	1.33	0.06	48.2	23	0.3	1306	0.05	0.1	56.3	0.28	2.2
L13	376801	7025996	0.03	1.63	0.1	72.9	32	0.3	1167	0.05	0.1	95.7	0.25	1.8
L14	376910	7025991	0.02	1.47	0.11	86.6	16	0.3	1746	0.05	0.1	90.7	0.22	1.3
L15	377005	7025992	0.005	1.41	0.12	75.5	20	0.2	1139	0.05	0.1	94.3	0.19	1.6
L16	377088	7025996	0.03	1.67	0.11	52.8	25	0.2	1046	0.05	0.1	64.9	0.25	1.6
L17	377208	7026007	0.01	1.95	0.07	97.3	18	0.4	1469	0.05	0.1	93.7	0.29	2.4
L18	377303	7026001	0.03	1.78	0.09	76.2	11	0.3	1602	0.05	0.1	107.7	0.26	2.3
L19	377408	7026003	0.03	1.63	0.06	74.8	21	0.2	1058	0.05	0.1	46.1	0.2	1.5
L20	377502	7026001	0.03	1.37	0.05	64.2	24	0.3	1448	0.05	0.1	68.5	0.21	2.1
L21	377602	7025998	0.005	1.11	0.08	55.2	18	0.3	686	0.05	0.1	82.8	0.32	1.7
L22	377617	7026101	0.005	1.51	0.08	65.1	8	0.3	1082	0.05	0.1	150.2	0.28	2.4
L23	377607	7026218	0.005	1.35	0.07	76.6	13	0.2	908	0.05	0.1	70.1	0.28	2
L24	377609	7026298	0.005	1.41	0.08	61.8	22	0.2	588	0.05	0.1	81.9	0.26	1.4
L25	377606	7026412	0.01	1.82	0.08	66.4	19	0.3	1837	0.1	0.1	38.6	0.31	2.2
L26	377601	7026504	0.005	1.48	0.05	64.9	20	0.2	1225	0.05	0.1	65.2	0.3	2.2
L27	377613	7026604	0.005	3.95	0.07	69.4	20	0.8	852	0.05	0.1	66.3	0.22	1.3
L28	377593	7026708	0.005	1.72	0.1	108.3	24	0.2	458	0.05	0.1	106.7	0.25	1.5
L29	377594	7026814	0.005	1.53	0.05	60.9	9	0.05	686	0.05	0.1	92.1	0.39	1.3
L30	377614	7026893	0.005	1.55	0.05	97.4	34	0.1	520	0.05	0.1	108.2	0.3	0.5
L31	377612	7026987	0.005	1.63	0.08	84.9	12	0.1	1189	0.05	0.1	67.2	0.27	1.5
L32	376906	7026296	0.005	1.64	0.05	87.6	8	0.1	1633	0.1	0.1	60.3	0.25	1.8
L33	376800	7026294	0.005	1.9	0.04	59.6	10	0.3	947	0.05	0.1	74.7	0.29	2.8
L34	376699	7026292	0.005	1.38	0.07	71.6	43	0.1	788	0.05	0.1	60.8	0.3	2.3

L35	376592	7026292	0.005	1.28	0.07	60.9	13	0.1	930	0.05	0.1	43.8	0.28	1.1
<b>ID</b>	<b>UTM83_E</b>	<b>UTM83_N</b>	<b>Mo</b>	<b>Cu</b>	<b>Pb</b>	<b>Zn</b>	<b>Ag</b>	<b>Ni</b>	<b>Mn</b>	<b>As</b>	<b>Au</b>	<b>Ba</b>	<b>K</b>	<b>Rb</b>
L36	376500	7026305	0.005	1.27	0.05	61.7	9	0.2	1330	0.05	0.1	52.6	0.25	1.5
L37	376394	7026302	0.03	1.46	0.04	48.8	13	0.2	814	0.05	0.1	58.8	0.28	1.4
L38	376301	7026302	0.01	1.47	0.04	41.6	12	0.3	539	0.05	0.1	44.7	0.37	1.6
L39	376196	7026310	0.01	1.47	0.07	63.3	30	0.3	1141	0.05	0.1	122.7	0.24	3.6
L40	376092	7026294	0.005	1.75	0.05	45.7	29	0.4	1366	0.05	0.1	144.4	0.35	6.3
L41	375987	7026288	0.01	1.66	0.07	75.9	13	0.05	849	0.05	0.1	90.8	0.32	1.6
L42	375905	7026299	0.005	1.59	0.05	73.3	13	0.2	781	0.05	0.1	35.2	0.27	1.6
L43	375793	7026309	0.005	1.58	0.07	58.5	6	0.05	1048	0.05	0.1	51.2	0.26	1.4
L44	375700	7026300	0.005	1.31	0.08	84.3	17	0.1	1133	0.05	0.1	76.4	0.21	1.2
L45	375603	7026291	0.01	1.13	0.05	58.6	27	0.1	698	0.05	0.1	66.5	0.28	3.2
L46	375602	7026599	0.03	1.36	0.05	65.3	26	0.2	243	0.05	0.1	132.7	0.36	2.1
L47	375724	7026603	0.02	1.31	0.05	71	10	0.1	562	0.05	0.1	102.5	0.33	3.7
L48	375810	7026611	0.005	1.39	0.06	66.3	26	0.2	585	0.1	0.1	62	0.22	1.1
L49	375922	7026594	0.19	1.13	0.04	61.9	15	0.3	965	0.05	0.1	120.1	0.3	3.7
L50	376014	7026608	0.01	1.38	0.05	56.1	7	0.5	1316	0.05	0.1	127.9	0.32	5.1
L51	376117	7026591	0.05	1.53	0.03	64	20	0.4	932	0.05	0.1	165.2	0.33	5.1
L52	376202	7026588	0.01	1.26	0.07	47.8	37	0.6	1257	0.05	0.1	135.9	0.3	4.9
L53	376311	7026599	0.005	1.44	0.04	48.9	14	0.2	1058	0.05	0.1	45.9	0.25	1.8
L54	376388	7026597	0.005	1.25	0.07	80.4	18	0.1	1172	0.05	0.1	118.6	0.28	1.6
L55	376493	7026617	0.005	1.33	0.05	62.6	11	0.1	877	0.05	0.1	86.1	0.31	2.1
L56	376607	7026593	0.01	1.28	0.07	49.4	33	0.2	1508	0.05	0.1	84.3	0.28	2
L57	376710	7026602	0.005	1.44	0.07	87.2	31	0.2	1163	0.05	0.1	70	0.28	1.9
L58	376808	7026608	0.04	1.66	0.07	54.7	33	0.5	741	0.05	0.1	195.8	0.36	4.6
L59	376914	7026593	0.03	1.25	0.04	38.5	23	0.2	318	0.1	0.1	84.7	0.37	3.9
L60	376888	7026885	0.005	1.38	0.06	84.8	18	0.1	277	0.05	0.1	96.2	0.36	1.2
L61	376779	7026896	0.005	1.25	0.07	89	11	0.1	594	0.05	0.1	66.4	0.29	1
L62	376688	7026888	0.005	1.28	0.07	83.6	16	0.2	1045	0.05	0.1	104.7	0.23	2
L63	376591	7026902	0.01	1.31	0.08	63.6	26	0.2	583	0.05	0.1	73.2	0.31	1.6
L64	376500	7026898	0.005	1.15	0.07	65.9	25	0.2	1167	0.05	0.1	80.1	0.21	1.3
L65	376389	7026896	0.005	1.53	0.09	75.9	42	0.2	613	0.05	0.1	84.8	0.25	2
L66	376293	7026899	0.005	1.46	0.08	70.2	15	0.05	1194	0.05	0.1	47.8	0.28	2.6
L67	376195	7026903	0.005	1.41	0.07	64.9	7	0.1	825	0.1	0.1	34.4	0.23	1.1
L68	376103	7026908	0.005	1.67	0.05	43.9	10	0.2	1081	0.05	0.1	51	0.37	3.3
L69	375974	7026907	0.005	1.34	0.08	70.2	11	0.1	553	0.05	0.1	67.1	0.26	1.8
L70	375888	7026899	0.005	1.28	0.08	71.6	16	0.1	486	0.1	0.1	41.9	0.31	1.5
L71	375789	7026891	0.005	1.63	0.04	69.2	20	0.1	776	0.05	0.1	49.2	0.22	1.3
L72	375702	7026911	0.005	1.27	0.08	86.1	18	0.2	1430	0.05	0.1	67.9	0.25	1.9
L73	375600	7026899	0.01	1.67	0.03	60.6	6	0.05	616	0.05	0.1	58.4	0.33	2.5
L74	375608	7027200	0.005	1.71	0.06	81.5	14	0.2	1808	0.05	0.1	76.1	0.26	1.5

L75	375707	7027195	0.005	1.37	0.06	84	10	0.2	1662	0.05	0.1	71.3	0.3	1
ID	UTM83_E	UTM83_N	Mo	Cu	Pb	Zn	Ag	Ni	Mn	As	Au	Ba	K	Rb
L76	375815	7027190	0.005	1.23	0.06	103.9	21	0.05	1418	0.05	0.1	52.2	0.3	1.8
L77	375905	7027203	0.04	1.31	0.06	70.2	20	0.2	474	0.05	0.1	116.3	0.31	1.7
L78	376001	7027196	0.005	1.72	0.06	41.7	16	0.1	1293	0.05	0.1	32.3	0.27	2.7
L79	376103	7027203	0.005	1.41	0.04	52.4	21	0.2	476	0.05	0.1	85.8	0.28	1.8
L80	376218	7027208	0.005	1.26	0.06	57.5	15	0.3	397	0.05	0.1	100.5	0.3	0.8
L81	376323	7027203	0.005	2.13	0.14	56.9	14	0.2	893	0.05	0.1	49.5	0.3	1.4
L82	376398	7027198	0.05	1.42	0.09	73.8	15	0.2	556	0.05	0.1	112.8	0.28	1.2
L83	376502	7027198	0.03	1.41	0.06	42	17	0.6	1065	0.05	0.1	173.4	0.26	3.5
L84	376612	7027190	0.09	1.4	0.1	86.6	33	0.2	917	0.05	0.1	99	0.28	1.3
L85	376759	7027223	0.07	1.31	0.06	34.7	31	0.3	949	0.05	0.1	70.9	0.34	2.4
L86	376799	7027196	0.03	1.58	0.07	38.5	8	0.3	1060	0.05	0.1	132.6	0.43	1.9
L87	376913	7027182	0.02	1.61	0.05	39.6	16	0.3	725	0.05	0.1	163.4	0.34	6.6
L88	377607	7027505	0.07	1.43	0.04	51.9	10	0.2	158	0.05	0.1	85.9	0.29	2.4
L89	377496	7027503	0.005	1.79	0.04	32.8	19	0.2	1846	0.05	0.1	37	0.32	2.5
L90	377410	7027495	0.005	1.33	0.05	62.4	15	0.2	468	0.05	0.1	77.9	0.37	1.7
L91	377293	7027494	0.005	1.4	0.08	85.7	29	0.2	937	0.05	0.1	61.2	0.26	1.8
L92	377178	7027503	0.005	1.32	0.08	82.1	11	0.1	256	0.05	0.1	93.1	0.38	2.2
L93	377066	7027485	0.01	1.45	0.09	100	23	0.2	892	0.05	0.1	91.8	0.34	2.2
L94	376967	7027493	0.25	1.45	0.05	47.2	16	0.3	371	0.05	0.1	146.7	0.37	3.5
L95	376889	7027492	0.02	1.41	0.07	96	57	0.4	1829	0.05	0.1	238	0.25	3.9
L96	376801	7027488	0.005	1.28	0.05	46.4	21	0.5	1412	0.05	0.1	88.4	0.28	3.8
L97	376692	7027496	0.05	1.46	0.06	63.2	15	0.4	636	0.05	0.1	186.3	0.4	6.3
L98	376560	7027496	0.16	1.19	0.07	61.9	3	0.1	361	0.05	0.1	96.5	0.29	3.1
L99	376498	7027498	0.02	1.58	0.08	84	12	0.2	300	0.05	0.8	254.4	0.31	2.9
L100	376403	7027504	0.01	1.49	0.06	72.2	17	0.1	213	0.05	0.1	122.6	0.38	1.5
L101	376276	7027494	0.005	1.76	0.11	61.7	19	0.1	148	0.05	0.1	164.5	0.22	1.7
L102	376189	7027490	0.03	1.71	0.1	83.3	18	0.2	196	0.05	0.1	244.3	0.35	2.7
L103	376094	7027487	0.005	1.33	0.08	60.9	29	0.1	889	0.05	0.1	33.6	0.24	0.9
L104	376008	7027492	0.01	1.47	0.06	68.6	18	0.3	962	0.05	0.1	139.5	0.29	1.8
L105	375898	7027510	0.005	2.08	0.04	72.2	23	0.2	1676	0.05	0.1	60.3	0.25	2.2
L106	375782	7027506	0.005	1.63	0.05	61.6	7	0.05	1438	0.05	0.1	43.1	0.31	1.5
L107	375800	7027607	0.02	1.62	0.06	72.1	6	0.2	1210	0.1	0.1	80.2	0.29	1.8
L108	375801	7027697	0.005	1.73	0.05	86.4	7	0.1	1916	0.05	0.1	61.3	0.27	2.1
L109	375828	7027799	0.005	1.16	0.05	59.5	12	0.1	972	0.1	0.1	29.6	0.32	2.2
L110	375916	7027796	0.01	1.54	0.04	60.8	16	0.2	1130	0.05	0.1	29.6	0.25	2.2
L111	376009	7027807	0.005	1.79	0.09	73	13	0.2	1706	0.05	0.1	43.9	0.26	1.2
L112	376093	7027801	0.005	1.8	0.07	54	12	0.2	1038	0.05	0.1	60.9	0.24	1.1
L113	376214	7027792	0.17	1.37	0.06	67	13	0.2	332	0.05	0.1	122.9	0.38	0.8
L114	376430	7027805	0.08	1.47	0.08	70.6	13	0.4	888	0.05	0.1	64.8	0.31	1.5

L115	376505	7027790	0.005	1.44	0.05	63.5	14	0.3	929	0.05	0.1	88.7	0.27	1.8
ID	UTM83_E	UTM83_N	Mo	Cu	Pb	Zn	Ag	Ni	Mn	As	Au	Ba	K	Rb
L116	376623	7027812	0.08	1.54	0.06	55.9	9	0.3	146	0.05	0.1	140.7	0.32	3.8
L117	376698	7027802	0.04	1.5	0.06	55.1	14	0.2	201	0.05	0.1	75.6	0.3	5.4
L118	376799	7027802	0.005	1.89	0.07	96.6	23	0.2	608	0.05	0.1	80.9	0.33	1.9
L119	376902	7027802	0.005	1.51	0.07	61.8	16	0.1	263	0.05	0.1	76.7	0.35	1.8
L120	376997	7027811	0.005	1.75	0.05	70.9	15	0.2	658	0.05	0.1	93.7	0.32	1.2
L121	377122	7027811	0.19	1.24	0.05	58.2	7	0.1	101	0.05	0.1	72	0.3	0.4
L122	377213	7027801	0.005	1.54	0.06	93	10	0.2	659	0.05	0.1	138.6	0.26	0.6
L123	377293	7027792	0.005	1.54	0.05	63.7	11	0.05	1244	0.05	0.1	25.7	0.27	1.3
L124	377413	7027798	0.005	1.74	0.06	81.6	17	0.05	392	0.05	0.1	61.7	0.32	2.6
L125	377498	7027782	0.005	1.4	0.06	60.5	15	0.1	673	0.05	0.1	69.8	0.31	2.5
L126	377602	7027792	0.005	1.22	0.05	49.2	29	0.05	676	0.05	0.1	74.8	0.21	3.2
L140	378703	7030242	0.005	1.62	0.04	73.2	12	0.1	394	0.05	0.1	65.8	0.38	0.4
L141	378700	7030178	0.005	1.17	0.05	72.7	18	0.05	906	0.05	0.1	62.5	0.31	0.5
L142	378707	7030093	0.03	1.44	0.05	78.2	10	0.05	568	0.05	0.1	119.6	0.36	2.7
L177	380907	7026695	0.005	1.95	0.04	66.1	22	0.2	1171	0.05	0.1	54.6	0.35	6.7
L179	381110	7026706	0.005	1.72	0.1	63.4	24	0.6	1780	0.05	0.1	60.6	0.24	2.6
L183	381515	7026694	0.005	1.51	0.07	50.8	16	0.3	1410	0.05	0.1	12	0.25	1.6
L184	381608	7026707	0.005	1.87	0.06	33.4	34	0.4	876	0.05	0.1	25.9	0.24	3.3
L185	381700	7026694	0.01	1.67	0.07	39.9	17	0.3	885	0.05	0.1	15.9	0.31	4.6
L186	381799	7026701	0.02	1.67	0.07	48.3	18	0.5	1599	0.05	0.1	24.4	0.3	5.1
L187	381908	7026701	0.02	2.06	0.07	46.6	25	0.5	1120	0.05	0.1	36.2	0.28	3.9
L188	382017	7026705	0.01	1.73	0.05	48.1	15	0.5	1080	0.05	0.1	23.3	0.3	3.6
L189	382110	7026704	0.09	1.76	0.06	52.2	32	0.5	1135	0.05	0.1	21.6	0.32	3.7
L190	382213	7026706	0.005	2.27	0.06	44.2	29	0.2	1074	0.05	0.1	25.7	0.26	2.6
L191	382309	7026713	0.005	1.86	0.04	49.9	24	0.3	1072	0.05	0.1	28	0.34	4.2
L192	382407	7026696	0.09	1.7	0.08	43	19	0.3	1467	0.05	0.1	34.6	0.23	2.8
L193	382511	7026697	0.005	1.98	0.06	75	28	0.2	2436	0.05	0.1	49.6	0.31	2.6
L208	382500	7026994	0.01	1.79	0.05	46.6	25	0.3	1110	0.05	0.1	77.9	0.34	1
L211	382095	7026997	0.03	2.21	0.05	46	30	1.4	948	0.05	0.1	40.2	0.29	5.7
L212	381993	7027007	0.02	1.58	0.06	51.9	28	0.3	1168	0.05	0.1	32.4	0.29	2.3
L213	381894	7027012	0.07	1.62	0.06	52.3	38	0.5	1360	0.05	0.1	57	0.29	2.4
L214	381807	7027020	0.005	1.81	0.05	36.8	13	0.5	1010	0.05	0.1	33.7	0.35	2
L226	381798	7027348	0.005	1.58	0.06	35.2	14	0.4	1644	0.05	0.1	50.5	0.39	2.7
L227	381898	7027350	0.005	1.55	0.07	43.9	12	0.4	1749	0.05	0.1	49.2	0.27	0.9
L228	382008	7027356	0.005	2.02	0.06	50.2	21	0.2	1629	0.05	0.1	52.5	0.37	3.1
L229	382102	7027350	0.02	1.98	0.07	46.3	14	0.3	976	0.05	0.1	48.5	0.46	2.9

Table 3. Comparison of Twig and MMI results from samples collected at the same site.																			
B2 to B9 were collected from Pirate West, B12 to B27 from Pirate East, and B28 to B41																			
from around 2012 sample P190.																			
ID	ID	Ag	Ag	As	As	Au	Au	Cu	Cu	K	K	Mn	Mn	Mo	Mo	Ni	Ni	Pb	Pb
Twigs	MMI	ppb	RR	ppm	RR	ppb	RR	ppm	RR	%	RR	ppm	RR	ppm	RR	ppm	RR	ppm	RR
B2	K111	29	23	0.05	1	0.1	11	1.35	24	0.26	1	233	7	0.05	26	0.05	7	0.06	2
B3	K112	37	16	0.05	1	0.1	6	1.65	31	0.41	2	282	6	0.29	20	0.05	27	0.08	2
B4	K113	32	2	0.05	1	0.1	6	2.25	8	0.44	5	229	7	0.16	10	0.4	4	0.05	2
B8	K124	53	3	0.05	1	0.1	5	1.63	8	0.38	2	860	2	0.005	1	0.5	7	0.07	1
B9	K125	17	2	0.05	6	0.1	5	1.58	4	0.38	2	1008	4	0.005	1	0.2	4	0.04	4
B12	K144	15	2	0.05	8	0.1	2	1.81	2	0.35	2	1098	3	0.01	3	0.5	2	0.05	11
B15	K154	5	4	0.05	4	0.1	5	1.47	8	0.29	1	847	13	0.15	2	0.2	8	0.04	1
B18	K155	21	6	0.05	1	0.1	5	1.19	19	0.29	2	617	57	0.02	2	0.2	28	0.05	2
B20	K156	34	4	0.05	10	0.1	5	2.73	17	0.51	2	1109	6	0.02	1	0.7	14	0.05	9
B21	K163	18	4	0.05	4	0.1	3	1.54	10	0.29	1	1722	17	0.005	1	0.2	24	0.04	5
B24	K164	26	1	0.05	4	0.1	1	1.69	1	0.34	3	684	5	0.04	15	0.05	1	0.03	2
B27	K184	32	2	0.05	10	0.1	5	1.23	3	0.26	1	1526	18	0.07	2	0.3	3	0.06	7
B28	K185	17	3	0.05	10	0.1	5	2.1	8	0.36	2	1258	2	0.05	1	1.2	4	0.03	5
B29	K186	22	1	0.05	4	0.1	2	1.46	2	0.28	2	1223	3	0.03	1	0.5	2	0.03	2
B30	K187	17	2	0.05	6	0.1	3	1.62	2	0.25	2	1275	20	0.005	1	0.8	2	0.04	6
B31	K188	14	2	0.05	4	0.1	3	1.95	2	0.26	1	1641	1	0.005	1	0.7	3	0.03	6
B32	K189	27	4	0.05	6	0.1	5	1.69	17	0.33	1	1480	2	0.04	1	0.4	16	0.04	5
B33	K190	32	1	0.05	1	0.1	3	1.72	1	0.33	6	434	1	0.02	1	0.5	1	0.03	2
B34	K191	28	3	0.05	4	0.2	11	2.15	4	0.49	3	529	1	0.06	1	1.2	1	0.04	5
B35	K192	23	5	0.05	1	0.3	6	1.25	13	0.3	1	1046	3	0.04	1	0.2	14	0.05	1
B36	K193	20	10	0.05	1	0.1	5	1.86	25	0.38	1	1012	8	0.02	1	0.6	59	0.03	2
B37	K194	17	5	0.05	1	0.1	6	1.35	19	0.28	1	1413	8	0.06	1	0.3	23	0.05	1
B41	K198	17	8	0.05	1	0.1	10	1.78	14	0.34	1	865	1	0.04	1	0.4	24	0.04	1

Values: Red high; magenta moderate; yellow low.

## RESULTS

Results for all samples are provided in Appendices. Response ratios for 16 elements were calculated for all 110 MMI soil samples and are provided in Table 1 along with UTM coordinates. Anomalous results greater than selected threshold values for Cu, Mo, Au, Ag, Ti, and Pb are shown graphically on the figures.

Geochemical values for 12 elements for all 65 black spruce twig samples are provided in Table 2 along with UTM coordinates. Anomalous results greater

than selected threshold values for Cu, Mo, Ag, and Rb, are shown graphically on the figures.

Geochemical results for two rock samples and three stream sediment samples are provided in an Appendix.

Figure 2 shows the locations of Pirate West and Pirate East Areas in relation to three porphyry targets (B, C, and D) on the Lake Project. Also shown are the aeromagnetic derivative lows in blue that could represent magnetite destructive alteration associated with porphyry alteration. Anomalous RGS samples are shown as yellow squares on Robbed Creek down-ice from Pirate West and Lake Areas and on a creek draining Pirate East. These samples are highly anomalous for Cu, Mo, Au, As, Sb, Hg, Pb, and Ag using threshold values derived from a constrained area of pre-Reid glaciations involving 278 RGS samples from Open File 2012-09 which is based on re-analyses of samples reported in Open File 1650.

Table 1 provides a comparison of 23 MMI and 23 twig samples collected at the same sites. Ag and Mo are more responsive in twig samples. Cu is lightly more responsive in twig samples. All three elements form concise and contiguous patterns of anomalous values in twigs and MMI samples where samples are collected on slight to modest slopes. Twig sample results are less responsive on flat land, a relationship that was clearly seen on the adjacent Lake Project. On the adjacent Lake Project twig samples collected in 2014 over 2013 MMI samples that were anomalous for Cu, Mo, Ni, and U failed to display any anomalous metal values. Twig sampling has therefore been discounted as a sampling method in flat low-lying ground.

#### **Pirate West.** Figures 3 to 6.

In Pirate West Area a target was described based on 2013 prospecting results as a linear feature up to 200 m wide and a km long open at both ends. This target has now been identified as a much larger target with a similar geochemical response to the three porphyry targets found on the adjacent Lake Project that forms part of the RGS claim block. The target is 500 m north-south by 1000 m east-west open to the north and east and has MMI sample results strongly anomalous for Cu, Au, Ag, Ni, and U with anomalous Mo on one line forming a core to the other anomalous elements.

In drawing the limit of anomalous Cu, the black spruce twig sample results were ignored in samples L140 to L142 because they were collected on flat ground, which is known to be unresponsive for forming anomalous metal values. The strength of the anomalous MMI Cu response ratios is very encouraging with anomalous response ratios forming strong contiguous results up to a high of 31 and a low of 7.

Six anomalous Mo response ratios on the single line with anomalous values as shown on Figure 4 vary from 8 to 26 over a 300 m length open to the north. These are highly encouraging results. Angular chips up to 10 cm found in soil pits at K112 and K113 were described in the field as quartz muscovite schist but close inspection of samples returned to Vancouver raises the possibility they are sheared quartz monzonite. Chips were limonitic in K112. Similar rock chips, but not limonitic, were noted in K117, K119, and K120.

Anomalous Au response ratios shown on Figure 5 mimic the anomalous Cu results fairly closely. Response ratios vary from 3 to 21. See Table 1. Au and Ag are particularly anomalous when compared to the three other porphyry targets on the Lake Project. This may be due to shallower overburden in the Pirate West Area. Ni and U response ratios are very strongly anomalous for the same samples anomalous for Cu and Au just as they were on the three adjacent Lake Project porphyry targets and on the Pirate East Area. Ni response ratios range up to a high of 27 and U response ratios to a high of 108. Anomalous Ca response ratios also mimic the anomalous values for the above discussed elements.

Anomalous Ag response ratios shown on Figure 6 also mimic the anomalous Cu results fairly closely but extend onto the most westerly soil sample line. Ag response ratios range up to 63 with most in the 8 to 20 range. Pb and Zn response ratios are low in this area except for four high Pb values at the south end of one line in samples L146, L147, L149 and L150.

As can be seen on Table 1, Ti response ratios are low where Cu-Mo-Au-Ni-U-Ag response ratios are high and high elsewhere. Response ratio lows are generally zeros whereas highs range up to 323 with many values well in excess of 30. This may be reflecting a destruction of illmenite and removal of Ti by hydrothermal processes associated with whatever mineralization the anomalous metal values are related to. It is difficult to associate this Ti pattern to host rock



type as bedrock is primarily Reid Lakes Batholith of quartz monzonite composition with the possible occurrence of schist in only a part of the survey area.

A single fist-size rock sample, R1, was collected from the soil pit at L148. It was a limonitic quartz fragment breccias with muscovite.

**Pirate East.** Figures 7 to 13, 19.

In the Pirate East Area, one MMI sample collected in 2012 returned strongly anomalous values for Cu, Mo, Au, and U. Other MMI samples collected in 2012 about 500 m north of the 2014 survey area contained moderately anomalous values for Cu and U. An RGS sample collected on the creek draining the survey area was highly anomalous for Cu, Mo, Au, As, Sb, Hg, Pb, and Ag using threshold values derived from a constrained area of pre-Reid glaciations involving 278 RGS samples. An aeromagnetic horizontal derivative map shows a large pattern of low magnetic response measuring 800 m by over 1500 m in the area of the present survey that could be indicative of magnetite destructive hydrothermal alteration. This combined data indicated the potential for Cu-Mo-Au porphyry mineralization in the area. Refer to Figure 2. The target for 2014 prospecting was around the anomalous samples described above.

In the Pirate East Area MMI and twig samples define a large pattern of geochemically anomalous Cu measuring up to 1200 m east-west by 1500 m north-south and open to the north containing a central core of geochemically anomalous Mo in MMI and twig samples measuring up to 400 m east-west by 1400 m north-south and open to the north. Ag in MMI and twig samples is geochemically anomalous over much of the Cu anomalous zone. Rb and Cs in twig samples form geochemically anomalous patterns somewhat analogous with Cu that could be related to underlying potassic alteration because of the affinity of these three elements. Ti in MMI samples forms a poorly defined negative anomaly analogous with Cu that could be related to destruction of illmenite in the host quartz monzonite by hydrothermal alteration associated with porphyry mineralization. Au in MMI samples forms a geochemically anomalous cluster of samples on the west portion of the survey area and includes a single sample that has extremely high response values for Au (6134) and Ag (402) that could be related to high-grade precious metal mineralization.

In drawing the limit of anomalous Cu, both MMI and twig sample results were used unlike for Pirate East. Cu is an essential element for plant metabolism, which is why increased concentrations of Cu in plants growing over Cu-rich mineralization are generally quite subtle. However, twig samples L183 to L193 on the southernmost sample line included within the Generalized Cu Limit on Figures 7 to 13 are all anomalous for Cu as are most twig samples further north and within the Generalized Cu Limit. The strength of the MMI Cu results is encouraging with anomalous response ratios ranging up to 2 within the Generalized Cu Limit. 18 MMI samples, K144 to K198 on Table 3, collected adjacent to 18 twig samples, B12 to B41 on Table 3, include 10 anomalous Cu values compared to 12 anomalous Mo twig values. This comparison shows that both MMI and black spruce twig sampling methods are useful in the Pirate East Area. The Generalized Cu Limit roughly corresponds to an aeromagnetic horizontal derivative low.

Anomalous Mo in twig samples forms a well defined pattern measuring 400 m by 1400 m open to the north with only two twig samples not anomalous within this pattern. MMI samples, K144 to K198 on Table 3, collected adjacent to 18 twig samples, B12 to B41 on Table 3, include only one anomalous Mo response ratio compared to 13 anomalous Mo twig values. This comparison taken together with the overall anomalous metal patterns shows that twig sampling is perhaps a more useful method in the Pirate East Area than in the Pirate West Area and Lake Project Area. Only one other anomalous MMI Mo response ratio occurs within the Generalized Mo Limit.

Anomalous MMI Au response ratios form a cluster on the west side of the Generalized Cu Limit. Twig sample Au results were all low. A high Au response ratio of 6134 occurs in L223 high on the hill. Ag response ratio in this same sample was 402. Both values are extremely high and could be representative of nearby high-grade structurally controlled mineralization. Angular rocks in the area are slabs of sheared muscovite-bearing quartz monzonite or gneiss with 3% very fine grained variably leached pyrite. R2 is a sample of this float that is not anomalous for any elements of interest. See appendix. Other anomalous Ag values in twigs and to a lesser extent MMI samples is roughly contiguous with the Generalized Cu Limit. See figure 10.

Anomalous Rb, considered a surrogate for K, which is another essential element for plant metabolism, forms a large pattern as shown on Figure 11. This pattern could be indicative of underlying zones of potassic alteration associated with porphyry mineralization.

Eleven MMI samples within the Generalized Cu Limit have low Ti response ratios. Beyond the Generalized Cu Limit Ti RRs have high response ratios. Twig samples are low for Ti everywhere so cannot be used in defining this pattern.

Anomalous response ratios for Pb occur beyond the Generalized Cu Limit particularly on the east and south sides. See Figure 13. Anomalous Pb often occurs peripheral to the cores of porphyry mineralization.

### **Silt Samples.**

Results for the three silt samples are provided in an appendix. As these silts used Acme's Ultratrace analysis which is the same method used for RGS Open File 2012-09, covering 115P, percentile thresholds for various elements re-calculated from 278 samples of that survey lying within pre-Reid glaciated terrane are useful in interpreting the results of the three samples.

C1 contains 90%tile for Mo, 80%tile for Au and 95%tile for As.

C2 contains 95%tile for Mo, and 98%tile for As.

C3 contains 95%tile for Mo, and 90%tile for As.

All samples were low for Cu and Ag with 70, 80, and 90%tile values for S

### **CONCLUSIONS.**

- Float and rock chips in colluvium from soil pits were coarse grained weakly Kspar porphyritic hornblende quartz monzonite coinciding with the geology of the Reid Lakes Batholith as described by Ryan and Colpron. Sheared quartz monzonite and/or schist occurs in restricted areas on the Pirate West and East Areas.
- The hillsides are covered in till and colluvium with a blanket of loess measuring 10 to >25 cm thick. Organic material is less than 5 cm thick except in low lying areas where it measures up to 20 cm deep.

- Black spruce was easy to identify using the numerous red hairs visible with a hand lens and was available everywhere. Results of black spruce twig samples were useful where they were collected on sloping ground but of limited if any use on flat-lying ground.
- MMI sampling proved useful in defining patterns of anomalous and contiguous response ratios for Cu, Mo, Ag, Au, Ni, and U similar to the adjacent Lake Project anomalous patterns.
- The Pirate West anomaly is 1000 m long east-west and about 500 m wide north-south open to the east and south. It is best defined by strongly anomalous Cu RRs in MMI samples (up to 31) and supported by anomalous RRs for Mo (up to 26), Au (up to 21), Ag (up to 63), U (up to 199), and Ni (up to 25). The anomalous Mo forms a core area on one soil line central to the other anomalous metal patterns. Angular chips of quartz muscovite schist were common in soil pits from the two westerly soil lines of the four lines sampled. Anomalous Mo as well as anomalous K occurs in the north half of the westerly of the two middle soil lines. The K anomalies may be related to the muscovite chips. No mineralized float was present in the area that might explain the source of the anomalies. Float in soil pits on the two easterly soil lines was quartz monzonite.
- The Pirate East Area MMI and twig samples define a large pattern of geochemically anomalous Cu measuring up to 1200 m east-west by 1500 m north-south and open to the north containing a central core of geochemically anomalous Mo measuring up to 400 m wide by 1400 m north-south. Ag is geochemically anomalous over much of the Cu anomalous zone. Rb in twig samples is considered a surrogate for K, which is an essential element for plant metabolism. Rb forms a geochemically anomalous pattern somewhat analogous with Cu that could be related to underlying potassic alteration. Ti forms a poorly defined negative anomaly somewhat analogous with Cu that could be related to destruction of illmenite in the host quartz monzonite by hydrothermal alteration associated with porphyry mineralization.

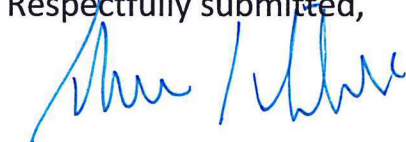
- Au forms a geochemically anomalous cluster of samples on the west portion of the Pirate East Area and includes a single sample that has extremely high response values for Au (6134) and Ag (402) that could be related to high-grade mineralization. Fine-grained pyrite mineralization is common in sheared quartz monzonite float in the area of this sample.
- Three silt samples were collected from the north flowing creek in Pirate East Area. All three silt samples were highly anomalous for Mo and As and one sample was anomalous for Au.

### **RECOMMENDATIONS.**

It is recommended to:

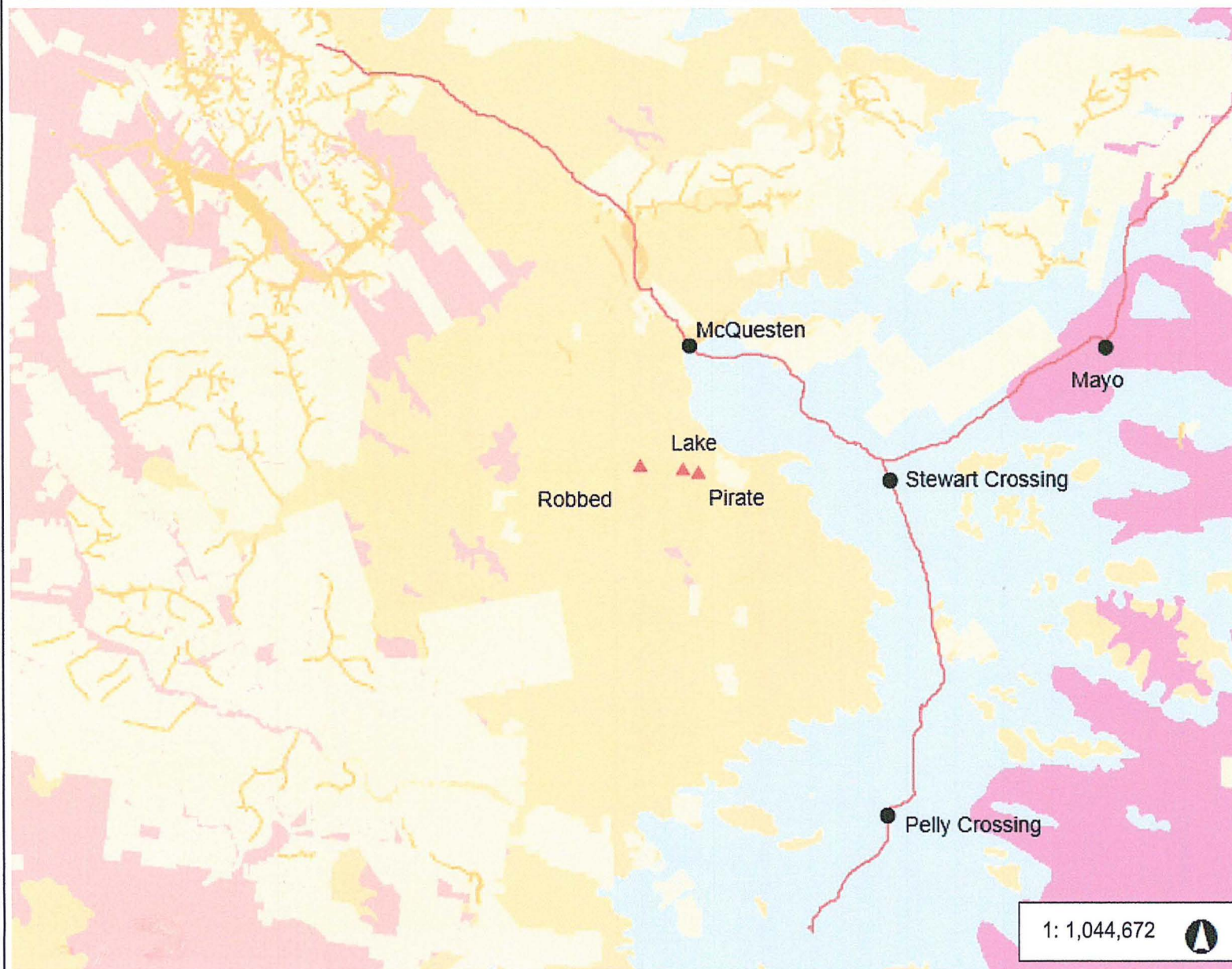
1. Conduct additional MMI soil sampling in the Pirate West Area to define the limits of geochemically anomalous soil and twig patterns as described. Most of this work is north and east of the current survey area and is recommended to be done on lines spaced 300 m apart with 100 m sample spacing. It is also recommended to dig hand trenches in the Pirate West Area in areas of anomalous geochemical results particularly where there are angular rock chips in soil pits on modest sloping hillsides.
2. Conduct additional MMI soil and black spruce twig sampling in the Pirate East Area to define the limits of geochemically anomalous soil and twig patterns as described. Most of this work is to the north of the current grid sampling area and is recommended to be done on lines spaced 300 m apart with 100 m sample spacing.
3. Conduct detailed grid MMI soil sampling on the hillsides around L223 that was highly anomalous for Au and Ag and where pyrite mineralization was found. A VLF survey is also recommended to try and locate a precious metal mineralized structure in this area. Hand dug trenches are recommended on any such structures found in the VLF survey.

Respectfully submitted,



Gordon G Richards P.Eng.

# Figure 1. Location of YMEP Project Areas



**Legend**

- Placer Claims (1M)
- Quartz Claims (1M)
- Glacial Limits (1M)**
- Cordilleran and montane glacial fee
- Tutsieta Lake Phase Limit (ca. 13 k
- Katherine Creek Phase Limit (ca. 2
- All time Laurentide extent (ca. 30 kr
- Cordilleran and montane glacial fee
- Cordilleran and montane glacial fee
- Unglaciated area

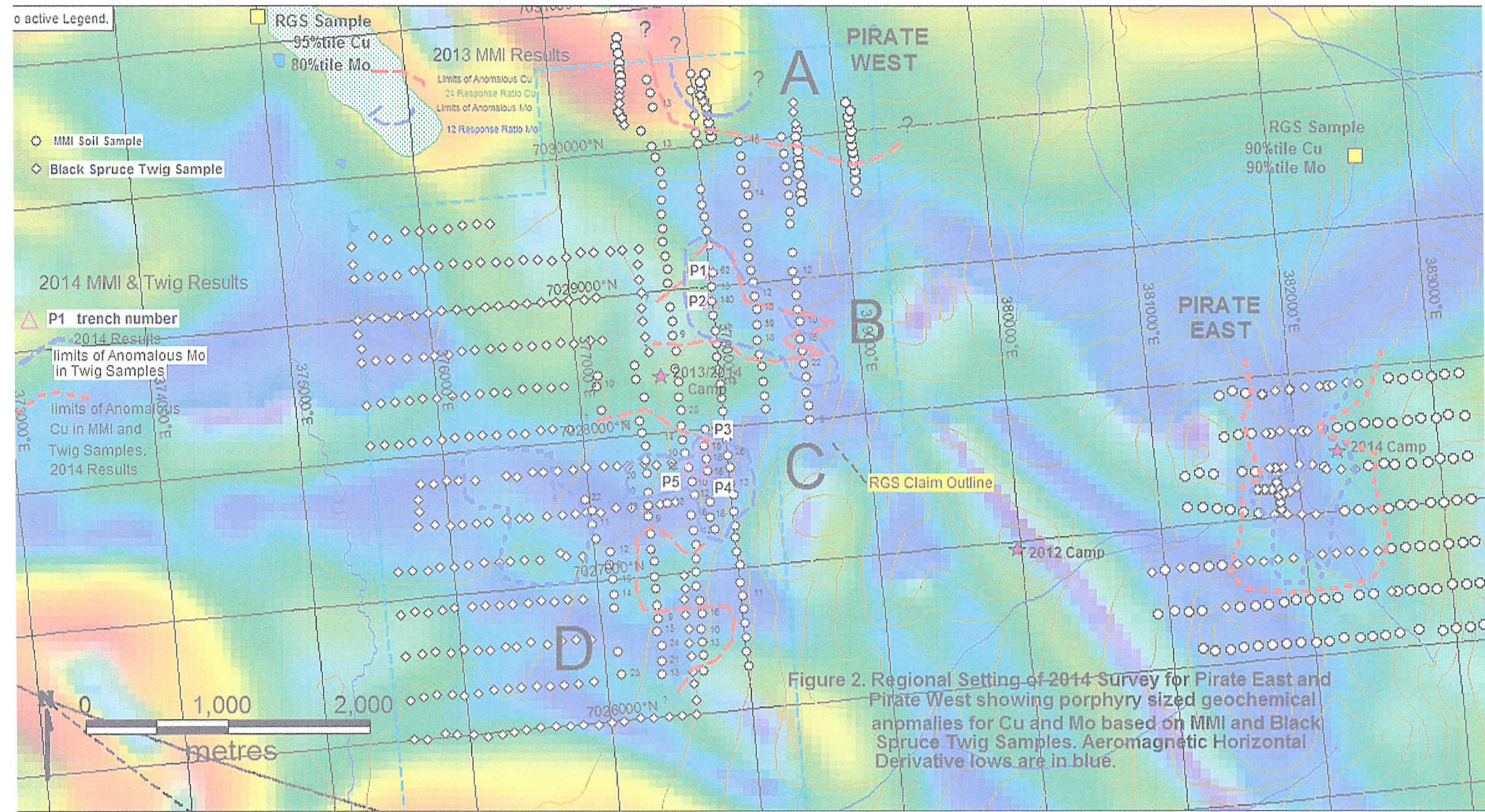
1: 1,044,672

53.1 0 26.53 53.1 Kilometers

Yukon Albers  
Produced from: Yukon Geological Survey MapMaker Online

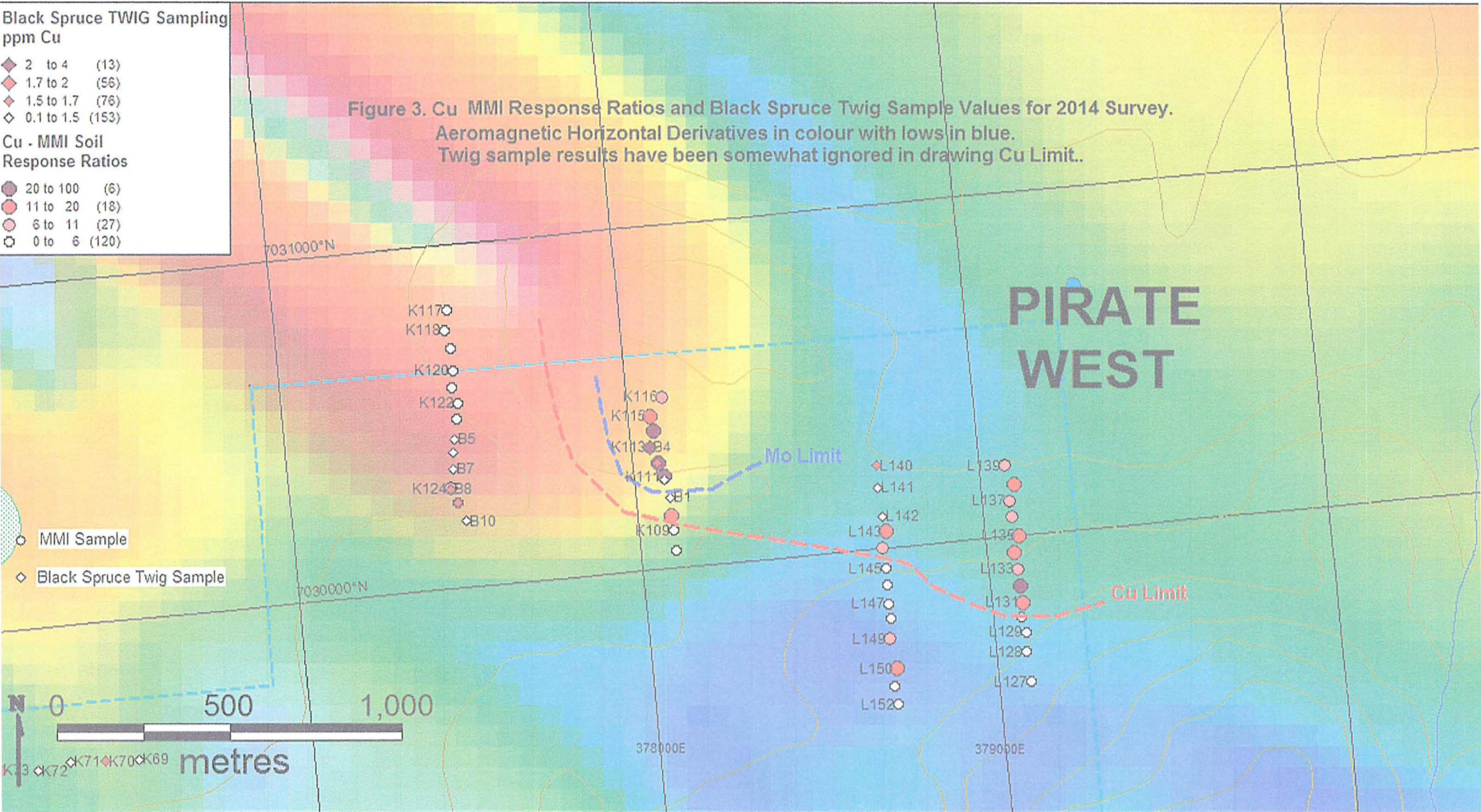
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.  
Date Printed: 12-Feb-2014

**Notes**  
The three areas occur within Pre-Reid Glaciated terrain shown in yellow. Reid extent is in blue. McConnell extent is in purple.



- Black Spruce TWIG Sampling ppm Cu**
- ◆ 2 to 4 (13)
  - ◆ 1.7 to 2 (56)
  - ◆ 1.5 to 1.7 (76)
  - ◇ 0.1 to 1.5 (153)
- Cu - MMI Soil Response Ratios**
- 20 to 100 (6)
  - 11 to 20 (18)
  - 6 to 11 (27)
  - 0 to 6 (120)

**Figure 3. Cu MMI Response Ratios and Black Spruce Twig Sample Values for 2014 Survey.**  
 Aeromagnetic Horizontal Derivatives in colour with lows in blue.  
 Twig sample results have been somewhat ignored in drawing Cu Limit.

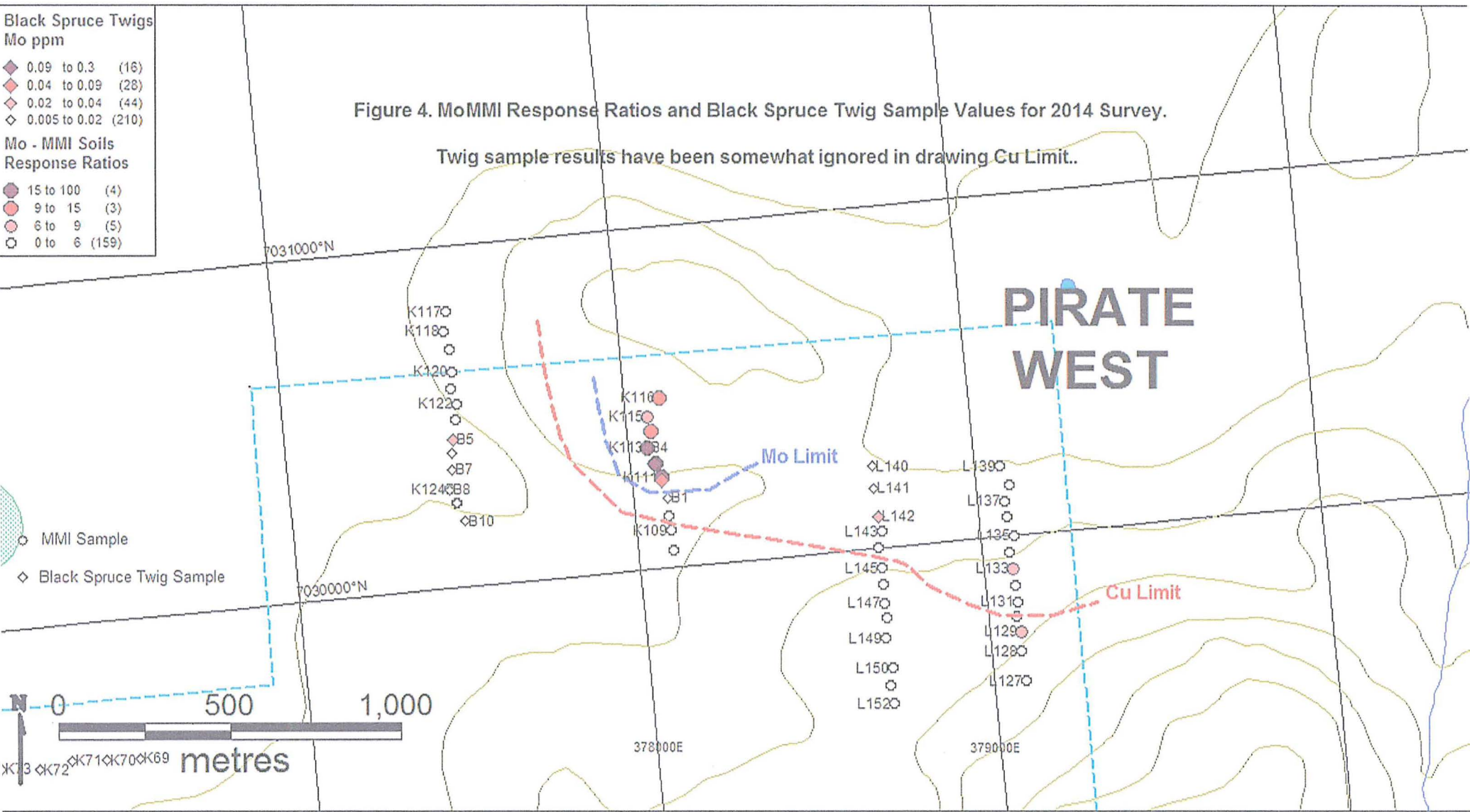




- Black Spruce Twigs**  
Mo ppm
- ◆ 0.09 to 0.3 (16)
  - ◆ 0.04 to 0.09 (28)
  - ◆ 0.02 to 0.04 (44)
  - ◇ 0.005 to 0.02 (210)
- Mo - MMI Soils**  
Response Ratios
- 15 to 100 (4)
  - 9 to 15 (3)
  - 6 to 9 (5)
  - 0 to 6 (159)

Figure 4. MoMMI Response Ratios and Black Spruce Twig Sample Values for 2014 Survey.

Twig sample results have been somewhat ignored in drawing Cu Limit..



Au - MMI Soils  
Response Ratios

- 15 to 9,000 (9)
- 9 to 15 (11)
- 6 to 9 (32)
- 0 to 6 (119)

Figure 5. Au MMI Soil Response Ratios. Au Black Spruce Twig Sample results were all low. Twig sample results have been somewhat ignored in drawing Cu Limit..

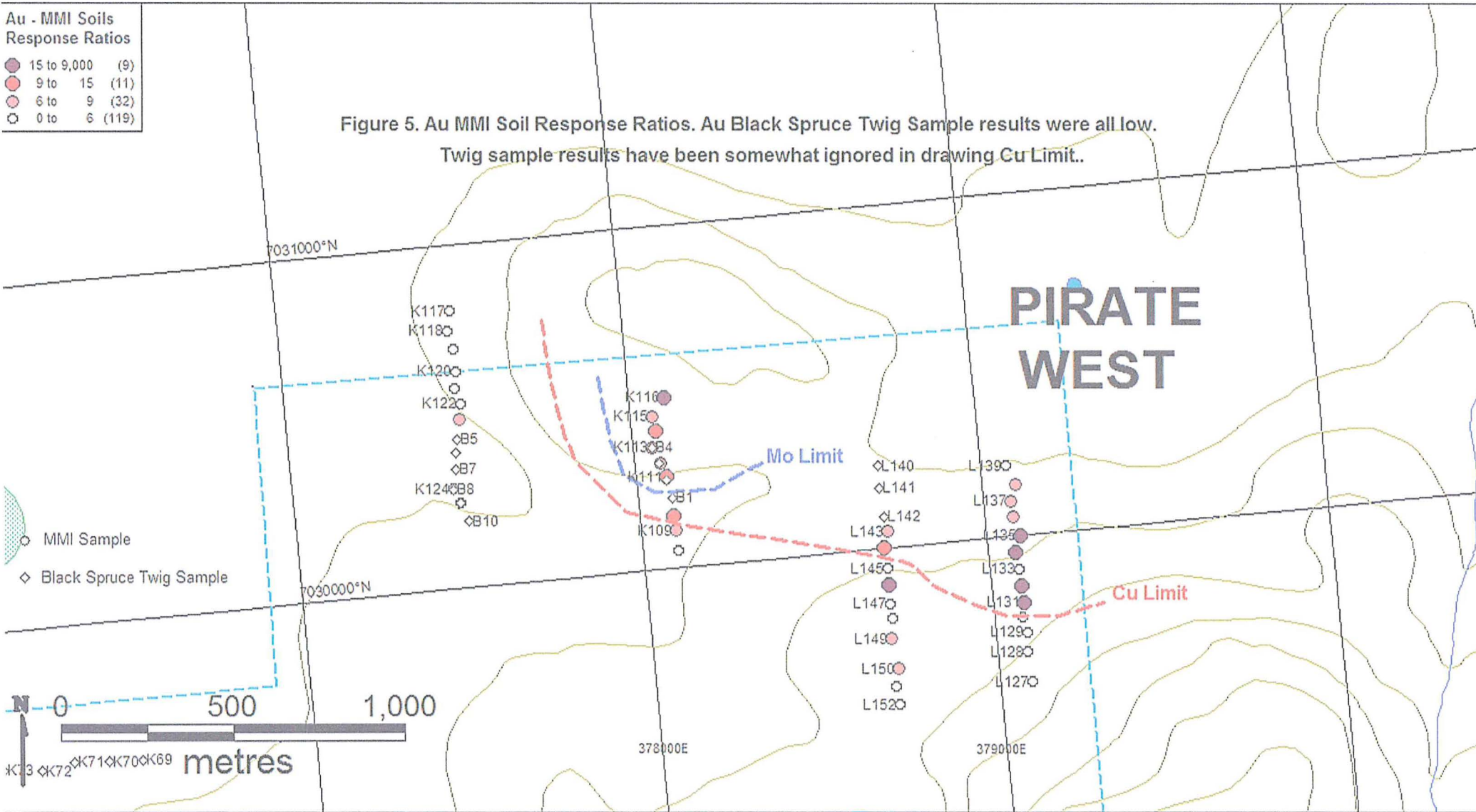
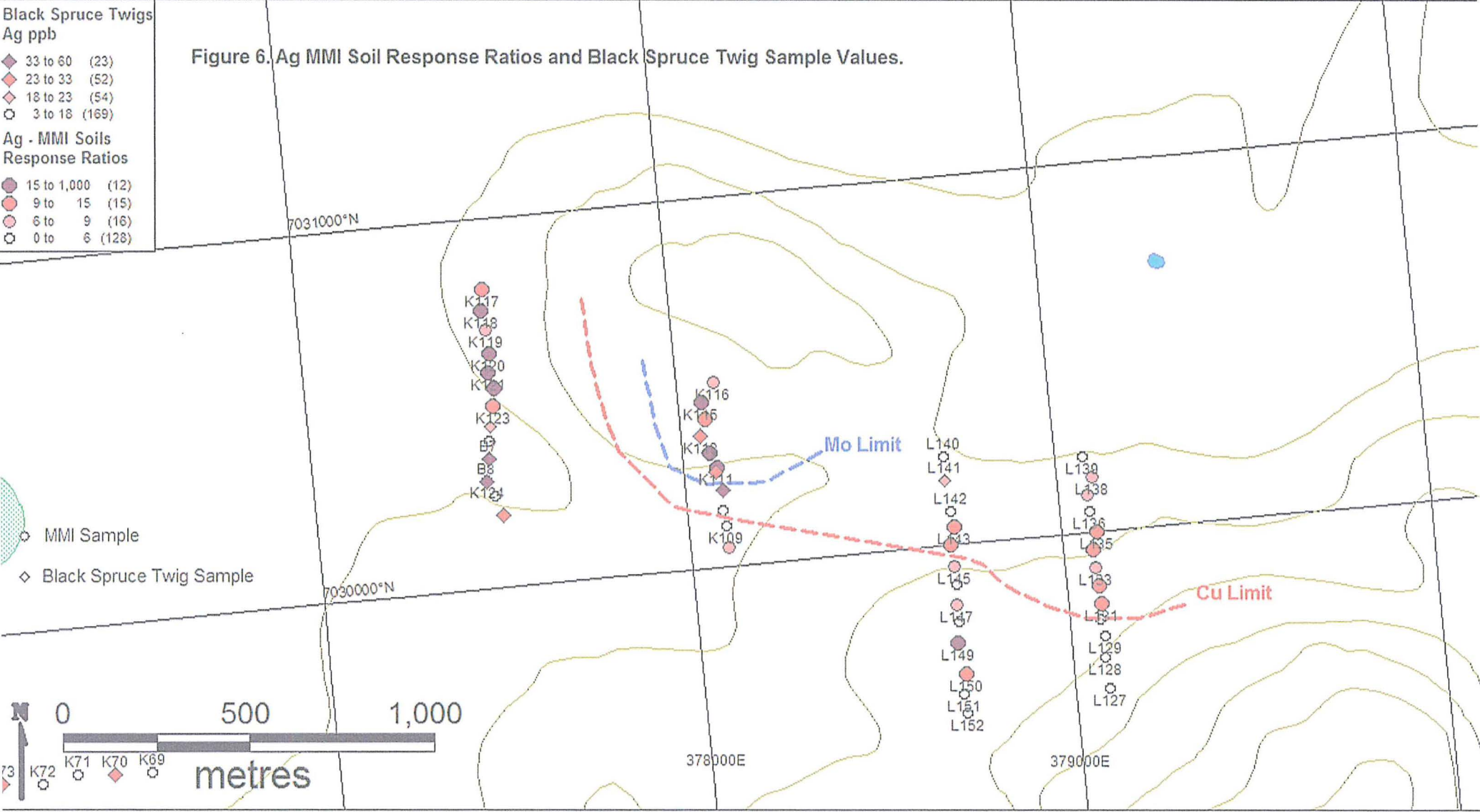
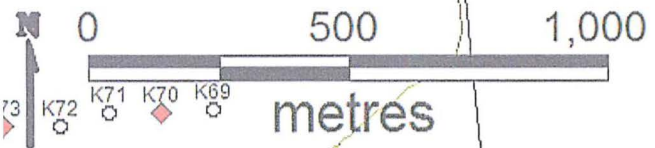


Figure 6. Ag MMI Soil Response Ratios and Black Spruce Twig Sample Values.

- Black Spruce Twigs  
Ag ppb**
- ◆ 33 to 60 (23)
  - ◆ 23 to 33 (52)
  - ◆ 18 to 23 (54)
  - 3 to 18 (169)
- Ag - MMI Soils  
Response Ratios**
- 15 to 1,000 (12)
  - 9 to 15 (15)
  - 6 to 9 (16)
  - 0 to 6 (128)

- MMI Sample
- ◆ Black Spruce Twig Sample



**Black Spruce TWIG Sampling ppm Cu**

- ◆ 2 to 4 (13)
- ◆ 1.7 to 2 (56)
- ◆ 1.5 to 1.7 (76)
- ◆ 0.1 to 1.5 (153)

**Cu - MMI Soil Response Ratios**

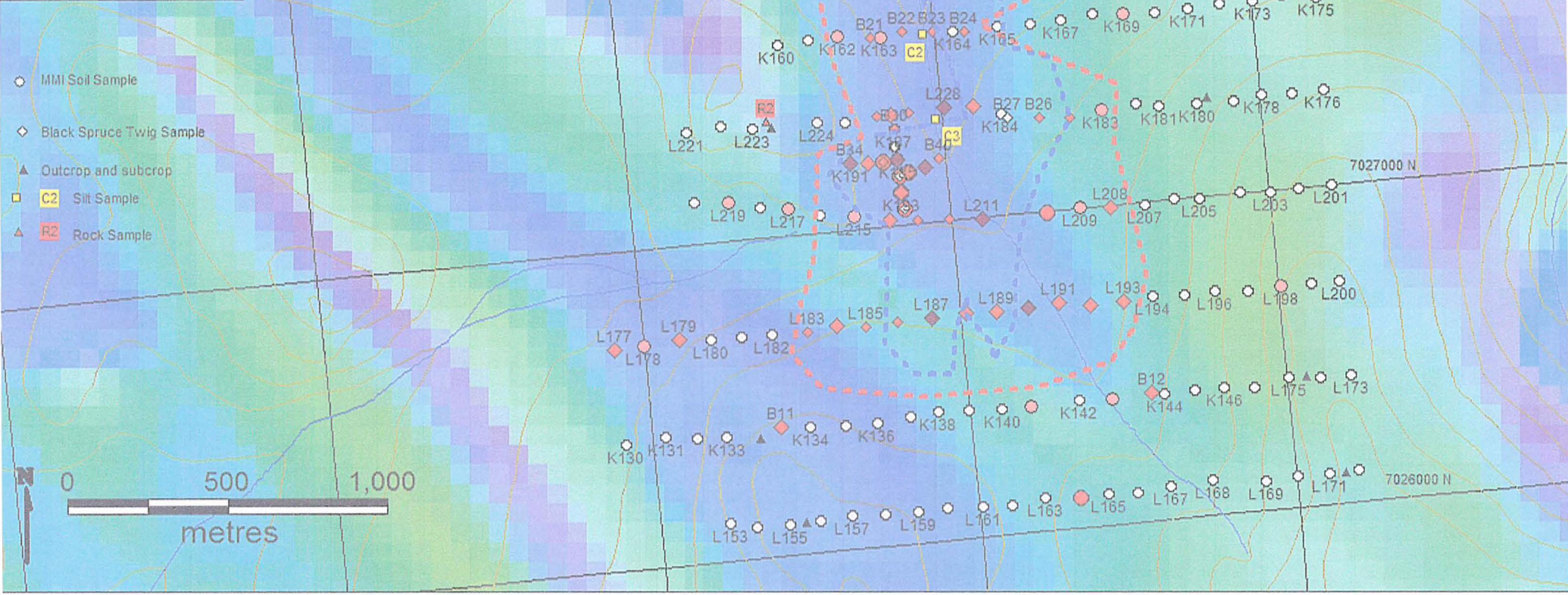
- 20 to 100 (6)
- 11 to 20 (18)
- 6 to 11 (27)
- 0 to 6 (120)

- MMI Soil Sample
- ◆ Black Spruce Twig Sample
- ▲ Outcrop and subcrop
- C2 Silt Sample
- ▲ R2 Rock Sample

**Figure 7. Cu MMI Soil Response Ratios and Black Spruce Twig Samples Values with sample numbers. Aeromagnetic Horizontal Derivatives in colour with lows in blue.**

Generalized Mo Limit

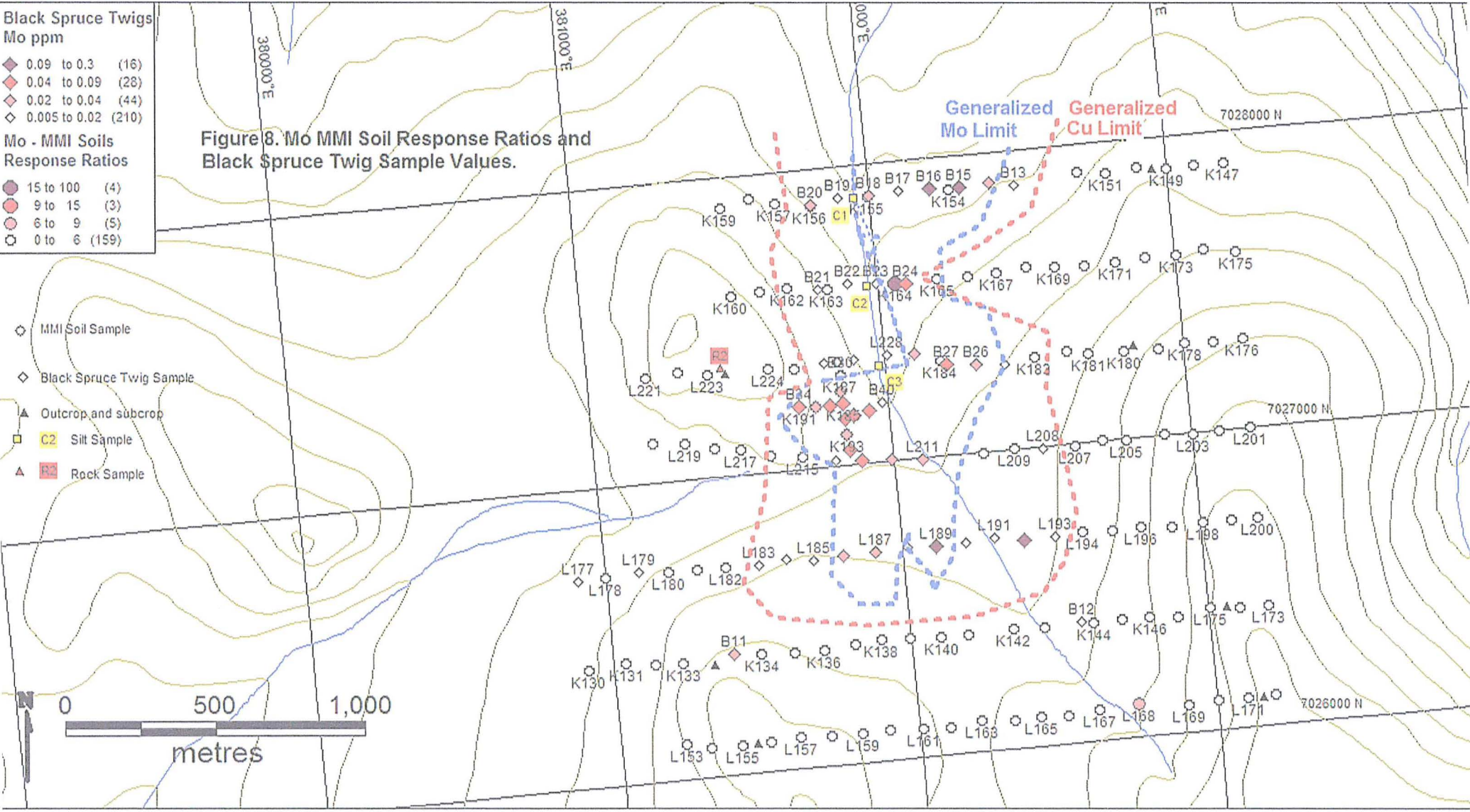
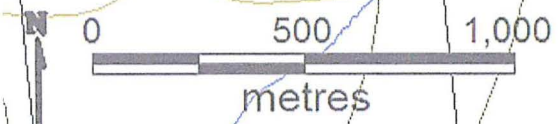
Generalized Cu Limit



- Black Spruce Twigs  
Mo ppm**
- ◆ 0.09 to 0.3 (16)
  - ◆ 0.04 to 0.09 (28)
  - ◆ 0.02 to 0.04 (44)
  - ◆ 0.005 to 0.02 (210)
- Mo - MMI Soils  
Response Ratios**
- 15 to 100 (4)
  - 9 to 15 (3)
  - 6 to 9 (5)
  - 0 to 6 (159)

**Figure 8. Mo MMI Soil Response Ratios and Black Spruce Twig Sample Values.**

- MMI Soil Sample
- ◆ Black Spruce Twig Sample
- ▲ Outcrop and subcrop
- C2 Silt Sample
- ▲ R2 Rock Sample

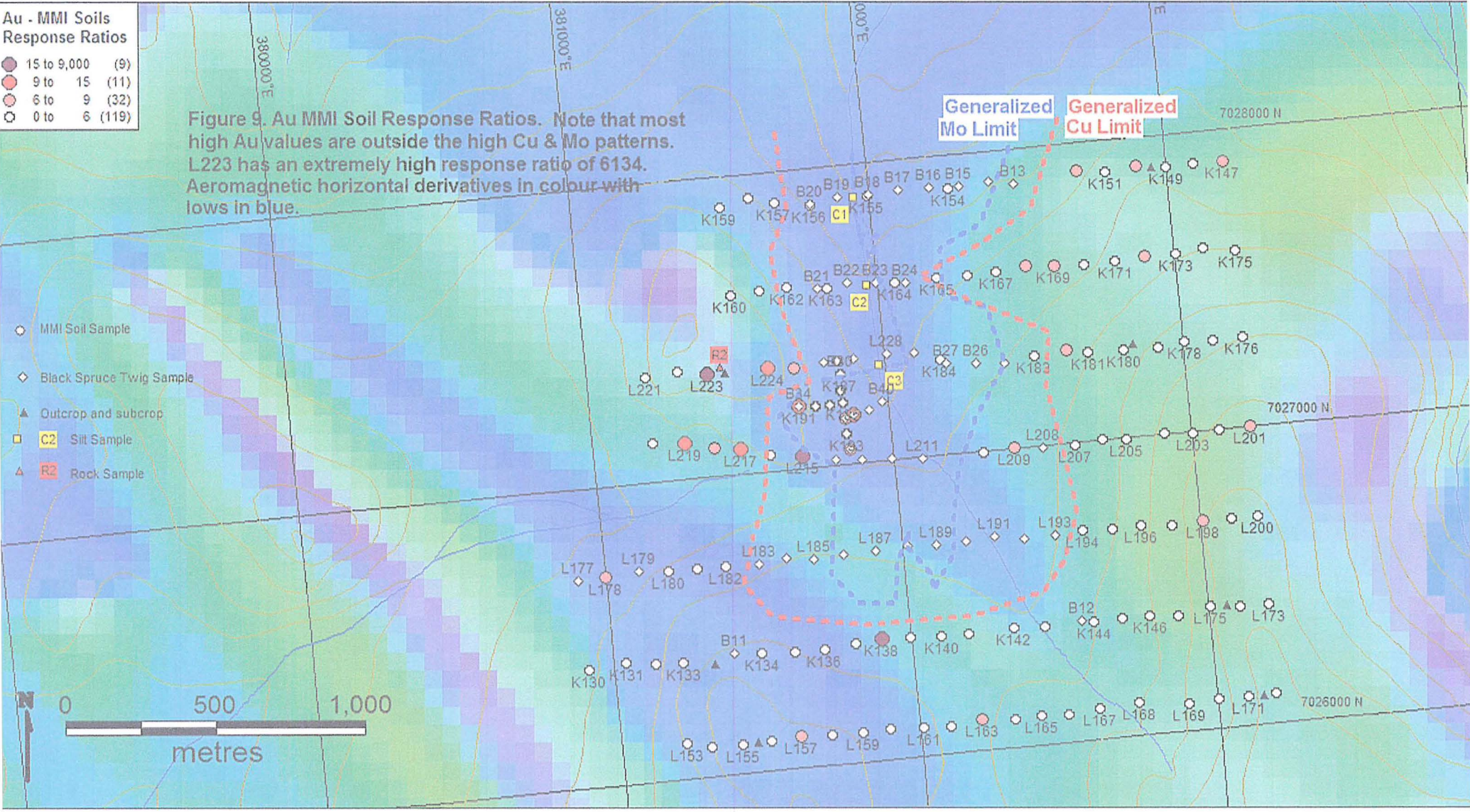
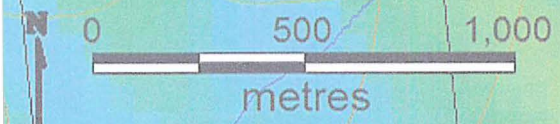


**Au - MMI Soils Response Ratios**

●	15 to 9,000	(9)
●	9 to 15	(11)
●	6 to 9	(32)
○	0 to 6	(119)

**Figure 9. Au MMI Soil Response Ratios.** Note that most high Au values are outside the high Cu & Mo patterns. L223 has an extremely high response ratio of 6134. Aeromagnetic horizontal derivatives in colour with lows in blue.

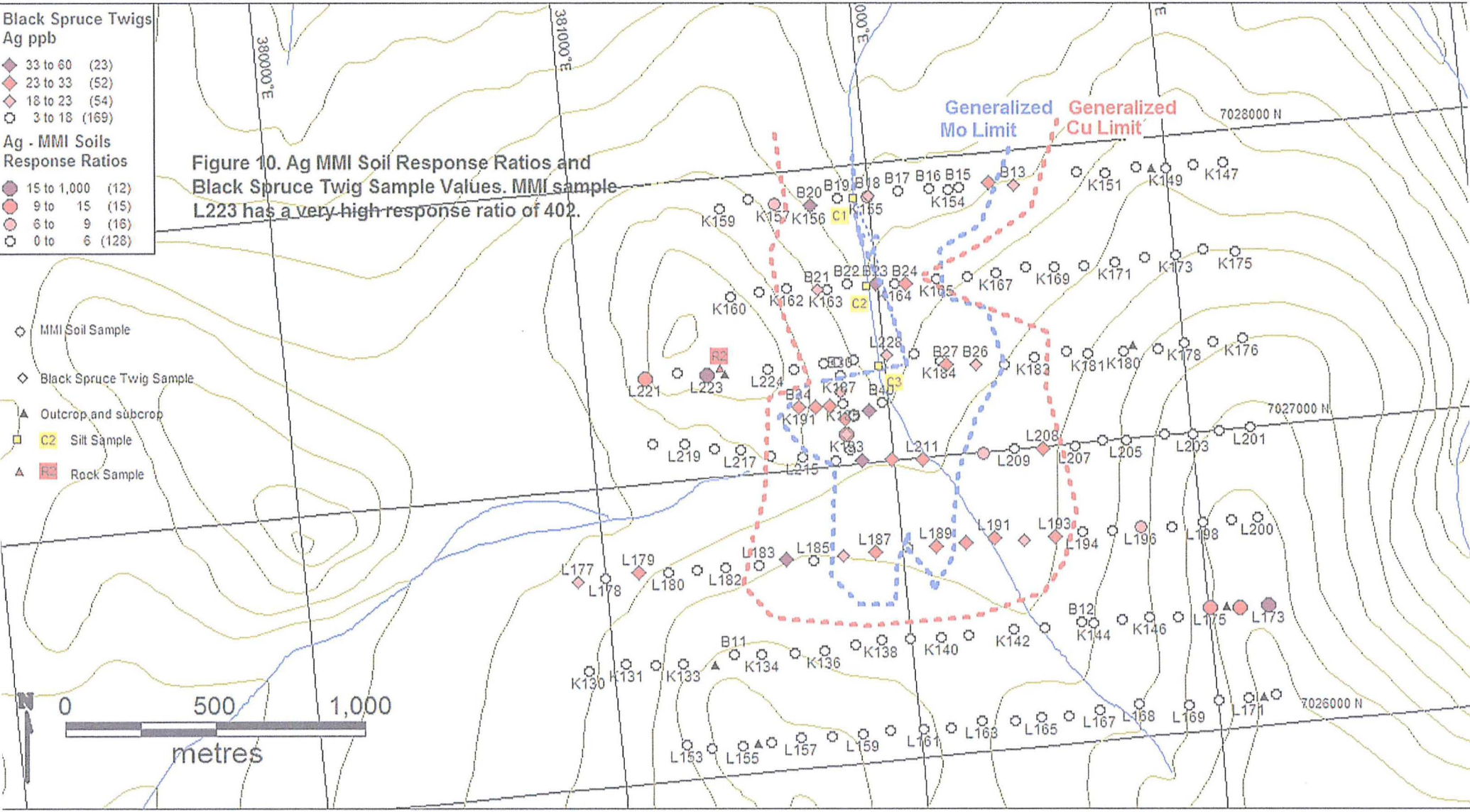
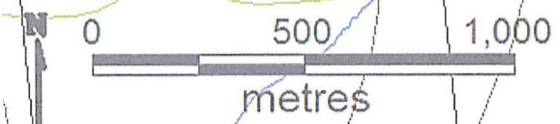
- MMI Soil Sample
- ◇ Black Spruce Twig Sample
- ▲ Outcrop and subcrop
- C2 Silt Sample
- ▲ R2 Rock Sample



- Black Spruce Twigs  
Ag ppb**
- ◆ 33 to 60 (23)
  - ◆ 23 to 33 (52)
  - ◆ 18 to 23 (54)
  - 3 to 18 (169)
- Ag - MMI Soils  
Response Ratios**
- 15 to 1,000 (12)
  - 9 to 15 (15)
  - 6 to 9 (16)
  - 0 to 6 (128)

**Figure 10. Ag MMI Soil Response Ratios and Black Spruce Twig Sample Values. MMI sample L223 has a very-high response ratio of 402.**

- MMI Soil Sample
- ◆ Black Spruce Twig Sample
- ▲ Outcrop and subcrop
- C2 Silt Sample
- ▲ R2 Rock Sample

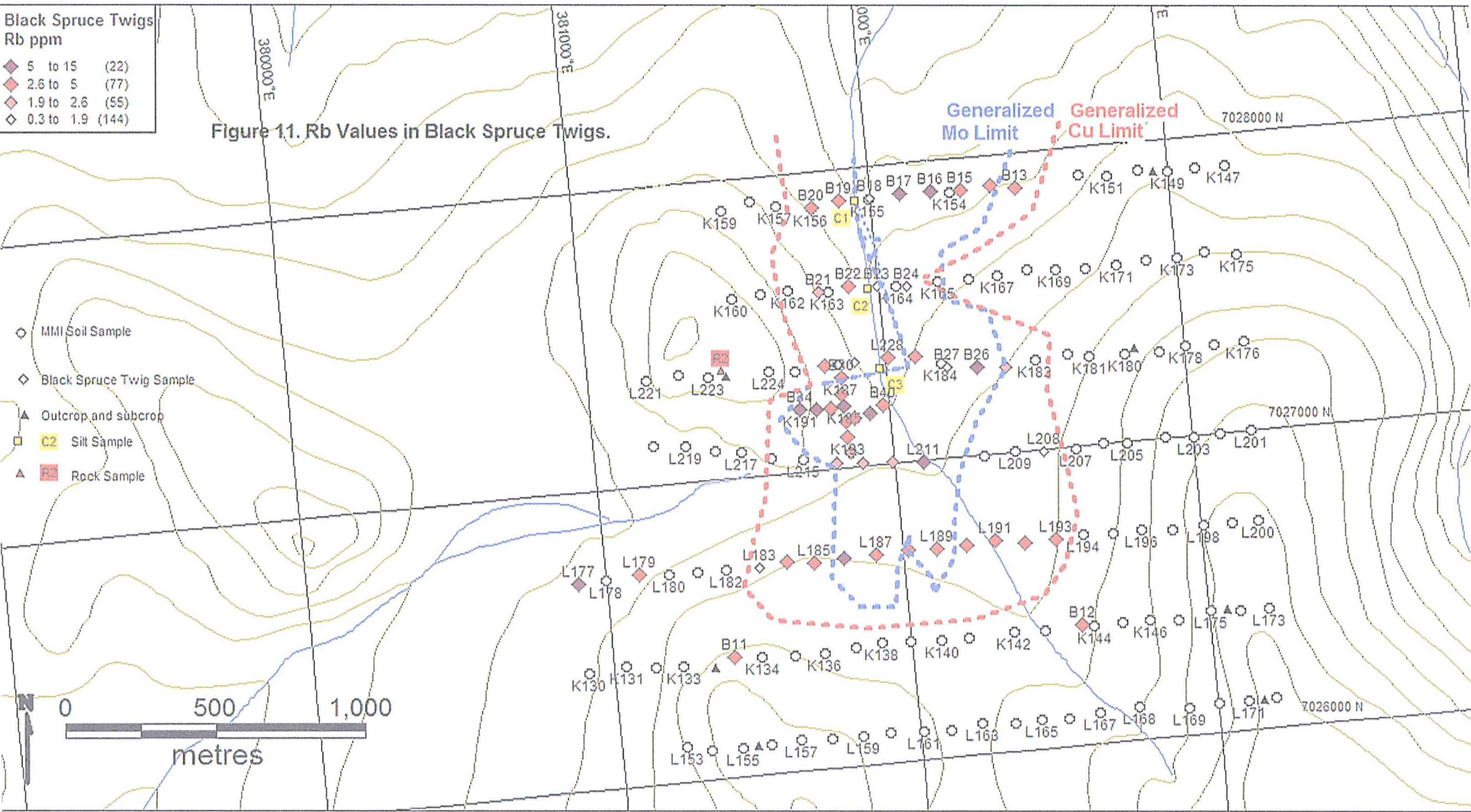
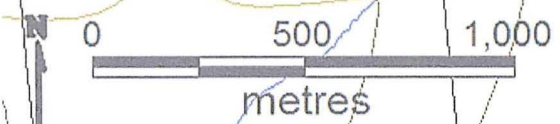


**Black Spruce Twigs  
Rb ppm**

◆	5 to 15	(22)
◆	2.6 to 5	(77)
◆	1.9 to 2.6	(55)
◆	0.3 to 1.9	(144)

Figure 11. Rb Values in Black Spruce Twigs.

- MMI Soil Sample
- ◇ Black Spruce Twig Sample
- ▲ Outcrop and subcrop
- C2 Silt Sample
- ▲ R2 Rock Sample





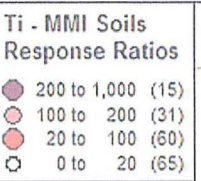
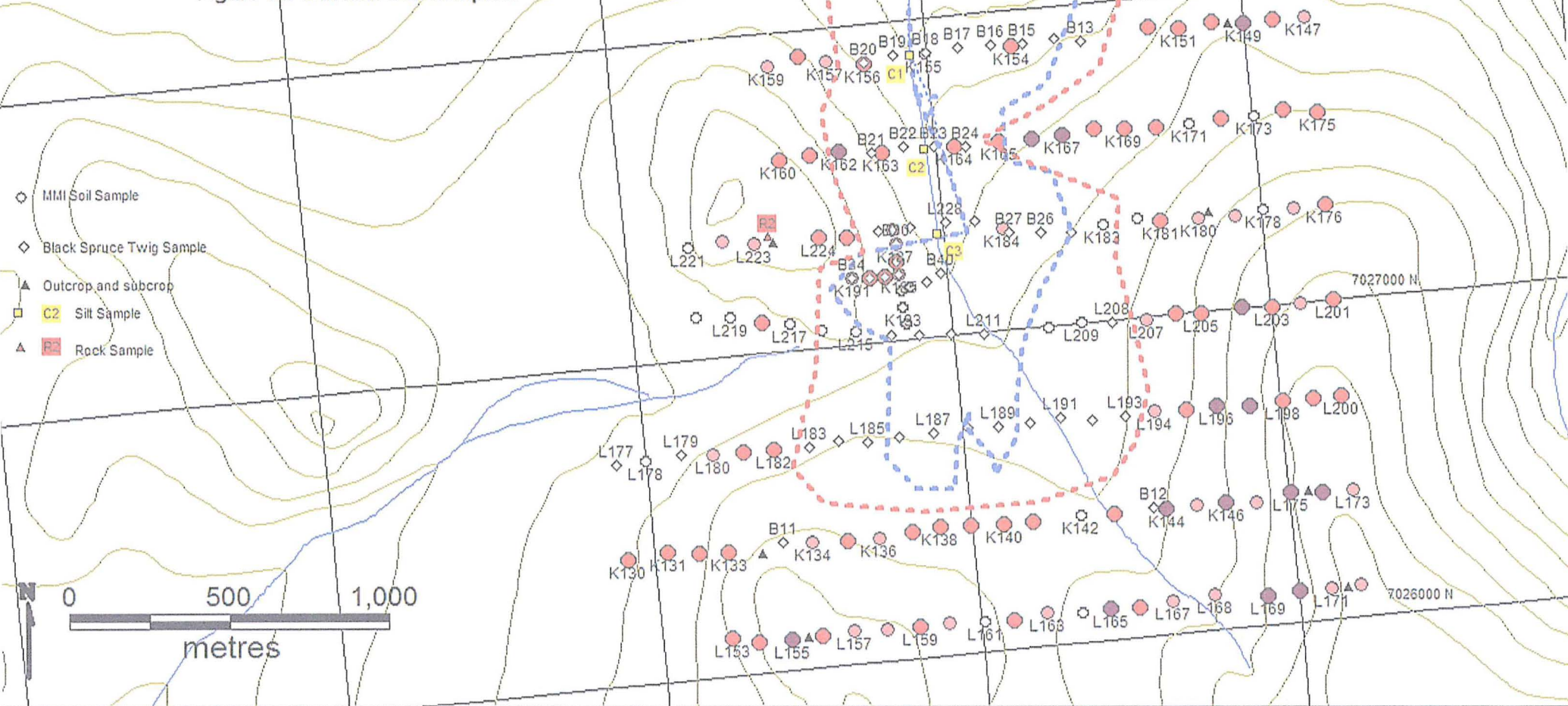
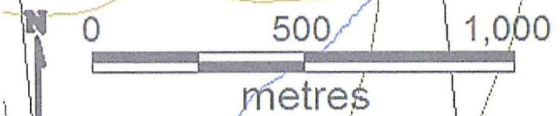
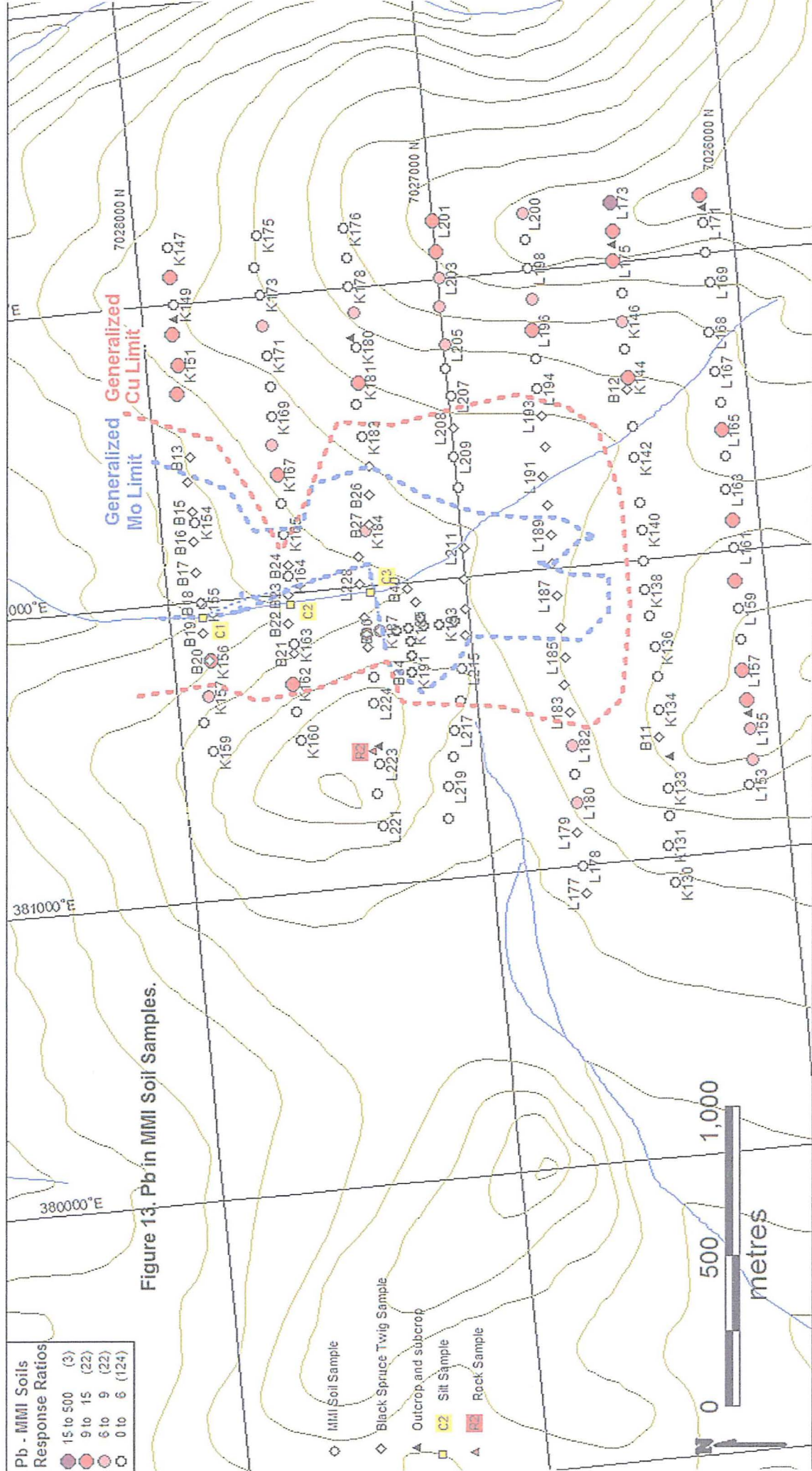


Figure 12. Ti in MMI Soil Samples.



- MMI Soil Sample
- ◇ Black Spruce Twig Sample
- ▲ Outcrop and subcrop
- C2 Silt Sample
- ▲ R2 Rock Sample





**Pb - MMI Soils Response Ratios**

●	15 to 500	(3)
●	9 to 15	(22)
●	6 to 9	(22)
○	0 to 6	(124)

Figure 13. Pb in MMI Soil Samples.

- MMI Soil Sample
- ◇ Black Spruce Twig Sample
- ▲ Outcrop and subcrop
- C2 Silt Sample
- ▲ Rock Sample



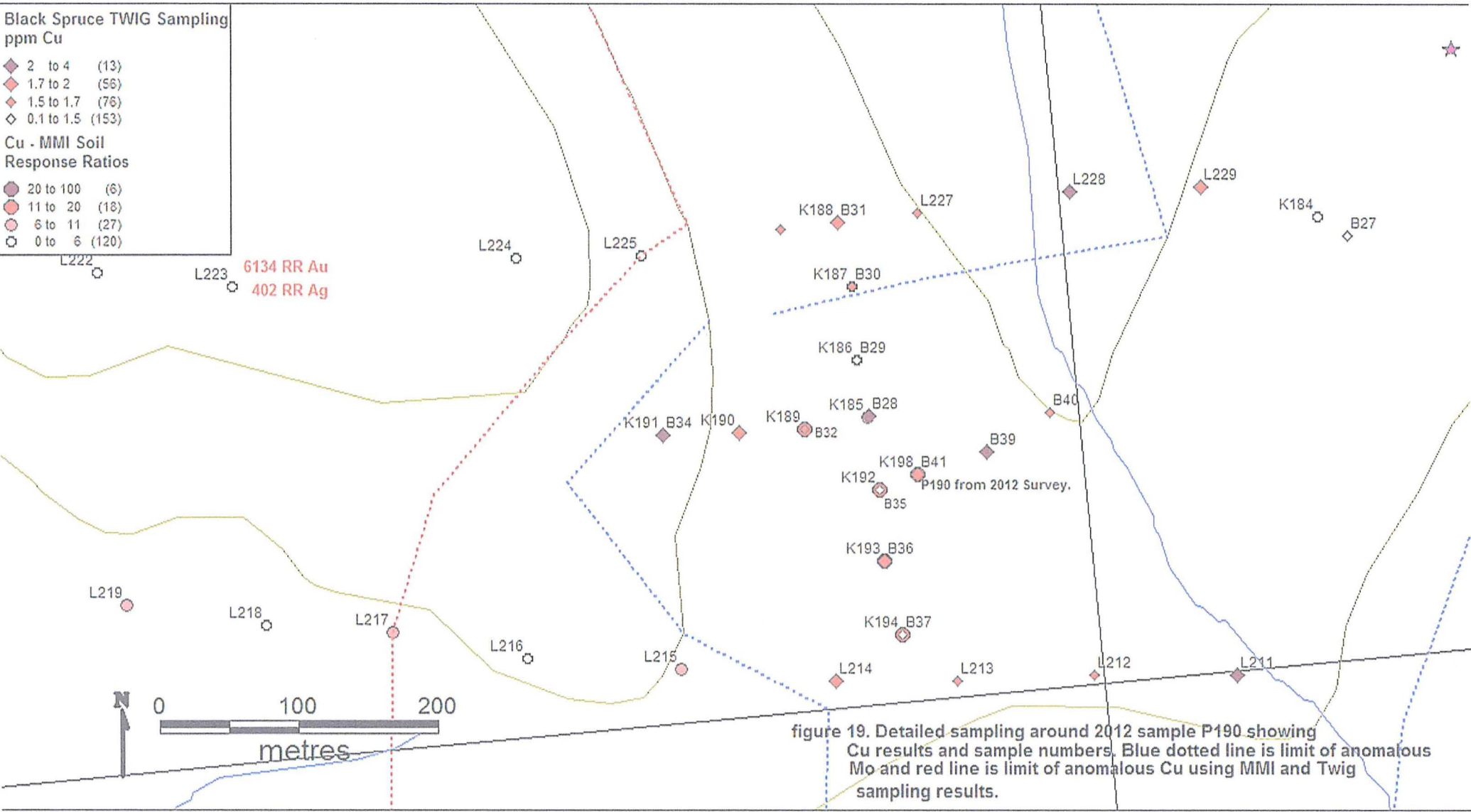


figure 19. Detailed sampling around 2012 sample P190 showing Cu results and sample numbers. Blue dotted line is limit of anomalous Mo and red line is limit of anomalous Cu using MMI and Twig sampling results.

Bureau Veritas Commodities Canada Ltd.  
9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
PHONE (604) 253-3158

**Client:** **Richards, Gordon**  
6410 Holly Park Drive  
Delta BC V4K 4W6 CANADA

Submitted By: Gordon Richards  
Receiving Lab: Canada-Vancouver  
Received: July 07, 2014  
Report Date: July 28, 2014  
Page: 1 of 2

## CERTIFICATE OF ANALYSIS

VAN14002145.2

### CLIENT JOB INFORMATION

Project: Pirate  
Shipment ID:  
P.O. Number  
Number of Samples: 2

### SAMPLE DISPOSAL

DISP-PLP Dispose of Pulp After 90 days  
DISP-RJT Dispose of Reject After 90 days

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Richards, Gordon  
6410 Holly Park Drive  
Delta BC V4K 4W6  
CANADA

CC:

### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
BAT01	1	Batch charge of <20 samples			VAN
PRP70-250	2	Crush, split and pulverize 250 g rock to 200 mesh			VAN
AQ300	2	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
DRPLP	2	Warehouse handling / disposition of pulps			VAN
DRRJT	1	Warehouse handling / Disposition of reject			VAN
FA330-Au	1	Fire assay fusion Au by ICP-ES	30	Completed	VAN

### ADDITIONAL COMMENTS

Version 2 : FA330-Au included.



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



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Client: **Richards, Gordon**  
6410 Holly Park Drive  
Delta BC V4K 4W6 CANADA

Project: Pirate  
Report Date: July 28, 2014

Page: 2 of 2

Part: 1 of 2

## CERTIFICATE OF ANALYSIS

VAN14002145.2

Method	WGHT	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	
Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
MDL	0.01	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001	1	
R1	Rock	0.17	<1	22	11	26	<0.3	3	7	361	1.25	4	24	14	<0.5	<3	<3	7	0.12	0.017	20
R2	Rock	0.38	<1	28	9	40	<0.3	6	9	774	2.70	<2	11	16	<0.5	<3	<3	13	0.15	0.063	22



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 6410 Holly Park Drive  
 Delta BC V4K 4W6 CANADA

Project: Pirate  
 Report Date: July 28, 2014

Page: 2 of 2

Part: 2 of 2

CERTIFICATE OF ANALYSIS VAN14002145.2

Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	FA330
Analyte	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	Au	
Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	ppb	
MDL	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	2	
R1	Rock	3	0.17	52	0.038	<20	0.68	0.04	0.24	<2	<0.05	<1	<5	<5	<5	4
R2	Rock	3	0.28	152	0.029	<20	0.80	0.02	0.29	<2	<0.05	<1	<5	<5	<5	

**QUALITY CONTROL REPORT**

**VAN14002145.2**

Method	WGHT	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	
Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
MDL	0.01	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001	1	
Pulp Duplicates																					
R1	Rock	0.17	<1	22	11	26	<0.3	3	7	361	1.25	4	24	14	<0.5	<3	<3	7	0.12	0.017	20
REP R1	QC																				
R2	Rock	0.38	<1	28	9	40	<0.3	6	9	774	2.70	<2	11	16	<0.5	<3	<3	13	0.15	0.063	22
REP R2	QC		<1	28	6	40	<0.3	5	9	784	2.72	<2	11	16	<0.5	<3	<3	13	0.15	0.062	22
Reference Materials																					
STD DS10	Standard		14	154	160	386	2.1	76	13	928	2.88	46	7	69	2.0	9	14	44	1.12	0.077	17
STD OREAS45EA	Standard		1	741	15	34	<0.3	408	56	445	24.57	8	12	4	<0.5	6	5	320	0.03	0.030	7
STD OXD108	Standard																				
STD DS10 Expected		14.69	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	43.7	7.5	67.1	2.49	8.23	11.65	43	1.0625	0.073	17.5	
STD OREAS45EA Expected		1.39	709	14.3	28.9	0.26	381	52	400	23.51	9	10.7	3.5				303	0.036	0.029	6.57	
STD OXD108 Expected																					
BLK	Blank		<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01	<0.001	<1
BLK	Blank																				
Prep Wash																					
G1	Prep Blank		<1	<1	4	44	<0.3	2	4	538	1.80	<2	5	51	<0.5	<3	4	34	0.51	0.073	9

## QUALITY CONTROL REPORT

VAN14002145.2

Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	FA330	
Analyte	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	Au	
Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	ppb	
MDL	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	2	
Pulp Duplicates																
R1	Rock	3	0.17	52	0.038	<20	0.68	0.04	0.24	<2	<0.05	<1	<5	<5	<5	4
REP R1	QC															3
R2	Rock	3	0.28	152	0.029	<20	0.80	0.02	0.29	<2	<0.05	<1	<5	<5	<5	
REP R2	QC	3	0.28	153	0.029	<20	0.81	0.02	0.30	<2	<0.05	<1	<5	<5	<5	
Reference Materials																
STD DS10	Standard	55	0.81	444	0.079	<20	1.08	0.07	0.35	2	0.31	<1	<5	<5	<5	
STD OREAS45EA	Standard	949	0.09	155	0.103	<20	3.37	0.02	0.05	<2	<0.05	<1	<5	10	89	
STD OXD108	Standard															428
STD DS10 Expected		54.6	0.775	359	0.0817		1.0259	0.067	0.338	3.32	0.29	0.3	5.1	4.3	2.8	
STD OREAS45EA Expected		849	0.095	148	0.0875		3.13	0.02	0.053		0.036			11.7	78	
STD OXD108 Expected																414
BLK	Blank	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5	
BLK	Blank															3
Prep Wash																
G1	Prep Blank	4	0.50	167	0.120	<20	0.96	0.08	0.47	<2	<0.05	<1	<5	<5	<5	





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Bureau Veritas Commodities Canada Ltd.
9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA
PHONE (604) 253-3158

Client: Richards, Gordon
6410 Holly Park Drive
Delta BC V4K 4W6 CANADA

Submitted By: Gordon Richards
Receiving Lab: Canada-Vancouver
Received: July 07, 2014
Report Date: July 22, 2014
Page: 1 of 2

CERTIFICATE OF ANALYSIS

VAN14002146.1

CLIENT JOB INFORMATION

Project: Pirate
Shipment ID:
P.O. Number
Number of Samples: 5

SAMPLE DISPOSAL

DISP-PLP Dispose of Pulp After 90 days

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Table with 6 columns: Procedure Code, Number of Samples, Code Description, Test Wgt (g), Report Status, Lab. Rows include Dry at 60C, SS80, AQ251, and DRPLP.

ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Richards, Gordon
6410 Holly Park Drive
Delta BC V4K 4W6
CANADA

CC:



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



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Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA

PHONE (604) 253-3158

Client: **Richards, Gordon**  
6410 Holly Park Drive  
Delta BC V4K 4W6 CANADA

Project: Pirate  
Report Date: July 22, 2014

Page: 2 of 2

Part: 1 of 2

CERTIFICATE OF ANALYSIS

VAN14002146.1

Method	Analyte	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
MDL		0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.05	0.2	0.1	0.5	0.01	0.02	0.02	2	0.01	0.001
C1	Silt	1.39	8.27	5.93	40.0	56	9.6	7.1	359	2.49	11.6	1.62	2.2	4.5	28.0	0.09	0.27	0.09	29	0.36	0.079
C2	Silt	1.85	7.23	5.59	37.8	43	9.6	7.5	439	3.42	16.3	1.52	1.2	4.8	31.9	0.10	0.28	0.09	32	0.39	0.092
C3	Silt	1.85	9.25	5.47	44.2	64	8.7	8.5	1691	3.24	9.3	2.04	1.6	5.2	45.1	0.15	0.24	0.08	32	0.56	0.128
C4	Silt	0.61	15.93	7.29	58.9	99	16.5	7.2	424	1.52	6.3	1.20	0.9	3.5	29.7	0.26	0.60	0.11	28	0.36	0.066
C5	Silt	0.46	8.85	4.83	38.2	49	11.5	4.8	304	1.11	4.2	0.92	1.6	3.1	24.4	0.12	0.44	0.07	24	0.29	0.070



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 Delta BC V4K 4W6 CANADA

Project: Pirate  
 Report Date: July 22, 2014

Page: 2 of 2

Part: 2 of 2

CERTIFICATE OF ANALYSIS

VAN14002146.1

Method	Analyte	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	
		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
Unit		ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
MDL		0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.05	0.1	0.02	0.02	5	0.1	0.02	0.1
C1	Silt	15.4	14.8	0.32	192.5	0.053	2	0.96	0.007	0.06	0.13	2.2	0.07	0.03	38	0.4	<0.02	2.9
C2	Silt	16.9	13.2	0.29	172.5	0.046	2	0.85	0.006	0.06	0.22	2.0	0.05	0.04	32	0.3	<0.02	2.6
C3	Silt	17.5	14.6	0.36	267.3	0.059	2	1.02	0.008	0.11	0.17	2.2	0.09	0.06	33	0.3	0.02	2.9
C4	Silt	13.9	16.5	0.32	276.9	0.027	2	0.85	0.009	0.06	0.12	2.4	0.05	<0.02	43	0.5	<0.02	2.5
C5	Silt	12.5	13.2	0.24	200.6	0.029	2	0.58	0.007	0.04	0.10	1.7	0.04	<0.02	25	0.3	<0.02	1.8



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Client: **Richards, Gordon**  
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 Delta BC V4K 4W6 CANADA

Project: Pirate  
 Report Date: July 22, 2014

Page: 1 of 1

Part: 1 of 2

QUALITY CONTROL REPORT

VAN14002146.1

Method	Analyte	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	
MDL		0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.05	0.2	0.1	0.5	0.01	0.02	0.02	2	0.01	0.001
Reference Materials																					
STD DS10	Standard	16.00	162.90	156.00	375.4	1909	76.2	13.1	853	2.75	47.2	2.64	99.4	8.1	76.2	2.74	9.38	12.77	46	1.11	0.076
STD OXC109	Standard	1.49	37.55	10.97	43.4	21	71.9	19.8	409	2.81	0.9	0.59	193.8	1.5	142.6	0.05	0.05	<0.02	50	0.77	0.109
STD DS10 Expected		14.69	154.61	150.55	370	2020	74.6	12.9	875	2.7188	43.7	2.59	91.9	7.5	67.1	2.49	8.23	11.65	43	1.0625	0.073
STD OXC109 Expected													201								
BLK	Blank	<0.01	0.07	<0.01	0.2	2	<0.1	<0.1	<1	<0.01	0.2	<0.05	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001



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 6410 Holly Park Drive  
 Delta BC V4K 4W6 CANADA

Project: Pirate  
 Report Date: July 22, 2014

Page: 1 of 1

Part: 2 of 2

QUALITY CONTROL REPORT

VAN14002146.1

Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	
Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	
MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.05	0.1	0.02	0.02	5	0.1	0.02	0.1	
Reference Materials																		
STD DS10	Standard	20.2	56.2	0.79	358.1	0.092	8	1.13	0.068	0.35	3.32	3.3	5.30	0.30	288	2.4	5.25	4.9
STD OXC109	Standard	13.0	60.0	1.45	57.3	0.375	2	1.58	0.678	0.41	0.23	1.0	0.03	0.02	6	<0.1	0.04	5.7
STD DS10 Expected		17.5	54.6	0.775	359	0.0817		1.0259	0.067	0.338	3.32	2.8	5.1	0.29	300	2.3	5.01	4.3
STD OXC109 Expected																		
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.05	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1

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# Certificate of Analysis

Work Order : VC142173

Report File No.: 000008024

To: **Gordon Richards**  
**GORDON RICHARDS**  
6410 HOLLY PARK DR  
DELTA BC V4K 4W6

Date: Jul 28, 2014

P.O. No. : PIRATE Project Part 1 of 4  
Project No. : -  
No. Of Samples : 42  
Date Submitted : Jul 07, 2014  
Report Comprises : Pages 1 to 15  
(Inclusive of Cover Sheet)

**Distribution of unused material:**

Active files:

Certified By :

Cam Chiang

Assistant Operations Manager

*SGS Minerals Services Geochemistry Vancouver conforms to the requirements of ISO/IEC 17025 for specific tests as listed on their scope of accreditation which can be found at <http://www.scc.ca/en/search/palcan/sgs>*

Report Footer:

L.N.R. = Listed not received  
n.a. = Not applicable

I.S. = Insufficient Sample  
— = No result

\*INF = Composition of this sample makes detection impossible by this method

M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion

Methods marked with an asterisk (e.g. \*NAA08V) were subcontracted

Elements marked with the @ symbol (e.g. @Cu) denote assays performed using accredited test methods

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Element Method Det.Lim. Units	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
	G_WGH79	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	0.01	1	1	10	0.1	10	1	10
	kg	ppb	ppm	ppb	ppb	ppb	ppb	ppm
K108	0.129	16	32	<10	0.2	11500	<1	570
K109	0.181	10	73	20	0.4	6190	<1	250
K110	0.243	8	35	<10	0.6	6250	<1	510
K111	0.184	65	4	<10	0.7	9950	<1	820
K112	0.206	45	10	<10	0.4	10000	<1	830
K113	0.175	7	7	<10	0.4	9780	<1	550
K114	0.226	39	12	<10	0.8	13800	<1	800
K115	0.173	43	16	<10	0.5	11000	<1	700
K116	0.246	19	19	<10	0.9	8710	<1	600
K117	0.221	31	52	<10	0.3	12200	<1	280
K118	0.223	137	20	<10	0.2	16300	<1	390
K119	0.172	22	40	20	<0.1	10200	<1	160
K120	0.232	75	30	10	0.1	8690	<1	250
K121	0.263	69	48	10	0.2	14200	<1	220
K122	0.227	50	27	<10	0.1	11600	<1	430
K123	0.256	25	21	<10	0.5	10400	<1	420
K124	0.304	8	17	<10	0.3	8840	<1	370
K125	0.329	7	69	30	0.3	7210	<1	310
K130	0.187	9	103	10	0.3	9740	<1	290
K131	0.169	6	>200	20	<0.1	3960	<1	60
K132	0.239	5	179	<10	<0.1	7040	<1	150
K133	0.143	7	194	20	0.2	2670	<1	60
K134	0.246	3	193	30	0.1	5300	<1	70
K135	0.188	2	184	10	<0.1	1890	<1	50
K136	0.321	<1	115	20	<0.1	2860	<1	50
K137	0.230	2	>200	20	0.1	2170	<1	60
K138	0.284	9	140	20	0.9	5010	<1	60
K139	0.296	4	125	10	0.1	14800	<1	100
K140	0.200	5	156	30	0.3	9800	<1	170
K141	0.230	10	138	10	0.3	6840	<1	200
K142	0.355	13	99	<10	0.1	3420	<1	300
K143	0.302	10	104	10	0.2	4250	<1	110
K144	0.247	5	145	40	0.1	7870	2	90
K145	0.208	6	86	20	0.1	9050	<1	160
K146	0.302	5	145	40	0.3	7660	2	100
K147	0.257	7	>200	40	0.4	5670	<1	90
K148	0.215	3	>200	10	0.1	4370	<1	20
K149	0.170	2	>200	20	<0.1	5680	<1	80
K150	0.229	7	164	<10	0.5	2760	<1	20
K151	0.209	5	144	<10	0.2	7890	<1	120

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Element	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
Method	G_WGH79	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.01	1	1	10	0.1	10	1	10
Units	kg	ppb	ppm	ppb	ppb	ppb	ppb	ppm
K152	0.194	14	108	<10	0.4	11900	<1	200
K154	0.323	12	41	20	0.3	7960	<1	270

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Element Method Det.Lim. Units	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er
	GE_MML_M	GE_MMI_M	GE_MML_M	GE_MMI_M	GE_MML_M	GE_MMI_M	GE_MML_M	GE_MMI_M
	1	5	5	100	0.5	10	1	0.5
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K108	2	43	66	<100	<0.5	360	8	4.4
K109	<1	4110	69	<100	<0.5	360	112	49.0
K110	2	2270	384	<100	<0.5	1770	163	65.5
K111	11	34	51	<100	<0.5	2910	16	9.3
K112	6	281	96	<100	<0.5	3710	48	25.0
K113	<1	39	105	<100	<0.5	980	8	3.8
K114	3	193	185	<100	<0.5	2890	37	19.9
K115	2	241	133	<100	<0.5	1790	36	19.2
K116	1	412	138	<100	<0.5	880	193	80.7
K117	1	102	75	<100	<0.5	230	9	4.2
K118	1	67	216	<100	<0.5	420	7	3.0
K119	3	114	34	<100	<0.5	110	8	3.4
K120	1	92	34	<100	<0.5	180	12	5.0
K121	4	202	23	<100	<0.5	210	21	8.3
K122	2	33	28	<100	<0.5	250	6	3.0
K123	<1	1250	76	<100	<0.5	430	178	99.1
K124	<1	203	23	<100	<0.5	910	19	9.9
K125	2	351	55	<100	<0.5	450	17	7.7
K130	3	2660	79	<100	<0.5	520	182	91.0
K131	2	39	103	<100	1.6	110	5	3.7
K132	2	870	121	<100	<0.5	60	34	14.7
K133	1	175	33	<100	2.1	280	25	12.8
K134	<1	985	19	<100	1.6	130	61	29.5
K135	4	222	65	<100	2.1	60	20	10.0
K136	2	298	70	<100	2.8	50	17	9.6
K137	2	284	99	<100	1.6	80	22	11.4
K138	2	1490	41	<100	1.9	340	83	34.0
K139	10	2070	73	<100	0.5	270	78	38.0
K140	11	1860	60	100	1.0	440	76	43.0
K141	8	2250	109	<100	0.8	1200	239	142
K142	16	1550	74	<100	<0.5	540	59	36.2
K143	10	1290	404	<100	1.3	720	63	32.8
K144	3	1570	45	<100	2.1	210	41	17.2
K145	2	1980	45	<100	1.3	320	91	43.8
K146	3	4700	206	100	1.9	620	90	38.2
K147	4	1950	70	100	2.3	740	105	42.4
K148	4	132	34	<100	2.2	130	16	7.3
K149	1	1090	79	<100	2.0	120	56	27.9
K150	5	414	42	<100	1.5	410	37	15.8
K151	<1	380	39	<100	1.8	240	37	19.5

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Element Method Det.Lim. Units	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	1	5	5	100	0.5	10	1	0.5
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K152	<1	1580	16	<100	1.0	280	153	76.2
K154	10	857	78	<100	<0.5	930	54	29.1

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Element Method Det.Lim. Units	Eu	Fe	Ga	Gd	Hg	In	K	La
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	0.5 ppb	1 ppm	1 ppb	1 ppb	1 ppb	0.5 ppb	0.1 ppm	1 ppb
K108	2.7	13	<1	10	<1	<0.5	9.9	15
K109	26.4	45	5	192	<1	<0.5	12.0	3440
K110	37.5	21	<1	266	<1	<0.5	10.3	1250
K111	3.2	4	<1	17	1	<0.5	2.0	3
K112	12.9	12	<1	62	<1	<0.5	6.2	109
K113	2.7	4	<1	10	<1	<0.5	18.6	18
K114	7.9	9	<1	46	<1	<0.5	7.9	47
K115	9.4	24	<1	47	<1	<0.5	12.5	89
K116	28.2	4	<1	266	<1	<0.5	54.0	530
K117	3.5	22	1	12	<1	<0.5	41.7	38
K118	2.9	7	<1	8	<1	<0.5	69.8	23
K119	2.7	34	2	9	<1	<0.5	42.3	58
K120	4.3	21	1	16	<1	<0.5	45.3	60
K121	6.8	21	3	27	<1	<0.5	55.7	116
K122	2.6	9	<1	8	<1	<0.5	34.1	19
K123	52.9	7	<1	301	<1	<0.5	9.0	712
K124	5.7	11	<1	27	<1	<0.5	6.2	65
K125	5.0	80	2	23	<1	<0.5	8.0	202
K130	47.0	60	4	246	<1	<0.5	4.9	1350
K131	1.3	249	11	5	<1	<0.5	22.2	19
K132	7.9	93	5	47	<1	<0.5	14.6	735
K133	5.3	113	11	26	<1	<0.5	10.1	91
K134	10.0	98	13	74	<1	<0.5	3.4	665
K135	4.3	69	7	25	<1	<0.5	9.2	127
K136	3.2	97	15	21	<1	<0.5	4.9	95
K137	4.7	56	6	27	<1	<0.5	5.1	176
K138	16.1	49	6	105	<1	<0.5	5.2	942
K139	16.8	82	5	105	<1	<0.5	2.8	1350
K140	14.0	104	7	90	<1	<0.5	4.7	736
K141	48.8	88	3	245	<1	<0.5	3.0	724
K142	15.4	41	2	76	<1	<0.5	10.6	524
K143	18.5	160	4	82	<1	<0.5	2.9	633
K144	11.1	105	16	57	<1	<0.5	9.0	942
K145	24.9	61	7	129	<1	<0.5	3.9	1170
K146	23.1	158	13	134	<1	<0.5	11.2	3150
K147	24.8	127	13	127	<1	<0.5	4.4	1040
K148	3.4	63	13	14	<1	<0.5	6.7	66
K149	11.3	97	14	55	<1	<0.5	8.8	560
K150	10.5	24	5	41	<1	<0.5	13.2	238
K151	7.9	33	4	38	<1	<0.5	9.2	332

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Element	Eu	Fe	Ga	Gd	Hg	In	K	La
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	1	1	1	0.5	0.1	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
K152	32.4	19	4	186	<1	<0.5	7.8	1280
K154	14.6	58	2	73	<1	<0.5	3.7	404

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Element Method Det.Lim. Units	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
	GE_MMI_M 5 ppb	GE_MMI_M 1 ppm	GE_MMI_M 10 ppb	GE_MMI_M 5 ppb	GE_MMI_M 0.5 ppb	GE_MMI_M 1 ppb	GE_MMI_M 5 ppb	GE_MMI_M 0.1 ppm
K108	<5	120	4560	7	<0.5	26	225	0.2
K109	<5	53	1000	6	2.8	1930	200	0.8
K110	<5	138	10700	9	<0.5	1650	356	0.3
K111	8	122	2540	64	<0.5	13	333	<0.1
K112	8	102	2190	50	<0.5	182	1310	<0.1
K113	<5	89	2670	25	<0.5	28	211	0.1
K114	5	154	6300	23	<0.5	101	1140	0.2
K115	5	114	4740	19	<0.5	145	976	0.2
K116	<5	112	670	33	<0.5	743	276	0.1
K117	<5	74	160	<5	<0.5	48	155	0.7
K118	<5	111	1630	7	<0.5	27	299	0.3
K119	<5	31	970	5	1.9	42	66	2.6
K120	<5	41	500	<5	<0.5	56	81	0.9
K121	<5	77	1410	<5	1.3	104	88	0.7
K122	<5	85	610	<5	<0.5	27	115	0.6
K123	<5	123	1170	5	<0.5	1190	187	0.2
K124	<5	80	780	<5	<0.5	97	316	0.1
K125	<5	52	1430	<5	0.7	126	168	0.6
K130	<5	54	1040	<5	1.5	1350	256	0.7
K131	15	36	1690	<5	4.3	24	148	6.8
K132	<5	40	2800	<5	2.5	395	92	5.5
K133	6	11	620	<5	4.9	97	93	2.0
K134	<5	19	410	<5	5.8	465	49	2.3
K135	<5	5	3020	<5	2.4	138	50	7.0
K136	<5	11	6020	<5	7.0	113	35	10.3
K137	<5	11	3910	<5	2.6	167	43	2.7
K138	<5	9	1880	<5	2.7	615	32	2.8
K139	<5	28	4690	<5	2.9	765	92	2.5
K140	6	39	3310	<5	2.8	527	306	2.8
K141	<5	36	2210	<5	0.9	935	602	1.1
K142	7	36	5540	<5	<0.5	542	499	0.7
K143	<5	21	12000	13	3.2	525	291	7.2
K144	8	24	990	7	12.9	478	81	3.5
K145	<5	31	1070	<5	6.3	884	132	1.4
K146	7	34	5410	5	11.3	1380	152	3.8
K147	10	19	880	<5	5.6	737	156	4.5
K148	7	7	1060	<5	5.4	57	66	1.7
K149	7	30	2050	<5	17.1	278	94	1.9
K150	<5	4	900	<5	2.2	207	40	0.5
K151	<5	43	240	<5	2.0	175	56	0.4

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Element	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	5	1	10	5	0.5	1	5	0.1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppm
K152	<5	38	340	<5	1.1	918	65	0.3
K154	<5	40	5080	6	1.1	397	387	0.9

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Element Method Det.Lim. Units	Pb	Pd	Pr	Pt	Rb	Sb	Sc	Sm
	GE_MMI_M 10 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 5 ppb	GE_MMI_M 1 ppb	GE_MMI_M 5 ppb	GE_MMI_M 1 ppb
K108	20	<1	5	<1	18	<1	9	7
K109	240	<1	588	<1	79	2	38	257
K110	40	<1	410	<1	8	1	18	298
K111	90	<1	2	<1	9	<1	<5	7
K112	90	<1	38	<1	<5	1	7	48
K113	90	<1	5	<1	<5	<1	7	7
K114	40	<1	20	<1	15	1	10	32
K115	50	<1	31	<1	14	<1	12	38
K116	130	<1	157	<1	24	<1	20	197
K117	50	<1	11	<1	21	<1	12	11
K118	30	<1	6	<1	21	<1	13	7
K119	90	<1	11	<1	48	<1	7	8
K120	150	<1	13	<1	49	<1	7	12
K121	90	<1	26	<1	73	<1	16	22
K122	30	<1	6	<1	18	<1	<5	7
K123	140	<1	256	<1	9	<1	21	263
K124	40	<1	20	<1	13	<1	9	23
K125	170	<1	34	<1	19	2	24	22
K130	100	<1	354	<1	24	<1	123	254
K131	30	<1	6	<1	83	<1	29	5
K132	130	<1	124	<1	32	<1	25	55
K133	190	<1	24	<1	88	1	48	24
K134	210	<1	136	<1	72	1	45	84
K135	150	<1	35	<1	110	<1	25	28
K136	130	<1	30	<1	91	<1	23	23
K137	240	<1	45	<1	107	<1	32	31
K138	200	<1	178	<1	108	1	62	107
K139	110	<1	222	<1	62	1	48	111
K140	160	<1	147	<1	66	2	70	86
K141	180	<1	222	<1	72	<1	203	212
K142	90	<1	145	<1	26	<1	36	87
K143	150	<1	148	<1	93	1	76	90
K144	530	<1	153	<1	161	3	50	67
K145	220	<1	254	<1	106	1	94	147
K146	290	<1	457	<1	118	3	87	166
K147	230	<1	214	<1	71	2	97	126
K148	610	<1	15	<1	136	1	51	13
K149	240	<1	83	<1	131	2	33	51
K150	520	<1	50	<1	121	<1	77	43
K151	690	<1	48	<1	143	<1	40	34

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Element Method	Pb GE_MMI_M	Pd GE_MMI_M	Pr GE_MMI_M	Pt GE_MMI_M	Rb GE_MMI_M	Sb GE_MMI_M	Sc GE_MMI_M	Sm GE_MMI_M
Det.Lim.	10	1	1	1	5	1	5	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K152	430	<1	247	<1	45	<1	88	182
K154	70	<1	104	<1	27	1	29	76

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Element Method Det.Lim. Units	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl
	GE_MMI_M 1 ppb	GE_MMI_M 10 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 10 ppb	GE_MMI_M 0.5 ppb	GE_MMI_M 3 ppb	GE_MMI_M 0.5 ppb
K108	<1	3410	<1	1	<10	9.8	<3	<0.5
K109	<1	1340	<1	24	<10	403	618	<0.5
K110	<1	3440	<1	33	<10	301	26	<0.5
K111	<1	3680	<1	3	<10	11.0	<3	<0.5
K112	<1	3880	<1	9	<10	31.6	<3	<0.5
K113	<1	2680	<1	1	<10	16.9	<3	<0.5
K114	<1	4250	<1	6	<10	36.1	<3	<0.5
K115	<1	3660	<1	7	<10	54.4	4	<0.5
K116	<1	2530	<1	36	<10	65.0	4	<0.5
K117	<1	1830	<1	2	<10	30.4	182	<0.5
K118	<1	2790	<1	1	<10	10.3	5	<0.5
K119	<1	1190	<1	1	<10	29.8	370	<0.5
K120	<1	1730	<1	2	<10	37.3	269	<0.5
K121	<1	1670	<1	4	<10	26.7	476	<0.5
K122	<1	2870	<1	1	<10	11.0	6	<0.5
K123	<1	2580	<1	34	<10	72.4	<3	<0.5
K124	<1	1990	<1	4	<10	53.9	<3	<0.5
K125	<1	1390	<1	3	<10	96.8	271	<0.5
K130	<1	1380	<1	34	<10	111	661	<0.5
K131	<1	430	<1	<1	<10	13.8	1170	<0.5
K132	<1	630	<1	7	<10	42.2	608	<0.5
K133	<1	220	<1	4	<10	57.8	1540	<0.5
K134	<1	360	<1	11	<10	133	2230	0.5
K135	<1	190	<1	4	<10	57.6	579	<0.5
K136	<1	400	<1	3	<10	75.2	1750	<0.5
K137	<1	250	<1	4	<10	156	832	<0.5
K138	<1	340	<1	16	<10	88.4	1000	<0.5
K139	<1	620	<1	14	<10	87.2	702	<0.5
K140	<1	920	<1	13	<10	101	781	<0.5
K141	<1	1070	<1	39	<10	95.6	352	<0.5
K142	<1	1390	<1	11	<10	46.8	57	<0.5
K143	<1	360	<1	12	<10	129	582	<0.5
K144	1	580	<1	8	<10	295	3670	0.6
K145	<1	1040	<1	17	<10	173	1920	<0.5
K146	<1	540	<1	18	<10	495	3290	0.6
K147	<1	410	<1	20	<10	159	1730	<0.5
K148	<1	140	<1	3	<10	126	1480	<0.5
K149	2	530	<1	10	<10	191	3620	0.6
K150	<1	110	<1	6	<10	87.6	504	<0.5
K151	<1	720	<1	6	<10	67.5	1040	0.6

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Element	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	10	1	1	10	0.5	3	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K152	<1	1120	<1	27	<10	157	444	<0.5
K154	<1	1230	<1	10	<10	129	331	<0.5

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Element Method Det.Lim. Units	U	W	Y	Yb	Zn	Zr
	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 20 ppb	GE_MMI_M 5 ppb
K108	46	<1	48	3	30	8
K109	43	<1	641	37	60	68
K110	179	<1	823	37	30	100
K111	332	<1	92	7	<20	7
K112	910	<1	279	18	<20	24
K113	269	<1	38	3	<20	16
K114	423	<1	221	16	<20	24
K115	1540	<1	217	16	20	42
K116	578	<1	936	46	<20	17
K117	16	<1	46	3	30	19
K118	15	<1	33	2	<20	9
K119	7	<1	41	2	90	20
K120	12	<1	60	3	40	17
K121	11	<1	104	6	120	23
K122	13	<1	30	2	<20	10
K123	48	<1	1180	70	<20	27
K124	157	<1	107	8	<20	20
K125	52	<1	81	6	30	76
K130	179	<1	1090	66	60	66
K131	4	<1	32	3	70	27
K132	12	<1	205	10	50	18
K133	18	<1	127	11	50	101
K134	25	<1	294	26	40	77
K135	10	<1	98	9	70	61
K136	8	<1	86	9	100	57
K137	12	<1	112	10	240	106
K138	30	<1	464	23	50	95
K139	38	<1	545	27	330	94
K140	73	<1	489	38	310	131
K141	279	<1	1480	121	200	82
K142	342	<1	359	31	240	30
K143	205	<1	335	27	240	88
K144	60	2	214	11	80	147
K145	120	1	502	34	40	89
K146	146	2	521	25	140	203
K147	53	<1	573	27	190	165
K148	16	<1	76	6	100	141
K149	9	<1	360	23	80	72
K150	28	<1	176	12	80	77
K151	11	<1	229	15	<20	37

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Element	U	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	1	1	1	20	5
Units	ppb	ppb	ppb	ppb	ppb	ppb
K152	85	<1	834	61	20	60
K154	247	<1	301	24	180	80

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# Certificate of Analysis

Work Order : VC142174

[Report File No.: 0000007963]

To: **Gordon Richards**  
**GORDON RICHARDS**  
6410 HOLLY PARK DR  
DELTA BC V4K 4W6

Date: Jul 23, 2014

P.O. No. : PIRATE Project Part 2 of 4  
Project No. : -  
No. Of Samples : 42  
Date Submitted : Jul 07, 2014  
Report Comprises : Pages 1 to 15  
(Inclusive of Cover Sheet)

**Distribution of unused material:**

Active files:

Certified By :

Cam Chiang  
Assistant Operations Manager

*SGS Minerals Services Geochemistry Vancouver conforms to the requirements of ISO/IEC 17025 for specific tests as listed on their scope of accreditation which can be found at <http://www.scc.ca/en/search/palcan/sgs>*

Report Footer:

L.N.R. = Listed not received  
n.a. = Not applicable

I.S. = Insufficient Sample  
-- = No result

\*INF = Composition of this sample makes detection impossible by this method

M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion

Methods marked with an asterisk (e.g. \*NAA08V) were subcontracted

Elements marked with the @ symbol (e.g. @Cu) denote assays performed using accredited test methods

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	Element Method Det.Lim. Units	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
		G_WGH79	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
		0.01 kg	1 ppb	1 ppm	10 ppb	0.1 ppb	10 ppb	1 ppb	10 ppm
K155		0.199	17	99	<10	0.3	8630	<1	260
K156		0.217	10	118	50	0.3	5180	2	130
K157		0.210	17	129	30	0.2	7380	<1	100
K158		0.277	2	142	20	<0.1	3630	<1	180
K159		0.244	6	>200	20	<0.1	5140	<1	60
K160		0.237	3	113	10	0.2	3460	<1	50
K161		0.226	3	53	20	0.3	17000	<1	100
K162		0.159	15	>200	30	0.1	2670	1	70
K163		0.269	10	143	20	0.2	7850	<1	210
K164		0.347	3	46	20	<0.1	3040	<1	170
K165		0.326	3	35	<10	<0.1	5910	<1	100
K166		0.343	7	>200	40	0.2	6920	1	90
K167		0.316	4	197	30	0.3	7770	<1	60
K168		0.254	4	138	20	0.4	12400	<1	220
K169		0.255	15	149	20	0.4	9910	<1	210
K170		0.326	6	104	<10	<0.1	4100	<1	260
K171		0.295	10	>200	<10	<0.1	3340	<1	50
K172		0.240	9	>200	<10	0.4	4500	<1	50
K173		0.336	8	>200	<10	0.2	1960	<1	30
K174		0.233	4	139	10	<0.1	3990	<1	40
K175		0.370	3	>200	10	0.2	2520	<1	20
K176		0.268	2	>200	20	<0.1	2140	<1	20
K177		0.271	1	115	20	<0.1	6060	<1	140
K178		0.326	2	125	<10	0.1	10900	<1	330
K179		0.382	6	146	20	<0.1	1190	<1	60
K180		0.304	4	174	20	0.1	9170	<1	180
K181		0.368	3	>200	20	<0.1	3130	<1	60
K182		0.273	3	53	<10	0.4	13000	<1	310
K183		0.233	15	86	<10	0.3	8060	<1	390
K184		0.380	6	188	50	0.3	6920	1	110
K185		0.457	8	142	50	0.3	6570	1	150
K186		0.472	2	90	20	0.1	5220	<1	120
K187		0.416	5	153	30	0.2	4910	<1	130
K188		0.357	6	143	20	0.2	8850	<1	210
K189		0.535	11	155	30	0.3	4260	<1	140
K190		0.367	3	59	<10	0.2	9770	<1	210
K191		0.344	8	160	20	0.7	7840	<1	140
K192		0.333	13	42	<10	0.4	9880	<1	590
K193		0.246	27	63	<10	0.3	10200	<1	460
K194		0.333	15	57	<10	0.4	10100	<1	360

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Element	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
Method	G_WGH79	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.01	1	1	10	0.1	10	1	10
Units	kg	ppb	ppm	ppb	ppb	ppb	ppb	ppm
K198	0.273	24	35	<10	0.6	13700	<1	580
L127	0.291	9	50	<10	0.1	7980	<1	1140

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Element Method Det.Lim. Units	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	1	5	5	100	0.5	10	1	0.5
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K155	23	865	554	<100	<0.5	2280	119	69.3
K156	15	1300	220	<100	1.0	2100	96	54.3
K157	2	1620	97	<100	0.9	180	49	22.6
K158	3	955	50	<100	0.7	80	42	22.5
K159	1	284	74	<100	3.1	160	15	7.8
K160	1	317	60	<100	1.4	80	16	7.8
K161	2	1890	177	<100	<0.5	360	79	33.8
K162	17	840	163	<100	2.2	710	91	49.3
K163	24	928	206	<100	1.0	1150	110	69.0
K164	5	263	32	<100	<0.5	130	14	7.3
K165	1	236	28	<100	1.3	110	14	6.0
K166	10	924	279	100	2.0	290	71	37.9
K167	3	1530	41	<100	1.4	300	95	39.1
K168	2	4800	47	<100	1.0	590	397	187
K169	15	4840	113	<100	0.7	1200	434	237
K170	4	1210	12	<100	<0.5	190	356	166
K171	10	757	75	<100	0.7	190	183	84.5
K172	2	2120	11	<100	1.5	320	106	43.4
K173	7	581	41	<100	0.7	190	91	45.0
K174	2	1240	42	<100	1.4	170	69	34.1
K175	5	647	31	<100	1.6	220	85	42.4
K176	3	573	38	<100	1.9	110	29	14.0
K177	4	1120	75	<100	0.7	80	58	26.0
K178	7	3820	24	<100	0.6	120	191	89.8
K179	3	356	49	<100	1.3	160	42	22.1
K180	4	7900	30	<100	1.1	150	311	139
K181	7	1120	38	<100	1.5	80	58	26.9
K182	6	3770	17	<100	<0.5	350	318	163
K183	4	5530	28	<100	<0.5	760	535	307
K184	4	1300	273	100	1.9	410	88	40.7
K185	3	1880	57	100	1.4	960	105	44.7
K186	2	456	23	<100	1.2	240	19	9.0
K187	10	380	191	100	1.3	300	21	10.6
K188	<1	893	50	<100	<0.5	260	69	34.5
K189	7	1300	83	<100	1.5	2020	177	95.2
K190	1	3750	23	<100	<0.5	140	32	14.5
K191	1	1910	29	<100	1.2	480	52	20.5
K192	7	737	49	<100	<0.5	1540	66	33.9
K193	53	333	122	<100	<0.5	3040	84	51.1
K194	21	582	62	<100	<0.5	2280	99	55.4

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Element	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	5	5	100	0.5	10	1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K198	2	734	9	<100	<0.5	1720	125	67.3
L127	3	645	13	<100	<0.5	130	34	15.8

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	Element Method Det.Lim. Units	Eu	Fe	Ga	Gd	Hg	In	K	La
		GE_MMI_M 0.5 ppb	GE_MMI_M 1 ppm	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 0.5 ppb	GE_MMI_M 0.1 ppm	GE_MMI_M 1 ppb
K155		26.1	101	2	131	<1	<0.5	6.6	340
K156		21.1	317	6	116	<1	<0.5	9.1	581
K157		14.1	76	7	69	<1	<0.5	25.3	1410
K158		11.5	97	7	58	<1	<0.5	29.4	674
K159		4.8	65	7	19	<1	<0.5	33.8	155
K160		4.6	64	7	22	<1	<0.5	29.3	208
K161		23.6	37	4	113	<1	<0.5	19.5	1280
K162		20.0	176	22	109	<1	<0.5	38.4	549
K163		25.6	132	6	126	<1	<0.5	3.8	404
K164		4.0	53	3	20	<1	<0.5	11.0	129
K165		4.6	16	2	21	<1	<0.5	6.3	137
K166		16.1	149	18	83	<1	<0.5	7.5	488
K167		22.6	78	13	112	<1	<0.5	6.5	877
K168		94.4	51	6	496	<1	<0.5	4.3	2320
K169		84.8	104	7	515	<1	<0.5	2.3	2290
K170		81.6	41	4	449	<1	<0.5	2.6	962
K171		29.4	168	4	178	<1	<0.5	1.4	397
K172		22.6	32	5	144	<1	<0.5	2.6	1310
K173		13.2	145	6	93	<1	<0.5	4.0	280
K174		17.2	50	6	98	<1	<0.5	5.8	1050
K175		13.9	99	6	87	<1	<0.5	11.3	267
K176		6.7	84	14	40	<1	<0.5	6.0	425
K177		17.3	69	9	84	<1	<0.5	4.1	841
K178		53.5	24	3	293	<1	<0.5	7.9	2440
K179		8.9	87	16	50	<1	<0.5	8.8	172
K180		77.2	80	17	498	<1	<0.5	6.8	6180
K181		10.6	135	18	67	<1	<0.5	11.8	899
K182		65.7	13	2	439	<1	<0.5	3.5	2250
K183		110	39	2	676	<1	<0.5	6.8	3630
K184		20.8	118	13	106	<1	<0.5	5.6	601
K185		28.8	117	10	133	<1	<0.5	9.1	887
K186		5.8	67	5	26	<1	<0.5	6.1	253
K187		5.7	138	11	26	<1	<0.5	7.8	182
K188		17.2	58	8	87	<1	<0.5	5.4	487
K189		43.2	121	5	194	<1	<0.5	5.5	460
K190		13.1	33	3	62	<1	<0.5	22.5	3150
K191		16.7	53	6	72	<1	<0.5	12.3	3580
K192		17.9	25	<1	89	<1	<0.5	2.6	248
K193		18.1	73	<1	89	<1	<0.5	3.3	121
K194		25.2	47	1	115	<1	<0.5	2.0	218

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Element	Eu	Fe	Ga	Gd	Hg	In	K	La
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	1	1	1	0.5	0.1	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
K198	31.4	9	<1	161	3	<0.5	1.9	223
L127	6.8	13	1	57	<1	<0.5	18.9	475

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	Element Method Det.Lim. Units	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
		GE_MMI_M 5 ppb	GE_MMI_M 1 ppm	GE_MMI_M 10 ppb	GE_MMI_M 5 ppb	GE_MMI_M 0.5 ppb	GE_MMI_M 1 ppb	GE_MMI_M 5 ppb	GE_MMI_M 0.1 ppm
K155		<5	48	21700	6	0.6	480	1350	0.6
K156		6	30	2260	<5	5.8	566	651	3.4
K157		<5	27	2180	5	8.5	572	60	2.4
K158		<5	30	3090	<5	4.8	458	97	8.8
K159		<5	15	1900	<5	7.0	126	55	3.3
K160		<5	11	1520	<5	4.9	159	41	2.9
K161		<5	28	5500	<5	4.6	798	103	1.2
K162		7	18	1960	<5	9.3	636	348	5.1
K163		<5	34	6480	<5	3.3	500	1150	3.1
K164		<5	34	1910	37	2.7	115	44	3.4
K165		<5	13	2040	<5	1.2	115	22	0.9
K166		9	19	18900	7	13.9	436	170	6.7
K167		<5	16	800	5	12.0	598	75	1.7
K168		<5	35	540	<5	3.8	2420	181	0.8
K169		<5	31	1640	<5	3.4	2500	1230	1.4
K170		<5	40	550	<5	1.8	1500	166	1.8
K171		<5	16	1470	<5	0.8	730	192	1.3
K172		<5	7	130	<5	1.3	959	47	2.1
K173		<5	10	560	<5	1.1	457	127	2.8
K174		<5	8	1200	<5	3.7	775	53	1.3
K175		<5	7	830	<5	3.1	384	109	3.8
K176		<5	4	1660	<5	8.5	316	42	6.4
K177		<5	38	2590	<5	5.4	538	51	2.1
K178		<5	75	1270	<5	<0.5	1830	173	0.4
K179		<5	14	2120	<5	12.6	238	71	2.9
K180		<5	36	700	<5	7.2	3850	88	1.6
K181		8	15	9310	<5	5.7	484	67	13.0
K182		<5	56	660	<5	<0.5	2290	158	0.5
K183		<5	59	990	<5	0.6	3300	435	0.3
K184		<5	24	6910	5	7.2	534	139	5.0
K185		<5	26	940	<5	6.3	698	184	2.4
K186		<5	23	1260	<5	3.9	175	81	2.6
K187		6	23	7750	<5	7.4	146	109	3.6
K188		<5	39	510	<5	5.2	455	122	0.9
K189		<5	21	650	<5	2.7	711	748	1.7
K190		<5	42	510	<5	2.2	1010	56	1.1
K191		<5	30	190	<5	4.2	642	47	1.1
K192		<5	93	1260	<5	<0.5	323	677	<0.1
K193		5	94	3070	<5	<0.5	222	2810	<0.1
K194		<5	69	3040	<5	<0.5	373	1120	0.3

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Element	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	5	1	10	5	0.5	1	5	0.1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppm
K198	<5	77	300	<5	<0.5	409	1140	<0.1
L127	<5	171	1000	<5	<0.5	359	117	<0.1

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	Element Method Det.Lim. Units	Pb	Pd	Pr	Pt	Rb	Sb	Sc	Sm
		GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
		10 ppb	1 ppb	1 ppb	1 ppb	5 ppb	1 ppb	5 ppb	1 ppb
K155		120	<1	111	<1	37	2	106	111
K156		420	<1	153	<1	46	3	80	114
K157		390	<1	180	<1	149	2	38	84
K158		200	<1	137	<1	114	1	39	72
K159		240	<1	36	<1	248	1	31	22
K160		100	<1	46	<1	180	<1	22	26
K161		100	<1	235	<1	46	2	45	125
K162		680	<1	162	<1	69	2	71	115
K163		250	<1	121	<1	63	2	104	112
K164		80	<1	30	<1	36	<1	12	21
K165		100	<1	31	<1	105	<1	11	21
K166		250	<1	119	<1	119	3	96	86
K167		420	<1	172	<1	111	2	106	110
K168		310	<1	613	<1	62	2	280	464
K169		240	<1	626	<1	56	2	273	492
K170		130	<1	338	<1	56	<1	73	401
K171		240	<1	172	<1	48	<1	39	160
K172		340	<1	283	<1	53	<1	44	163
K173		240	<1	114	<1	64	<1	33	91
K174		260	<1	227	<1	117	<1	48	120
K175		250	<1	93	<1	111	<1	36	81
K176		260	<1	93	<1	165	1	37	49
K177		170	<1	151	<1	110	1	37	87
K178		80	<1	474	<1	110	<1	46	305
K179		350	<1	57	<1	119	1	44	51
K180		260	<1	1140	<1	83	1	54	554
K181		580	<1	150	<1	173	1	39	75
K182		80	<1	573	<1	41	<1	59	439
K183		90	<1	874	<1	60	<1	127	670
K184		330	<1	144	<1	101	3	105	106
K185		240	<1	195	<1	57	3	104	133
K186		120	<1	49	<1	42	2	30	29
K187		300	<1	41	<1	63	2	38	28
K188		270	<1	118	<1	71	1	52	88
K189		240	<1	164	<1	76	2	155	170
K190		80	<1	354	<1	134	<1	14	88
K191		230	<1	236	<1	113	1	54	85
K192		60	<1	71	<1	14	1	24	75
K193		120	<1	45	<1	17	1	112	64
K194		60	<1	80	<1	18	<1	65	96

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Element	Pb	Pd	Pr	Pt	Rb	Sb	Sc	Sm
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	1	1	5	1	5	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K198	50	<1	81	<1	19	<1	29	118
L127	30	<1	93	<1	5	<1	6	60

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Element Method Det.Lim. Units	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	1	10	1	1	10	0.5	3	0.5
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K155	<1	1300	<1	20	<10	81.2	119	<0.5
K156	<1	580	<1	17	<10	257	645	<0.5
K157	<1	560	<1	9	<10	354	2100	0.6
K158	<1	840	<1	8	<10	114	1030	<0.5
K159	<1	260	<1	3	<10	109	2180	0.6
K160	<1	230	<1	3	<10	128	1300	0.5
K161	<1	670	<1	16	<10	103	1310	<0.5
K162	2	300	<1	16	<10	121	3150	<0.5
K163	<1	960	<1	19	<10	79.5	896	<0.5
K164	<1	870	<1	3	<10	48.3	643	<0.5
K165	<1	530	<1	3	<10	44.7	372	<0.5
K166	2	410	<1	13	<10	176	4440	<0.5
K167	<1	320	<1	18	<10	180	4130	<0.5
K168	<1	1380	<1	72	<10	141	1450	<0.5
K169	<1	1340	<1	77	<10	293	893	<0.5
K170	<1	1430	<1	65	<10	80.1	557	<0.5
K171	<1	370	<1	31	<10	65.4	178	<0.5
K172	<1	190	<1	21	<10	151	450	0.7
K173	<1	240	<1	16	<10	92.5	182	<0.5
K174	<1	170	<1	13	<10	152	940	<0.5
K175	<1	130	<1	14	<10	121	526	<0.5
K176	<1	140	<1	6	<10	79.5	1460	<0.5
K177	<1	850	<1	11	<10	85.7	1640	<0.5
K178	<1	2040	<1	37	<10	79.7	113	0.6
K179	<1	180	<1	7	<10	83.1	2400	<0.5
K180	1	1060	<1	62	<10	126	2320	<0.5
K181	2	260	<1	10	<10	318	1080	<0.5
K182	<1	2350	<1	59	<10	130	173	<0.5
K183	<1	1880	<1	94	<10	260	192	<0.5
K184	<1	500	<1	16	<10	170	2720	<0.5
K185	<1	580	<1	20	<10	225	1740	<0.5
K186	<1	550	<1	4	<10	139	901	<0.5
K187	<1	430	<1	4	<10	158	1810	<0.5
K188	<1	880	<1	13	<10	99.0	1600	<0.5
K189	<1	490	<1	30	<10	139	628	<0.5
K190	<1	1600	<1	7	<10	265	383	<0.5
K191	<1	680	<1	11	<10	397	1580	0.6
K192	<1	2840	<1	12	<10	105	9	<0.5
K193	<1	2630	<1	14	<10	23.1	5	<0.5
K194	<1	1980	<1	17	<10	27.3	40	<0.5

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Element	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	10	1	1	10	0.5	3	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
K198	<1	3290	<1	22	<10	72.1	10	<0.5
L127	<1	4820	<1	7	<10	38.8	<3	<0.5

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	Element Method Det.Lim. Units	U	W	Y	Yb	Zn	Zr
		GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
		1 ppb	1 ppb	1 ppb	1 ppb	20 ppb	5 ppb
K155		208	<1	728	55	200	108
K156		216	1	547	47	310	199
K157		39	<1	239	19	70	77
K158		25	<1	230	20	130	32
K159		8	<1	71	7	110	60
K160		11	<1	73	7	120	59
K161		61	<1	448	23	40	80
K162		68	2	519	42	140	82
K163		70	<1	627	71	240	124
K164		203	<1	77	6	150	41
K165		24	<1	69	4	<20	37
K166		43	3	370	34	560	136
K167		56	2	482	28	60	149
K168		110	1	2380	123	30	117
K169		229	2	2600	188	290	177
K170		69	<1	1980	112	110	51
K171		35	<1	986	60	340	35
K172		43	<1	491	31	<20	103
K173		30	<1	481	35	250	47
K174		17	<1	382	28	90	79
K175		37	<1	423	32	110	76
K176		9	1	165	11	90	69
K177		11	<1	355	19	30	60
K178		34	<1	1200	61	180	47
K179		14	<1	211	18	80	69
K180		26	1	2010	95	70	62
K181		22	<1	334	20	630	84
K182		62	<1	1880	125	90	46
K183		420	1	3230	259	90	69
K184		60	1	467	30	150	225
K185		63	1	517	31	50	180
K186		26	<1	94	8	40	106
K187		17	<1	109	9	210	101
K188		27	<1	387	29	50	58
K189		123	<1	1010	76	40	186
K190		19	<1	225	11	70	31
K191		35	<1	257	14	30	116
K192		106	<1	392	25	110	57
K193		343	<1	584	41	390	65
K194		93	<1	610	45	120	66

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Element	U	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	1	1	1	20	5
Units	ppb	ppb	ppb	ppb	ppb	ppb
K198	121	<1	748	52	30	36
L127	60	<1	213	11	20	6

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# Certificate of Analysis

Work Order : VC142175

Report File No.: 00000079641

To: **Gordon Richards**  
**GORDON RICHARDS**  
6410 HOLLY PARK DR  
DELTA BC V4K 4W6

Date: Jul 23, 2014

P.O. No. : PIRATE Project Part 3 of 4  
Project No. : -  
No. Of Samples : 42  
Date Submitted : Jul 07, 2014  
Report Comprises : Pages 1 to 15  
(Inclusive of Cover Sheet)

**Distribution of unused material:**

Active files:

Certified By :

Cam-Chiang  
Assistant Operations Manager

*SGS Minerals Services Geochemistry Vancouver conforms to the requirements of ISO/IEC 17025 for specific tests as listed on their scope of accreditation which can be found at <http://www.scc.ca/en/search/palcan/sgs>*

Report Footer:

L.N.R. = Listed not received  
n.a. = Not applicable

I.S. = Insufficient Sample  
- = No result

\*INF = Composition of this sample makes detection impossible by this method

M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion

Methods marked with an asterisk (e.g. \*NAA08V) were subcontracted

Elements marked with the @ symbol (e.g. @Cu) denote assays performed using accredited test methods

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	Element Method Det.Lim. Units	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
		G_WGH79 kg	GE_MMI_M ppb	GE_MMI_M ppm	GE_MMI_M ppb	GE_MMI_M ppb	GE_MMI_M ppb	GE_MMI_M ppb	GE_MMI_M ppm
L128		0.360	9	109	10	0.1	7740	<1	300
L129		0.275	2	186	30	<0.1	5130	<1	110
L130		0.329	10	140	30	0.1	7350	<1	210
L131		0.276	40	26	<10	1.1	17900	<1	900
L132		0.327	37	35	<10	1.3	14300	<1	730
L133		0.259	24	32	<10	0.3	13600	<1	690
L134		0.321	30	14	<10	1.1	19400	<1	770
L135		0.357	28	16	<10	0.9	13700	<1	770
L136		0.313	13	21	<10	0.5	10900	<1	620
L137		0.280	21	41	<10	0.4	8430	<1	560
L138		0.524	16	19	<10	0.5	13600	<1	580
L139		0.572	8	12	<10	0.2	7910	<1	330
L143		0.276	35	10	<10	0.5	9900	<1	770
L144		0.215	30	13	<10	0.7	14200	<1	710
L145		0.240	21	156	<10	<0.1	13200	<1	580
L146		0.294	14	125	<10	1.1	12200	<1	310
L147		0.240	19	114	<10	0.3	10500	<1	280
L148		0.284	7	51	10	<0.1	4850	<1	130
L149		0.232	180	132	<10	0.5	4060	<1	150
L150		0.276	35	93	40	0.4	4110	3	180
L151		0.309	4	27	<10	0.2	12900	<1	440
L152		0.305	4	124	<10	<0.1	9340	<1	410
L153		0.184	3	>200	30	<0.1	4870	<1	200
L154		0.269	4	>200	30	<0.1	7810	<1	130
L155		0.300	7	131	30	<0.1	4630	<1	50
L156		0.314	3	185	20	0.2	2960	<1	50
L157		0.355	3	>200	20	0.4	6020	<1	70
L158		0.366	<1	113	30	<0.1	3680	<1	30
L159		0.364	1	90	20	0.1	9920	<1	70
L160		0.293	7	150	20	0.2	9210	<1	60
L161		0.367	6	134	<10	<0.1	7290	<1	320
L162		0.364	3	133	<10	0.2	10400	<1	100
L163		0.514	4	172	40	0.4	4870	21	80
L164		0.421	13	99	<10	0.3	9050	<1	270
L165		0.396	3	161	40	0.3	9020	<1	100
L166		0.370	3	122	20	<0.1	4710	<1	140
L167		0.438	2	99	20	<0.1	6900	<1	40
L168		0.538	6	128	30	<0.1	4670	<1	70
L169		0.409	6	172	50	0.1	5560	1	50
L170		0.381	2	167	40	0.2	6290	<1	80

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Element	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
Method	G_WGH79	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.01	1	1	10	0.1	10	1	10
Units	kg	ppb	ppm	ppb	ppb	ppb	ppb	ppm
L171	0.384	7	140	40	0.1	6940	<1	50
L172	0.419	3	148	30	0.2	11600	<1	130

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Element Method Det.Lim. Units	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	1	5	5	100	0.5	10	1	0.5
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L128	2	651	70	100	0.6	260	41	19.4
L129	1	296	72	100	0.5	80	13	7.2
L130	2	23500	110	<100	0.6	160	193	79.9
L131	3	3100	57	<100	<0.5	1730	284	136
L132	2	1190	122	<100	<0.5	2800	167	83.8
L133	8	449	19	<100	<0.5	1110	47	22.5
L134	2	298	18	<100	<0.5	1440	60	27.9
L135	5	560	26	<100	<0.5	2090	77	38.5
L136	5	527	11	<100	<0.5	1030	37	17.7
L137	14	728	56	<100	<0.5	860	54	27.9
L138	5	1190	13	<100	<0.5	1780	73	37.5
L139	4	280	12	<100	<0.5	1090	44	24.3
L143	7	333	25	<100	<0.5	2040	38	18.1
L144	2	838	107	<100	<0.5	1150	119	60.1
L145	2	2460	341	<100	<0.5	140	41	19.8
L146	1	3880	119	<100	<0.5	330	153	75.8
L147	<1	672	177	<100	<0.5	490	69	31.8
L148	<1	581	25	<100	1.7	80	8	3.4
L149	4	834	95	<100	0.7	1200	78	41.5
L150	5	2960	41	<100	0.7	1910	226	111
L151	<1	3510	25	<100	<0.5	400	236	122
L152	1	494	105	<100	0.5	150	37	21.7
L153	<1	104	164	<100	0.8	70	6	3.4
L154	2	52	145	<100	1.1	100	4	2.2
L155	<1	582	27	<100	1.1	160	29	13.4
L156	<1	160	26	<100	2.5	140	19	10.0
L157	3	685	27	<100	2.3	380	53	25.7
L158	2	321	178	100	2.0	140	15	6.3
L159	<1	2050	47	<100	1.7	250	138	63.8
L160	<1	1460	33	<100	2.2	350	126	58.5
L161	<1	1040	121	<100	<0.5	80	83	50.4
L162	<1	2080	30	<100	1.8	450	174	80.1
L163	2	1720	33	100	2.3	390	127	53.2
L164	4	2510	50	<100	<0.5	1640	261	143
L165	<1	4470	46	<100	1.5	320	126	51.5
L166	<1	234	23	<100	1.7	80	8	3.5
L167	2	460	42	<100	1.5	100	19	8.5
L168	4	632	59	100	1.3	230	23	10.8
L169	7	1110	478	100	2.6	410	41	17.0
L170	1	1120	96	<100	3.0	200	36	15.1

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Element	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	5	5	100	0.5	10	1	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L171	5	1170	886	<100	2.2	470	51	21.3
L172	<1	3720	69	<100	1.9	570	305	149

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Plant: 20142173 - Onshore PIPERIU Project, Part 3 of 4  
 Report File No: 0000007044

Element Method Det.Lim. Units	Eu	Fe	Ga	Gd	Hg	In	K	La
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	0.5 ppb	1 ppm	1 ppb	1 ppb	1 ppb	0.5 ppb	0.1 ppm	1 ppb
L128	9.1	42	4	55	<1	<0.5	21.2	439
L129	3.5	95	10	16	<1	<0.5	21.0	185
L130	55.7	78	18	389	<1	<0.5	12.2	26200
L131	63.7	10	2	431	1	<0.5	9.8	1620
L132	35.9	14	<1	230	<1	<0.5	10.7	783
L133	12.9	16	1	70	<1	<0.5	12.2	259
L134	15.7	8	<1	88	<1	<0.5	5.1	262
L135	19.2	12	<1	110	2	<0.5	6.0	283
L136	10.3	17	<1	51	<1	<0.5	7.7	210
L137	12.8	42	<1	68	<1	<0.5	8.9	345
L138	18.1	21	<1	101	<1	<0.5	7.2	321
L139	11.0	14	<1	58	<1	<0.5	3.0	212
L143	10.4	13	<1	57	<1	<0.5	11.5	136
L144	30.4	10	<1	195	<1	<0.5	10.7	763
L145	10.9	17	2	62	<1	<0.5	24.4	2790
L146	33.1	19	3	204	<1	<0.5	4.2	3500
L147	15.3	24	2	76	<1	<0.5	27.6	470
L148	2.2	30	4	12	<1	<0.5	15.9	283
L149	14.3	21	3	85	<1	<0.5	65.2	484
L150	28.7	69	7	271	<1	<0.5	9.6	2170
L151	62.9	15	<1	353	<1	<0.5	5.5	1470
L152	9.0	25	2	43	<1	<0.5	30.5	311
L153	1.6	70	10	6	<1	<0.5	33.5	39
L154	1.7	110	9	4	<1	<0.5	39.3	28
L155	7.6	61	8	32	<1	<0.5	30.6	397
L156	3.9	58	10	21	<1	<0.5	6.3	76
L157	10.4	59	8	66	<1	<0.5	7.9	412
L158	3.6	82	8	18	<1	<0.5	6.5	156
L159	33.6	21	4	169	<1	<0.5	7.5	1330
L160	34.6	36	7	156	<1	<0.5	13.7	973
L161	14.3	11	1	86	<1	<0.5	3.6	537
L162	44.8	26	7	204	<1	<0.5	4.9	1280
L163	22.4	94	13	177	<1	<0.5	7.9	1390
L164	48.8	77	3	349	<1	<0.5	3.3	1380
L165	32.1	58	9	166	<1	<0.5	10.0	3380
L166	2.7	43	5	11	<1	<0.5	9.7	126
L167	6.8	40	5	24	<1	<0.5	5.3	237
L168	7.2	110	9	32	<1	<0.5	7.7	350
L169	11.4	148	19	52	<1	<0.5	11.2	814
L170	8.8	78	12	44	<1	<0.5	7.7	1000

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File: Y041370 - Uluu, TIBATI's Project Part 3 of 4  
Report File No: 000007066

Element	Eu	Fe	Ga	Gd	Hg	In	K	La
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	1	1	1	0.5	0.1	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
L171	13.1	119	12	61	<1	<0.5	11.4	528
L172	78.9	50	9	377	<1	<0.5	4.2	1980

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Plant: KUKA276 Lower Fraser Project Part 3 on 1  
 Query File No: 000002044

Element Method Det.Lim. Units	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	5 ppb	1 ppm	10 ppb	5 ppb	0.5 ppb	1 ppb	5 ppb	0.1 ppm
L128	<5	71	80	<5	2.4	348	244	0.5
L129	<5	32	320	15	9.2	108	143	0.9
L130	<5	52	370	7	8.0	6440	167	1.2
L131	17	139	1890	<5	<0.5	1970	1210	<0.1
L132	8	123	3110	<5	<0.5	886	848	<0.1
L133	<5	88	1180	15	<0.5	288	342	<0.1
L134	<5	155	620	<5	<0.5	306	351	<0.1
L135	10	107	1310	<5	<0.5	373	958	<0.1
L136	9	90	510	<5	<0.5	226	344	<0.1
L137	16	90	1070	<5	<0.5	324	325	0.2
L138	20	93	890	<5	<0.5	399	949	<0.1
L139	6	50	590	<5	<0.5	244	579	<0.1
L143	7	63	1370	12	<0.5	203	786	<0.1
L144	11	53	1510	8	<0.5	913	410	0.1
L145	<5	155	1440	<5	<0.5	637	394	0.1
L146	<5	83	110	<5	<0.5	1590	248	0.1
L147	<5	107	180	<5	<0.5	331	623	0.2
L148	<5	25	500	<5	7.6	131	63	0.7
L149	<5	41	120	<5	<0.5	462	225	0.2
L150	<5	46	900	9	4.6	1680	276	1.2
L151	<5	111	200	<5	<0.5	1760	292	0.2
L152	<5	113	250	<5	<0.5	235	270	0.2
L153	7	48	1020	<5	3.2	26	196	4.2
L154	8	30	440	<5	3.4	21	134	5.1
L155	<5	39	430	<5	14.9	202	39	1.4
L156	<5	10	450	<5	2.8	109	50	1.5
L157	<5	19	1190	<5	4.1	401	54	1.7
L158	<5	5	4770	<5	5.9	107	49	3.8
L159	<5	31	530	<5	3.9	1000	18	0.8
L160	<5	26	490	<5	4.0	751	23	0.7
L161	<5	50	5610	<5	<0.5	397	100	0.2
L162	<5	24	220	<5	2.1	1010	33	0.4
L163	8	17	2030	<5	8.2	1120	63	5.5
L164	<5	44	750	<5	<0.5	1790	1020	0.6
L165	<5	32	1370	<5	10.2	1440	43	1.6
L166	<5	13	510	<5	6.3	82	26	1.5
L167	<5	9	1480	<5	6.6	153	18	2.4
L168	9	20	2380	14	5.6	222	97	7.6
L169	8	13	14200	7	13.0	335	106	6.4
L170	<5	23	2090	<5	12.8	323	47	3.6

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Element	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	5	1	10	5	0.5	1	5	0.1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppm
L171	<5	15	38800	5	8.8	315	99	5.4
L172	<5	36	980	<5	7.5	1910	102	0.9

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Element Method Det.Lim. Units	Pb	Pd	Pr	Pt	Rb	Sb	Sc	Sm
	GE_MMI_M 10 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 1 ppb	GE_MMI_M 5 ppb	GE_MMI_M 1 ppb	GE_MMI_M 5 ppb	GE_MMI_M 1 ppb
L128	340	<1	94	<1	63	2	28	62
L129	280	<1	32	<1	70	4	21	18
L130	330	<1	2280	<1	77	4	55	567
L131	290	<1	453	<1	8	1	45	418
L132	110	1	212	<1	9	<1	51	193
L133	50	<1	68	<1	23	2	18	63
L134	20	<1	68	<1	10	1	18	71
L135	30	<1	83	<1	13	2	20	90
L136	20	<1	55	<1	9	<1	13	47
L137	90	<1	83	<1	11	<1	26	66
L138	40	<1	93	<1	7	<1	15	88
L139	10	<1	58	<1	<5	<1	12	52
L143	20	<1	44	<1	11	<1	15	48
L144	50	<1	206	<1	11	<1	29	186
L145	150	<1	226	<1	58	<1	25	76
L146	770	<1	464	<1	70	<1	148	222
L147	530	<1	86	<1	46	<1	105	64
L148	200	<1	43	<1	147	<1	10	16
L149	960	<1	118	<1	108	<1	160	92
L150	610	<1	471	<1	82	2	108	306
L151	30	<1	437	<1	30	<1	29	371
L152	200	<1	64	<1	132	<1	39	44
L153	120	<1	7	<1	57	1	26	5
L154	370	<1	6	<1	67	<1	22	4
L155	280	<1	61	<1	167	2	36	34
L156	570	<1	26	<1	124	1	37	24
L157	410	<1	107	<1	127	2	63	77
L158	140	<1	31	<1	102	2	30	20
L159	210	<1	282	<1	134	<1	145	167
L160	580	<1	192	<1	138	<1	148	142
L161	140	<1	99	<1	34	<1	37	84
L162	630	<1	270	<1	140	<1	223	189
L163	160	<1	309	<1	123	2	77	201
L164	100	<1	419	<1	48	<1	190	354
L165	500	<1	452	<1	140	3	112	193
L166	170	<1	24	<1	180	<1	19	14
L167	180	<1	44	<1	189	1	43	27
L168	170	<1	65	<1	134	1	44	37
L169	260	<1	105	<1	181	3	72	56
L170	220	<1	106	<1	193	2	60	48

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Element	Pb	Pd	Pr	Pt	Rb	Sb	Sc	Sm
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	1	1	5	1	5	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L171	260	<1	94	<1	188	2	87	62
L172	450	<1	486	<1	145	2	274	359

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Report No. 13276 - Open-pit Mining Project - Tailings  
 Sample ID: 11 - 000007044

Element Method Det.Lim. Units	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	1	10	1	1	10	0.5	3	0.5
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L128	<1	1630	<1	7	<10	188	838	<0.5
L129	<1	640	<1	2	<10	118	2420	<0.5
L130	1	1390	<1	42	10	769	1530	<0.5
L131	<1	4130	<1	55	<10	397	3	<0.5
L132	<1	3450	<1	30	<10	198	<3	<0.5
L133	<1	3650	<1	9	<10	87.9	4	<0.5
L134	<1	3950	<1	11	<10	90.1	<3	<0.5
L135	<1	3310	<1	14	<10	110	<3	<0.5
L136	<1	2740	<1	7	<10	141	7	<0.5
L137	<1	2120	<1	10	<10	148	37	<0.5
L138	<1	2660	<1	13	<10	130	14	<0.5
L139	<1	1660	<1	8	<10	72.4	68	<0.5
L143	<1	2190	<1	7	<10	61.4	<3	<0.5
L144	<1	1820	<1	23	<10	106	<3	<0.5
L145	<1	3540	<1	8	<10	142	11	<0.5
L146	<1	2160	<1	28	<10	379	240	<0.5
L147	<1	1960	<1	12	<10	83.2	136	<0.5
L148	<1	1530	<1	2	<10	247	1000	<0.5
L149	<1	930	<1	13	<10	397	222	<0.5
L150	<1	960	<1	41	<10	872	1170	<0.5
L151	<1	2930	<1	45	<10	159	37	<0.5
L152	<1	2520	<1	7	<10	119	92	<0.5
L153	<1	1410	<1	1	<10	32.8	1070	<0.5
L154	<1	680	<1	<1	<10	33.0	1260	<0.5
L155	<1	520	<1	5	<10	124	3870	<0.5
L156	<1	200	<1	3	<10	129	1190	<0.5
L157	<1	330	<1	10	<10	224	1630	0.7
L158	<1	150	<1	3	<10	105	1770	<0.5
L159	<1	740	<1	25	<10	61.1	1240	0.6
L160	<1	580	<1	23	<10	65.3	1580	0.6
L161	<1	1930	<1	13	<10	135	28	<0.5
L162	<1	900	<1	31	<10	57.6	937	0.5
L163	<1	440	<1	24	<10	181	2500	0.7
L164	<1	1620	<1	47	<10	77.6	198	<0.5
L165	<1	670	<1	24	<10	137	3420	0.6
L166	<1	760	<1	2	<10	84.7	1550	0.7
L167	<1	260	<1	4	<10	147	1640	0.7
L168	<1	430	<1	4	<10	169	1830	0.6
L169	<1	340	<1	8	<10	262	4030	1.5
L170	<1	540	<1	7	<10	173	3640	1.4

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Element Method	Sn GE_MMI_M	Sr GE_MMI_M	Ta GE_MMI_M	Tb GE_MMI_M	Te GE_MMI_M	Th GE_MMI_M	Ti GE_MMI_M	Tl GE_MMI_M
Det.Lim.	1	10	1	1	10	0.5	3	0.5
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L171	<1	260	<1	10	<10	208	2400	1.0
L172	<1	940	<1	55	<10	111	3030	0.9

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Report ID: 1000007004

Element	U	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	1	1	1	20	5
Units	ppb	ppb	ppb	ppb	ppb	ppb
L128	43	<1	220	14	20	40
L129	16	<1	79	6	40	46
L130	72	<1	1350	53	70	92
L131	170	<1	1620	96	20	58
L132	519	<1	986	59	<20	55
L133	1040	<1	269	16	30	23
L134	565	<1	343	19	<20	34
L135	521	<1	460	29	20	49
L136	269	<1	190	13	<20	49
L137	186	<1	283	21	50	68
L138	260	<1	426	29	30	63
L139	130	<1	263	21	<20	46
L143	1070	<1	225	14	20	19
L144	222	<1	776	44	30	19
L145	34	<1	269	16	30	24
L146	161	<1	911	62	<20	70
L147	32	<1	417	22	30	52
L148	12	<1	41	3	30	20
L149	81	<1	441	37	50	82
L150	275	<1	1120	89	70	90
L151	63	<1	1230	102	20	29
L152	24	<1	213	19	<20	32
L153	4	<1	36	3	80	42
L154	4	<1	22	2	60	50
L155	8	<1	161	10	40	59
L156	15	<1	87	9	40	114
L157	33	<1	234	21	70	144
L158	12	<1	57	5	60	122
L159	24	<1	813	42	30	57
L160	61	<1	758	40	20	86
L161	20	<1	500	48	20	27
L162	51	<1	971	54	20	86
L163	53	<1	616	38	70	150
L164	651	<1	1510	110	60	91
L165	60	<1	679	34	50	159
L166	24	<1	37	3	40	65
L167	15	<1	92	7	40	78
L168	111	<1	114	9	270	110
L169	56	<1	187	13	200	179
L170	32	<1	194	11	70	123

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Element	U	W	Y	Yb	Zn	Zr
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	1	1	1	1	20	5
Units	ppb	ppb	ppb	ppb	ppb	ppb
L171	34	1	217	16	150	153
L172	43	<1	1730	102	40	113

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# Certificate of Analysis

Work Order : VC142176

**[Report File No.: 0000008025]**

To: **Gordon Richards**  
**GORDON RICHARDS**  
6410 HOLLY PARK DR  
DELTA BC V4K 4W6

Date: Jul 28, 2014

P.O. No. : PIRATE Project Part 4 of 4  
Project No. : -  
No. Of Samples : 45  
Date Submitted : Jul 07, 2014  
Report Comprises : Pages 1 to 15  
(Inclusive of Cover Sheet)

**Distribution of unused material:**

Active files:

Certified By :

Cam Chiang

Assistant Operations Manager

*SGS Minerals Services Geochemistry Vancouver conforms to the requirements of ISO/IEC 17025 for specific tests as listed on their scope of accreditation which can be found at <http://www.scc.ca/en/search/palcan/sgs>*

Report Footer:

L.N.R. = Listed not received  
n.a. = Not applicable

I.S. = Insufficient Sample  
- = No result

\*INF = Composition of this sample makes detection impossible by this method  
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion

Methods marked with an asterisk (e.g. \*NAA08V) were subcontracted

Elements marked with the @ symbol (e.g. @Cu) denote assays performed using accredited test methods

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MMI - Vancouver - Central British Columbia Project - Part 2 of 2  
 Data File No: 0000000002

Element Method Det.Lim. Units	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
	G_WGH79 kg	GE_MMI_M ppb	GE_MMI_M ppm	GE_MMI_M ppb	GE_MMI_M ppb	GE_MMI_M ppb	GE_MMI_M ppb	GE_MMI_M ppm
L173	0.339	74	197	20	0.3	4800	<1	50
L174	0.314	27	179	40	0.2	6030	<1	180
L175	0.442	39	143	30	0.3	6180	1	130
L176	0.521	7	146	20	<0.1	6510	<1	100
L178	0.346	15	98	<10	0.4	11800	<1	280
L180	0.372	3	>200	20	0.1	3370	<1	90
L181	0.364	4	91	30	0.1	8020	1	140
L182	0.354	3	150	10	0.1	5400	<1	160
L194	0.401	2	90	20	<0.1	12400	<1	130
L195	0.323	6	100	<10	0.2	12200	<1	240
L196	0.363	18	184	50	0.2	7410	1	90
L197	0.262	10	>200	40	0.3	6130	<1	80
L198	0.349	14	113	30	0.4	10500	<1	160
L199	0.349	4	142	<10	<0.1	4000	<1	50
L200	0.336	5	153	20	<0.1	6450	<1	90
L201	0.358	2	116	10	0.5	11200	<1	110
L202	0.376	11	164	30	0.2	10700	<1	110
L203	0.331	2	136	10	0.1	8870	<1	130
L204	0.409	6	197	50	0.2	5160	1	140
L205	0.378	7	>200	20	<0.1	3820	<1	80
L206	0.360	3	114	<10	0.1	9800	<1	320
L207	0.298	4	142	20	<0.1	3230	1	20
L209	0.419	14	48	<10	0.4	10400	<1	370
L210	0.312	19	52	<10	0.3	11200	<1	470
L215	0.454	8	34	<10	0.9	17900	<1	440
L216	0.409	12	72	<10	0.2	9310	<1	240
L217	0.423	4	19	<10	0.6	15100	<1	660
L218	0.408	9	41	10	0.4	8480	<1	230
L219	0.431	15	21	<10	0.8	16300	<1	650
L220	0.349	4	38	<10	0.3	16000	<1	370
L221	0.343	27	51	<10	<0.1	5600	<1	410
L222	0.382	13	139	30	0.1	8090	<1	60
L223	0.337	1140	132	10	378	2540	2	170
L224	0.311	3	105	<10	0.6	9060	<1	90
L225	0.510	6	129	20	0.4	5390	1	200
L230	0.386	43	6	<10	0.7	12000	<1	530
L231	0.363	44	20	<10	0.4	9510	<1	540
L232	0.409	39	18	<10	0.5	12900	<1	510
L233	0.318	12	33	10	0.4	17400	<1	300
L234	0.308	17	49	20	0.2	16100	<1	260

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SGS Canada Inc. 10000 100th Ave. Unit 1000, Richmond, BC V6V 1K2  
Canada Phone: 1-800-368-5622

Element	WtKg	Ag	Al	As	Au	Ba	Bi	Ca
Method	G_WGH79	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.01	1	1	10	0.1	10	1	10
Units	kg	ppb	ppm	ppb	ppb	ppb	ppb	ppm
L235	0.289	13	90	10	0.4	23600	<1	300
L236	0.297	18	28	<10	0.2	10500	<1	470
L237	0.285	6	26	20	0.2	11600	<1	240
L238	0.274	22	5	<10	0.6	16400	<1	610
L239	0.359	15	10	10	0.2	1620	<1	370

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Report File No.: M000000000

Element Method Det.Lim. Units	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	1	5	5	100	0.5	10	1	0.5
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L173	5	1740	50	<100	1.6	330	102	44.4
L174	9	2370	79	<100	6.1	270	83	31.1
L175	3	2600	96	<100	2.4	490	107	47.2
L176	2	3070	130	<100	2.7	390	68	30.1
L178	2	761	82	<100	0.5	860	154	79.4
L180	3	584	68	<100	1.4	150	109	68.3
L181	4	1230	134	<100	1.6	170	37	15.8
L182	2	1280	22	<100	1.3	200	101	47.3
L194	2	3460	30	<100	0.7	180	93	36.5
L195	<1	4700	93	<100	1.2	380	281	128
L196	3	2020	71	100	1.7	320	90	40.5
L197	3	599	48	100	2.8	320	52	23.9
L198	5	1780	353	<100	1.5	1180	290	165
L199	7	990	30	<100	2.0	290	51	18.7
L200	2	994	39	<100	1.0	200	56	25.3
L201	2	4140	31	<100	1.1	630	568	271
L202	2	3310	35	<100	1.4	460	178	73.2
L203	3	4830	34	<100	0.9	200	318	148
L204	3	2080	60	<100	1.2	320	140	68.9
L205	5	834	84	<100	3.1	200	84	43.1
L206	15	4110	69	<100	<0.5	130	117	58.5
L207	2	300	33	<100	1.0	80	15	7.7
L209	4	2250	9	<100	<0.5	1200	171	88.7
L210	10	2510	14	<100	<0.5	1470	219	121
L215	2	960	7	<100	<0.5	1070	134	71.4
L216	1	3030	85	<100	<0.5	540	191	95.1
L217	2	1010	8	<100	<0.5	1170	109	52.3
L218	1	1610	24	<100	<0.5	590	117	57.0
L219	2	288	8	<100	<0.5	1150	98	49.6
L220	<1	1740	9	<100	<0.5	400	142	63.5
L221	<1	164	12	<100	<0.5	70	3	1.3
L222	<1	699	60	<100	1.1	190	36	15.3
L223	<1	843	59	<100	<0.5	120	21	8.8
L224	<1	798	36	<100	1.5	80	21	9.9
L225	1	1660	65	<100	1.4	340	91	44.5
L230	27	30	350	<100	<0.5	3310	7	3.6
L231	19	129	169	<100	<0.5	2170	15	7.8
L232	14	225	10	<100	<0.5	1960	24	11.6
L233	8	282	9	<100	<0.5	980	43	21.1
L234	2	376	18	<100	<0.5	490	39	16.7

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RESULTS - CONTINUED

Element	Eu	Fe	Ga	Gd	Hg	In	K	La
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	0.5	1	1	1	1	0.5	0.1	1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
L173	25.0	57	13	135	<1	<0.5	4.3	1190
L174	25.9	66	9	108	<1	<0.5	7.3	1690
L175	25.1	64	11	135	<1	<0.5	6.8	1670
L176	17.9	141	11	103	<1	<0.5	12.2	2680
L178	35.9	17	1	191	<1	<0.5	10.4	351
L180	20.6	111	16	106	<1	<0.5	3.7	304
L181	9.4	74	8	50	<1	<0.5	7.8	1030
L182	17.3	36	5	130	<1	<0.5	3.8	1010
L194	23.4	52	7	141	<1	<0.5	7.9	2820
L195	64.9	20	5	364	<1	<0.5	3.4	2950
L196	19.1	112	16	108	<1	<0.5	4.7	1230
L197	10.3	90	16	55	<1	<0.5	6.2	373
L198	71.8	80	7	358	1	<0.5	4.3	837
L199	15.0	41	5	65	<1	<0.5	7.2	666
L200	12.6	37	5	72	<1	<0.5	5.7	1020
L201	187	20	6	782	1	<0.5	3.6	1940
L202	40.0	39	7	233	<1	<0.5	3.3	3040
L203	75.5	24	7	402	<1	<0.5	4.7	4860
L204	29.3	113	18	168	<1	<0.5	4.6	1170
L205	14.7	58	6	93	<1	<0.5	9.1	476
L206	28.3	26	2	197	<1	<0.5	6.3	3270
L207	3.5	120	11	18	<1	<0.5	18.4	170
L209	40.7	25	2	237	<1	<0.5	3.1	831
L210	45.9	30	2	282	<1	<0.5	2.2	821
L215	35.7	9	<1	188	2	<0.5	4.5	208
L216	46.1	24	3	261	<1	<0.5	8.5	1520
L217	27.7	6	<1	166	<1	<0.5	10.6	394
L218	34.0	29	2	166	<1	<0.5	13.3	777
L219	23.0	6	<1	132	1	<0.5	9.4	138
L220	43.2	15	2	227	<1	<0.5	7.9	1230
L221	1.3	19	<1	5	<1	<0.5	90.9	68
L222	10.7	69	8	42	<1	<0.5	87.8	497
L223	7.0	52	6	28	<1	<0.5	99.2	562
L224	6.9	56	4	32	<1	<0.5	17.5	648
L225	25.6	77	7	129	<1	<0.5	8.8	951
L230	2.8	8	<1	10	<1	<0.5	9.0	5
L231	5.0	20	<1	21	<1	<0.5	5.2	28
L232	8.2	20	<1	34	<1	<0.5	3.3	53
L233	13.6	34	<1	60	<1	<0.5	11.3	132
L234	13.3	30	2	61	<1	<0.5	12.8	192

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SGS Canada Inc. 10000 104 Avenue, Burnaby, BC V5A 4G9  
Canada 1-800-387-0732

	Element	Eu	Fe	Ga	Gd	Hg	In	K	La
	Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	Det.Lim.	0.5	1	1	1	1	0.5	0.1	1
	Units	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppb
L235		64.8	27	2	334	<1	<0.5	17.5	890
L236		10.7	53	<1	61	<1	<0.5	10.9	208
L237		10.5	30	2	67	<1	<0.5	43.7	264
L238		6.6	4	<1	36	<1	<0.5	16.3	44
L239		2.2	20	<1	10	<1	<0.5	9.7	14

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Element Method Det.Lim. Units	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	5 ppb	1 ppm	10 ppb	5 ppb	0.5 ppb	1 ppb	5 ppb	0.1 ppm
L173	<5	14	1090	<5	8.8	847	67	0.9
L174	<5	29	350	<5	13.8	754	110	1.1
L175	<5	24	1360	<5	11.5	976	71	1.1
L176	6	24	2850	<5	12.0	1130	120	5.4
L178	<5	43	1310	<5	<0.5	617	272	0.2
L180	9	30	580	<5	5.2	445	166	1.5
L181	5	26	9580	<5	5.7	437	77	2.6
L182	<5	34	330	<5	3.6	707	30	0.9
L194	<5	34	1160	<5	8.1	1440	71	1.8
L195	<5	50	820	<5	1.3	2230	108	0.4
L196	<5	25	1260	<5	16.2	682	73	1.7
L197	6	16	1360	<5	11.1	264	96	2.1
L198	<5	29	19200	<5	2.1	1310	699	2.2
L199	<5	10	690	<5	3.6	379	49	1.5
L200	<5	21	470	<5	4.7	546	27	0.8
L201	<5	29	210	<5	1.5	3270	28	0.3
L202	<5	25	230	<5	5.2	1750	34	0.8
L203	<5	38	520	<5	5.3	2820	35	0.4
L204	<5	32	1370	<5	11.5	988	157	3.8
L205	<5	17	4810	<5	2.5	501	139	1.7
L206	<5	59	890	<5	1.7	1950	132	0.5
L207	<5	17	3150	7	9.1	118	56	5.3
L209	<5	74	780	<5	<0.5	1100	694	0.1
L210	9	109	1260	<5	<0.5	1110	1580	<0.1
L215	<5	109	280	<5	<0.5	484	644	<0.1
L216	<5	98	1500	<5	0.5	1470	374	0.3
L217	11	179	240	<5	<0.5	611	709	<0.1
L218	<5	70	500	<5	1.8	848	125	0.5
L219	6	156	360	<5	<0.5	283	619	<0.1
L220	<5	73	360	<5	<0.5	1250	219	0.2
L221	<5	114	80	<5	<0.5	39	56	2.4
L222	<5	43	420	<5	8.3	250	131	3.0
L223	<5	82	2810	7	10.9	180	80	1.4
L224	<5	28	610	<5	9.8	283	43	1.4
L225	<5	37	2260	<5	5.6	813	98	3.1
L230	21	55	10700	14	<0.5	20	1220	<0.1
L231	<5	84	7730	7	<0.5	62	1270	0.1
L232	9	61	410	<5	<0.5	107	1280	<0.1
L233	<5	50	580	<5	<0.5	212	518	0.7
L234	<5	39	650	<5	0.7	252	200	0.8

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Analysis of the mineral elements of the sample L235  
 Report File No: 0000000005

Element	Li	Mg	Mn	Mo	Nb	Nd	Ni	P
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	5	1	10	5	0.5	1	5	0.1
Units	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppm
L235	<5	63	1040	<5	<0.5	1270	463	0.6
L236	8	32	710	<5	<0.5	257	637	0.4
L237	5	35	670	<5	1.8	307	97	1.1
L238	23	86	3410	7	<0.5	91	329	0.2
L239	23	35	1550	49	<0.5	34	149	0.4

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0000000000

Element	Pb	Pd	Pr	Pt	Rb	Sb	Sc	Sm
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	1	1	5	1	5	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L173	7100	<1	241	<1	97	2	80	141
L174	650	<1	229	<1	189	3	129	111
L175	490	<1	292	<1	211	2	145	152
L176	150	<1	364	<1	208	1	62	143
L178	230	<1	129	<1	46	<1	110	160
L180	340	<1	104	<1	96	1	70	100
L181	150	<1	136	<1	166	2	31	60
L182	310	<1	190	<1	56	1	50	128
L194	110	<1	457	<1	108	1	47	169
L195	190	<1	611	<1	117	<1	148	376
L196	470	<1	207	<1	105	4	97	113
L197	360	<1	71	<1	113	2	81	55
L198	210	<1	301	<1	99	3	291	317
L199	150	<1	112	<1	165	<1	50	75
L200	320	<1	163	<1	134	<1	33	87
L201	430	<1	708	<1	88	<1	476	793
L202	580	<1	509	<1	97	1	84	253
L203	320	<1	833	<1	107	<1	135	435
L204	290	<1	271	<1	101	3	110	177
L205	370	<1	129	<1	216	<1	36	100
L206	100	<1	561	<1	108	<1	29	245
L207	220	<1	35	<1	127	<1	16	21
L209	50	<1	256	<1	24	<1	57	234
L210	60	<1	259	<1	14	<1	64	250
L215	30	<1	89	<1	13	<1	35	142
L216	120	<1	381	<1	87	<1	96	267
L217	20	<1	129	<1	5	<1	15	148
L218	60	<1	189	<1	49	1	47	169
L219	40	<1	51	<1	<5	<1	17	86
L220	60	<1	319	<1	18	<1	36	238
L221	30	<1	12	<1	36	<1	<5	6
L222	220	<1	77	<1	166	2	58	43
L223	140	<1	57	<1	105	1	23	28
L224	30	<1	91	<1	295	<1	15	39
L225	140	<1	220	<1	100	<1	76	142
L230	60	<1	4	<1	<5	2	9	6
L231	40	<1	13	<1	11	1	9	17
L232	30	<1	21	<1	12	1	11	29
L233	50	<1	46	<1	21	1	19	52
L234	80	<1	56	<1	29	1	21	54

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mineral services - Brown Alunite project - Batch # 4  
Report File No - 0000008005

Element	Pb	Pd	Pr	Pt	Rb	Sb	Sc	Sm
Method	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
Det.Lim.	10	1	1	1	5	1	5	1
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
L235	280	<1	285	<1	26	1	68	289
L236	70	<1	60	<1	23	<1	13	56
L237	130	<1	68	<1	12	1	7	64
L238	20	<1	17	<1	6	<1	<5	27
L239	20	<1	7	<1	<5	<1	6	9

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Sample ID: 12178  
 Element: Sn, Sr, Ta, Tb, Te, Th, Ti, Tl

Element Method Det.Lim. Units	Sn GE_MMI_M 1 ppb	Sr GE_MMI_M 10 ppb	Ta GE_MMI_M 1 ppb	Tb GE_MMI_M 1 ppb	Te GE_MMI_M 10 ppb	Th GE_MMI_M 0.5 ppb	Ti GE_MMI_M 3 ppb	Tl GE_MMI_M 0.5 ppb
L173	<1	240	1	19	30	93.7	2220	0.5
L174	1	1170	<1	16	40	94.7	5100	1.5
L175	<1	820	<1	20	20	168	3200	0.8
L176	<1	510	<1	14	10	360	2730	1.1
L178	<1	1580	<1	27	20	56.1	40	<0.5
L180	<1	810	<1	18	10	75.7	1930	<0.5
L181	<1	740	<1	7	<10	143	1410	0.8
L182	<1	1100	<1	18	<10	99.6	1090	<0.5
L194	<1	1050	<1	18	<10	169	2150	0.5
L195	<1	1750	<1	52	<10	95.2	403	1.0
L196	1	550	1	16	<10	347	5040	0.7
L197	1	390	<1	9	<10	206	3790	0.8
L198	<1	940	<1	51	<10	90.4	940	0.6
L199	<1	250	<1	10	<10	103	741	0.5
L200	<1	570	<1	11	<10	262	1170	<0.5
L201	<1	770	<1	106	<10	34.4	556	<0.5
L202	<1	780	<1	33	<10	182	1930	0.6
L203	<1	1090	<1	58	<10	141	1040	0.5
L204	1	660	<1	25	<10	185	3880	<0.5
L205	<1	280	<1	15	<10	108	788	<0.5
L206	<1	1890	<1	23	<10	175	338	0.7
L207	<1	190	<1	3	<10	82.0	2270	<0.5
L209	<1	2130	<1	32	<10	135	67	<0.5
L210	<1	2910	<1	39	<10	80.7	13	<0.5
L215	<1	3330	<1	24	<10	28.9	3	<0.5
L216	<1	1500	<1	35	<10	90.8	226	<0.5
L217	<1	4510	<1	21	<10	65.8	<3	<0.5
L218	<1	1430	<1	20	<10	73.2	572	<0.5
L219	<1	4460	<1	17	<10	40.8	<3	<0.5
L220	<1	2450	<1	28	<10	72.3	127	<0.5
L221	<1	2940	<1	<1	<10	47.7	13	<0.5
L222	<1	440	<1	6	<10	69.7	2930	<0.5
L223	<1	1180	<1	4	30	164	2340	<0.5
L224	<1	600	<1	4	<10	219	1360	1.3
L225	<1	850	<1	17	<10	187	1520	0.6
L230	<1	2660	<1	1	<10	13.4	13	<0.5
L231	<1	2880	<1	3	<10	31.0	<3	<0.5
L232	<1	2610	<1	5	<10	35.2	<3	<0.5
L233	<1	1780	<1	8	<10	80.9	74	<0.5
L234	<1	1590	<1	8	<10	72.7	225	<0.5

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	Element Method Det.Lim. Units	Sn GE_MMI_M 1 ppb	Sr GE_MMI_M 10 ppb	Ta GE_MMI_M 1 ppb	Tb GE_MMI_M 1 ppb	Te GE_MMI_M 10 ppb	Th GE_MMI_M 0.5 ppb	Ti GE_MMI_M 3 ppb	Tl GE_MMI_M 0.5 ppb
L235		<1	1860	<1	43	<10	107	127	<0.5
L236		<1	1890	<1	8	<10	89.0	31	<0.5
L237		<1	1220	<1	8	<10	115	197	<0.5
L238		<1	3030	<1	4	<10	6.9	<3	<0.5
L239		<1	1330	<1	1	<10	9.9	27	<0.5

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Element Method Det.Lim. Units	U	W	Y	Yb	Zn	Zr
	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M	GE_MMI_M
	1	1	1	1	20	5
	ppb	ppb	ppb	ppb	ppb	ppb
L173	31	<1	592	30	100	104
L174	37	1	419	20	70	126
L175	53	<1	547	33	50	160
L176	75	<1	327	23	80	117
L178	55	<1	851	60	30	38
L180	22	<1	633	64	110	58
L181	14	<1	211	11	140	141
L182	19	<1	577	34	30	64
L194	117	<1	568	23	50	88
L195	96	<1	1530	88	30	52
L196	57	1	491	29	80	228
L197	36	<1	240	18	90	197
L198	41	<1	1630	140	160	103
L199	28	<1	190	13	150	88
L200	18	<1	302	19	30	71
L201	62	<1	2600	207	<20	43
L202	37	<1	1030	46	40	152
L203	33	<1	1870	108	30	65
L204	38	1	772	53	100	120
L205	24	<1	442	35	80	80
L206	35	<1	770	41	280	29
L207	9	<1	81	7	60	50
L209	297	<1	964	67	60	60
L210	336	<1	1300	100	130	68
L215	34	<1	795	53	80	22
L216	42	<1	1060	74	40	38
L217	35	<1	618	38	<20	11
L218	51	<1	617	41	30	43
L219	63	<1	535	31	50	15
L220	41	<1	885	38	30	28
L221	8	<1	15	1	<20	6
L222	9	<1	198	10	40	87
L223	13	<1	128	6	40	46
L224	10	<1	114	8	20	30
L225	52	<1	520	35	30	98
L230	89	<1	40	3	50	17
L231	179	<1	84	6	40	22
L232	142	<1	134	10	50	22
L233	53	<1	233	16	100	66
L234	32	<1	222	11	40	61

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www.acmelab.com

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9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
PHONE (604) 253-3158

Client: **Richards, Gordon**  
6410 Holly Park Drive  
Delta BC V4K 4W6 CANADA

Submitted By: Gordon Richards  
Receiving Lab: Canada-Whitehorse  
Received: July 02, 2014  
Report Date: July 25, 2014  
Page: 1 of 9

## CERTIFICATE OF ANALYSIS

WHI14000038.1

### CLIENT JOB INFORMATION

Project: RGS  
Shipment ID:  
P.O. Number  
Number of Samples: 234

### SAMPLE DISPOSAL

RTRN-PLP Return

### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
VG101_EXT	233	Plant Maceration to 1mm			VAN
DRPLP	233	Aqua Regia digestion ICP-MS analysis	1	Completed	VAN
		Warehouse handling / disposition of pulps			VAN

### ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Richards, Gordon  
6410 Holly Park Drive  
Delta BC V4K 4W6  
CANADA

CC:



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.

CERTIFICATE OF ANALYSIS

WHI14000038.1

Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%		
MDL		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001	
K1	Vegetation	<0.01	1.44	0.11	85.1	19	<0.1	0.04	434	0.008	<0.1	<0.01	<0.2	<0.01	18.6	<0.01	0.05	<0.02	<2	0.83	0.090	
K2	Vegetation	<0.01	1.29	0.10	66.3	22	0.1	0.04	1014	0.009	0.1	<0.01	<0.2	<0.01	24.2	<0.01	0.04	<0.02	<2	1.00	0.116	
K3	Vegetation	<0.01	1.65	0.08	79.7	14	0.2	0.03	768	0.008	<0.1	<0.01	<0.2	<0.01	15.6	<0.01	0.04	<0.02	<2	0.81	0.084	
K4	Vegetation	<0.01	1.35	0.06	69.0	10	0.2	0.04	651	0.009	<0.1	<0.01	<0.2	<0.01	35.1	<0.01	0.04	<0.02	<2	1.17	0.085	
K5	Vegetation	<0.01	1.56	0.06	84.5	8	0.1	0.04	695	0.008	<0.1	<0.01	<0.2	<0.01	28.2	0.02	0.02	<0.02	<2	1.00	0.080	
K6	Vegetation	<0.01	2.18	0.05	63.5	17	0.7	0.02	82	0.006	<0.1	<0.01	<0.2	<0.01	26.2	<0.01	0.04	<0.02	<2	0.66	0.148	
K7	Vegetation	<0.01	1.85	0.04	69.2	11	0.3	0.04	660	0.007	<0.1	<0.01	<0.2	<0.01	25.6	<0.01	0.06	<0.02	<2	0.79	0.080	
K8	Vegetation	0.02	1.40	0.04	63.8	6	0.2	0.03	760	0.006	<0.1	<0.01	<0.2	<0.01	17.5	<0.01	0.04	<0.02	<2	0.61	0.082	
K9	Vegetation	<0.01	1.25	0.04	65.1	8	0.2	0.03	695	0.006	<0.1	<0.01	<0.2	<0.01	20.2	<0.01	0.03	<0.02	<2	0.65	0.070	
K10	Vegetation	0.04	1.27	0.05	53.0	4	0.1	0.02	542	0.005	<0.1	<0.01	<0.2	<0.01	16.9	<0.01	0.02	<0.02	<2	0.53	0.077	
K11	Vegetation	0.01	1.60	0.06	52.7	14	0.2	0.08	850	0.007	<0.1	<0.01	<0.2	<0.01	15.7	<0.01	0.04	<0.02	<2	0.76	0.062	
K12	Vegetation	0.01	1.74	0.07	57.5	17	0.3	0.04	811	0.007	<0.1	<0.01	<0.2	<0.01	30.0	<0.01	0.04	<0.02	<2	0.72	0.088	
K13	Vegetation	<0.01	1.31	0.07	62.4	8	0.2	0.04	840	0.008	<0.1	<0.01	<0.2	<0.01	27.4	<0.01	0.05	<0.02	<2	0.87	0.087	
K14	Vegetation	<0.01	1.42	0.06	73.9	21	0.1	0.04	1321	0.010	0.1	<0.01	<0.2	<0.01	22.2	0.01	0.03	<0.02	<2	0.99	0.060	
K15	Vegetation	<0.01	1.80	0.03	52.7	11	0.1	0.02	805	0.005	<0.1	<0.01	<0.2	<0.01	8.9	0.01	0.03	<0.02	<2	0.59	0.071	
K16	Vegetation	0.02	1.40	0.07	69.2	7	0.1	0.04	826	0.009	<0.1	<0.01	<0.2	<0.01	20.9	<0.01	0.02	<0.02	<2	0.92	0.064	
K17	Vegetation	0.02	1.14	0.04	47.8	3	<0.1	0.03	658	0.006	0.1	<0.01	<0.2	<0.01	12.8	<0.01	0.03	<0.02	<2	0.63	0.057	
K18	Vegetation	<0.01	1.44	0.05	59.9	11	0.2	0.03	661	0.008	<0.1	<0.01	<0.2	<0.01	14.5	<0.01	0.02	<0.02	<2	0.89	0.061	
K19	Vegetation	<0.01	1.31	0.05	58.0	10	<0.1	0.03	1073	0.005	<0.1	<0.01	<0.2	<0.01	12.6	<0.01	0.04	<0.02	<2	0.44	0.050	
K20	Vegetation	<0.01	1.34	0.06	72.8	9	0.1	0.04	639	0.007	<0.1	<0.01	<0.2	<0.01	24.7	<0.01	0.02	<0.02	<2	0.77	0.096	
K21	Vegetation	<0.01	1.45	0.09	87.9	6	0.1	0.04	1141	0.009	<0.1	<0.01	<0.2	<0.01	25.4	<0.01	0.04	<0.02	<2	0.88	0.079	
K22	Vegetation	0.14	1.56	0.05	67.2	7	0.2	0.03	352	0.006	<0.1	<0.01	<0.2	<0.01	21.5	<0.01	0.03	<0.02	<2	0.58	0.088	
K23	Vegetation	<0.01	1.29	0.05	56.3	9	0.3	0.11	1303	0.008	<0.1	<0.01	<0.2	<0.01	22.7	<0.01	0.04	<0.02	<2	0.94	0.067	
K24	Vegetation	<0.01	1.41	0.04	75.0	8	0.1	0.03	594	0.006	<0.1	<0.01	<0.2	<0.01	21.5	<0.01	0.02	<0.02	<2	0.68	0.091	
K25	Vegetation	<0.01	1.40	0.04	47.4	17	0.1	0.04	928	0.008	0.1	<0.01	<0.2	<0.01	12.2	<0.01	0.04	<0.02	<2	0.67	0.066	
K26	Vegetation	<0.01	1.27	0.05	64.9	12	0.1	0.05	596	0.010	<0.1	<0.01	<0.2	<0.01	17.8	<0.01	0.03	<0.02	<2	0.80	0.055	
K27	Vegetation	<0.01	1.53	0.02	61.4	29	0.2	0.05	974	0.005	<0.1	<0.01	<0.2	<0.01	23.8	0.03	0.03	<0.02	<2	0.58	0.099	
K28	Vegetation	<0.01	1.56	0.05	50.2	19	0.1	0.03	353	0.008	0.2	<0.01	<0.2	<0.01	28.7	<0.01	0.02	<0.02	<2	0.82	0.113	
K29	Vegetation	<0.01	1.50	0.08	31.8	14	0.2	0.08	1037	0.006	<0.1	<0.01	<0.2	<0.01	22.1	0.01	0.04	<0.02	<2	0.59	0.085	
K30	Vegetation	0.04	1.40	0.05	63.4	5	0.2	0.09	1214	0.006	0.1	<0.01	<0.2	<0.01	31.6	<0.01	0.02	<0.02	<2	0.66	0.087	

CERTIFICATE OF ANALYSIS

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Method Analyte Unit MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
	La ppm 0.01	Cr ppm 0.1	Mg % 0.001	Ba ppm 0.1	Ti ppm 1	B ppm 1	Al % 0.01	Na % 0.001	K % 0.01	W ppm 0.1	Sc ppm 0.1	Tl ppm 0.02	S % 0.01	Hg ppb 1	Se ppm 0.1	Te ppm 0.02	Ga ppm 0.1	Cs ppm 0.005	Ge ppm 0.01	Hf ppm 0.001	
K1	Vegetation	<0.01	1.6	0.069	44.9	2	6	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.03	19	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
K2	Vegetation	<0.01	1.2	0.063	76.5	2	11	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.06	16	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
K3	Vegetation	<0.01	1.5	0.076	65.8	2	5	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.07	9	<0.1	<0.02	0.1	0.012	<0.01	<0.001
K4	Vegetation	<0.01	1.3	0.075	108.2	2	16	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.09	15	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
K5	Vegetation	<0.01	1.3	0.050	86.5	2	15	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
K6	Vegetation	<0.01	1.6	0.073	121.0	3	3	<0.01	<0.001	0.47	<0.1	0.2	<0.02	0.09	9	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
K7	Vegetation	<0.01	1.4	0.059	96.1	2	7	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.08	9	<0.1	<0.02	<0.1	0.006	0.01	<0.001
K8	Vegetation	<0.01	1.5	0.055	40.2	2	7	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.06	10	<0.1	<0.02	<0.1	0.010	0.01	<0.001
K9	Vegetation	<0.01	1.5	0.048	65.8	2	3	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.08	11	<0.1	<0.02	<0.1	0.007	0.02	<0.001
K10	Vegetation	<0.01	1.5	0.066	49.7	2	7	<0.01	<0.001	0.24	<0.1	0.1	<0.02	0.06	10	<0.1	<0.02	<0.1	0.009	<0.01	<0.001
K11	Vegetation	<0.01	1.4	0.071	22.1	2	4	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.07	12	<0.1	<0.02	<0.1	0.011	0.01	<0.001
K12	Vegetation	<0.01	1.3	0.054	108.3	2	8	<0.01	<0.001	0.43	<0.1	0.2	<0.02	0.09	15	<0.1	<0.02	0.1	0.009	<0.01	<0.001
K13	Vegetation	<0.01	1.4	0.069	90.9	2	9	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.09	19	<0.1	<0.02	0.1	0.005	0.02	<0.001
K14	Vegetation	<0.01	1.4	0.048	71.4	2	7	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.07	13	<0.1	<0.02	0.2	0.011	<0.01	<0.001
K15	Vegetation	<0.01	1.3	0.053	32.3	2	4	<0.01	<0.001	0.39	<0.1	0.3	<0.02	0.08	7	<0.1	<0.02	0.1	0.018	<0.01	<0.001
K16	Vegetation	<0.01	1.3	0.053	75.7	2	8	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.05	16	<0.1	<0.02	0.1	0.005	<0.01	<0.001
K17	Vegetation	<0.01	1.4	0.058	37.8	2	5	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.05	10	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
K18	Vegetation	<0.01	1.4	0.061	24.4	2	10	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.07	15	<0.1	<0.02	0.1	0.011	0.02	<0.001
K19	Vegetation	<0.01	1.3	0.050	37.7	2	7	<0.01	<0.001	0.25	<0.1	0.3	<0.02	0.06	9	<0.1	<0.02	0.1	0.014	<0.01	<0.001
K20	Vegetation	<0.01	1.4	0.067	75.9	2	6	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.08	12	<0.1	<0.02	0.1	0.012	<0.01	<0.001
K21	Vegetation	<0.01	1.4	0.059	72.1	2	4	<0.01	0.001	0.24	<0.1	0.2	<0.02	0.07	17	<0.1	<0.02	0.2	0.006	<0.01	<0.001
K22	Vegetation	<0.01	1.5	0.047	62.4	2	8	<0.01	<0.001	0.40	<0.1	0.3	<0.02	0.06	15	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
K23	Vegetation	<0.01	1.3	0.099	44.8	2	3	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.09	15	<0.1	<0.02	0.2	0.016	<0.01	<0.001
K24	Vegetation	<0.01	1.3	0.037	80.1	2	12	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.08	12	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
K25	Vegetation	<0.01	1.3	0.057	40.5	2	4	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.07	11	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
K26	Vegetation	<0.01	1.4	0.060	66.5	2	9	<0.01	<0.001	0.30	<0.1	0.3	<0.02	0.07	13	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
K27	Vegetation	<0.01	1.3	0.053	87.7	2	8	<0.01	<0.001	0.47	<0.1	0.2	<0.02	0.08	9	<0.1	<0.02	0.1	0.010	<0.01	<0.001
K28	Vegetation	<0.01	1.3	0.048	53.0	2	11	<0.01	<0.001	0.42	<0.1	0.3	<0.02	0.07	15	<0.1	<0.02	<0.1	0.008	<0.01	<0.001
K29	Vegetation	<0.01	1.3	0.056	72.9	2	2	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.1	0.037	<0.01	<0.001
K30	Vegetation	<0.01	1.3	0.049	150.8	2	4	<0.01	<0.001	0.41	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	0.2	0.041	<0.01	<0.001

CERTIFICATE OF ANALYSIS

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Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
Analyte	Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt	
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb	
MDL	0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1	
K1	Vegetation	<0.01	0.9	0.02	<0.001	0.01	0.009	0.02	<0.02	3	<0.1	0.09	<2	<1
K2	Vegetation	<0.01	0.9	<0.02	<0.001	<0.01	0.008	0.02	<0.02	2	<0.1	0.12	<2	<1
K3	Vegetation	<0.01	1.2	<0.02	<0.001	0.01	0.005	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K4	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.009	0.02	<0.02	5	<0.1	0.12	<2	<1
K5	Vegetation	<0.01	0.8	<0.02	<0.001	<0.01	0.006	0.01	<0.02	2	<0.1	0.05	<2	<1
K6	Vegetation	<0.01	1.4	0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.08	<2	<1
K7	Vegetation	<0.01	2.7	0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.06	<2	<1
K8	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.10	<2	<1
K9	Vegetation	<0.01	1.0	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.05	<2	<1
K10	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.002	<0.01	<0.02	<1	<0.1	0.07	<2	<1
K11	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.01	<2	<1
K12	Vegetation	<0.01	2.7	<0.02	<0.001	<0.01	0.008	<0.01	<0.02	<1	<0.1	0.11	<2	<1
K13	Vegetation	<0.01	1.5	<0.02	<0.001	0.01	0.007	0.02	<0.02	<1	<0.1	0.14	<2	<1
K14	Vegetation	<0.01	1.7	<0.02	<0.001	0.01	0.008	0.01	<0.02	<1	<0.1	0.05	<2	<1
K15	Vegetation	<0.01	3.3	<0.02	<0.001	<0.01	0.002	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
K16	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.03	<2	<1
K17	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.02	<2	<1
K18	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
K19	Vegetation	<0.01	1.3	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
K20	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.06	<2	<1
K21	Vegetation	<0.01	1.2	<0.02	<0.001	0.01	0.009	0.02	<0.02	<1	<0.1	0.15	<2	<1
K22	Vegetation	<0.01	1.4	<0.02	<0.001	0.01	0.006	<0.01	<0.02	<1	<0.1	0.11	<2	<1
K23	Vegetation	<0.01	2.0	<0.02	<0.001	<0.01	0.011	0.01	<0.02	9	<0.1	0.26	<2	<1
K24	Vegetation	<0.01	0.9	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.07	<2	<1
K25	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.010	0.02	<0.02	1	<0.1	0.01	<2	<1
K26	Vegetation	<0.01	1.3	<0.02	<0.001	0.01	0.008	0.01	<0.02	4	<0.1	0.05	<2	<1
K27	Vegetation	<0.01	2.3	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	2	<0.1	0.16	<2	<1
K28	Vegetation	<0.01	2.3	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	2	<0.1	0.04	<2	<1
K29	Vegetation	<0.01	4.7	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.02	<2	<1
K30	Vegetation	<0.01	4.6	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.05	<2	<1

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%		
MDL		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001	
K31	Vegetation	<0.01	1.85	0.09	77.2	19	0.4	0.03	755	0.007	0.3	<0.01	<0.2	<0.01	28.9	<0.01	0.04	<0.02	<2	0.73	0.068	
K32	Vegetation	<0.01	1.51	0.05	77.6	23	0.2	0.05	1750	0.008	<0.1	<0.01	<0.2	<0.01	29.6	<0.01	0.04	<0.02	<2	0.77	0.073	
K33	Vegetation	<0.01	1.42	0.03	50.1	19	0.1	0.07	1674	0.009	<0.1	<0.01	<0.2	<0.01	27.3	0.01	0.03	<0.02	<2	1.01	0.061	
K34	Vegetation	<0.01	1.27	0.10	57.2	27	<0.1	0.04	731	0.007	<0.1	<0.01	<0.2	<0.01	29.9	<0.01	0.02	<0.02	<2	0.85	0.065	
K35	Vegetation	0.04	1.38	0.06	42.1	33	0.3	0.07	970	0.005	<0.1	<0.01	<0.2	<0.01	30.5	0.02	0.05	<0.02	<2	0.74	0.093	
K36	Vegetation	<0.01	1.52	0.08	49.3	19	0.2	0.06	714	0.005	<0.1	<0.01	<0.2	<0.01	33.8	<0.01	0.05	<0.02	<2	0.64	0.102	
K37	Vegetation	<0.01	1.13	0.06	51.5	8	<0.1	0.03	861	0.007	<0.1	<0.01	<0.2	<0.01	18.6	<0.01	0.02	<0.02	<2	0.79	0.053	
K38	Vegetation	<0.01	0.97	0.04	41.9	11	<0.1	0.03	696	0.005	<0.1	<0.01	<0.2	<0.01	17.7	0.01	0.02	<0.02	<2	0.60	0.071	
K39	Vegetation	<0.01	1.30	0.04	31.0	14	0.1	0.14	1614	0.006	<0.1	<0.01	<0.2	<0.01	27.2	0.02	<0.02	<0.02	<2	0.80	0.059	
K40	Vegetation	<0.01	1.28	0.05	79.2	11	0.1	0.03	620	0.007	0.1	<0.01	<0.2	<0.01	31.3	<0.01	0.02	<0.02	<2	0.86	0.079	
K41	Vegetation	<0.01	1.36	0.06	45.1	9	0.1	0.05	942	0.007	0.1	<0.01	<0.2	<0.01	19.8	<0.01	0.04	<0.02	<2	0.80	0.064	
K42	Vegetation	<0.01	1.36	0.10	53.4	17	0.2	0.03	206	0.008	<0.1	<0.01	<0.2	<0.01	45.1	<0.01	0.04	<0.02	<2	0.97	0.055	
K43	Vegetation	<0.01	1.46	0.07	53.6	11	0.1	0.04	547	0.009	<0.1	<0.01	<0.2	<0.01	47.6	<0.01	0.04	<0.02	<2	1.33	0.074	
K44	Vegetation	<0.01	1.64	0.06	91.4	6	0.1	0.04	567	0.007	0.2	<0.01	<0.2	<0.01	24.6	<0.01	0.04	<0.02	<2	0.82	0.093	
K45	Vegetation	<0.01	1.34	0.07	53.5	11	<0.1	0.03	1260	0.006	<0.1	<0.01	<0.2	<0.01	16.4	<0.01	0.05	<0.02	<2	0.71	0.077	
K46	Vegetation	<0.01	1.56	0.05	53.5	20	0.1	<0.01	921	0.006	0.1	<0.01	<0.2	<0.01	7.0	<0.01	0.03	<0.02	<2	0.45	0.068	
K47	Vegetation	0.15	1.29	0.06	45.9	12	<0.1	0.02	502	0.005	<0.1	<0.01	<0.2	<0.01	16.7	<0.01	<0.02	<0.02	<2	0.56	0.072	
K48	Vegetation	<0.01	1.15	0.05	64.6	9	<0.1	0.03	1116	0.006	<0.1	<0.01	<0.2	<0.01	15.9	<0.01	0.02	<0.02	<2	0.68	0.056	
K49	Vegetation	0.02	1.41	0.05	51.0	11	<0.1	0.03	1242	0.006	0.1	<0.01	<0.2	<0.01	19.6	<0.01	0.03	<0.02	<2	0.75	0.070	
K50	Vegetation	<0.01	1.83	0.05	48.0	10	0.1	0.03	2038	0.006	<0.1	<0.01	<0.2	<0.01	16.1	0.02	0.02	<0.02	<2	0.68	0.063	
K51	Vegetation	0.02	1.45	0.07	91.3	12	0.1	0.02	920	0.006	0.1	<0.01	<0.2	<0.01	21.6	<0.01	0.03	<0.02	<2	0.88	0.072	
K52	Vegetation	<0.01	1.15	0.06	56.8	18	0.1	0.03	576	0.006	<0.1	<0.01	<0.2	<0.01	11.2	<0.01	0.04	<0.02	<2	0.61	0.063	
K53	Vegetation	<0.01	1.38	0.05	44.8	13	0.2	0.03	576	0.006	0.1	<0.01	<0.2	<0.01	10.0	<0.01	0.03	<0.02	<2	0.59	0.072	
K54	Vegetation	<0.01	1.53	0.06	74.2	14	0.2	0.05	2694	0.007	<0.1	<0.01	<0.2	<0.01	14.0	0.02	0.05	<0.02	<2	0.71	0.056	
K55	Vegetation	<0.01	1.48	0.05	64.9	7	0.2	0.02	809	0.006	<0.1	<0.01	<0.2	<0.01	25.9	<0.01	0.02	<0.02	<2	0.79	0.086	
K56	Vegetation	<0.01	1.40	0.05	58.1	8	0.2	0.03	1369	0.008	<0.1	<0.01	<0.2	<0.01	15.4	<0.01	0.03	<0.02	<2	0.78	0.066	
K57	Vegetation	<0.01	1.23	0.08	104.1	16	0.1	0.03	1478	0.008	0.1	<0.01	<0.2	<0.01	17.2	0.01	0.03	<0.02	<2	0.67	0.052	
K58	Vegetation	<0.01	1.73	0.04	59.0	8	0.2	0.03	705	0.006	<0.1	<0.01	<0.2	<0.01	21.6	<0.01	0.03	<0.02	<2	0.68	0.091	
K59	Vegetation	<0.01	1.32	0.07	64.8	12	<0.1	0.04	537	0.009	<0.1	<0.01	<0.2	<0.01	19.4	<0.01	0.03	<0.02	<2	0.99	0.083	
K60	Vegetation	<0.01	1.48	0.05	87.1	16	0.2	0.04	641	0.011	<0.1	<0.01	<0.2	<0.01	40.6	<0.01	0.03	<0.02	<2	1.35	0.087	

Bureau Veritas Commodities Canada Ltd.

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## CERTIFICATE OF ANALYSIS

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf
Unit		ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	
MDL		0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001
K31	Vegetation	<0.01	1.4	0.072	88.1	2	4	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.08	13	<0.1	<0.02	0.1	<0.005	0.01	<0.001
K32	Vegetation	<0.01	1.3	0.057	97.7	2	5	<0.01	<0.001	0.33	<0.1	0.3	<0.02	0.08	12	<0.1	<0.02	0.2	<0.005	0.01	<0.001
K33	Vegetation	<0.01	1.3	0.033	120.3	2	4	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.2	0.008	0.01	<0.001
K34	Vegetation	<0.01	1.4	0.047	75.2	2	4	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	<0.1	0.005	<0.01	<0.001
K35	Vegetation	<0.01	1.3	0.050	127.3	1	3	<0.01	<0.001	0.37	<0.1	0.1	<0.02	0.03	8	<0.1	<0.02	<0.1	0.011	<0.01	<0.001
K36	Vegetation	<0.01	1.4	0.060	107.8	2	3	<0.01	<0.001	0.35	<0.1	0.1	<0.02	0.04	10	<0.1	<0.02	<0.1	0.009	0.03	<0.001
K37	Vegetation	<0.01	1.7	0.094	24.5	1	3	<0.01	<0.001	0.27	<0.1	0.1	<0.02	0.04	10	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
K38	Vegetation	<0.01	1.4	0.079	32.3	1	5	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.04	8	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
K39	Vegetation	<0.01	1.5	0.053	60.0	1	4	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.08	7	<0.1	<0.02	0.1	0.010	<0.01	<0.001
K40	Vegetation	<0.01	1.4	0.064	89.9	2	8	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.05	9	<0.1	<0.02	<0.1	<0.005	0.02	<0.001
K41	Vegetation	<0.01	1.5	0.058	51.2	1	3	<0.01	<0.001	0.31	<0.1	0.1	<0.02	0.08	12	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
K42	Vegetation	<0.01	1.5	0.039	181.0	2	3	<0.01	<0.001	0.39	<0.1	0.2	<0.02	0.08	15	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
K43	Vegetation	<0.01	1.5	0.066	228.8	1	4	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	15	<0.1	<0.02	<0.1	0.029	<0.01	<0.001
K44	Vegetation	<0.01	1.6	0.066	78.6	2	12	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	<0.1	0.016	<0.01	<0.001
K45	Vegetation	<0.01	1.4	0.061	64.6	1	10	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.05	15	<0.1	<0.02	<0.1	0.024	<0.01	<0.001
K46	Vegetation	<0.01	1.5	0.065	37.1	1	10	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.07	7	<0.1	<0.02	<0.1	0.027	0.02	<0.001
K47	Vegetation	<0.01	1.5	0.053	75.5	1	4	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.07	10	<0.1	<0.02	<0.1	0.021	<0.01	<0.001
K48	Vegetation	<0.01	1.5	0.065	56.7	1	8	<0.01	<0.001	0.28	<0.1	0.1	<0.02	0.05	12	<0.1	<0.02	<0.1	0.024	0.01	<0.001
K49	Vegetation	<0.01	1.4	0.062	66.1	1	5	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.06	10	<0.1	<0.02	<0.1	0.012	<0.01	<0.001
K50	Vegetation	<0.01	1.4	0.057	44.2	1	3	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.08	11	<0.1	<0.02	0.1	0.029	<0.01	<0.001
K51	Vegetation	<0.01	1.4	0.057	75.9	1	9	<0.01	<0.001	0.32	<0.1	0.1	<0.02	0.07	12	<0.1	<0.02	<0.1	0.006	0.01	<0.001
K52	Vegetation	<0.01	1.4	0.079	40.4	2	5	<0.01	<0.001	0.24	<0.1	0.2	<0.02	<0.01	12	<0.1	<0.02	<0.1	0.012	0.02	<0.001
K53	Vegetation	<0.01	1.4	0.056	23.2	2	9	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.03	9	<0.1	<0.02	<0.1	0.025	<0.01	<0.001
K54	Vegetation	<0.01	1.3	0.048	65.5	2	7	<0.01	<0.001	0.22	<0.1	0.2	<0.02	0.02	15	<0.1	<0.02	0.2	0.021	<0.01	<0.001
K55	Vegetation	<0.01	1.3	0.047	76.4	2	6	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.02	12	<0.1	<0.02	0.1	0.012	<0.01	<0.001
K56	Vegetation	<0.01	1.3	0.044	47.8	2	8	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.02	15	<0.1	<0.02	0.2	<0.005	<0.01	<0.001
K57	Vegetation	<0.01	1.3	0.041	80.7	2	14	<0.01	<0.001	0.32	<0.1	0.2	<0.02	<0.01	16	<0.1	<0.02	0.2	0.011	<0.01	<0.001
K58	Vegetation	<0.01	1.3	0.061	56.4	2	8	<0.01	<0.001	0.41	<0.1	0.1	<0.02	0.04	11	<0.1	<0.02	0.1	0.005	<0.01	<0.001
K59	Vegetation	<0.01	1.4	0.064	37.8	2	7	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.02	12	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
K60	Vegetation	<0.01	1.4	0.033	113.0	2	17	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.02	13	<0.1	<0.02	0.1	<0.005	<0.01	<0.001

CERTIFICATE OF ANALYSIS

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit	MDL	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	
		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	
K31	Vegetation	<0.01	1.4	<0.02	<0.001	0.01	0.009	0.02	<0.02	<1	<0.1	0.20	<2	<1
K32	Vegetation	<0.01	1.2	<0.02	<0.001	<0.01	0.008	0.02	<0.02	<1	<0.1	0.22	<2	<1
K33	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.009	0.02	<0.02	<1	<0.1	0.09	<2	<1
K34	Vegetation	<0.01	1.3	<0.02	<0.001	0.01	0.010	0.02	<0.02	<1	<0.1	0.34	<2	<1
K35	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.02	<2	<1
K36	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.11	<2	<1
K37	Vegetation	<0.01	0.8	<0.02	<0.001	<0.01	0.009	0.01	<0.02	2	<0.1	0.13	<2	<1
K38	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	1	<0.1	0.15	<2	<1
K39	Vegetation	0.08	1.2	<0.02	<0.001	0.01	0.005	<0.01	<0.02	7	<0.1	0.30	<2	<1
K40	Vegetation	<0.01	0.8	<0.02	<0.001	<0.01	0.010	<0.01	<0.02	<1	<0.1	0.15	<2	<1
K41	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	2	<0.1	0.08	<2	<1
K42	Vegetation	<0.01	0.9	<0.02	<0.001	0.01	0.008	0.02	<0.02	<1	<0.1	0.22	<2	<1
K43	Vegetation	<0.01	2.9	<0.02	<0.001	0.01	0.009	0.01	<0.02	<1	<0.1	0.15	<2	<1
K44	Vegetation	<0.01	3.6	<0.02	<0.001	0.01	0.007	0.01	<0.02	<1	<0.1	0.06	<2	<1
K45	Vegetation	<0.01	2.8	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K46	Vegetation	<0.01	2.4	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.01	<2	<1
K47	Vegetation	<0.01	2.0	<0.02	<0.001	0.01	0.009	0.01	<0.02	<1	<0.1	0.08	<2	<1
K48	Vegetation	<0.01	1.9	<0.02	<0.001	0.01	0.004	<0.01	<0.02	<1	<0.1	0.07	<2	<1
K49	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K50	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.06	<2	<1
K51	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K52	Vegetation	<0.01	1.7	<0.02	<0.001	<0.01	0.006	0.01	<0.02	<1	<0.1	0.01	<2	<1
K53	Vegetation	<0.01	2.4	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
K54	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	<0.01	<2	<1
K55	Vegetation	<0.01	2.0	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K56	Vegetation	<0.01	0.8	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.03	<2	<1
K57	Vegetation	<0.01	1.2	<0.02	<0.001	<0.01	0.008	0.02	<0.02	<1	<0.1	0.04	<2	<1
K58	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	2	<0.1	0.07	<2	<1
K59	Vegetation	<0.01	1.3	<0.02	<0.001	<0.01	0.009	0.01	<0.02	3	<0.1	0.04	<2	<1
K60	Vegetation	<0.01	1.0	<0.02	<0.001	<0.01	0.007	0.01	<0.02	<1	<0.1	0.08	<2	<1



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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
Unit	MDL	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	
		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001
K61	Vegetation	<0.01	1.11	0.07	65.0	9	0.2	0.05	532	0.012	<0.1	<0.01	<0.2	<0.01	45.5	<0.01	0.02	<0.02	<2	1.38	0.078
K62	Vegetation	<0.01	1.13	0.07	64.7	8	0.2	0.05	588	0.011	<0.1	<0.01	<0.2	<0.01	36.9	<0.01	0.03	<0.02	<2	1.24	0.091
K63	Vegetation	<0.01	1.30	0.08	84.5	27	0.2	0.04	725	0.011	0.1	<0.01	<0.2	<0.01	44.1	<0.01	0.04	<0.02	<2	1.12	0.071
K64	Vegetation	<0.01	1.47	0.05	55.8	22	<0.1	0.03	287	0.006	<0.1	<0.01	<0.2	<0.01	21.6	<0.01	0.03	<0.02	<2	0.56	0.091
K65	Vegetation	<0.01	1.35	0.06	65.8	27	0.2	0.03	677	0.007	<0.1	<0.01	<0.2	<0.01	10.6	<0.01	0.03	<0.02	<2	0.58	0.070
K66	Vegetation	<0.01	1.45	0.03	40.6	31	0.3	0.05	865	0.006	<0.1	<0.01	<0.2	<0.01	28.3	0.01	0.02	<0.02	<2	0.63	0.101
K67	Vegetation	0.02	1.77	0.04	30.1	20	0.3	0.05	436	0.006	<0.1	<0.01	<0.2	<0.01	42.2	<0.01	0.02	<0.02	<2	0.70	0.092
K68	Vegetation	0.01	1.76	0.04	32.1	12	0.2	0.04	658	0.005	<0.1	<0.01	<0.2	<0.01	24.2	<0.01	0.02	<0.02	<2	0.53	0.107
K69	Vegetation	<0.01	1.17	0.07	39.4	12	0.1	0.03	301	0.006	<0.1	<0.01	<0.2	<0.01	20.9	<0.01	0.03	<0.02	<2	0.52	0.071
K70	Vegetation	<0.01	1.50	0.10	94.4	23	0.2	0.05	1449	0.012	0.1	<0.01	<0.2	<0.01	27.2	0.01	0.06	<0.02	<2	1.14	0.055
K71	Vegetation	<0.01	1.33	0.05	90.7	14	0.1	0.03	384	0.006	<0.1	<0.01	<0.2	<0.01	34.8	<0.01	0.03	<0.02	<2	0.73	0.103
K72	Vegetation	<0.01	1.38	0.04	61.2	8	<0.1	0.03	413	0.005	<0.1	<0.01	<0.2	<0.01	19.8	<0.01	0.04	<0.02	<2	0.57	0.083
K73	Vegetation	0.01	1.94	0.06	29.4	23	0.7	0.10	1404	0.006	<0.1	<0.01	<0.2	<0.01	25.6	0.03	0.06	<0.02	<2	0.69	0.108
K74	Vegetation	<0.01	1.46	0.08	109.6	17	0.1	0.05	869	0.011	<0.1	<0.01	<0.2	<0.01	30.6	0.01	0.04	<0.02	<2	1.12	0.077
K75	Vegetation	<0.01	1.61	0.06	49.4	6	0.1	0.03	705	0.006	0.1	<0.01	<0.2	<0.01	15.0	<0.01	0.03	<0.02	<2	0.53	0.068
K76	Vegetation	<0.01	1.46	0.07	56.6	13	0.1	0.03	848	0.007	<0.1	<0.01	<0.2	<0.01	17.9	<0.01	0.02	<0.02	<2	0.64	0.067
K77	Vegetation	0.04	1.19	0.05	61.6	12	<0.1	0.02	757	0.006	<0.1	<0.01	<0.2	<0.01	16.2	<0.01	0.02	<0.02	<2	0.61	0.067
K78	Vegetation	<0.01	1.37	0.05	53.5	15	<0.1	0.02	166	0.005	<0.1	<0.01	<0.2	<0.01	20.2	<0.01	0.03	<0.02	<2	0.50	0.095
K79	Vegetation	0.04	1.55	0.06	60.1	23	0.4	0.12	1418	0.007	<0.1	<0.01	<0.2	<0.01	21.5	0.05	0.03	<0.02	<2	0.75	0.096
K80	Vegetation	<0.01	1.77	0.05	70.6	10	0.1	0.05	1712	0.008	<0.1	<0.01	<0.2	<0.01	19.8	0.02	0.04	<0.02	<2	1.03	0.082
K81	Vegetation	0.01	1.36	0.06	74.0	43	0.1	0.04	724	0.013	<0.1	<0.01	<0.2	<0.01	23.2	<0.01	0.06	<0.02	<2	1.03	0.066
K82	Vegetation	0.02	1.62	0.04	57.6	14	0.3	0.09	954	0.006	<0.1	<0.01	<0.2	<0.01	17.2	<0.01	0.02	<0.02	<2	0.66	0.092
K83	Vegetation	<0.01	1.30	0.07	67.4	10	<0.1	0.03	411	0.008	<0.1	<0.01	<0.2	<0.01	21.9	<0.01	0.05	<0.02	<2	0.74	0.082
K84	Vegetation	0.01	1.90	0.06	32.9	18	0.5	0.06	910	0.005	<0.1	<0.01	<0.2	<0.01	11.9	0.02	0.05	<0.02	<2	0.51	0.138
K85	Vegetation	<0.01	1.41	0.04	26.0	21	0.4	0.11	1059	0.005	<0.1	<0.01	<0.2	<0.01	13.7	<0.01	0.03	<0.02	<2	0.60	0.090
K86	Vegetation	<0.01	1.59	0.05	78.6	11	0.1	0.03	574	0.007	<0.1	<0.01	<0.2	<0.01	14.8	<0.01	0.03	<0.02	<2	0.75	0.067
K87	Vegetation	<0.01	1.55	0.05	52.0	5	0.1	0.04	1377	0.008	<0.1	<0.01	<0.2	<0.01	17.6	<0.01	0.04	<0.02	<2	0.95	0.081
K88	Vegetation	<0.01	1.36	0.06	62.7	20	<0.1	0.03	602	0.008	<0.1	<0.01	<0.2	<0.01	30.1	<0.01	0.02	<0.02	<2	0.93	0.082
K89	Vegetation	<0.01	1.89	0.05	56.1	10	0.2	0.06	1709	0.006	<0.1	<0.01	<0.2	<0.01	17.7	0.05	0.03	<0.02	<2	0.67	0.066
K90	Vegetation	0.01	1.82	0.04	112.3	21	0.2	0.05	1274	0.007	0.1	<0.01	<0.2	<0.01	25.8	0.02	0.04	<0.02	<2	0.79	0.072

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Project: RGS  
Report Date: July 25, 2014

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CERTIFICATE OF ANALYSIS

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Method Analyte Unit	MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Ti	S	Hg	Se	Te	Ga	Cs	Ge	Hf
		ppm	ppm	%	ppm	ppm	ppm	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001
K61	Vegetation	<0.01	1.4	0.034	138.1	2	16	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.03	17	<0.1	<0.02	<0.1	<0.005	0.02	<0.001
K62	Vegetation	<0.01	1.4	0.066	85.1	2	6	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.02	14	<0.1	<0.02	0.1	<0.005	0.02	<0.001
K63	Vegetation	<0.01	1.5	0.049	124.8	3	10	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.04	13	<0.1	<0.02	<0.1	<0.005	0.02	<0.001
K64	Vegetation	<0.01	1.5	0.060	44.5	2	10	<0.01	<0.001	0.42	<0.1	0.4	<0.02	0.07	10	<0.1	<0.02	<0.1	0.012	<0.01	<0.001
K65	Vegetation	<0.01	1.5	0.065	17.5	2	4	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.04	11	<0.1	<0.02	<0.1	0.014	<0.01	<0.001
K66	Vegetation	<0.01	1.3	0.081	112.2	2	3	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.05	11	<0.1	<0.02	0.1	0.026	0.02	<0.001
K67	Vegetation	<0.01	1.4	0.052	146.5	2	2	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.05	12	<0.1	<0.02	<0.1	0.075	<0.01	<0.001
K68	Vegetation	<0.01	1.4	0.065	76.6	2	3	<0.01	<0.001	0.40	<0.1	0.2	<0.02	0.03	9	<0.1	<0.02	<0.1	0.026	0.02	<0.001
K69	Vegetation	<0.01	1.5	0.062	58.6	2	4	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
K70	Vegetation	<0.01	1.3	0.038	76.0	2	5	<0.01	0.001	0.22	<0.1	0.2	<0.02	0.06	21	<0.1	<0.02	0.1	0.008	0.01	<0.001
K71	Vegetation	<0.01	1.4	0.051	101.1	2	10	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.06	9	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
K72	Vegetation	<0.01	1.3	0.047	57.7	2	6	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.08	12	<0.1	<0.02	<0.1	0.005	<0.01	<0.001
K73	Vegetation	<0.01	1.2	0.077	121.1	2	2	<0.01	0.001	0.39	<0.1	0.2	0.02	0.08	11	<0.1	<0.02	0.1	0.172	<0.01	<0.001
K74	Vegetation	<0.01	1.4	0.053	96.0	2	10	<0.01	0.001	0.39	<0.1	0.2	<0.02	0.08	21	<0.1	<0.02	0.1	0.013	<0.01	0.001
K75	Vegetation	<0.01	1.5	0.074	36.4	2	4	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.08	9	<0.1	<0.02	<0.1	0.014	0.01	<0.001
K76	Vegetation	<0.01	1.4	0.042	47.1	2	11	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	0.1	0.019	0.01	<0.001
K77	Vegetation	<0.01	1.4	0.050	47.9	2	7	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.06	9	<0.1	<0.02	<0.1	0.021	<0.01	<0.001
K78	Vegetation	<0.01	1.4	0.039	86.7	2	11	<0.01	<0.001	0.39	<0.1	0.2	<0.02	0.07	9	<0.1	<0.02	<0.1	0.006	0.02	<0.001
K79	Vegetation	<0.01	1.3	0.036	145.7	2	6	<0.01	<0.001	0.39	<0.1	0.2	<0.02	0.08	8	<0.1	<0.02	0.2	0.026	0.03	<0.001
K80	Vegetation	<0.01	1.3	0.050	60.8	2	10	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.08	10	<0.1	<0.02	0.2	0.019	<0.01	<0.001
K81	Vegetation	<0.01	1.4	0.052	129.1	2	12	<0.01	<0.001	0.26	<0.1	0.2	0.03	0.08	16	<0.1	<0.02	0.1	0.053	0.02	<0.001
K82	Vegetation	<0.01	1.5	0.088	71.3	2	6	<0.01	<0.001	0.35	<0.1	0.3	<0.02	0.09	10	<0.1	<0.02	0.1	0.066	<0.01	<0.001
K83	Vegetation	<0.01	1.5	0.037	115.3	2	11	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.07	13	<0.1	<0.02	<0.1	0.008	0.01	<0.001
K84	Vegetation	<0.01	1.4	0.061	100.1	2	5	<0.01	0.001	0.52	<0.1	0.2	<0.02	0.08	12	<0.1	<0.02	<0.1	0.162	0.02	<0.001
K85	Vegetation	<0.01	1.3	0.058	65.7	2	4	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.1	0.084	<0.01	<0.001
K86	Vegetation	<0.01	1.5	0.051	51.7	2	11	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
K87	Vegetation	<0.01	1.4	0.073	41.1	2	4	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.10	10	<0.1	<0.02	0.2	0.011	<0.01	<0.001
K88	Vegetation	<0.01	1.4	0.058	70.4	2	8	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.09	12	<0.1	<0.02	0.1	0.007	<0.01	<0.001
K89	Vegetation	<0.01	1.4	0.059	43.1	2	3	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.09	11	<0.1	<0.02	0.2	0.011	<0.01	<0.001
K90	Vegetation	<0.01	1.3	0.045	67.6	2	6	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.09	16	<0.1	<0.02	0.2	<0.005	<0.01	<0.001

## CERTIFICATE OF ANALYSIS

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Method Analyte	Unit MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
K61	Vegetation	<0.01	0.9	<0.02	<0.001	0.01	0.013	0.02	<0.02	<1	<0.1	0.14	<2	<1
K62	Vegetation	<0.01	0.7	<0.02	<0.001	<0.01	0.009	0.02	<0.02	<1	<0.1	0.14	<2	<1
K63	Vegetation	<0.01	1.0	<0.02	<0.001	0.03	0.012	0.03	<0.02	<1	<0.1	0.50	<2	<1
K64	Vegetation	<0.01	3.9	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.07	<2	<1
K65	Vegetation	<0.01	1.9	<0.02	<0.001	0.01	0.009	0.01	<0.02	<1	<0.1	0.06	<2	<1
K66	Vegetation	<0.01	4.0	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.14	<2	<1
K67	Vegetation	<0.01	8.0	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.16	<2	<1
K68	Vegetation	<0.01	5.8	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
K69	Vegetation	<0.01	0.8	<0.02	<0.001	0.01	0.007	0.01	<0.02	<1	<0.1	0.18	<2	<1
K70	Vegetation	<0.01	0.7	<0.02	<0.001	0.01	0.011	0.03	<0.02	<1	<0.1	0.18	<2	<1
K71	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.20	<2	<1
K72	Vegetation	<0.01	1.9	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.10	<2	<1
K73	Vegetation	<0.01	10.6	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
K74	Vegetation	<0.01	2.7	<0.02	<0.001	0.01	0.011	0.02	<0.02	<1	<0.1	0.06	<2	<1
K75	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.02	<2	<1
K76	Vegetation	<0.01	3.0	<0.02	<0.001	0.01	0.008	0.01	<0.02	<1	<0.1	0.07	<2	<1
K77	Vegetation	<0.01	4.3	<0.02	<0.001	<0.01	0.006	0.01	<0.02	<1	<0.1	0.07	<2	<1
K78	Vegetation	<0.01	4.2	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.10	<2	<1
K79	Vegetation	<0.01	4.8	<0.02	<0.001	<0.01	0.008	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K80	Vegetation	<0.01	3.5	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K81	Vegetation	<0.01	3.7	<0.02	<0.001	0.01	0.009	0.01	<0.02	<1	<0.1	0.05	<2	<1
K82	Vegetation	<0.01	5.0	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K83	Vegetation	<0.01	2.9	<0.02	<0.001	<0.01	0.009	<0.01	<0.02	<1	<0.1	0.03	<2	<1
K84	Vegetation	<0.01	12.3	<0.02	<0.001	<0.01	0.008	<0.01	<0.02	<1	<0.1	0.04	<2	<1
K85	Vegetation	<0.01	6.3	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.02	<2	<1
K86	Vegetation	<0.01	1.3	<0.02	<0.001	<0.01	0.008	<0.01	<0.02	<1	<0.1	0.01	<2	<1
K87	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	1	<0.1	0.04	<2	<1
K88	Vegetation	<0.01	1.7	<0.02	<0.001	<0.01	0.009	<0.01	<0.02	<1	<0.1	0.16	<2	<1
K89	Vegetation	<0.01	3.0	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.01	<2	<1
K90	Vegetation	<0.01	2.4	<0.02	<0.001	<0.01	0.009	0.01	<0.02	<1	<0.1	0.08	<2	<1

CERTIFICATE OF ANALYSIS

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
MDL		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001
K91	Vegetation	0.01	1.66	0.04	61.2	18	0.3	0.02	1532	0.005	<0.1	<0.01	<0.2	<0.01	19.3	0.04	0.03	<0.02	<2	0.52	0.079
K92	Vegetation	<0.01	1.23	0.08	56.4	9	0.2	0.03	767	0.007	0.1	<0.01	<0.2	<0.01	29.0	0.01	0.04	<0.02	<2	0.70	0.050
K93	Vegetation	<0.01	1.60	0.05	73.9	19	0.2	0.04	1031	0.006	<0.1	<0.01	<0.2	<0.01	25.3	<0.01	0.04	<0.02	<2	0.79	0.070
K94	Vegetation	<0.01	1.53	0.05	79.8	15	0.1	0.03	1384	0.006	<0.1	<0.01	<0.2	<0.01	24.7	0.02	0.03	<0.02	<2	0.63	0.060
K95	Vegetation	<0.01	1.54	0.07	72.9	19	0.2	0.07	1690	0.010	<0.1	<0.01	<0.2	<0.01	29.9	0.05	0.02	<0.02	<2	0.98	0.049
K96	Vegetation	0.02	1.35	0.07	87.3	10	0.2	0.04	410	0.007	<0.1	<0.01	<0.2	<0.01	26.9	<0.01	0.03	<0.02	<2	0.71	0.062
K97	Vegetation	<0.01	1.97	0.05	47.1	10	<0.1	0.03	1405	0.007	<0.1	<0.01	<0.2	<0.01	31.7	<0.01	0.02	<0.02	<2	0.80	0.077
K98	Vegetation	0.12	1.77	0.04	40.5	7	0.3	0.04	387	0.005	<0.1	<0.01	<0.2	<0.01	35.3	<0.01	0.03	<0.02	<2	0.53	0.110
K99	Vegetation	0.02	1.40	0.03	26.7	7	0.2	0.05	475	0.005	<0.1	<0.01	<0.2	<0.01	43.0	<0.01	0.03	<0.02	<2	0.57	0.080
K100	Vegetation	<0.01	1.74	0.04	44.5	41	0.2	0.10	1147	0.008	<0.1	<0.01	<0.2	<0.01	96.9	<0.01	0.04	<0.02	<2	1.05	0.084
K101	Vegetation	0.07	1.89	0.04	35.1	12	0.3	0.09	731	0.006	<0.1	<0.01	<0.2	<0.01	56.1	<0.01	0.03	<0.02	<2	0.69	0.116
K102	Vegetation	<0.01	1.88	0.06	55.6	6	<0.1	0.03	1054	0.007	<0.1	<0.01	<0.2	<0.01	22.3	<0.01	0.03	<0.02	<2	0.65	0.056
K103	Vegetation	0.01	1.64	0.08	61.8	12	0.1	0.03	315	0.006	<0.1	<0.01	<0.2	<0.01	26.8	<0.01	0.03	<0.02	<2	0.57	0.106
K104	Vegetation	<0.01	1.32	0.09	82.4	28	0.2	0.04	334	0.009	<0.1	<0.01	<0.2	<0.01	48.3	<0.01	0.03	<0.02	<2	1.10	0.096
K105	Vegetation	<0.01	1.71	0.08	59.7	12	0.3	0.04	955	0.007	<0.1	<0.01	<0.2	<0.01	33.1	<0.01	0.02	<0.02	<2	0.77	0.074
K106	Vegetation	<0.01	1.48	0.07	61.8	17	0.1	0.04	554	0.007	<0.1	<0.01	<0.2	<0.01	21.8	<0.01	0.03	<0.02	<2	0.71	0.065
K107	Vegetation	0.02	1.54	0.06	30.0	12	0.3	0.11	506	0.006	<0.1	<0.01	<0.2	<0.01	44.2	<0.01	0.02	<0.02	<2	0.57	0.095
L01	Vegetation	0.07	1.17	0.12	77.9	17	0.2	0.04	135	0.009	<0.1	<0.01	<0.2	<0.01	50.9	<0.01	0.04	<0.02	<2	0.74	0.078
L02	Vegetation	<0.01	1.74	0.11	81.7	22	0.2	0.05	1307	0.010	0.2	<0.01	<0.2	<0.01	17.7	<0.01	0.05	<0.02	<2	0.75	0.043
L03	Vegetation	<0.01	1.95	0.07	69.9	31	0.2	0.03	878	0.009	<0.1	<0.01	<0.2	<0.01	25.0	<0.01	0.04	<0.02	<2	0.94	0.051
L04	Vegetation	<0.01	1.42	0.09	60.5	51	0.2	0.07	1635	0.010	<0.1	<0.01	<0.2	<0.01	22.9	0.02	0.05	<0.02	<2	1.02	0.046
L05	Vegetation	0.01	1.55	0.11	78.6	19	0.2	0.04	928	0.009	<0.1	<0.01	<0.2	<0.01	23.1	<0.01	0.06	<0.02	<2	0.90	0.046
L06	Vegetation	0.03	1.24	0.10	62.9	34	0.2	0.05	1127	0.009	<0.1	<0.01	<0.2	<0.01	33.5	<0.01	0.05	<0.02	<2	0.91	0.060
L07	Vegetation	0.03	1.43	0.08	52.1	27	0.3	0.04	521	0.009	<0.1	<0.01	<0.2	<0.01	34.8	<0.01	0.03	<0.02	<2	0.97	0.076
L08	Vegetation	<0.01	1.47	0.08	53.1	14	0.1	0.04	612	0.008	<0.1	<0.01	<0.2	<0.01	15.2	<0.01	0.04	<0.02	<2	0.82	0.051
L09	Vegetation	<0.01	1.14	0.09	76.6	36	0.2	0.05	783	0.011	<0.1	<0.01	<0.2	<0.01	26.5	<0.01	0.04	<0.02	<2	1.24	0.074
L10	Vegetation	<0.01	1.50	0.12	72.6	20	0.2	0.05	526	0.013	<0.1	<0.01	<0.2	<0.01	28.3	<0.01	0.04	<0.02	<2	1.26	0.095
L11	Vegetation	<0.01	1.31	0.09	113.5	13	0.2	0.07	2313	0.011	<0.1	<0.01	<0.2	<0.01	32.4	0.04	0.05	<0.02	<2	1.12	0.047
L12	Vegetation	0.14	1.33	0.06	48.2	23	0.3	0.04	1306	0.006	<0.1	<0.01	<0.2	<0.01	19.8	<0.01	0.04	<0.02	<2	0.65	0.052
L13	Vegetation	0.03	1.63	0.10	72.9	32	0.3	0.04	1167	0.011	<0.1	<0.01	<0.2	<0.01	26.4	<0.01	0.06	<0.02	<2	0.99	0.051

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Project: RGS  
Report Date: July 25, 2014

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# CERTIFICATE OF ANALYSIS

WHI14000038.1

Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf	
Unit	ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
MDL	0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001	
K91	Vegetation	<0.01	1.2	0.039	60.4	2	5	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.09	9	<0.1	<0.02	0.2	0.010	0.01	<0.001
K92	Vegetation	<0.01	1.5	0.071	99.5	2	5	<0.01	<0.001	0.15	<0.1	0.2	<0.02	0.05	9	<0.1	<0.02	0.1	0.007	<0.01	0.001
K93	Vegetation	<0.01	1.4	0.048	71.9	2	4	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.06	7	<0.1	<0.02	0.1	0.010	<0.01	<0.001
K94	Vegetation	<0.01	1.3	0.056	73.8	2	4	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.06	15	<0.1	<0.02	0.2	0.011	<0.01	<0.001
K95	Vegetation	<0.01	1.4	0.061	64.0	2	3	<0.01	<0.001	0.22	<0.1	0.2	<0.02	0.09	13	<0.1	<0.02	0.2	0.021	<0.01	<0.001
K96	Vegetation	<0.01	1.4	0.035	67.5	2	4	<0.01	<0.001	0.35	<0.1	0.3	<0.02	0.08	14	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
K97	Vegetation	<0.01	1.3	0.074	63.2	2	4	<0.01	<0.001	0.23	<0.1	0.2	<0.02	0.08	7	<0.1	<0.02	0.1	0.018	<0.01	<0.001
K98	Vegetation	<0.01	1.4	0.050	113.2	2	6	<0.01	<0.001	0.47	<0.1	0.2	<0.02	0.06	7	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
K99	Vegetation	<0.01	1.4	0.050	118.2	2	4	<0.01	<0.001	0.42	<0.1	0.3	<0.02	0.08	6	<0.1	<0.02	<0.1	0.014	0.02	<0.001
K100	Vegetation	<0.01	1.3	0.035	212.6	2	4	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	0.1	0.009	<0.01	<0.001
K101	Vegetation	<0.01	1.4	0.053	106.7	2	3	<0.01	<0.001	0.43	<0.1	0.2	<0.02	0.08	9	<0.1	<0.02	0.1	0.012	<0.01	<0.001
K102	Vegetation	<0.01	1.3	0.064	35.1	2	6	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.07	15	<0.1	<0.02	0.1	0.009	<0.01	<0.001
K103	Vegetation	<0.01	1.4	0.077	72.9	2	4	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.08	14	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
K104	Vegetation	<0.01	1.5	0.056	112.0	3	6	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.06	14	<0.1	<0.02	<0.1	<0.005	<0.01	0.001
K105	Vegetation	<0.01	1.3	0.045	111.1	2	4	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.05	16	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
K106	Vegetation	<0.01	1.5	0.046	26.8	2	3	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
K107	Vegetation	<0.01	1.4	0.061	133.5	2	2	<0.01	<0.001	0.43	<0.1	0.2	<0.02	0.06	7	<0.1	<0.02	<0.1	0.017	0.01	<0.001
L01	Vegetation	0.01	1.6	0.083	85.7	3	2	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.09	14	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
L02	Vegetation	<0.01	1.5	0.064	39.7	2	5	<0.01	<0.001	0.19	<0.1	0.2	<0.02	0.08	17	<0.1	<0.02	0.1	0.005	<0.01	<0.001
L03	Vegetation	<0.01	1.4	0.078	61.8	2	15	<0.01	<0.001	0.23	<0.1	0.2	<0.02	0.05	10	<0.1	<0.02	0.1	0.015	<0.01	<0.001
L04	Vegetation	<0.01	1.5	0.072	45.8	2	3	<0.01	<0.001	0.22	<0.1	0.2	<0.02	0.02	9	<0.1	<0.02	0.2	0.008	<0.01	<0.001
L05	Vegetation	<0.01	1.3	0.040	49.8	2	4	<0.01	<0.001	0.22	<0.1	0.2	<0.02	0.03	14	<0.1	<0.02	0.1	0.011	<0.01	<0.001
L06	Vegetation	<0.01	1.4	0.038	124.9	2	3	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.03	12	<0.1	<0.02	0.1	0.027	<0.01	<0.001
L07	Vegetation	<0.01	1.5	0.060	162.3	2	2	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.05	14	<0.1	<0.02	<0.1	0.030	<0.01	<0.001
L08	Vegetation	<0.01	1.5	0.049	37.3	2	3	<0.01	<0.001	0.24	<0.1	0.3	<0.02	0.06	13	<0.1	<0.02	<0.1	0.010	<0.01	<0.001
L09	Vegetation	<0.01	1.4	0.034	83.4	2	6	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.06	14	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
L10	Vegetation	<0.01	1.6	0.057	73.6	2	7	<0.01	0.001	0.30	<0.1	0.2	<0.02	0.05	16	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
L11	Vegetation	<0.01	1.4	0.084	95.7	2	3	<0.01	<0.001	0.21	<0.1	0.2	<0.02	0.04	18	<0.1	<0.02	0.2	0.012	<0.01	<0.001
L12	Vegetation	<0.01	1.3	0.047	56.3	2	3	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.06	11	<0.1	<0.02	0.2	0.010	<0.01	<0.001
L13	Vegetation	<0.01	1.3	0.037	95.7	2	4	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.06	18	<0.1	<0.02	0.2	0.013	<0.01	<0.001

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Project: RGS  
Report Date: July 25, 2014

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## CERTIFICATE OF ANALYSIS

WHI14000038.1

Method Analyte Unit MDL	VG101 Nb ppm 0.01	VG101 Rb ppm 0.1	VG101 Sn ppm 0.02	VG101 Ta ppm 0.001	VG101 Zr ppm 0.01	VG101 Y ppm 0.001	VG101 Ce ppm 0.01	VG101 In ppm 0.02	VG101 Re ppb 1	VG101 Be ppm 0.1	VG101 Li ppm 0.01	VG101 Pd ppb 2	VG101 Pt ppb 1													
														VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101					
														Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
														ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
K91	Vegetation	<0.01	4.1	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.09	<2	<1												
K92	Vegetation	<0.01	1.2	<0.02	<0.001	<0.01	0.011	0.02	<0.02	<1	<0.1	0.22	<2	<1												
K93	Vegetation	<0.01	3.4	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.14	<2	<1												
K94	Vegetation	<0.01	2.9	<0.02	<0.001	0.01	0.007	<0.01	<0.02	<1	<0.1	0.08	<2	<1												
K95	Vegetation	<0.01	3.2	<0.02	<0.001	0.01	0.010	0.02	<0.02	5	<0.1	0.30	<2	<1												
K96	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.010	0.01	<0.02	<1	<0.1	0.51	<2	<1												
K97	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.27	<2	<1												
K98	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	<0.01	<2	<1												
K99	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	<0.01	<2	<1												
K100	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	<0.01	<2	<1												
K101	Vegetation	<0.01	1.9	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	<0.01	<2	<1												
K102	Vegetation	<0.01	1.4	<0.02	<0.001	0.01	0.007	<0.01	<0.02	<1	<0.1	0.19	<2	<1												
K103	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.12	<2	<1												
K104	Vegetation	<0.01	0.5	<0.02	<0.001	0.01	0.009	0.02	<0.02	<1	<0.1	0.22	<2	<1												
K105	Vegetation	<0.01	0.9	<0.02	<0.001	0.01	0.002	0.01	<0.02	<1	<0.1	0.15	<2	<1												
K106	Vegetation	<0.01	0.7	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.18	<2	<1												
K107	Vegetation	<0.01	2.9	<0.02	<0.001	<0.01	0.002	<0.01	<0.02	<1	<0.1	0.02	<2	<1												
L01	Vegetation	<0.01	1.0	<0.02	<0.001	0.01	0.007	0.03	<0.02	<1	<0.1	0.42	<2	<1												
L02	Vegetation	<0.01	0.7	<0.02	<0.001	0.02	0.013	0.03	<0.02	<1	<0.1	0.18	<2	<1												
L03	Vegetation	<0.01	1.9	<0.02	<0.001	<0.01	0.004	0.01	<0.02	<1	<0.1	0.03	<2	<1												
L04	Vegetation	<0.01	1.1	<0.02	<0.001	0.01	0.009	0.02	<0.02	<1	<0.1	0.14	<2	<1												
L05	Vegetation	<0.01	1.4	<0.02	<0.001	0.01	0.008	0.04	<0.02	<1	<0.1	0.12	<2	<1												
L06	Vegetation	<0.01	3.1	<0.02	<0.001	0.02	0.011	0.02	<0.02	<1	<0.1	0.10	<2	<1												
L07	Vegetation	<0.01	3.1	<0.02	<0.001	0.01	0.008	0.02	<0.02	<1	<0.1	0.04	<2	<1												
L08	Vegetation	<0.01	1.2	<0.02	<0.001	0.01	0.006	0.02	<0.02	<1	<0.1	0.04	<2	<1												
L09	Vegetation	<0.01	1.0	<0.02	<0.001	0.01	0.005	0.02	<0.02	<1	<0.1	0.09	<2	<1												
L10	Vegetation	<0.01	1.1	<0.02	<0.001	0.01	0.005	0.01	<0.02	<1	<0.1	0.01	<2	<1												
L11	Vegetation	<0.01	1.6	<0.02	<0.001	0.01	0.011	0.04	<0.02	<1	<0.1	0.15	<2	<1												
L12	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.007	0.01	<0.02	<1	<0.1	0.19	<2	<1												
L13	Vegetation	<0.01	1.8	<0.02	<0.001	0.01	0.013	0.03	<0.02	<1	<0.1	0.10	<2	<1												

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**Project:** RGS  
**Report Date:** July 25, 2014

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**Part:** 1 of 3

CERTIFICATE OF ANALYSIS

WHI14000038.1

Method	Analyte	Unit	MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
				Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
				ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
				0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001
L14	Vegetation			0.02	1.47	0.11	86.6	16	0.3	0.05	1746	0.012	<0.1	<0.01	<0.2	<0.01	27.5	<0.01	0.04	<0.02	<2	1.04	0.051
L15	Vegetation			<0.01	1.41	0.12	75.5	20	0.2	0.05	1139	0.011	<0.1	<0.01	<0.2	<0.01	24.3	<0.01	0.05	<0.02	<2	0.96	0.050
L16	Vegetation			0.03	1.67	0.11	52.8	25	0.2	0.04	1046	0.009	<0.1	<0.01	<0.2	<0.01	19.5	<0.01	0.02	<0.02	<2	0.71	0.056
L17	Vegetation			0.01	1.95	0.07	97.3	18	0.4	0.04	1469	0.012	<0.1	<0.01	<0.2	<0.01	32.0	<0.01	0.04	<0.02	<2	1.09	0.064
L18	Vegetation			0.03	1.78	0.09	76.2	11	0.3	0.04	1602	0.010	<0.1	<0.01	<0.2	<0.01	28.5	<0.01	0.03	<0.02	<2	0.95	0.054
L19	Vegetation			0.03	1.63	0.06	74.8	21	0.2	0.04	1058	0.008	<0.1	<0.01	<0.2	<0.01	22.2	<0.01	0.04	<0.02	<2	0.85	0.052
L20	Vegetation			0.03	1.37	0.05	64.2	24	0.3	0.04	1448	0.008	<0.1	<0.01	<0.2	<0.01	20.7	<0.01	0.04	<0.02	<2	0.77	0.073
L21	Vegetation			<0.01	1.11	0.08	55.2	18	0.3	0.03	686	0.007	<0.1	<0.01	<0.2	<0.01	26.6	<0.01	0.04	<0.02	<2	0.77	0.084
L22	Vegetation			<0.01	1.51	0.08	65.1	8	0.3	0.03	1082	0.009	<0.1	<0.01	<0.2	<0.01	30.2	<0.01	0.05	<0.02	<2	0.93	0.063
L23	Vegetation			<0.01	1.35	0.07	76.6	13	0.2	0.03	908	0.009	<0.1	<0.01	<0.2	<0.01	23.0	<0.01	0.04	<0.02	<2	0.83	0.047
L24	Vegetation			<0.01	1.41	0.08	61.8	22	0.2	0.03	588	0.007	<0.1	<0.01	<0.2	<0.01	26.5	<0.01	0.04	<0.02	<2	0.72	0.051
L25	Vegetation			0.01	1.82	0.08	66.4	19	0.3	0.05	1837	0.007	0.1	<0.01	<0.2	<0.01	16.5	<0.01	0.05	<0.02	<2	0.67	0.063
L26	Vegetation			<0.01	1.48	0.05	64.9	20	0.2	0.03	1225	0.007	<0.1	<0.01	<0.2	<0.01	14.6	<0.01	0.05	<0.02	<2	0.76	0.055
L27	Vegetation			<0.01	3.95	0.07	69.4	20	0.8	0.03	852	0.007	<0.1	<0.01	<0.2	<0.01	21.3	<0.01	0.03	<0.02	<2	0.67	0.057
L28	Vegetation			<0.01	1.72	0.10	108.3	24	0.2	0.04	458	0.010	<0.1	<0.01	<0.2	<0.01	32.9	<0.01	0.04	<0.02	<2	0.96	0.045
L29	Vegetation			<0.01	1.53	0.05	60.9	9	<0.1	0.04	686	0.006	<0.1	<0.01	<0.2	<0.01	22.3	<0.01	0.04	<0.02	<2	0.73	0.066
L30	Vegetation			<0.01	1.55	0.05	97.4	34	0.1	0.03	520	0.007	<0.1	<0.01	<0.2	<0.01	29.3	<0.01	0.03	<0.02	<2	0.72	0.053
L31	Vegetation			<0.01	1.63	0.08	84.9	12	0.1	0.06	1189	0.008	<0.1	<0.01	<0.2	<0.01	15.3	<0.01	0.06	<0.02	<2	0.77	0.055
L32	Vegetation			<0.01	1.64	0.05	87.6	8	0.1	0.03	1633	0.007	0.1	<0.01	<0.2	<0.01	19.8	0.02	0.03	<0.02	<2	0.72	0.052
L33	Vegetation			<0.01	1.90	0.04	59.6	10	0.3	0.01	947	0.005	<0.1	<0.01	<0.2	<0.01	20.8	<0.01	0.04	<0.02	<2	0.51	0.066
L34	Vegetation			<0.01	1.38	0.07	71.6	43	0.1	0.03	788	0.007	<0.1	<0.01	<0.2	<0.01	20.3	<0.01	0.04	<0.02	<2	0.76	0.075
L35	Vegetation			<0.01	1.28	0.07	60.9	13	0.1	0.04	930	0.009	<0.1	<0.01	<0.2	<0.01	19.6	<0.01	0.05	<0.02	<2	0.94	0.071
L36	Vegetation			<0.01	1.27	0.05	61.7	9	0.2	0.04	1330	0.007	<0.1	<0.01	<0.2	<0.01	19.2	0.01	0.04	<0.02	<2	0.71	0.058
L37	Vegetation			0.03	1.46	0.04	48.8	13	0.2	0.04	814	0.006	<0.1	<0.01	<0.2	<0.01	15.2	0.02	0.03	<0.02	<2	0.62	0.066
L38	Vegetation			0.01	1.47	0.04	41.6	12	0.3	0.05	539	0.007	<0.1	<0.01	<0.2	<0.01	16.6	<0.01	<0.02	<0.02	<2	0.76	0.074
L39	Vegetation			0.01	1.47	0.07	63.3	30	0.3	0.08	1141	0.008	<0.1	<0.01	<0.2	<0.01	25.2	<0.01	0.05	<0.02	<2	0.88	0.066
L40	Vegetation			<0.01	1.75	0.05	45.7	29	0.4	0.11	1366	0.007	<0.1	<0.01	<0.2	<0.01	28.1	<0.01	0.05	<0.02	<2	0.87	0.087
L41	Vegetation			0.01	1.66	0.07	75.9	13	<0.1	0.03	849	0.009	<0.1	<0.01	<0.2	<0.01	26.2	<0.01	0.06	<0.02	<2	1.02	0.068
L42	Vegetation			<0.01	1.59	0.05	73.3	13	0.2	0.05	781	0.009	<0.1	<0.01	<0.2	<0.01	20.1	<0.01	0.05	<0.02	<2	1.02	0.057
L43	Vegetation			<0.01	1.58	0.07	58.5	6	<0.1	0.03	1048	0.008	<0.1	<0.01	<0.2	<0.01	18.4	<0.01	0.05	<0.02	<2	0.71	0.048

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Report Date: July 25, 2014

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# CERTIFICATE OF ANALYSIS

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Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf	
Unit	ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
MDL	0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001	
L14	Vegetation	<0.01	1.4	0.047	90.7	2	7	<0.01	<0.001	0.22	<0.1	0.3	<0.02	0.05	20	<0.1	<0.02	0.2	0.007	<0.01	<0.001
L15	Vegetation	<0.01	1.3	0.060	94.3	3	4	<0.01	<0.001	0.19	<0.1	0.2	<0.02	0.06	22	<0.1	<0.02	0.2	0.010	<0.01	0.001
L16	Vegetation	0.01	1.4	0.045	64.9	2	4	<0.01	<0.001	0.25	<0.1	0.3	<0.02	0.05	17	<0.1	<0.02	0.1	0.006	<0.01	<0.001
L17	Vegetation	<0.01	1.3	0.067	93.7	2	5	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.05	17	<0.1	<0.02	0.2	0.010	<0.01	<0.001
L18	Vegetation	<0.01	1.4	0.068	107.7	2	3	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.06	16	<0.1	<0.02	0.2	0.026	<0.01	<0.001
L19	Vegetation	<0.01	1.3	0.066	46.1	2	4	<0.01	<0.001	0.20	<0.1	0.2	<0.02	0.04	14	<0.1	<0.02	0.2	0.010	<0.01	<0.001
L20	Vegetation	<0.01	1.5	0.053	68.5	2	3	<0.01	<0.001	0.21	<0.1	0.3	<0.02	0.07	15	<0.1	<0.02	0.2	0.015	<0.01	<0.001
L21	Vegetation	<0.01	1.4	0.039	82.8	2	6	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.07	16	<0.1	<0.02	0.1	0.007	<0.01	<0.001
L22	Vegetation	<0.01	1.4	0.056	150.2	2	4	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.07	18	<0.1	<0.02	0.1	0.009	<0.01	0.001
L23	Vegetation	<0.01	1.5	0.039	70.1	2	5	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.07	10	<0.1	<0.02	0.1	0.012	<0.01	<0.001
L24	Vegetation	<0.01	1.5	0.039	81.9	2	5	<0.01	<0.001	0.26	<0.1	0.3	<0.02	0.07	13	<0.1	<0.02	0.1	0.008	<0.01	0.001
L25	Vegetation	<0.01	1.4	0.051	38.6	2	4	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.07	17	<0.1	<0.02	0.2	0.015	<0.01	<0.001
L26	Vegetation	<0.01	1.4	0.055	65.2	2	8	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	0.2	0.012	<0.01	<0.001
L27	Vegetation	<0.01	1.4	0.062	66.3	2	2	<0.01	<0.001	0.22	<0.1	0.2	<0.02	0.07	10	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
L28	Vegetation	0.01	1.5	0.056	106.7	2	11	<0.01	<0.001	0.25	<0.1	0.3	<0.02	0.07	16	<0.1	<0.02	<0.1	0.012	<0.01	<0.001
L29	Vegetation	<0.01	1.3	0.063	92.1	2	3	<0.01	<0.001	0.39	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	0.1	0.008	<0.01	<0.001
L30	Vegetation	<0.01	1.4	0.071	108.2	2	4	<0.01	<0.001	0.30	<0.1	0.3	<0.02	0.06	10	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
L31	Vegetation	<0.01	1.3	0.066	67.2	2	3	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.08	18	<0.1	<0.02	0.2	0.010	<0.01	<0.001
L32	Vegetation	<0.01	1.3	0.046	60.3	2	3	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.02	11	<0.1	<0.02	0.2	0.010	<0.01	<0.001
L33	Vegetation	<0.01	1.2	0.063	74.7	2	3	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.02	10	<0.1	<0.02	0.1	0.016	<0.01	0.001
L34	Vegetation	<0.01	1.4	0.060	60.8	2	4	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.04	13	<0.1	<0.02	0.1	0.024	<0.01	0.001
L35	Vegetation	<0.01	1.3	0.051	43.8	2	4	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.04	14	<0.1	<0.02	0.1	0.010	<0.01	<0.001
L36	Vegetation	<0.01	1.3	0.039	52.6	2	2	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.04	12	<0.1	<0.02	0.2	0.008	<0.01	<0.001
L37	Vegetation	<0.01	1.4	0.064	58.8	2	3	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.06	11	<0.1	<0.02	0.1	0.007	<0.01	<0.001
L38	Vegetation	<0.01	1.4	0.057	44.7	2	6	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.05	12	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
L39	Vegetation	<0.01	1.4	0.042	122.7	2	3	<0.01	<0.001	0.24	<0.1	0.2	0.02	0.02	10	<0.1	<0.02	0.1	0.039	<0.01	<0.001
L40	Vegetation	<0.01	1.3	0.040	144.4	2	2	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.05	12	<0.1	<0.02	0.1	0.039	<0.01	<0.001
L41	Vegetation	<0.01	1.2	0.035	90.8	2	11	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.03	13	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
L42	Vegetation	<0.01	1.4	0.075	35.2	2	8	<0.01	<0.001	0.27	<0.1	0.1	<0.02	0.05	13	<0.1	<0.02	0.1	0.007	<0.01	<0.001
L43	Vegetation	<0.01	1.3	0.063	51.2	2	9	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.05	13	<0.1	<0.02	0.1	0.008	<0.01	<0.001



## CERTIFICATE OF ANALYSIS

WHI14000038.1

Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb	ppb
MDL		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
L14	Vegetation	<0.01	1.3	<0.02	<0.001	0.02	0.013	0.04	<0.02	<1	<0.1	0.23	<2	<1
L15	Vegetation	<0.01	1.6	<0.02	<0.001	0.02	0.012	0.04	<0.02	<1	<0.1	0.14	<2	<1
L16	Vegetation	<0.01	1.6	<0.02	<0.001	0.02	0.011	0.04	<0.02	<1	<0.1	0.15	<2	<1
L17	Vegetation	<0.01	2.4	<0.02	<0.001	0.02	0.010	0.03	<0.02	<1	<0.1	0.15	<2	<1
L18	Vegetation	<0.01	2.3	<0.02	<0.001	0.01	0.010	0.02	<0.02	<1	<0.1	0.12	<2	<1
L19	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	0.14	<2	<1
L20	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.004	0.01	<0.02	<1	<0.1	0.11	<2	<1
L21	Vegetation	<0.01	1.7	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.12	<2	<1
L22	Vegetation	<0.01	2.4	<0.02	<0.001	0.01	0.008	0.02	<0.02	<1	<0.1	0.12	<2	<1
L23	Vegetation	<0.01	2.0	<0.02	<0.001	0.01	0.007	0.02	<0.02	<1	<0.1	0.18	<2	<1
L24	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.007	0.03	<0.02	<1	<0.1	0.58	<2	<1
L25	Vegetation	<0.01	2.2	<0.02	<0.001	0.01	0.008	0.02	<0.02	<1	<0.1	0.16	<2	<1
L26	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.004	0.01	<0.02	<1	<0.1	0.14	<2	<1
L27	Vegetation	<0.01	1.3	<0.02	<0.001	0.01	0.009	0.02	<0.02	<1	<0.1	0.24	<2	<1
L28	Vegetation	<0.01	1.5	<0.02	<0.001	0.02	0.011	0.03	<0.02	<1	<0.1	0.16	<2	<1
L29	Vegetation	<0.01	1.3	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	0.10	<2	<1
L30	Vegetation	<0.01	0.5	<0.02	<0.001	0.01	0.006	0.01	<0.02	<1	<0.1	0.17	<2	<1
L31	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	0.17	<2	<1
L32	Vegetation	<0.01	1.8	<0.02	<0.001	0.01	0.007	0.01	<0.02	<1	<0.1	0.11	<2	<1
L33	Vegetation	<0.01	2.8	<0.02	<0.001	<0.01	0.005	0.01	<0.02	<1	<0.1	0.09	<2	<1
L34	Vegetation	<0.01	2.3	<0.02	<0.001	0.01	0.009	0.01	<0.02	<1	<0.1	0.08	<2	<1
L35	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.006	0.02	<0.02	<1	<0.1	0.06	<2	<1
L36	Vegetation	<0.01	1.5	<0.02	<0.001	0.02	0.005	0.02	<0.02	<1	<0.1	0.05	<2	<1
L37	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
L38	Vegetation	<0.01	1.6	<0.02	<0.001	0.01	0.006	<0.01	<0.02	<1	<0.1	0.06	<2	<1
L39	Vegetation	<0.01	3.6	<0.02	<0.001	0.01	0.009	0.02	<0.02	<1	<0.1	0.02	<2	<1
L40	Vegetation	<0.01	6.3	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.03	<2	<1
L41	Vegetation	<0.01	1.6	<0.02	<0.001	0.02	0.009	0.01	<0.02	<1	<0.1	0.04	<2	<1
L42	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.008	<0.01	<0.02	<1	<0.1	0.02	<2	<1
L43	Vegetation	<0.01	1.4	<0.02	<0.001	0.01	0.007	0.02	<0.02	<1	<0.1	0.05	<2	<1

**CERTIFICATE OF ANALYSIS**

**WHI14000038.1**

Method Analyte Unit MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
L44	Vegetation	<0.01	1.31	0.08	84.3	17	0.1	0.03	1133	0.010	<0.1	<0.01	<0.2	<0.01	26.9	<0.01	0.03	<0.02	<2	1.20	0.043
L45	Vegetation	0.01	1.13	0.05	58.6	27	0.1	0.08	698	0.007	<0.1	<0.01	<0.2	<0.01	25.2	<0.01	0.03	<0.02	<2	0.91	0.063
L46	Vegetation	0.03	1.36	0.05	65.3	26	0.2	0.03	243	0.008	<0.1	<0.01	<0.2	<0.01	36.5	<0.01	0.03	<0.02	<2	0.83	0.103
L47	Vegetation	0.02	1.31	0.05	71.0	10	0.1	0.04	562	0.007	<0.1	<0.01	<0.2	<0.01	25.0	<0.01	0.04	<0.02	<2	0.76	0.072
L48	Vegetation	<0.01	1.39	0.06	66.3	26	0.2	0.02	585	0.008	0.1	<0.01	<0.2	<0.01	18.8	<0.01	0.03	<0.02	<2	0.75	0.059
L49	Vegetation	0.19	1.13	0.04	61.9	15	0.3	0.04	965	0.008	<0.1	<0.01	<0.2	<0.01	30.2	<0.01	0.04	<0.02	<2	0.91	0.086
L50	Vegetation	0.01	1.38	0.05	56.1	7	0.5	0.06	1316	0.007	<0.1	<0.01	<0.2	<0.01	21.9	0.04	0.04	<0.02	<2	0.74	0.071
L51	Vegetation	0.05	1.53	0.03	64.0	20	0.4	0.05	932	0.006	<0.1	<0.01	<0.2	<0.01	26.9	<0.01	0.04	<0.02	<2	0.76	0.083
L52	Vegetation	0.01	1.26	0.07	47.8	37	0.6	0.10	1257	0.010	<0.1	<0.01	<0.2	<0.01	34.6	0.01	0.05	<0.02	<2	1.17	0.080
L53	Vegetation	<0.01	1.44	0.04	48.9	14	0.2	0.04	1058	0.009	<0.1	<0.01	<0.2	<0.01	20.1	<0.01	0.07	<0.02	<2	0.99	0.073
L54	Vegetation	<0.01	1.25	0.07	80.4	18	0.1	0.04	1172	0.008	<0.1	<0.01	<0.2	<0.01	28.2	0.02	0.06	<0.02	<2	0.89	0.072
L55	Vegetation	<0.01	1.33	0.05	62.6	11	0.1	0.03	877	0.008	<0.1	<0.01	<0.2	<0.01	24.8	<0.01	0.04	<0.02	<2	0.94	0.095
L56	Vegetation	0.01	1.28	0.07	49.4	33	0.2	0.07	1508	0.007	<0.1	<0.01	<0.2	<0.01	22.8	<0.01	0.05	<0.02	<2	0.79	0.071
L57	Vegetation	<0.01	1.44	0.07	87.2	31	0.2	0.04	1163	0.010	<0.1	<0.01	<0.2	<0.01	24.6	<0.01	0.04	<0.02	<2	0.99	0.061
L58	Vegetation	0.04	1.66	0.07	54.7	33	0.5	0.05	741	0.009	<0.1	<0.01	<0.2	<0.01	39.8	0.02	0.04	<0.02	<2	0.98	0.091
L59	Vegetation	0.03	1.25	0.04	38.5	23	0.2	0.03	318	0.004	0.1	<0.01	<0.2	<0.01	21.5	<0.01	0.03	<0.02	<2	0.43	0.080
L60	Vegetation	<0.01	1.38	0.06	84.8	18	0.1	0.03	277	0.007	<0.1	<0.01	<0.2	<0.01	28.2	<0.01	0.03	<0.02	<2	0.79	0.080
L61	Vegetation	<0.01	1.25	0.07	89.0	11	0.1	0.03	594	0.006	<0.1	<0.01	<0.2	<0.01	19.3	<0.01	0.04	<0.02	<2	0.51	0.064
L62	Vegetation	<0.01	1.28	0.07	83.6	16	0.2	0.05	1045	0.011	<0.1	<0.01	<0.2	<0.01	32.0	<0.01	0.03	<0.02	<2	1.05	0.072
L63	Vegetation	0.01	1.31	0.08	63.6	26	0.2	0.03	583	0.009	<0.1	<0.01	<0.2	<0.01	23.2	<0.01	0.05	<0.02	<2	0.64	0.085
L64	Vegetation	<0.01	1.15	0.07	65.9	25	0.2	0.04	1167	0.010	<0.1	<0.01	<0.2	<0.01	31.4	<0.01	0.02	<0.02	<2	1.10	0.084
L65	Vegetation	<0.01	1.53	0.09	75.9	42	0.2	0.05	613	0.011	<0.1	<0.01	<0.2	<0.01	28.3	<0.01	0.04	<0.02	<2	1.11	0.074
L66	Vegetation	<0.01	1.46	0.08	70.2	15	<0.1	0.03	1194	0.009	<0.1	<0.01	<0.2	<0.01	16.9	<0.01	0.03	<0.02	<2	0.80	0.060
L67	Vegetation	<0.01	1.41	0.07	64.9	7	0.1	0.03	825	0.006	0.1	<0.01	<0.2	<0.01	13.3	<0.01	0.04	<0.02	<2	0.62	0.069
L68	Vegetation	<0.01	1.67	0.05	43.9	10	0.2	0.05	1081	0.005	<0.1	<0.01	<0.2	<0.01	12.1	0.03	0.05	<0.02	<2	0.51	0.097
L69	Vegetation	<0.01	1.34	0.08	70.2	11	0.1	0.04	553	0.009	<0.1	<0.01	<0.2	<0.01	20.9	<0.01	0.03	<0.02	<2	0.89	0.061
L70	Vegetation	<0.01	1.28	0.08	71.6	16	0.1	0.03	486	0.007	0.1	<0.01	<0.2	<0.01	16.6	<0.01	0.03	<0.02	<2	0.69	0.068
L71	Vegetation	<0.01	1.63	0.04	69.2	20	0.1	0.03	776	0.008	<0.1	<0.01	<0.2	<0.01	21.0	<0.01	0.02	<0.02	<2	0.90	0.053
L72	Vegetation	<0.01	1.27	0.08	86.1	18	0.2	0.04	1430	0.008	<0.1	<0.01	<0.2	<0.01	28.4	0.01	<0.02	<0.02	<2	0.70	0.055
L73	Vegetation	0.01	1.67	0.03	60.6	6	<0.1	0.04	616	0.006	<0.1	<0.01	<0.2	<0.01	23.4	<0.01	0.02	<0.02	<2	0.73	0.091

CERTIFICATE OF ANALYSIS

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf
Unit		ppm	ppm	%	ppm	ppm	ppm	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm
MDL		0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.02	0.1	0.005	0.01	0.001	0.001
L44	Vegetation	<0.01	1.3	0.065	76.4	2	11	<0.01	<0.001	0.21	<0.1	0.2	<0.02	0.05	15	<0.1	<0.02	0.1	0.009	<0.01	<0.001
L45	Vegetation	<0.01	1.4	0.039	66.5	2	4	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.06	10	<0.1	<0.02	0.1	0.022	<0.01	0.001
L46	Vegetation	<0.01	1.4	0.054	132.7	2	11	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
L47	Vegetation	<0.01	1.4	0.038	102.5	2	6	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	<0.1	0.015	<0.01	<0.001
L48	Vegetation	<0.01	1.5	0.056	62.0	2	4	<0.01	<0.001	0.22	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	<0.005	0.02	<0.001
L49	Vegetation	<0.01	1.4	0.055	120.1	2	6	<0.01	<0.001	0.30	<0.1	0.3	<0.02	0.06	13	<0.1	<0.02	0.1	0.050	<0.01	<0.001
L50	Vegetation	<0.01	1.3	0.041	127.9	2	3	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.1	0.050	<0.01	<0.001
L51	Vegetation	<0.01	1.3	0.061	165.2	2	5	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.05	9	<0.1	<0.02	0.1	0.032	<0.01	<0.001
L52	Vegetation	<0.01	1.4	0.046	135.9	2	3	<0.01	<0.001	0.30	<0.1	0.3	<0.02	0.05	18	<0.1	<0.02	0.1	0.066	<0.01	<0.001
L53	Vegetation	<0.01	1.4	0.066	45.9	2	5	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.06	14	<0.1	<0.02	0.1	0.008	<0.01	0.002
L54	Vegetation	<0.01	1.4	0.047	118.6	2	9	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	0.1	0.009	<0.01	0.001
L55	Vegetation	<0.01	1.4	0.079	86.1	2	6	<0.01	<0.001	0.31	<0.1	0.1	<0.02	0.06	13	<0.1	<0.02	0.1	0.006	<0.01	<0.001
L56	Vegetation	<0.01	1.3	0.048	84.3	2	4	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.05	14	<0.1	<0.02	0.2	0.019	<0.01	<0.001
L57	Vegetation	<0.01	1.4	0.062	70.0	2	10	<0.01	<0.001	0.28	<0.1	0.3	<0.02	0.07	13	<0.1	<0.02	0.1	0.009	<0.01	<0.001
L58	Vegetation	0.01	1.4	0.048	195.8	2	5	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.06	16	<0.1	<0.02	0.1	0.026	<0.01	<0.001
L59	Vegetation	<0.01	1.5	0.052	84.7	2	3	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.06	9	<0.1	<0.02	<0.1	0.069	<0.01	<0.001
L60	Vegetation	<0.01	1.4	0.063	96.2	2	8	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.06	11	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
L61	Vegetation	<0.01	1.3	0.057	66.4	2	5	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
L62	Vegetation	0.01	1.4	0.081	104.7	2	7	<0.01	<0.001	0.23	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	0.1	0.009	<0.01	<0.001
L63	Vegetation	<0.01	1.4	0.047	73.2	2	14	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.07	13	<0.1	<0.02	0.1	0.006	<0.01	0.001
L64	Vegetation	<0.01	1.3	0.088	80.1	2	4	<0.01	<0.001	0.21	<0.1	0.2	<0.02	0.05	16	<0.1	<0.02	0.1	0.015	<0.01	<0.001
L65	Vegetation	<0.01	1.3	0.054	84.8	2	6	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.06	16	<0.1	<0.02	0.1	0.017	<0.01	<0.001
L66	Vegetation	<0.01	1.3	0.062	47.8	2	10	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.1	0.011	<0.01	<0.001
L67	Vegetation	<0.01	1.4	0.052	34.4	2	4	<0.01	<0.001	0.23	<0.1	0.2	<0.02	0.02	18	<0.1	<0.02	<0.1	0.011	<0.01	<0.001
L68	Vegetation	<0.01	1.2	0.078	51.0	1	4	<0.01	<0.001	0.37	<0.1	0.1	<0.02	0.04	8	<0.1	<0.02	0.1	0.021	<0.01	<0.001
L69	Vegetation	<0.01	1.4	0.051	67.1	2	5	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.04	12	<0.1	<0.02	<0.1	0.008	<0.01	<0.001
L70	Vegetation	<0.01	1.5	0.045	41.9	2	3	<0.01	<0.001	0.31	<0.1	0.4	<0.02	0.05	15	<0.1	<0.02	<0.1	0.005	<0.01	<0.001
L71	Vegetation	<0.01	1.4	0.057	49.2	2	5	<0.01	<0.001	0.22	<0.1	0.2	<0.02	0.06	16	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
L72	Vegetation	<0.01	1.4	0.043	67.9	2	8	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.07	22	<0.1	<0.02	0.1	0.008	<0.01	<0.001
L73	Vegetation	<0.01	1.4	0.068	58.4	2	12	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.05	13	<0.1	<0.02	<0.1	0.008	<0.01	<0.001

**CERTIFICATE OF ANALYSIS**

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
MDL		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
L44	Vegetation	<0.01	1.2	<0.02	<0.001	0.01	0.013	0.02	<0.02	<1	<0.1	0.09	<2	<1
L45	Vegetation	<0.01	3.2	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L46	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.009	0.01	<0.02	<1	<0.1	0.26	<2	<1
L47	Vegetation	<0.01	3.7	<0.02	<0.001	0.01	0.007	0.02	<0.02	<1	<0.1	0.02	<2	<1
L48	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.004	0.01	<0.02	<1	<0.1	0.15	<2	<1
L49	Vegetation	<0.01	3.7	<0.02	<0.001	<0.01	0.005	0.01	<0.02	<1	<0.1	0.05	<2	<1
L50	Vegetation	<0.01	5.1	<0.02	<0.001	0.01	0.007	<0.01	<0.02	<1	<0.1	0.03	<2	<1
L51	Vegetation	<0.01	5.1	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.04	<2	<1
L52	Vegetation	<0.01	4.9	<0.02	<0.001	0.01	0.011	0.02	<0.02	<1	<0.1	0.08	<2	<1
L53	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.02	<2	<1
L54	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.009	0.01	<0.02	<1	<0.1	0.07	<2	<1
L55	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L56	Vegetation	<0.01	2.0	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L57	Vegetation	<0.01	1.9	<0.02	<0.001	0.01	0.006	0.02	<0.02	<1	<0.1	0.10	<2	<1
L58	Vegetation	<0.01	4.6	<0.02	<0.001	0.01	0.015	0.03	<0.02	<1	<0.1	0.08	<2	<1
L59	Vegetation	<0.01	3.9	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.01	<2	<1
L60	Vegetation	<0.01	1.2	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.27	<2	<1
L61	Vegetation	<0.01	1.0	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	0.13	<2	<1
L62	Vegetation	<0.01	2.0	<0.02	<0.001	0.02	0.011	0.03	<0.02	<1	<0.1	0.15	<2	<1
L63	Vegetation	<0.01	1.6	<0.02	<0.001	0.02	0.011	0.03	<0.02	<1	<0.1	0.34	<2	<1
L64	Vegetation	<0.01	1.3	<0.02	<0.001	0.01	0.010	0.02	<0.02	<1	<0.1	0.11	<2	<1
L65	Vegetation	<0.01	2.0	<0.02	<0.001	0.01	0.010	0.02	<0.02	<1	<0.1	0.08	<2	<1
L66	Vegetation	<0.01	2.6	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	0.03	<2	<1
L67	Vegetation	<0.01	1.1	<0.02	<0.001	0.01	0.009	<0.01	<0.02	<1	<0.1	0.02	<2	<1
L68	Vegetation	<0.01	3.3	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
L69	Vegetation	<0.01	1.8	<0.02	<0.001	0.01	0.013	0.02	<0.02	<1	<0.1	0.05	<2	<1
L70	Vegetation	<0.01	1.5	<0.02	<0.001	0.01	0.012	0.01	<0.02	<1	<0.1	0.03	<2	<1
L71	Vegetation	<0.01	1.3	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.03	<2	<1
L72	Vegetation	<0.01	1.9	<0.02	<0.001	0.02	0.011	0.02	<0.02	<1	<0.1	0.13	<2	<1
L73	Vegetation	<0.01	2.5	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	<0.01	<2	<1

CERTIFICATE OF ANALYSIS

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	
MDL		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001
L74	Vegetation	<0.01	1.71	0.06	81.5	14	0.2	0.05	1808	0.009	<0.1	<0.01	<0.2	<0.01	25.9	<0.01	0.04	<0.02	<2	1.10	0.056
L75	Vegetation	<0.01	1.37	0.06	84.0	10	0.2	0.04	1662	0.008	<0.1	<0.01	<0.2	<0.01	27.5	<0.01	0.04	<0.02	<2	0.91	0.074
L76	Vegetation	<0.01	1.23	0.06	103.9	21	<0.1	0.04	1418	0.008	<0.1	<0.01	<0.2	<0.01	24.3	0.02	0.04	<0.02	<2	0.83	0.062
L77	Vegetation	0.04	1.31	0.06	70.2	20	0.2	0.04	474	0.009	<0.1	<0.01	<0.2	<0.01	34.8	<0.01	0.03	<0.02	<2	0.91	0.092
L78	Vegetation	<0.01	1.72	0.06	41.7	16	0.1	0.09	1293	0.007	<0.1	<0.01	<0.2	<0.01	16.9	0.03	0.04	<0.02	<2	0.79	0.061
L79	Vegetation	<0.01	1.41	0.04	52.4	21	0.2	0.02	476	0.006	<0.1	<0.01	<0.2	<0.01	25.9	<0.01	0.04	<0.02	<2	0.72	0.059
L80	Vegetation	<0.01	1.26	0.06	57.5	15	0.3	0.04	397	0.008	<0.1	<0.01	<0.2	<0.01	27.5	<0.01	0.03	<0.02	<2	0.72	0.088
L81	Vegetation	<0.01	2.13	0.14	56.9	14	0.2	0.04	893	0.009	<0.1	<0.01	<0.2	<0.01	15.9	<0.01	0.03	<0.02	<2	0.70	0.086
L82	Vegetation	0.05	1.42	0.09	73.8	15	0.2	0.04	556	0.009	<0.1	<0.01	<0.2	<0.01	29.2	<0.01	0.03	<0.02	<2	0.86	0.072
L83	Vegetation	0.03	1.41	0.06	42.0	17	0.6	0.06	1065	0.008	<0.1	<0.01	<0.2	<0.01	35.2	<0.01	0.03	<0.02	<2	0.84	0.094
L84	Vegetation	0.09	1.40	0.10	86.6	33	0.2	0.04	917	0.010	<0.1	<0.01	<0.2	<0.01	34.6	<0.01	0.04	<0.02	<2	1.00	0.068
L85	Vegetation	0.07	1.31	0.06	34.7	31	0.3	0.05	949	0.007	<0.1	<0.01	<0.2	<0.01	22.6	<0.01	0.04	<0.02	<2	0.76	0.069
L86	Vegetation	0.03	1.58	0.07	38.5	8	0.3	0.11	1060	0.006	<0.1	<0.01	<0.2	<0.01	39.9	<0.01	0.03	<0.02	<2	0.70	0.092
L87	Vegetation	0.02	1.61	0.05	39.6	16	0.3	0.07	725	0.007	<0.1	<0.01	<0.2	<0.01	35.4	<0.01	0.02	<0.02	<2	0.81	0.093
L88	Vegetation	0.07	1.43	0.04	51.9	10	0.2	0.03	158	0.007	<0.1	<0.01	<0.2	<0.01	31.3	<0.01	0.04	<0.02	<2	0.77	0.073
L89	Vegetation	<0.01	1.79	0.04	32.8	19	0.2	0.11	1846	0.005	<0.1	<0.01	<0.2	<0.01	10.0	0.02	0.04	<0.02	<2	0.47	0.078
L90	Vegetation	<0.01	1.33	0.05	62.4	15	0.2	0.04	468	0.009	<0.1	<0.01	<0.2	<0.01	22.1	<0.01	0.04	<0.02	<2	0.99	0.066
L91	Vegetation	<0.01	1.40	0.08	85.7	29	0.2	0.05	937	0.011	<0.1	<0.01	<0.2	<0.01	20.3	<0.01	0.04	<0.02	<2	1.07	0.048
L92	Vegetation	<0.01	1.32	0.08	82.1	11	0.1	0.03	256	0.009	<0.1	<0.01	<0.2	<0.01	35.9	<0.01	0.04	<0.02	<2	0.83	0.095
L92a	Vegetation	0.01	1.45	0.09	100.0	23	0.2	0.04	892	0.009	<0.1	<0.01	<0.2	<0.01	30.8	<0.01	0.04	<0.02	<2	0.95	0.065
L93	Vegetation	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
L94	Vegetation	0.25	1.45	0.05	47.2	16	0.3	0.04	371	0.006	<0.1	<0.01	<0.2	<0.01	32.6	<0.01	0.03	<0.02	<2	0.75	0.113
L95	Vegetation	0.02	1.41	0.07	96.0	57	0.4	0.06	1829	0.012	<0.1	<0.01	<0.2	<0.01	52.8	<0.01	0.04	<0.02	<2	1.22	0.087
L96	Vegetation	<0.01	1.28	0.05	46.4	21	0.5	0.07	1412	0.007	<0.1	<0.01	<0.2	<0.01	23.2	<0.01	0.03	<0.02	<2	0.78	0.094
L97	Vegetation	0.05	1.46	0.06	63.2	15	0.4	0.02	636	0.006	<0.1	<0.01	<0.2	<0.01	28.0	0.01	0.03	<0.02	<2	0.67	0.073
L98	Vegetation	0.16	1.19	0.07	61.9	3	0.1	0.05	361	0.009	<0.1	<0.01	<0.2	<0.01	37.9	<0.01	0.04	<0.02	<2	0.92	0.084
L99	Vegetation	0.02	1.58	0.08	84.0	12	0.2	0.04	300	0.011	<0.1	<0.01	0.8	<0.01	68.9	<0.01	0.04	<0.02	<2	1.09	0.093
L100	Vegetation	0.01	1.49	0.06	72.2	17	0.1	0.03	213	0.008	<0.1	<0.01	<0.2	<0.01	31.7	<0.01	0.03	<0.02	<2	0.82	0.089
L101	Vegetation	<0.01	1.76	0.11	61.7	19	0.1	0.04	148	0.009	<0.1	<0.01	<0.2	<0.01	38.3	<0.01	0.04	<0.02	<2	0.94	0.087
L102	Vegetation	0.03	1.71	0.10	83.3	18	0.2	0.04	196	0.010	<0.1	<0.01	<0.2	<0.01	43.1	<0.01	0.04	0.02	<2	1.04	0.122

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Unit	MDL	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf
		ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm
		0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001
L74	Vegetation	<0.01	1.4	0.072	76.1	2	7	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.05	21	<0.1	<0.02	0.2	0.008	<0.01	<0.001
L75	Vegetation	<0.01	1.4	0.074	71.3	2	12	<0.01	<0.001	0.30	<0.1	0.1	<0.02	0.08	9	<0.1	<0.02	0.2	<0.005	<0.01	<0.001
L76	Vegetation	<0.01	1.3	0.047	52.2	2	6	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.05	9	<0.1	<0.02	0.2	0.010	<0.01	<0.001
L77	Vegetation	<0.01	1.4	0.086	116.3	2	4	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.10	14	<0.1	<0.02	<0.1	0.010	0.02	<0.001
L78	Vegetation	<0.01	1.6	0.073	32.3	1	2	<0.01	<0.001	0.27	<0.1	0.1	<0.02	0.02	16	<0.1	<0.02	0.1	0.036	<0.01	<0.001
L79	Vegetation	<0.01	1.4	0.055	85.8	1	7	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.03	12	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
L80	Vegetation	<0.01	1.5	0.065	100.5	2	3	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.05	12	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
L81	Vegetation	<0.01	1.4	0.060	49.5	2	3	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.05	15	<0.1	<0.02	0.1	0.007	<0.01	<0.001
L82	Vegetation	<0.01	1.4	0.061	112.8	2	4	<0.01	0.001	0.28	<0.1	0.2	<0.02	0.04	17	<0.1	<0.02	0.1	0.005	<0.01	<0.001
L83	Vegetation	<0.01	1.4	0.059	173.4	2	3	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.05	14	<0.1	<0.02	0.1	0.019	<0.01	<0.001
L84	Vegetation	<0.01	1.4	0.064	99.0	2	4	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.05	17	<0.1	<0.02	0.1	0.007	<0.01	<0.001
L85	Vegetation	<0.01	1.4	0.032	70.9	1	2	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.06	11	<0.1	<0.02	0.1	0.013	<0.01	<0.001
L86	Vegetation	<0.01	1.5	0.046	132.6	2	3	<0.01	<0.001	0.43	<0.1	0.2	<0.02	0.06	9	<0.1	<0.02	0.1	0.014	<0.01	<0.001
L87	Vegetation	<0.01	1.3	0.044	163.4	2	3	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.05	12	<0.1	<0.02	0.1	0.045	0.02	<0.001
L88	Vegetation	<0.01	1.5	0.087	85.9	2	3	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	0.009	<0.01	<0.001
L89	Vegetation	<0.01	1.3	0.070	37.0	2	2	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.07	9	<0.1	<0.02	0.2	0.009	<0.01	<0.001
L90	Vegetation	<0.01	1.4	0.054	77.9	2	10	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.1	<0.005	0.01	<0.001
L91	Vegetation	<0.01	1.4	0.064	61.2	2	6	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.07	17	<0.1	<0.02	<0.1	0.007	0.01	<0.001
L92	Vegetation	<0.01	1.5	0.066	93.1	3	14	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.08	12	<0.1	<0.02	<0.1	0.009	<0.01	<0.001
L92a	Vegetation	0.01	1.4	0.057	91.8	2	4	<0.01	<0.001	0.34	<0.1	0.3	<0.02	0.07	13	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
L93	Vegetation	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
L94	Vegetation	<0.01	1.5	0.054	146.7	2	5	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	<0.1	0.022	<0.01	<0.001
L95	Vegetation	<0.01	1.3	0.061	238.0	2	4	<0.01	<0.001	0.25	<0.1	0.3	<0.02	0.07	16	<0.1	<0.02	0.2	0.030	0.01	<0.001
L96	Vegetation	<0.01	1.2	0.055	88.4	2	2	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.05	16	<0.1	<0.02	0.2	0.038	<0.01	<0.001
L97	Vegetation	<0.01	1.3	0.036	186.3	2	4	<0.01	<0.001	0.40	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	0.1	0.072	0.03	<0.001
L98	Vegetation	<0.01	1.4	0.054	96.5	2	6	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.04	12	<0.1	<0.02	<0.1	0.021	0.02	<0.001
L99	Vegetation	<0.01	1.4	0.043	254.4	3	11	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.05	15	<0.1	<0.02	<0.1	0.009	<0.01	<0.001
L100	Vegetation	<0.01	1.5	0.044	122.6	2	6	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.05	15	<0.1	<0.02	<0.1	<0.005	0.02	<0.001
L101	Vegetation	<0.01	1.5	0.057	164.5	3	4	<0.01	<0.001	0.22	<0.1	0.3	<0.02	0.06	16	<0.1	<0.02	<0.1	0.007	0.02	<0.001
L102	Vegetation	<0.01	1.7	0.056	244.3	3	8	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.03	19	<0.1	<0.02	<0.1	0.011	0.02	<0.001

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Method Analyte	Unit MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
L74	Vegetation	<0.01	1.5	<0.02	<0.001	0.01	0.010	0.01	<0.02	<1	<0.1	0.01	<2	<1
L75	Vegetation	<0.01	1.0	<0.02	<0.001	<0.01	0.009	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L76	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.009	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L77	Vegetation	<0.01	1.7	<0.02	<0.001	<0.01	0.010	<0.01	<0.02	<1	<0.1	0.15	<2	<1
L78	Vegetation	<0.01	2.7	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	2	<0.1	0.14	<2	<1
L79	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.19	<2	<1
L80	Vegetation	<0.01	0.8	<0.02	<0.001	0.01	0.011	0.01	<0.02	<1	<0.1	0.30	<2	<1
L81	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.011	0.02	<0.02	<1	<0.1	0.10	<2	<1
L82	Vegetation	<0.01	1.2	<0.02	<0.001	0.02	0.013	0.02	<0.02	<1	<0.1	0.28	<2	<1
L83	Vegetation	<0.01	3.5	<0.02	<0.001	<0.01	0.010	0.01	<0.02	<1	<0.1	0.07	<2	<1
L84	Vegetation	<0.01	1.3	<0.02	<0.001	0.02	0.013	0.02	<0.02	<1	<0.1	0.78	<2	<1
L85	Vegetation	<0.01	2.4	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.22	<2	<1
L86	Vegetation	<0.01	1.9	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.01	<2	<1
L87	Vegetation	<0.01	6.6	<0.02	<0.001	0.01	0.008	<0.01	<0.02	<1	<0.1	0.03	<2	<1
L88	Vegetation	<0.01	2.4	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.42	<2	<1
L89	Vegetation	<0.01	2.5	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L90	Vegetation	<0.01	1.7	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.12	<2	<1
L91	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.011	0.02	<0.02	2	<0.1	0.25	<2	<1
L92	Vegetation	<0.01	2.2	<0.02	<0.001	0.01	0.008	0.03	<0.02	<1	<0.1	0.45	<2	<1
L92a	Vegetation	<0.01	2.2	<0.02	<0.001	0.01	0.011	0.03	<0.02	<1	<0.1	0.34	<2	<1
L93	Vegetation	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
L94	Vegetation	<0.01	3.5	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.11	<2	<1
L95	Vegetation	<0.01	3.9	<0.02	<0.001	0.02	0.016	0.02	<0.02	<1	<0.1	0.17	<2	<1
L96	Vegetation	<0.01	3.8	<0.02	<0.001	0.01	0.011	<0.01	<0.02	<1	<0.1	0.04	<2	<1
L97	Vegetation	<0.01	6.3	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.04	<2	<1
L98	Vegetation	<0.01	3.1	<0.02	<0.001	0.01	0.005	0.02	<0.02	<1	<0.1	0.06	<2	<1
L99	Vegetation	<0.01	2.9	<0.02	<0.001	0.01	0.014	0.01	<0.02	<1	<0.1	0.11	<2	<1
L100	Vegetation	<0.01	1.5	<0.02	<0.001	0.01	0.007	<0.01	<0.02	<1	<0.1	0.15	<2	<1
L101	Vegetation	<0.01	1.7	<0.02	<0.001	0.02	0.013	0.02	<0.02	<1	<0.1	0.06	<2	<1
L102	Vegetation	<0.01	2.7	<0.02	<0.001	0.01	0.012	0.02	<0.02	<1	<0.1	0.05	<2	<1

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Report Date: July 25, 2014

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## CERTIFICATE OF ANALYSIS

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Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001	
L103	Vegetation	<0.01	1.33	0.08	60.9	29	0.1	0.02	889	0.007	<0.1	<0.01	<0.2	<0.01	14.3	<0.01	0.03	<0.02	<2	0.63	0.064	
L104	Vegetation	0.01	1.47	0.06	68.6	18	0.3	0.04	962	0.008	<0.1	<0.01	<0.2	<0.01	37.5	<0.01	0.03	<0.02	<2	0.99	0.068	
L105	Vegetation	<0.01	2.08	0.04	72.2	23	0.2	0.04	1676	0.006	<0.1	<0.01	<0.2	<0.01	18.6	<0.01	0.03	<0.02	<2	0.63	0.054	
L106	Vegetation	<0.01	1.63	0.05	61.6	7	<0.1	0.03	1438	0.006	<0.1	<0.01	<0.2	<0.01	18.7	0.01	0.04	<0.02	<2	0.69	0.078	
L107	Vegetation	0.02	1.62	0.06	72.1	6	0.2	0.03	1210	0.007	0.1	<0.01	<0.2	<0.01	25.2	<0.01	0.06	<0.02	<2	0.76	0.069	
L108	Vegetation	<0.01	1.73	0.05	86.4	7	0.1	0.04	1916	0.007	<0.1	<0.01	<0.2	<0.01	24.0	0.03	0.07	<0.02	<2	0.86	0.068	
L109	Vegetation	<0.01	1.16	0.05	59.5	12	0.1	0.04	972	0.006	0.1	<0.01	<0.2	<0.01	15.1	<0.01	0.04	<0.02	<2	0.78	0.066	
L110	Vegetation	0.01	1.54	0.04	60.8	16	0.2	0.05	1130	0.006	<0.1	<0.01	<0.2	<0.01	15.7	<0.01	0.04	<0.02	<2	0.71	0.059	
L111	Vegetation	<0.01	1.79	0.09	73.0	13	0.2	0.06	1706	0.011	<0.1	<0.01	<0.2	<0.01	27.3	<0.01	0.06	<0.02	<2	1.09	0.057	
L112	Vegetation	<0.01	1.80	0.07	54.0	12	0.2	0.05	1038	0.006	<0.1	<0.01	<0.2	<0.01	18.6	<0.01	0.04	<0.02	<2	0.62	0.076	
L113	Vegetation	0.17	1.37	0.06	67.0	13	0.2	0.03	332	0.008	<0.1	<0.01	<0.2	<0.01	36.9	<0.01	0.04	<0.02	<2	0.99	0.112	
L114	Vegetation	0.08	1.47	0.08	70.6	13	0.4	0.03	888	0.008	<0.1	<0.01	<0.2	<0.01	20.5	<0.01	0.05	<0.02	<2	0.78	0.071	
L115	Vegetation	<0.01	1.44	0.05	63.5	14	0.3	0.06	929	0.008	<0.1	<0.01	<0.2	<0.01	25.0	<0.01	0.03	<0.02	<2	1.04	0.091	
L116	Vegetation	0.08	1.54	0.06	55.9	9	0.3	0.03	146	0.008	<0.1	<0.01	<0.2	<0.01	43.0	<0.01	0.03	<0.02	<2	0.85	0.101	
L117	Vegetation	0.04	1.50	0.06	55.1	14	0.2	0.02	201	0.007	<0.1	<0.01	<0.2	<0.01	33.6	<0.01	0.04	<0.02	<2	0.80	0.110	
L118	Vegetation	<0.01	1.89	0.07	96.6	23	0.2	0.03	608	0.007	<0.1	<0.01	<0.2	<0.01	23.4	<0.01	0.05	<0.02	<2	0.67	0.064	
L119	Vegetation	<0.01	1.51	0.07	61.8	16	0.1	0.03	263	0.006	<0.1	<0.01	<0.2	<0.01	22.7	<0.01	0.05	<0.02	<2	0.66	0.083	
L120	Vegetation	<0.01	1.75	0.05	70.9	15	0.2	0.05	658	0.006	<0.1	<0.01	<0.2	<0.01	26.9	<0.01	0.04	<0.02	<2	0.81	0.092	
L121	Vegetation	0.19	1.24	0.05	58.2	7	0.1	0.03	101	0.006	<0.1	<0.01	<0.2	<0.01	28.6	<0.01	0.04	<0.02	<2	0.61	0.102	
L122	Vegetation	<0.01	1.54	0.06	93.0	10	0.2	0.05	659	0.011	<0.1	<0.01	<0.2	<0.01	42.5	<0.01	0.05	<0.02	<2	1.21	0.100	
L123	Vegetation	<0.01	1.54	0.05	63.7	11	<0.1	0.03	1244	0.007	<0.1	<0.01	<0.2	<0.01	12.7	<0.01	0.03	<0.02	<2	0.67	0.060	
L124	Vegetation	<0.01	1.74	0.06	81.6	17	<0.1	0.03	392	0.007	<0.1	<0.01	<0.2	<0.01	28.3	<0.01	0.03	<0.02	<2	0.76	0.066	
L125	Vegetation	<0.01	1.40	0.06	60.5	15	0.1	0.04	673	0.007	<0.1	<0.01	<0.2	<0.01	29.0	<0.01	0.03	<0.02	<2	0.87	0.068	
L126	Vegetation	<0.01	1.22	0.05	49.2	29	<0.1	0.03	676	0.006	<0.1	<0.01	<0.2	<0.01	22.4	<0.01	0.04	<0.02	<2	0.66	0.055	



**CERTIFICATE OF ANALYSIS**

WHI14000038.1

Method	Analyte	Unit	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101			
			La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf	
			ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
MDL			0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001
L103	Vegetation		<0.01	1.5	0.069	33.6	2	3	<0.01	<0.001	0.24	<0.1	0.1	<0.02	0.06	12	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001	
L104	Vegetation		<0.01	1.5	0.066	139.5	2	4	<0.01	<0.001	0.29	<0.1	0.3	<0.02	0.06	15	<0.1	<0.02	<0.1	0.005	<0.01	<0.001	
L105	Vegetation		<0.01	1.5	0.062	60.3	2	3	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.2	0.021	<0.01	<0.001	
L106	Vegetation		<0.01	1.6	0.052	43.1	2	5	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.2	0.016	0.02	<0.001	
L107	Vegetation		<0.01	1.5	0.053	80.2	2	7	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	0.1	0.019	<0.01	<0.001	
L108	Vegetation		<0.01	1.4	0.045	61.3	2	8	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.06	10	<0.1	<0.02	0.2	0.018	<0.01	<0.001	
L109	Vegetation		<0.01	1.3	0.051	29.6	2	5	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.01	10	<0.1	<0.02	<0.1	0.019	0.02	<0.001	
L110	Vegetation		<0.01	1.6	0.069	29.6	2	4	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.08	10	<0.1	<0.02	0.1	0.016	<0.01	<0.001	
L111	Vegetation		<0.01	1.5	0.054	43.9	2	3	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.08	19	<0.1	<0.02	0.2	0.016	<0.01	<0.001	
L112	Vegetation		<0.01	1.4	0.060	60.9	2	3	<0.01	<0.001	0.24	<0.1	0.2	<0.02	0.08	13	<0.1	<0.02	0.2	<0.005	<0.01	<0.001	
L113	Vegetation		<0.01	1.5	0.075	122.9	3	3	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.06	14	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001	
L114	Vegetation		<0.01	2.0	0.036	64.8	2	7	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.01	14	<0.1	<0.02	0.1	0.006	<0.01	<0.001	
L115	Vegetation		<0.01	1.3	0.060	88.7	2	7	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.02	10	<0.1	<0.02	0.1	0.009	<0.01	<0.001	
L116	Vegetation		<0.01	1.6	0.084	140.7	3	8	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.04	15	<0.1	<0.02	<0.1	0.010	0.01	<0.001	
L117	Vegetation		<0.01	1.6	0.070	75.6	3	9	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.05	11	<0.1	<0.02	<0.1	0.013	<0.01	<0.001	
L118	Vegetation		<0.01	1.4	0.056	80.9	2	8	<0.01	<0.001	0.33	<0.1	0.3	<0.02	0.07	10	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001	
L119	Vegetation		<0.01	1.7	0.072	76.7	2	13	<0.01	<0.001	0.35	<0.1	0.3	<0.02	0.08	9	<0.1	<0.02	<0.1	0.005	<0.01	<0.001	
L120	Vegetation		<0.01	1.6	0.075	93.7	2	12	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.08	10	<0.1	<0.02	<0.1	0.005	0.04	<0.001	
L121	Vegetation		<0.01	1.7	0.088	72.0	2	2	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.09	13	<0.1	<0.02	<0.1	<0.005	0.02	<0.001	
L122	Vegetation		<0.01	1.6	0.095	138.6	3	3	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.10	17	<0.1	<0.02	<0.1	<0.005	0.01	<0.001	
L123	Vegetation		<0.01	1.6	0.071	25.7	2	3	<0.01	<0.001	0.27	<0.1	0.1	<0.02	0.07	9	<0.1	<0.02	0.1	0.005	0.01	<0.001	
L124	Vegetation		<0.01	1.6	0.073	61.7	2	7	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.08	14	<0.1	<0.02	<0.1	0.009	<0.01	<0.001	
L125	Vegetation		<0.01	1.5	0.069	69.8	2	4	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.10	14	<0.1	<0.02	<0.1	0.006	0.02	<0.001	
L126	Vegetation		<0.01	1.6	0.087	74.8	2	4	<0.01	<0.001	0.21	<0.1	0.3	<0.02	0.05	12	<0.1	<0.02	<0.1	0.050	0.02	<0.001	

## CERTIFICATE OF ANALYSIS

WHI14000038.1

Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
MDL		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
L103	Vegetation	<0.01	0.9	<0.02	<0.001	0.01	0.008	0.02	<0.02	<1	<0.1	0.10	<2	<1
L104	Vegetation	<0.01	1.8	<0.02	<0.001	0.01	0.009	0.01	<0.02	<1	<0.1	0.20	<2	<1
L105	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.007	0.01	<0.02	<1	<0.1	0.18	<2	<1
L106	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L107	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.006	0.01	<0.02	<1	<0.1	0.08	<2	<1
L108	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.07	<2	<1
L109	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.09	<2	<1
L110	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.005	0.01	<0.02	<1	<0.1	0.07	<2	<1
L111	Vegetation	<0.01	1.2	<0.02	<0.001	<0.01	0.010	0.03	<0.02	1	<0.1	0.12	<2	<1
L112	Vegetation	<0.01	1.1	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.05	<2	<1
L113	Vegetation	<0.01	0.8	<0.02	<0.001	<0.01	0.011	<0.01	<0.02	<1	<0.1	0.21	<2	<1
L114	Vegetation	<0.01	1.5	<0.02	<0.001	0.02	0.007	0.01	<0.02	<1	<0.1	0.17	<2	<1
L115	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.003	0.01	<0.02	<1	<0.1	0.13	<2	<1
L116	Vegetation	<0.01	3.8	<0.02	<0.001	0.01	0.011	0.01	<0.02	<1	<0.1	0.06	<2	<1
L117	Vegetation	<0.01	5.4	<0.02	<0.001	<0.01	0.009	0.01	<0.02	<1	<0.1	0.06	<2	<1
L118	Vegetation	<0.01	1.9	<0.02	<0.001	0.01	0.007	0.01	<0.02	<1	<0.1	0.22	<2	<1
L119	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.006	0.01	<0.02	<1	<0.1	0.11	<2	<1
L120	Vegetation	<0.01	1.2	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	4	<0.1	0.13	<2	<1
L121	Vegetation	<0.01	0.4	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	2	<0.1	0.20	<2	<1
L122	Vegetation	<0.01	0.6	<0.02	<0.001	<0.01	0.009	0.03	<0.02	3	<0.1	0.29	<2	<1
L123	Vegetation	<0.01	1.3	<0.02	<0.001	<0.01	0.007	0.01	<0.02	<1	<0.1	0.10	<2	<1
L124	Vegetation	<0.01	2.6	<0.02	<0.001	<0.01	0.009	0.02	<0.02	2	<0.1	0.12	<2	<1
L125	Vegetation	<0.01	2.5	<0.02	<0.001	<0.01	0.009	0.02	<0.02	5	<0.1	0.24	<2	<1
L126	Vegetation	<0.01	3.2	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	1	<0.1	0.03	<2	<1

QUALITY CONTROL REPORT

WHI14000038.1

Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Unit		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
MDL		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
Pulp Duplicates																						
K28	Vegetation	<0.01	1.56	0.05	50.2	19	0.1	0.03	353	0.008	0.2	<0.01	<0.2	<0.01	28.7	<0.01	0.02	<0.02	<2	0.82	0.113	
REP K28	QC	<0.01	1.41	0.05	50.8	19	0.1	0.03	345	0.007	0.1	<0.01	<0.2	<0.01	27.7	<0.01	0.03	<0.02	<2	0.80	0.109	
K51	Vegetation	0.02	1.45	0.07	91.3	12	0.1	0.02	920	0.006	0.1	<0.01	<0.2	<0.01	21.6	<0.01	0.03	<0.02	<2	0.88	0.072	
REP K51	QC	0.02	1.35	0.05	92.2	10	<0.1	0.04	895	0.007	<0.1	<0.01	<0.2	<0.01	21.0	<0.01	0.03	<0.02	<2	0.89	0.072	
K63	Vegetation	<0.01	1.30	0.08	84.5	27	0.2	0.04	725	0.011	0.1	<0.01	<0.2	<0.01	44.1	<0.01	0.04	<0.02	<2	1.12	0.071	
REP K63	QC	<0.01	1.34	0.07	85.3	27	0.1	0.05	727	0.011	<0.1	<0.01	<0.2	<0.01	44.0	<0.01	0.04	<0.02	<2	1.08	0.071	
K98	Vegetation	0.12	1.77	0.04	40.5	7	0.3	0.04	387	0.005	<0.1	<0.01	<0.2	<0.01	35.3	<0.01	0.03	<0.02	<2	0.53	0.110	
REP K98	QC	0.12	2.09	0.04	40.4	7	0.4	0.04	381	0.004	<0.1	<0.01	<0.2	<0.01	34.1	<0.01	0.03	<0.02	<2	0.52	0.110	
L26	Vegetation	<0.01	1.48	0.05	64.9	20	0.2	0.03	1225	0.007	<0.1	<0.01	<0.2	<0.01	14.6	<0.01	0.05	<0.02	<2	0.76	0.055	
REP L26	QC	<0.01	1.45	0.05	64.6	18	0.2	0.02	1203	0.007	0.1	<0.01	<0.2	<0.01	14.8	<0.01	0.06	<0.02	<2	0.76	0.055	
L61	Vegetation	<0.01	1.25	0.07	89.0	11	0.1	0.03	594	0.006	<0.1	<0.01	<0.2	<0.01	19.3	<0.01	0.04	<0.02	<2	0.51	0.064	
REP L61	QC	<0.01	1.18	0.06	87.9	13	0.1	0.02	579	0.006	<0.1	<0.01	<0.2	<0.01	19.4	<0.01	0.04	<0.02	<2	0.51	0.062	
L96	Vegetation	<0.01	1.28	0.05	46.4	21	0.5	0.07	1412	0.007	<0.1	<0.01	<0.2	<0.01	23.2	<0.01	0.03	<0.02	<2	0.78	0.094	
REP L96	QC	0.02	1.32	0.06	49.3	24	0.5	0.07	1407	0.008	<0.1	<0.01	<0.2	<0.01	23.4	<0.01	0.03	<0.02	<2	0.78	0.099	
L109	Vegetation	<0.01	1.16	0.05	59.5	12	0.1	0.04	972	0.006	0.1	<0.01	<0.2	<0.01	15.1	<0.01	0.04	<0.02	<2	0.78	0.066	
REP L109	QC	<0.01	1.28	0.05	57.9	10	0.2	0.03	960	0.007	<0.1	<0.01	<0.2	<0.01	15.1	<0.01	0.04	<0.02	<2	0.80	0.066	
Reference Materials																						
STD CDV-1	Standard	0.21	8.21	0.99	21.5	10	6.2	1.79	384	0.281	1.3	0.16	2.9	0.62	112.3	0.04	0.04	<0.02	3	2.04	0.039	
STD CDV-1	Standard	0.19	8.32	0.97	22.0	10	6.1	1.91	400	0.283	1.3	0.16	3.0	0.63	113.4	0.05	0.04	<0.02	3	1.99	0.040	
STD CDV-1	Standard	0.18	8.31	0.95	22.8	14	6.2	1.95	370	0.244	1.1	0.16	2.5	0.63	104.5	0.03	0.03	<0.02	4	1.87	0.037	
STD CDV-1	Standard	0.19	8.14	0.99	21.7	11	6.2	1.79	386	0.274	1.3	0.16	2.3	0.63	109.7	0.03	0.04	<0.02	3	1.89	0.038	
STD CDV-1	Standard	0.18	7.78	0.93	21.2	10	6.2	1.87	370	0.254	1.3	0.16	1.8	0.61	105.2	0.03	0.03	<0.02	5	1.84	0.039	
STD CDV-1	Standard	0.18	8.52	0.98	21.1	10	6.1	1.91	367	0.260	1.1	0.16	4.1	0.63	111.9	0.04	0.05	<0.02	3	1.88	0.039	
STD CDV-1	Standard	0.19	8.42	0.98	22.3	9	6.8	1.99	403	0.267	1.3	0.16	1.7	0.85	115.1	0.05	0.05	<0.02	4	1.97	0.039	
STD CDV-1	Standard	0.20	8.38	1.00	22.2	12	6.2	1.91	389	0.257	1.4	0.16	1.7	0.62	119.0	0.04	0.03	<0.02	4	1.96	0.042	
STD V16	Standard	2.08	6.72	2.87	38.0	36	7.8	1.05	677	0.381	1.5	<0.01	1.1	<0.01	9.6	0.07	0.08	<0.02	<2	0.31	0.046	
STD V16	Standard	1.32	5.69	2.76	37.0	38	6.0	0.90	684	0.334	1.4	<0.01	0.8	<0.01	9.8	0.08	0.08	<0.02	<2	0.32	0.047	
STD V16	Standard	1.74	6.59	2.93	39.4	38	7.7	1.06	700	0.412	1.5	<0.01	0.7	<0.01	9.7	0.08	0.08	<0.02	<2	0.32	0.047	

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Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Ti	S	Hg	Se	Te	Ga	Cs	Ge	Hf	
Unit	ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
MDL	0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001	
Pulp Duplicates																					
K28	Vegetation	<0.01	1.3	0.048	53.0	2	11	<0.01	<0.001	0.42	<0.1	0.3	<0.02	0.07	15	<0.1	<0.02	<0.1	0.008	<0.01	<0.001
REP K28	QC	<0.01	1.3	0.048	51.9	2	10	<0.01	<0.001	0.38	<0.1	0.3	<0.02	0.08	11	<0.1	<0.02	<0.1	0.008	0.01	<0.001
K51	Vegetation	<0.01	1.4	0.057	75.9	1	9	<0.01	<0.001	0.32	<0.1	0.1	<0.02	0.07	12	<0.1	<0.02	<0.1	0.006	0.01	<0.001
REP K51	QC	<0.01	1.4	0.056	74.7	1	8	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.07	10	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
K63	Vegetation	<0.01	1.5	0.049	124.8	3	10	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.04	13	<0.1	<0.02	<0.1	<0.005	0.02	<0.001
REP K63	QC	<0.01	1.4	0.048	121.7	3	10	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.04	13	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
K98	Vegetation	<0.01	1.4	0.050	113.2	2	6	<0.01	<0.001	0.47	<0.1	0.2	<0.02	0.06	7	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
REP K98	QC	<0.01	1.4	0.051	114.8	2	7	<0.01	<0.001	0.47	<0.1	0.3	<0.02	0.07	6	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
L26	Vegetation	<0.01	1.4	0.055	65.2	2	8	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	0.2	0.012	<0.01	<0.001
REP L26	QC	<0.01	1.3	0.054	64.6	2	7	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.05	13	<0.1	<0.02	0.2	0.011	<0.01	<0.001
L61	Vegetation	<0.01	1.3	0.057	66.4	2	5	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
REP L61	QC	<0.01	1.4	0.056	64.1	2	5	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.06	11	<0.1	<0.02	0.1	<0.005	0.02	<0.001
L96	Vegetation	<0.01	1.2	0.055	88.4	2	2	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.05	16	<0.1	<0.02	0.2	0.038	<0.01	<0.001
REP L96	QC	<0.01	1.3	0.057	89.8	2	2	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.06	18	<0.1	<0.02	0.2	0.040	0.02	<0.001
L109	Vegetation	<0.01	1.3	0.051	29.6	2	5	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.01	10	<0.1	<0.02	<0.1	0.019	0.02	<0.001
REP L109	QC	<0.01	1.3	0.051	30.4	2	5	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.03	9	<0.1	<0.02	0.1	0.018	<0.01	<0.001
Reference Materials																					
STD CDV-1	Standard	2.48	12.5	0.120	9.1	26	12	0.14	0.005	0.18	<0.1	0.9	<0.02	0.13	47	0.2	<0.02	0.6	0.114	0.02	0.055
STD CDV-1	Standard	2.51	12.6	0.123	9.4	28	12	0.14	0.005	0.17	<0.1	0.9	<0.02	0.10	46	0.2	<0.02	0.6	0.116	0.04	0.045
STD CDV-1	Standard	2.46	12.9	0.117	8.7	25	12	0.15	0.004	0.16	<0.1	0.9	<0.02	0.13	42	0.3	<0.02	0.6	0.104	0.03	0.039
STD CDV-1	Standard	2.40	13.5	0.120	8.5	27	12	0.15	0.005	0.16	0.2	0.9	<0.02	0.13	44	0.2	<0.02	0.6	0.120	0.03	0.057
STD CDV-1	Standard	2.36	13.7	0.117	8.6	25	12	0.14	0.005	0.17	<0.1	0.8	<0.02	0.11	53	0.2	<0.02	0.6	0.110	<0.01	0.051
STD CDV-1	Standard	2.49	12.2	0.119	9.4	28	12	0.13	0.006	0.17	<0.1	0.8	<0.02	0.10	48	0.2	<0.02	0.6	0.129	0.02	0.052
STD CDV-1	Standard	2.43	13.7	0.125	8.9	30	12	0.14	0.005	0.16	<0.1	0.8	<0.02	0.12	46	0.2	<0.02	0.6	0.125	0.04	0.047
STD CDV-1	Standard	2.46	12.7	0.125	9.8	25	12	0.14	0.005	0.18	<0.1	0.8	<0.02	0.14	45	0.3	<0.02	0.5	0.116	0.01	0.043
STD V16	Standard	0.04	326.6	0.050	2.0	10	5	0.05	0.001	0.21	<0.1	0.2	<0.02	0.02	52	<0.1	<0.02	0.2	0.035	0.07	0.002
STD V16	Standard	0.04	263.9	0.052	2.1	9	5	0.05	0.001	0.23	<0.1	0.2	<0.02	<0.01	47	<0.1	<0.02	0.2	0.035	0.04	0.005
STD V16	Standard	0.04	335.7	0.053	2.0	10	5	0.05	0.001	0.22	<0.1	0.3	<0.02	0.05	49	<0.1	<0.02	0.3	0.034	0.06	0.007

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Method		VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
MDL		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
Pulp Duplicates														
K28	Vegetation	<0.01	2.3	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	2	<0.1	0.04	<2	<1
REP K28	QC	<0.01	2.3	<0.02	<0.001	<0.01	0.008	0.01	<0.02	2	<0.1	0.03	<2	<1
K51	Vegetation	<0.01	1.5	<0.02	<0.001	<0.01	0.007	<0.01	<0.02	<1	<0.1	0.04	<2	<1
REP K51	QC	<0.01	1.6	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.03	<2	<1
K63	Vegetation	<0.01	1.0	<0.02	<0.001	0.03	0.012	0.03	<0.02	<1	<0.1	0.50	<2	<1
REP K63	QC	<0.01	0.9	<0.02	<0.001	0.01	0.011	0.03	<0.02	<1	<0.1	0.54	<2	<1
K98	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
REP K98	QC	<0.01	1.4	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
L26	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.004	0.01	<0.02	<1	<0.1	0.14	<2	<1
REP L26	QC	<0.01	2.3	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.14	<2	<1
L61	Vegetation	<0.01	1.0	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	0.13	<2	<1
REP L61	QC	<0.01	1.1	<0.02	<0.001	0.01	0.006	0.02	<0.02	<1	<0.1	0.13	<2	<1
L96	Vegetation	<0.01	3.8	<0.02	<0.001	0.01	0.011	<0.01	<0.02	<1	<0.1	0.04	<2	<1
REP L96	QC	<0.01	3.8	<0.02	<0.001	<0.01	0.009	0.01	<0.02	<1	<0.1	0.04	<2	<1
L109	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.09	<2	<1
REP L109	QC	<0.01	2.2	<0.02	<0.001	<0.01	0.002	<0.01	<0.02	<1	<0.1	0.08	<2	<1
Reference Materials														
STD CDV-1	Standard	0.06	2.4	0.09	<0.001	1.34	1.543	5.12	<0.02	<1	<0.1	0.53	<2	<1
STD CDV-1	Standard	0.05	2.3	0.08	<0.001	1.33	1.491	5.07	<0.02	<1	<0.1	0.52	<2	<1
STD CDV-1	Standard	0.05	2.2	0.07	<0.001	1.21	1.459	4.87	<0.02	<1	<0.1	0.48	<2	<1
STD CDV-1	Standard	0.06	2.3	0.08	<0.001	1.36	1.529	5.15	<0.02	<1	<0.1	0.54	<2	<1
STD CDV-1	Standard	0.06	2.2	0.09	<0.001	1.24	1.433	4.88	<0.02	<1	<0.1	0.50	<2	<1
STD CDV-1	Standard	0.05	2.4	0.10	<0.001	1.29	1.552	5.51	<0.02	<1	<0.1	0.52	<2	<1
STD CDV-1	Standard	0.06	2.3	0.07	<0.001	1.31	1.491	5.14	<0.02	<1	<0.1	0.57	<2	<1
STD CDV-1	Standard	0.05	2.2	0.07	<0.001	1.24	1.471	4.99	<0.02	<1	<0.1	0.53	<2	<1
STD V16	Standard	0.07	1.6	0.21	<0.001	0.16	0.046	0.11	<0.02	<1	<0.1	0.04	<2	<1
STD V16	Standard	0.07	1.5	0.18	<0.001	0.13	0.047	0.10	<0.02	<1	<0.1	0.02	<2	<1
STD V16	Standard	0.08	1.5	0.18	<0.001	0.15	0.051	0.09	<0.02	<1	<0.1	0.03	<2	<1

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		VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001
STD V16	Standard	1.62	6.24	2.88	37.1	37	6.9	0.98	693	0.387	1.4	<0.01	0.5	<0.01	9.9	0.07	0.07	<0.02	<2	0.31	0.047
STD V16	Standard	1.19	5.69	2.78	35.5	37	6.2	0.93	662	0.331	1.4	<0.01	0.8	<0.01	9.4	0.07	0.06	<0.02	<2	0.29	0.047
STD V16	Standard	1.61	6.26	2.78	36.6	38	7.0	0.96	671	0.377	1.4	<0.01	1.3	<0.01	10.0	0.08	0.07	<0.02	<2	0.32	0.047
STD V16	Standard	1.52	6.16	2.70	36.6	39	6.7	0.96	682	0.335	1.4	<0.01	0.6	<0.01	9.7	0.08	0.08	<0.02	<2	0.31	0.046
STD V16	Standard	1.31	5.92	2.84	37.7	36	6.4	0.93	704	0.356	1.6	<0.01	0.7	<0.01	10.3	0.08	0.08	<0.02	<2	0.32	0.047
STD V16 Expected		1.6	6.69	3	39.2	32	7.4	1.11	720	0.4125	1.6		0.9		11.2	0.086	0.07			0.3	0.0488
STD CDV-1 Expected		0.2	8.61	1	23.3	9	6.4	2	385	0.256	1.3	0.17	2.3	0.61	112	0.04	0.03	0.02	4.2	1.94	0.038
FLOUR	Blank	0.59	4.01	0.04	29.3	<2	0.2	0.01	32	0.004	<0.1	<0.01	0.3	<0.01	1.3	0.03	<0.02	0.04	3	0.03	0.396
BLK	Blank	<0.01	0.01	0.01	0.2	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001
FLOUR	Blank	0.60	3.75	0.02	28.4	<2	0.2	<0.01	32	0.004	<0.1	<0.01	<0.2	<0.01	1.3	0.03	<0.02	0.03	2	0.03	0.417
BLK	Blank	<0.01	<0.01	0.01	0.3	<2	<0.1	<0.01	<1	<0.001	0.2	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001
FLOUR	Blank	0.65	3.98	0.12	30.3	<2	0.2	0.02	35	0.005	<0.1	<0.01	<0.2	<0.01	1.3	0.03	<0.02	0.04	2	0.04	0.421
BLK	Blank	<0.01	<0.01	<0.01	0.2	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001
FLOUR	Blank	0.60	3.77	0.10	28.3	<2	0.2	<0.01	31	0.004	<0.1	<0.01	<0.2	<0.01	1.2	0.03	0.02	0.06	<2	0.03	0.404
BLK	Blank	<0.01	<0.01	0.03	0.5	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	0.03	<0.02	<2	<0.01	0.001
FLOUR	Blank	0.58	3.75	0.05	28.6	<2	0.2	<0.01	31	0.004	<0.1	<0.01	<0.2	<0.01	1.2	0.03	<0.02	0.05	4	0.03	0.386
BLK	Blank	<0.01	<0.01	0.01	0.3	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	0.001
FLOUR	Blank	0.57	3.48	0.03	25.6	<2	0.2	0.02	30	0.004	<0.1	<0.01	<0.2	<0.01	1.2	0.03	<0.02	0.05	<2	0.03	0.393
BLK	Blank	<0.01	<0.01	<0.01	0.2	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001
FLOUR	Blank	0.56	3.71	0.02	28.2	<2	0.2	<0.01	31	0.004	<0.1	<0.01	<0.2	<0.01	1.2	0.02	<0.02	0.06	<2	0.03	0.391
BLK	Blank	<0.01	<0.01	0.01	0.3	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001
FLOUR	Blank	0.60	3.80	0.44	30.2	7	0.2	0.01	32	0.005	<0.1	<0.01	<0.2	<0.01	1.2	0.04	0.02	0.05	2	0.03	0.408
BLK	Blank	<0.01	<0.01	0.03	0.3	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001
Prep Wash																					
RICE	Prep Blank	0.19	2.42	0.03	14.7	4	0.3	<0.01	7	<0.001	0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	0.03	5	<0.01	0.078
RICE	Prep Blank	0.15	2.33	0.03	14.7	3	0.3	<0.01	6	<0.001	0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	5	<0.01	0.072

QUALITY CONTROL REPORT

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		VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
		La	Cr	Mg	Ba	Tl	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf
		ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm
		0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.01	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001
STD V16	Standard	0.04	322.8	0.052	2.2	10	5	0.05	0.001	0.21	<0.1	0.3	<0.02	0.03	50	<0.1	<0.02	0.2	0.035	0.05	0.004
STD V16	Standard	0.04	274.8	0.052	2.0	9	5	0.05	0.001	0.22	<0.1	0.2	<0.02	0.02	46	<0.1	<0.02	0.2	0.034	0.04	0.003
STD V16	Standard	0.03	297.6	0.051	2.4	9	5	0.05	0.001	0.19	<0.1	0.1	<0.02	0.03	43	<0.1	<0.02	0.2	0.033	0.05	0.003
STD V16	Standard	0.03	293.3	0.051	2.4	10	4	0.04	0.001	0.18	<0.1	0.2	<0.02	0.03	50	<0.1	<0.02	0.2	0.034	0.04	0.002
STD V16	Standard	0.04	294.0	0.051	2.2	9	5	0.05	0.001	0.19	<0.1	0.2	<0.02	<0.01	51	<0.1	<0.02	0.2	0.037	0.05	0.008
STD V16 Expected		0.05	323.1	0.0525	1.9	12	5	0.0454	0.0015	0.22				0.0177	41			0.2	0.036	0.05	0.006
STD CDV-1 Expected		2.31	12.1	0.12	9	30	12	0.15	0.0052	0.18		0.8		0.1	41	0.3		0.5	0.121	0.03	0.046
FLOUR	Blank	<0.01	1.8	0.143	3.4	5	<1	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.20	3	0.7	<0.02	<0.1	<0.005	0.04	<0.001
BLK	Blank	<0.01	0.2	<0.001	0.2	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	0.04	2	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.7	0.151	3.6	4	<1	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.14	2	0.6	<0.02	<0.1	<0.005	0.02	<0.001
BLK	Blank	<0.01	0.2	<0.001	0.2	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.01	2	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.7	0.154	3.5	5	<1	<0.01	0.001	0.31	<0.1	0.3	<0.02	0.19	<1	0.5	<0.02	<0.1	<0.005	0.02	<0.001
BLK	Blank	<0.01	0.2	<0.001	0.3	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	0.04	<1	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.8	0.148	3.2	4	<1	<0.01	0.001	0.36	<0.1	0.3	<0.02	0.20	<1	0.7	<0.02	<0.1	<0.005	0.02	<0.001
BLK	Blank	<0.01	0.2	<0.001	0.1	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	0.01	<1	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.6	0.145	3.3	4	<1	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.18	<1	0.7	<0.02	<0.1	<0.005	<0.01	0.001
BLK	Blank	<0.01	0.4	<0.001	0.1	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.01	<1	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.6	0.136	3.0	4	<1	<0.01	0.001	0.31	<0.1	0.2	<0.02	0.16	<1	0.7	<0.02	<0.1	<0.005	0.02	<0.001
BLK	Blank	<0.01	0.3	<0.001	0.3	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	0.03	3	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.6	0.143	3.1	5	<1	<0.01	<0.001	0.33	<0.1	0.1	<0.02	0.16	2	0.6	<0.02	<0.1	<0.005	0.02	0.002
BLK	Blank	<0.01	<0.1	<0.001	0.1	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.01	<1	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.6	0.149	3.2	3	<1	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.18	2	0.7	<0.02	<0.1	<0.005	<0.01	<0.001
BLK	Blank	<0.01	0.3	<0.001	0.3	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	0.02	<1	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
Prep Wash																					
RICE	Prep Blank	<0.01	1.8	0.014	0.1	1	<1	<0.01	<0.001	0.06	<0.1	0.1	<0.02	0.13	5	0.2	<0.02	<0.1	<0.005	0.01	<0.001
RICE	Prep Blank	<0.01	1.8	0.012	0.1	1	<1	<0.01	<0.001	0.06	<0.1	0.2	<0.02	0.13	3	0.2	<0.02	<0.1	<0.005	0.01	<0.001

QUALITY CONTROL REPORT

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		VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
STD V16	Standard	0.09	1.5	0.19	<0.001	0.16	0.044	0.10	<0.02	<1	<0.1	0.04	<2	<1
STD V16	Standard	0.06	1.5	0.18	<0.001	0.15	0.045	0.12	<0.02	<1	<0.1	0.04	<2	<1
STD V16	Standard	0.09	1.5	0.16	<0.001	0.14	0.046	0.10	<0.02	<1	<0.1	0.04	<2	<1
STD V16	Standard	0.07	1.4	0.17	<0.001	0.13	0.049	0.10	<0.02	<1	<0.1	0.05	<2	<1
STD V16	Standard	0.08	1.5	0.18	<0.001	0.13	0.052	0.11	<0.02	<1	<0.1	0.05	<2	<1
STD V16 Expected		0.11	1.7	0.23		0.18	0.043	0.1				0.07		
STD CDV-1 Expected		0.05	2.3	0.08		1.2	1.41	4.9				0.56		
FLOUR	Blank	<0.01	2.6	0.03	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	0.08	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.6	<0.02	<0.001	<0.01	0.005	<0.01	<0.02	<1	<0.1	0.06	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.6	<0.02	<0.001	<0.01	0.004	<0.01	<0.02	1	<0.1	0.06	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.5	<0.02	<0.001	<0.01	0.002	<0.01	<0.02	<1	<0.1	0.07	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.4	0.03	<0.001	<0.01	0.006	<0.01	<0.02	<1	<0.1	0.08	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.2	<0.02	<0.001	<0.01	0.008	<0.01	<0.02	<1	<0.1	0.08	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.2	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	0.07	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.5	0.03	<0.001	0.01	0.006	<0.01	<0.02	2	<0.1	0.08	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
Prep Wash														
RICE	Prep Blank	<0.01	1.9	<0.02	<0.001	<0.01	0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
RICE	Prep Blank	<0.01	1.9	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1



Bureau Veritas Commodities Canada Ltd.  
9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
PHONE (604) 253-3158

**Client:** **Richards, Gordon**  
6410 Holly Park Drive  
Delta BC V4K 4W6 CANADA

Submitted By: Gordon Richards  
Receiving Lab: Canada-Whitehorse  
Received: July 02, 2014  
Report Date: July 16, 2014  
Page: 1 of 4

## CERTIFICATE OF ANALYSIS

WHI14000039.1

### CLIENT JOB INFORMATION

Project: Pirate  
Shipment ID:  
P.O. Number  
Number of Samples: 66

### SAMPLE DISPOSAL

RTRN-PLP Return

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Richards, Gordon  
6410 Holly Park Drive  
Delta BC V4K 4W6  
CANADA

CC:

### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
VGMAS	65	Plant Maceration to 1mm			VAN
VG101_EXT	65	Aqua Regia digestion ICP-MS analysis	1	Completed	VAN
DRPLP	65	Warehouse handling / disposition of pulps			VAN

### ADDITIONAL COMMENTS



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.

CERTIFICATE OF ANALYSIS

WHI14000039.1

Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL	0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001	
B1	Vegetation	<0.01	1.27	0.06	36.5	49	0.2	0.02	1039	0.005	<0.1	<0.01	<0.2	<0.01	10.2	<0.01	0.02	<0.02	<2	0.50	0.072
B2	Vegetation	0.05	1.35	0.06	65.3	29	<0.1	0.04	233	0.010	<0.1	<0.01	<0.2	<0.01	43.7	<0.01	0.02	<0.02	<2	1.10	0.077
B3	Vegetation	0.29	1.65	0.08	34.3	37	<0.1	0.03	282	0.007	<0.1	<0.01	<0.2	<0.01	34.6	<0.01	0.02	<0.02	<2	0.70	0.092
B4	Vegetation	0.16	2.25	0.05	33.0	32	0.4	0.04	229	0.006	<0.1	<0.01	<0.2	<0.01	21.7	0.01	0.02	<0.02	<2	0.58	0.095
B5	Vegetation	0.02	1.40	0.08	62.7	21	<0.1	0.02	438	0.006	<0.1	<0.01	<0.2	<0.01	19.5	<0.01	0.03	<0.02	<2	0.57	0.064
B6	Vegetation	0.01	1.21	0.05	57.0	14	<0.1	0.03	243	0.005	<0.1	<0.01	<0.2	<0.01	34.9	<0.01	0.02	<0.02	<2	0.58	0.090
B7	Vegetation	<0.01	1.05	0.05	47.8	33	0.1	0.03	1262	0.008	<0.1	<0.01	<0.2	<0.01	18.8	<0.01	0.03	<0.02	<2	0.81	0.067
B8	Vegetation	<0.01	1.63	0.07	34.2	53	0.5	0.04	860	0.007	<0.1	<0.01	<0.2	<0.01	31.4	0.02	0.02	<0.02	<2	0.72	0.084
B9	Vegetation	<0.01	1.58	0.04	25.4	17	0.2	0.03	1008	0.005	<0.1	<0.01	<0.2	<0.01	12.2	<0.01	<0.02	<0.02	<2	0.51	0.071
B10	Vegetation	<0.01	1.06	0.06	56.8	27	<0.1	0.03	783	0.007	<0.1	<0.01	<0.2	<0.01	12.8	<0.01	0.02	<0.02	<2	0.57	0.078
B11	Vegetation	0.02	1.96	0.04	39.4	16	0.5	0.05	688	0.006	<0.1	<0.01	<0.2	<0.01	13.9	<0.01	0.03	<0.02	<2	0.51	0.084
B12	Vegetation	0.01	1.81	0.05	46.7	15	0.5	0.10	1098	0.008	<0.1	<0.01	<0.2	<0.01	15.1	<0.01	0.03	<0.02	<2	0.61	0.083
B13	Vegetation	<0.01	1.66	0.03	39.1	19	0.5	0.08	1307	0.006	<0.1	<0.01	<0.2	<0.01	14.1	0.02	0.02	<0.02	<2	0.66	0.070
B14	Vegetation	0.03	1.17	0.03	31.6	25	0.3	0.06	1035	0.004	<0.1	<0.01	<0.2	<0.01	9.1	<0.01	0.03	<0.02	<2	0.38	0.066
B15	Vegetation	0.15	1.47	0.04	51.4	5	0.2	0.04	847	0.006	<0.1	<0.01	<0.2	<0.01	18.6	<0.01	0.04	<0.02	<2	0.64	0.066
B16	Vegetation	0.09	1.48	0.04	31.7	15	<0.1	0.06	1267	0.005	<0.1	<0.01	<0.2	<0.01	6.8	<0.01	<0.02	<0.02	<2	0.51	0.058
B17	Vegetation	0.01	1.82	0.04	36.5	15	0.1	0.04	2334	0.007	<0.1	<0.01	<0.2	<0.01	18.7	0.08	0.03	<0.02	<2	0.77	0.057
B18	Vegetation	0.02	1.19	0.05	37.5	21	0.2	0.03	617	0.005	<0.1	<0.01	<0.2	<0.01	13.6	<0.01	<0.02	<0.02	<2	0.50	0.069
B19	Vegetation	<0.01	1.68	0.05	44.6	11	0.1	0.04	1616	0.006	<0.1	<0.01	<0.2	<0.01	6.8	<0.01	0.03	<0.02	<2	0.46	0.060
B20	Vegetation	0.02	2.73	0.05	34.8	34	0.7	0.10	1109	0.006	<0.1	<0.01	<0.2	<0.01	11.4	0.02	0.04	<0.02	<2	0.54	0.118
B21	Vegetation	<0.01	1.54	0.04	44.0	18	0.2	0.06	1722	0.008	<0.1	<0.01	<0.2	<0.01	18.9	0.02	0.03	<0.02	<2	0.92	0.060
B22	Vegetation	<0.01	1.56	0.04	32.0	16	0.4	0.06	953	0.005	<0.1	<0.01	<0.2	<0.01	9.5	<0.01	0.03	<0.02	<2	0.41	0.063
B23	Vegetation	<0.01	1.54	0.03	43.0	33	0.2	0.04	899	0.005	<0.1	<0.01	<0.2	<0.01	10.6	0.02	<0.02	<0.02	<2	0.49	0.048
B24	Vegetation	0.04	1.69	0.03	65.2	26	<0.1	0.03	684	0.006	<0.1	<0.01	<0.2	<0.01	25.9	<0.01	0.03	<0.02	<2	0.68	0.069
B25	Vegetation	<0.01	1.60	0.14	47.8	17	0.2	0.06	1294	0.005	<0.1	<0.01	<0.2	<0.01	7.9	<0.01	0.03	<0.02	<2	0.43	0.078
B26	Vegetation	0.02	1.51	0.04	28.4	22	0.6	0.17	1050	0.006	<0.1	<0.01	<0.2	<0.01	10.8	<0.01	<0.02	<0.02	<2	0.46	0.102
B27	Vegetation	0.07	1.23	0.06	36.1	32	0.3	0.08	1526	0.006	<0.1	<0.01	<0.2	<0.01	15.2	<0.01	<0.02	<0.02	<2	0.53	0.084
B28	Vegetation	0.05	2.10	0.03	23.5	17	1.2	0.38	1258	0.006	<0.1	<0.01	<0.2	<0.01	14.0	0.02	0.03	<0.02	<2	0.57	0.134
B29	Vegetation	0.03	1.46	0.03	20.9	22	0.5	0.24	1223	0.005	<0.1	<0.01	<0.2	<0.01	11.2	<0.01	0.03	<0.02	<2	0.60	0.092
B30	Vegetation	<0.01	1.62	0.04	30.1	17	0.8	0.10	1275	0.006	<0.1	<0.01	<0.2	<0.01	12.1	<0.01	0.03	<0.02	<2	0.53	0.089

## CERTIFICATE OF ANALYSIS

WHI14000039.1

Method Analyte Unit MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
	La ppm 0.01	Cr ppm 0.1	Mg % 0.001	Ba ppm 0.1	Ti ppm 1	B ppm 1	Al % 0.01	Na % 0.001	K % 0.01	W ppm 0.1	Sc ppm 0.1	Tl ppm 0.02	S % 0.01	Hg ppb 1	Se ppm 0.1	Te ppm 0.02	Ga ppm 0.1	Cs ppm 0.005	Ge ppm 0.01	Hf ppm 0.001	
B1	Vegetation	<0.01	1.1	0.043	38.0	2	8	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.05	9	<0.1	<0.02	<0.1	0.010	<0.01	<0.001
B2	Vegetation	0.01	1.3	0.067	109.2	2	4	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.06	11	<0.1	<0.02	<0.1	0.005	<0.01	<0.001
B3	Vegetation	<0.01	1.3	0.061	147.7	2	4	<0.01	<0.001	0.41	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
B4	Vegetation	<0.01	1.3	0.056	107.6	2	3	<0.01	<0.001	0.44	<0.1	0.2	<0.02	0.07	11	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
B5	Vegetation	<0.01	1.3	0.061	46.3	2	5	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.10	10	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
B6	Vegetation	<0.01	1.4	0.064	62.4	2	2	<0.01	<0.001	0.39	<0.1	0.2	<0.02	0.10	9	<0.1	<0.02	<0.1	<0.005	0.01	<0.001
B7	Vegetation	<0.01	1.2	0.069	49.1	2	5	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.10	10	<0.1	<0.02	0.1	0.007	<0.01	<0.001
B8	Vegetation	<0.01	1.2	0.055	174.4	2	2	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.10	15	<0.1	<0.02	<0.1	0.010	<0.01	<0.001
B9	Vegetation	<0.01	1.2	0.049	41.7	2	3	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.10	9	<0.1	<0.02	<0.1	0.010	<0.01	<0.001
B10	Vegetation	0.01	1.2	0.070	23.3	2	3	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.08	11	<0.1	<0.02	<0.1	0.006	<0.01	<0.001
B11	Vegetation	<0.01	1.2	0.063	37.2	2	1	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.09	13	<0.1	<0.02	<0.1	0.052	<0.01	<0.001
B12	Vegetation	0.01	1.2	0.062	42.0	2	2	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.08	13	<0.1	<0.02	<0.1	0.010	<0.01	<0.001
B13	Vegetation	<0.01	1.1	0.055	48.6	2	4	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.08	9	<0.1	<0.02	0.1	0.017	<0.01	<0.001
B14	Vegetation	<0.01	1.2	0.049	34.6	2	2	<0.01	<0.001	0.33	<0.1	0.1	<0.02	0.08	9	<0.1	<0.02	0.1	0.019	<0.01	<0.001
B15	Vegetation	<0.01	1.2	0.039	60.2	2	3	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	11	<0.1	<0.02	<0.1	0.015	<0.01	<0.001
B16	Vegetation	<0.01	1.2	0.046	25.1	2	2	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.08	11	<0.1	<0.02	0.1	0.023	<0.01	<0.001
B17	Vegetation	<0.01	1.2	0.054	82.4	2	5	<0.01	<0.001	0.23	<0.1	0.2	<0.02	0.09	11	<0.1	<0.02	0.2	0.046	<0.01	<0.001
B18	Vegetation	<0.01	1.2	0.067	44.5	2	3	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.08	6	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
B19	Vegetation	<0.01	1.2	0.061	23.4	2	2	<0.01	<0.001	0.24	<0.1	0.2	<0.02	0.08	15	<0.1	<0.02	0.1	0.016	<0.01	<0.001
B20	Vegetation	<0.01	1.2	0.083	37.9	3	1	<0.01	<0.001	0.51	<0.1	0.2	<0.02	0.09	18	<0.1	<0.02	0.1	0.030	<0.01	<0.001
B21	Vegetation	<0.01	1.2	0.049	35.6	2	3	<0.01	<0.001	0.29	<0.1	0.3	<0.02	0.07	15	<0.1	<0.02	0.1	0.017	<0.01	<0.001
B22	Vegetation	0.01	1.1	0.067	31.7	2	2	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	0.1	0.032	<0.01	<0.001
B23	Vegetation	<0.01	1.2	0.060	19.2	2	4	<0.01	<0.001	0.24	<0.1	0.2	<0.02	0.07	9	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
B24	Vegetation	<0.01	1.2	0.041	47.8	2	2	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.08	9	<0.1	<0.02	<0.1	0.009	<0.01	<0.001
B25	Vegetation	0.01	1.2	0.046	29.6	2	2	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	0.1	0.009	0.01	<0.001
B26	Vegetation	<0.01	1.1	0.081	28.7	2	2	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	9	<0.1	<0.02	0.1	0.049	<0.01	<0.001
B27	Vegetation	0.02	1.1	0.057	43.9	4	2	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.06	16	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
B28	Vegetation	<0.01	1.1	0.081	41.7	2	1	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.08	7	<0.1	<0.02	0.1	0.027	<0.01	<0.001
B29	Vegetation	<0.01	1.1	0.052	28.8	2	<1	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.06	11	<0.1	<0.02	0.1	0.025	<0.01	<0.001
B30	Vegetation	<0.01	1.2	0.069	57.3	2	1	<0.01	<0.001	0.25	<0.1	0.2	<0.02	0.04	7	<0.1	<0.02	0.1	0.023	<0.01	<0.001

**CERTIFICATE OF ANALYSIS**

WHI14000039.1

Method	Analyte	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb	
MDL		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	
B1	Vegetation	<0.01	1.4	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.05	<2	<1
B2	Vegetation	<0.01	1.6	<0.02	<0.001	0.01	0.007	0.03	<0.02	<1	<0.1	0.19	<2	<1
B3	Vegetation	<0.01	1.8	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	0.05	<2	<1
B4	Vegetation	<0.01	2.2	<0.02	<0.001	<0.01	0.005	0.01	<0.02	<1	<0.1	0.02	<2	<1
B5	Vegetation	<0.01	0.8	<0.02	<0.001	<0.01	0.006	0.02	<0.02	<1	<0.1	0.34	<2	<1
B6	Vegetation	<0.01	1.2	<0.02	<0.001	<0.01	0.005	0.01	<0.02	<1	<0.1	0.64	<2	<1
B7	Vegetation	<0.01	1.9	<0.02	<0.001	0.01	0.006	0.02	<0.02	<1	<0.1	0.30	<2	<1
B8	Vegetation	<0.01	3.8	<0.02	<0.001	0.01	0.006	0.02	<0.02	<1	<0.1	0.21	<2	<1
B9	Vegetation	<0.01	2.1	<0.02	<0.001	<0.01	0.003	0.01	<0.02	<1	<0.1	0.09	<2	<1
B10	Vegetation	<0.01	1.1	<0.02	<0.001	0.01	0.007	0.02	<0.02	<1	<0.1	0.11	<2	<1
B11	Vegetation	<0.01	3.9	<0.02	<0.001	<0.01	0.004	0.02	<0.02	<1	<0.1	<0.01	<2	<1
B12	Vegetation	<0.01	3.1	<0.02	<0.001	<0.01	0.008	0.02	<0.02	<1	<0.1	0.03	<2	<1
B13	Vegetation	<0.01	3.3	<0.02	<0.001	<0.01	0.008	0.01	<0.02	<1	<0.1	0.03	<2	<1
B14	Vegetation	<0.01	3.1	<0.02	<0.001	<0.01	0.005	0.01	<0.02	<1	<0.1	0.07	<2	<1
B15	Vegetation	<0.01	2.7	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.09	<2	<1
B16	Vegetation	<0.01	5.0	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.05	<2	<1
B17	Vegetation	<0.01	7.1	<0.02	<0.001	<0.01	0.005	0.01	<0.02	<1	<0.1	0.12	<2	<1
B18	Vegetation	<0.01	1.0	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	0.03	<2	<1
B19	Vegetation	<0.01	2.8	<0.02	<0.001	<0.01	0.006	0.02	<0.02	<1	<0.1	0.02	<2	<1
B20	Vegetation	<0.01	3.9	<0.02	<0.001	<0.01	0.004	0.02	<0.02	<1	<0.1	0.07	<2	<1
B21	Vegetation	<0.01	2.5	<0.02	<0.001	<0.01	0.004	0.02	<0.02	<1	<0.1	0.03	<2	<1
B22	Vegetation	<0.01	3.8	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	0.02	<2	<1
B23	Vegetation	<0.01	1.7	<0.02	<0.001	<0.01	0.004	0.01	<0.02	<1	<0.1	0.04	<2	<1
B24	Vegetation	<0.01	1.7	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	0.05	<2	<1
B25	Vegetation	<0.01	2.5	<0.02	<0.001	<0.01	0.010	0.03	<0.02	<1	<0.1	0.07	<2	<1
B26	Vegetation	<0.01	5.1	<0.02	<0.001	<0.01	0.006	0.02	<0.02	<1	<0.1	0.02	<2	<1
B27	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.013	0.03	<0.02	<1	<0.1	0.25	<2	<1
B28	Vegetation	<0.01	5.9	<0.02	<0.001	<0.01	0.002	0.01	<0.02	<1	<0.1	0.01	<2	<1
B29	Vegetation	<0.01	3.2	<0.02	<0.001	<0.01	0.002	0.01	<0.02	<1	<0.1	0.02	<2	<1
B30	Vegetation	<0.01	2.7	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.02	<2	<1

**CERTIFICATE OF ANALYSIS**

**WHI14000039.1**

Method	Analyte	Unit	MDL	VG101 Mo	VG101 Cu	VG101 Pb	VG101 Zn	VG101 Ag	VG101 Ni	VG101 Co	VG101 Mn	VG101 Fe	VG101 As	VG101 U	VG101 Au	VG101 Th	VG101 Sr	VG101 Cd	VG101 Sb	VG101 Bi	VG101 V	VG101 Ca	VG101 P
				ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
				0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001
B31	Vegetation			<0.01	1.95	0.03	31.4	14	0.7	0.11	1641	0.006	<0.1	<0.01	<0.2	<0.01	13.3	0.02	0.04	<0.02	<2	0.62	0.084
B32	Vegetation			0.04	1.69	0.04	33.4	27	0.4	0.15	1480	0.006	<0.1	<0.01	<0.2	<0.01	12.6	0.01	0.03	<0.02	<2	0.62	0.070
B33	Vegetation			0.02	1.72	0.03	28.6	32	0.5	0.05	434	0.005	<0.1	<0.01	<0.2	<0.01	7.2	<0.01	0.02	<0.02	<2	0.41	0.084
B34	Vegetation			0.06	2.15	0.04	36.1	28	1.2	0.05	529	0.004	<0.1	<0.01	0.2	<0.01	11.2	<0.01	0.03	<0.02	<2	0.36	0.136
B35	Vegetation			0.04	1.25	0.05	65.2	23	0.2	0.04	1046	0.007	<0.1	<0.01	0.3	<0.01	15.4	<0.01	0.03	<0.02	<2	0.87	0.066
B36	Vegetation			0.02	1.86	0.03	41.5	20	0.6	0.04	1012	0.005	<0.1	<0.01	<0.2	<0.01	7.1	<0.01	0.04	<0.02	<2	0.36	0.081
B37	Vegetation			0.06	1.35	0.05	47.0	17	0.3	0.08	1413	0.008	<0.1	<0.01	<0.2	<0.01	19.1	<0.01	0.03	<0.02	<2	0.77	0.074
B39	Vegetation			0.04	2.30	0.04	68.3	39	0.4	0.05	1169	0.006	<0.1	<0.01	<0.2	<0.01	24.7	0.05	0.03	<0.02	<2	0.75	0.081
B40	Vegetation			<0.01	1.68	0.04	54.0	8	0.4	0.17	2056	0.006	<0.1	<0.01	<0.2	<0.01	11.1	0.02	0.04	<0.02	<2	0.57	0.068
B41	Vegetation			0.04	1.78	0.04	60.2	17	0.4	0.05	865	0.006	<0.1	<0.01	<0.2	<0.01	12.9	0.02	0.03	<0.02	<2	0.62	0.067
L140	Vegetation			<0.01	1.62	0.04	73.2	12	0.1	0.04	394	0.008	<0.1	<0.01	<0.2	<0.01	24.8	<0.01	0.02	<0.02	<2	1.01	0.078
L141	Vegetation			<0.01	1.17	0.05	72.7	18	<0.1	0.04	906	0.007	<0.1	<0.01	<0.2	<0.01	15.6	<0.01	<0.02	<0.02	<2	0.84	0.063
L142	Vegetation			0.03	1.44	0.05	78.2	10	<0.1	0.04	568	0.007	<0.1	<0.01	<0.2	<0.01	23.3	<0.01	0.03	<0.02	<2	0.90	0.066
L177	Vegetation			<0.01	1.95	0.04	66.1	22	0.2	0.04	1171	0.006	<0.1	<0.01	<0.2	<0.01	12.6	<0.01	0.03	<0.02	<2	0.72	0.064
L178	Vegetation			L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
L179	Vegetation			<0.01	1.72	0.10	63.4	24	0.6	0.12	1780	0.009	<0.1	<0.01	<0.2	<0.01	14.4	0.03	0.04	<0.02	<2	0.74	0.077
L183	Vegetation			<0.01	1.51	0.07	50.8	16	0.3	0.05	1410	0.007	<0.1	<0.01	<0.2	<0.01	8.2	<0.01	0.05	<0.02	<2	0.66	0.062
L184	Vegetation			<0.01	1.87	0.06	33.4	34	0.4	0.06	876	0.005	<0.1	<0.01	<0.2	<0.01	8.4	<0.01	0.06	<0.02	<2	0.40	0.058
L185	Vegetation			0.01	1.67	0.07	39.9	17	0.3	0.04	885	0.006	<0.1	<0.01	<0.2	<0.01	8.1	<0.01	0.04	<0.02	<2	0.44	0.066
L186	Vegetation			0.02	1.67	0.07	48.3	18	0.5	0.06	1599	0.008	<0.1	<0.01	<0.2	<0.01	11.6	<0.01	0.03	<0.02	<2	0.65	0.078
L187	Vegetation			0.02	2.06	0.07	46.6	25	0.5	0.06	1120	0.005	<0.1	<0.01	<0.2	<0.01	12.9	<0.01	0.04	<0.02	<2	0.57	0.071
L188	Vegetation			0.01	1.73	0.05	48.1	15	0.5	0.06	1080	0.005	<0.1	<0.01	<0.2	<0.01	9.0	<0.01	<0.02	<0.02	<2	0.45	0.064
L189	Vegetation			0.09	1.76	0.06	52.2	32	0.5	0.05	1135	0.005	<0.1	<0.01	<0.2	<0.01	9.1	<0.01	0.03	<0.02	<2	0.58	0.068
L190	Vegetation			<0.01	2.27	0.06	44.2	29	0.2	0.05	1074	0.007	<0.1	<0.01	<0.2	<0.01	11.2	<0.01	0.04	<0.02	<2	0.56	0.063
L191	Vegetation			<0.01	1.86	0.04	49.9	24	0.3	0.07	1072	0.004	<0.1	<0.01	<0.2	<0.01	12.0	0.01	0.04	<0.02	<2	0.49	0.104
L192	Vegetation			0.09	1.70	0.08	43.0	19	0.3	0.08	1467	0.008	<0.1	<0.01	<0.2	<0.01	13.9	<0.01	0.04	<0.02	<2	0.62	0.061
L193	Vegetation			<0.01	1.98	0.06	75.0	28	0.2	0.05	2436	0.007	<0.1	<0.01	<0.2	<0.01	14.7	0.02	0.03	<0.02	<2	0.73	0.071
L208	Vegetation			0.01	1.79	0.05	46.6	25	0.3	0.07	1110	0.007	<0.1	<0.01	<0.2	<0.01	16.8	<0.01	0.05	<0.02	<2	0.84	0.088
L211	Vegetation			0.03	2.21	0.05	46.0	30	1.4	0.15	948	0.006	<0.1	<0.01	<0.2	<0.01	12.1	<0.01	0.04	<0.02	<2	0.45	0.075
L212	Vegetation			0.02	1.58	0.06	51.9	28	0.3	0.04	1168	0.006	<0.1	<0.01	<0.2	<0.01	11.0	<0.01	0.02	<0.02	<2	0.51	0.065

Bureau Veritas Commodities Canada Ltd.

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Project: Pirate  
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# CERTIFICATE OF ANALYSIS

WHI14000039.1

Method Analyte Unit MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
	La ppm 0.01	Cr ppm 0.1	Mg % 0.001	Ba ppm 0.1	Ti ppm 1	B ppm 1	Al % 0.01	Na % 0.001	K % 0.01	W ppm 0.1	Sc ppm 0.1	Tl ppm 0.02	S % 0.01	Hg ppb 1	Se ppm 0.1	Te ppm 0.02	Ga ppm 0.1	Cs ppm 0.005	Ge ppm 0.01	Hf ppm 0.001	
B31	Vegetation	0.01	1.1	0.064	55.3	2	<1	<0.01	<0.001	0.26	<0.1	0.2	<0.02	0.04	11	<0.1	<0.02	0.1	0.011	<0.01	<0.001
B32	Vegetation	<0.01	1.1	0.063	54.3	2	2	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.05	12	<0.1	<0.02	0.1	0.025	<0.01	<0.001
B33	Vegetation	0.01	1.1	0.067	21.1	2	1	<0.01	<0.001	0.33	<0.1	0.2	<0.02	0.05	10	<0.1	<0.02	<0.1	0.048	<0.01	<0.001
B34	Vegetation	<0.01	1.5	0.088	30.1	2	1	<0.01	<0.001	0.49	<0.1	0.2	<0.02	0.07	8	<0.1	<0.02	<0.1	0.137	<0.01	<0.001
B35	Vegetation	<0.01	1.5	0.051	66.3	2	4	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.06	13	<0.1	<0.02	<0.1	0.011	<0.01	<0.001
B36	Vegetation	<0.01	1.4	0.068	12.5	2	3	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.09	8	<0.1	<0.02	<0.1	0.026	<0.01	<0.001
B37	Vegetation	<0.01	1.4	0.052	77.2	2	3	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.07	15	<0.1	<0.02	0.1	0.018	<0.01	<0.001
B39	Vegetation	<0.01	1.4	0.056	123.2	2	4	<0.01	<0.001	0.40	<0.1	0.3	<0.02	0.09	15	<0.1	<0.02	<0.1	0.029	<0.01	<0.001
B40	Vegetation	<0.01	1.5	0.055	27.0	2	2	<0.01	<0.001	0.28	<0.1	0.2	<0.02	0.08	16	<0.1	<0.02	0.1	0.012	<0.01	<0.001
B41	Vegetation	0.01	1.4	0.052	52.1	2	3	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.07	12	<0.1	<0.02	<0.1	0.011	<0.01	<0.001
L140	Vegetation	<0.01	1.5	0.066	65.8	2	3	<0.01	<0.001	0.38	<0.1	0.2	<0.02	0.09	10	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
L141	Vegetation	<0.01	1.4	0.048	62.5	2	2	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.08	11	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
L142	Vegetation	0.01	1.5	0.053	119.6	2	2	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.09	15	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
L177	Vegetation	<0.01	1.4	0.058	54.6	1	3	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.10	8	<0.1	<0.02	<0.1	0.026	<0.01	<0.001
L178	Vegetation	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
L179	Vegetation	0.02	1.4	0.070	60.6	2	2	<0.01	<0.001	0.24	<0.1	0.2	<0.02	0.07	23	<0.1	<0.02	0.1	0.021	<0.01	<0.001
L183	Vegetation	0.01	1.4	0.072	12.0	2	3	<0.01	0.001	0.25	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	0.1	0.007	<0.01	<0.001
L184	Vegetation	0.01	1.5	0.084	25.9	2	2	<0.01	0.002	0.24	<0.1	0.2	<0.02	0.06	17	<0.1	<0.02	<0.1	0.029	<0.01	<0.001
L185	Vegetation	<0.01	1.5	0.057	15.9	2	4	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.07	13	<0.1	<0.02	<0.1	0.019	<0.01	<0.001
L186	Vegetation	<0.01	1.4	0.107	24.4	2	3	<0.01	<0.001	0.30	<0.1	0.2	<0.02	0.07	15	<0.1	<0.02	0.1	0.015	<0.01	<0.001
L187	Vegetation	<0.01	1.4	0.063	36.2	2	3	<0.01	0.001	0.28	<0.1	0.2	<0.02	0.07	10	<0.1	<0.02	<0.1	0.021	<0.01	<0.001
L188	Vegetation	<0.01	1.4	0.080	23.3	1	2	<0.01	<0.001	0.30	<0.1	0.3	<0.02	0.07	11	<0.1	<0.02	<0.1	0.020	<0.01	<0.001
L189	Vegetation	<0.01	1.4	0.061	21.6	2	3	<0.01	<0.001	0.32	<0.1	0.2	<0.02	0.07	11	<0.1	<0.02	0.1	0.010	<0.01	<0.001
L190	Vegetation	<0.01	1.4	0.064	25.7	2	2	<0.01	0.001	0.26	<0.1	0.3	<0.02	0.06	13	<0.1	<0.02	<0.1	0.007	<0.01	<0.001
L191	Vegetation	<0.01	1.5	0.045	28.0	2	2	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.09	16	<0.1	<0.02	<0.1	0.010	<0.01	<0.001
L192	Vegetation	0.01	1.4	0.063	34.6	2	2	<0.01	<0.001	0.23	<0.1	0.2	<0.02	0.07	14	<0.1	<0.02	0.1	0.015	<0.01	<0.001
L193	Vegetation	0.01	1.3	0.073	49.6	2	3	<0.01	<0.001	0.31	<0.1	0.3	<0.02	0.07	16	<0.1	<0.02	0.2	0.010	<0.01	<0.001
L208	Vegetation	0.01	1.5	0.064	77.9	2	2	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.07	9	<0.1	<0.02	0.1	0.005	<0.01	<0.001
L211	Vegetation	<0.01	1.4	0.092	40.2	2	2	<0.01	<0.001	0.29	<0.1	0.3	<0.02	0.08	14	<0.1	<0.02	0.1	0.050	<0.01	<0.001
L212	Vegetation	<0.01	1.4	0.058	32.4	2	3	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.06	12	<0.1	<0.02	0.1	0.008	<0.01	<0.001

# CERTIFICATE OF ANALYSIS

WHI14000039.1

	Method Analyte Unit MDL	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	
		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
B31	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.03	<2	<1
B32	Vegetation	<0.01	3.1	<0.02	<0.001	<0.01	0.003	0.02	<0.02	<1	<0.1	0.03	<2	<1
B33	Vegetation	<0.01	5.1	<0.02	<0.001	<0.01	0.004	0.02	<0.02	<1	<0.1	0.03	<2	<1
B34	Vegetation	<0.01	8.4	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	0.01	<2	<1
B35	Vegetation	<0.01	3.0	<0.02	<0.001	<0.01	0.002	0.02	<0.02	<1	<0.1	0.05	<2	<1
B36	Vegetation	<0.01	2.7	<0.02	<0.001	<0.01	0.002	0.01	<0.02	<1	<0.1	0.03	<2	<1
B37	Vegetation	<0.01	2.5	<0.02	<0.001	<0.01	0.007	0.02	<0.02	<1	<0.1	0.06	<2	<1
B39	Vegetation	<0.01	8.0	<0.02	<0.001	<0.01	0.004	0.01	<0.02	<1	<0.1	0.18	<2	<1
B40	Vegetation	<0.01	3.0	<0.02	<0.001	<0.01	0.005	0.03	<0.02	<1	<0.1	0.05	<2	<1
B41	Vegetation	<0.01	4.0	<0.02	<0.001	0.02	0.005	0.03	<0.02	<1	<0.1	0.04	<2	<1
L140	Vegetation	<0.01	0.4	<0.02	<0.001	<0.01	0.003	0.02	<0.02	<1	<0.1	0.09	<2	<1
L141	Vegetation	<0.01	0.5	<0.02	<0.001	<0.01	0.002	0.02	<0.02	<1	<0.1	0.06	<2	<1
L142	Vegetation	<0.01	2.7	<0.02	<0.001	<0.01	0.004	0.03	<0.02	<1	<0.1	0.16	<2	<1
L177	Vegetation	<0.01	6.7	<0.02	<0.001	<0.01	0.003	<0.01	<0.02	<1	<0.1	0.04	<2	<1
L178	Vegetation	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
L179	Vegetation	<0.01	2.6	<0.02	<0.001	0.01	0.009	0.04	<0.02	<1	<0.1	0.16	<2	<1
L183	Vegetation	<0.01	1.6	<0.02	<0.001	<0.01	0.005	0.03	<0.02	<1	<0.1	0.02	<2	<1
L184	Vegetation	<0.01	3.3	<0.02	<0.001	0.01	0.007	0.02	<0.02	<1	<0.1	0.05	<2	<1
L185	Vegetation	<0.01	4.6	<0.02	<0.001	<0.01	0.006	0.02	<0.02	<1	<0.1	0.04	<2	<1
L186	Vegetation	<0.01	5.1	<0.02	<0.001	<0.01	0.004	0.02	<0.02	<1	<0.1	0.04	<2	<1
L187	Vegetation	<0.01	3.9	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.04	<2	<1
L188	Vegetation	<0.01	3.6	<0.02	<0.001	<0.01	0.003	0.02	<0.02	<1	<0.1	0.04	<2	<1
L189	Vegetation	<0.01	3.7	<0.02	<0.001	<0.01	0.003	0.01	<0.02	<1	<0.1	0.04	<2	<1
L190	Vegetation	<0.01	2.6	<0.02	<0.001	<0.01	0.002	0.02	<0.02	<1	<0.1	0.04	<2	<1
L191	Vegetation	<0.01	4.2	<0.02	<0.001	<0.01	0.001	0.01	<0.02	<1	<0.1	0.15	<2	<1
L192	Vegetation	<0.01	2.8	<0.02	<0.001	0.01	0.009	0.03	<0.02	<1	<0.1	0.09	<2	<1
L193	Vegetation	<0.01	2.6	<0.02	<0.001	0.01	0.003	0.02	<0.02	<1	<0.1	0.06	<2	<1
L208	Vegetation	<0.01	1.0	<0.02	<0.001	0.01	0.005	0.02	<0.02	<1	<0.1	0.03	<2	<1
L211	Vegetation	<0.01	5.7	<0.02	<0.001	0.01	0.004	0.03	<0.02	<1	<0.1	0.07	<2	<1
L212	Vegetation	<0.01	2.3	<0.02	<0.001	<0.01	0.003	0.02	<0.02	<1	<0.1	0.04	<2	<1



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Project: Pirate  
 Report Date: July 16, 2014

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CERTIFICATE OF ANALYSIS

WHI14000039.1

Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL	0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001	
L213	Vegetation	0.07	1.62	0.06	52.3	38	0.5	0.18	1360	0.008	<0.1	<0.01	<0.2	<0.01	22.3	<0.01	<0.02	<0.02	<2	0.88	0.064
L214	Vegetation	<0.01	1.81	0.05	36.8	13	0.5	0.04	1010	0.005	<0.1	<0.01	<0.2	<0.01	10.5	0.02	0.03	<0.02	<2	0.58	0.068
L226	Vegetation	<0.01	1.58	0.06	35.2	14	0.4	0.08	1644	0.006	<0.1	<0.01	<0.2	<0.01	17.5	<0.01	0.03	<0.02	<2	0.79	0.099
L227	Vegetation	<0.01	1.55	0.07	43.9	12	0.4	0.09	1749	0.006	<0.1	<0.01	<0.2	<0.01	12.0	0.01	0.03	<0.02	<2	0.65	0.057
L228	Vegetation	<0.01	2.02	0.06	50.2	21	0.2	0.06	1629	0.006	<0.1	<0.01	<0.2	<0.01	15.3	0.02	0.02	<0.02	<2	0.60	0.081
L229	Vegetation	0.02	1.98	0.07	46.3	14	0.3	0.03	976	0.005	<0.1	<0.01	<0.2	<0.01	14.3	0.02	0.02	<0.02	<2	0.59	0.097



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**Project:** Pirate  
**Report Date:** July 16, 2014

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## CERTIFICATE OF ANALYSIS

WHI14000039.1

Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	Ge	Hf	
Unit	ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
MDL	0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001	
L213	Vegetation	0.01	1.3	0.052	57.0	2	2	<0.01	<0.001	0.29	<0.1	0.2	<0.02	0.07	18	<0.1	<0.02	0.1	0.008	<0.01	<0.001
L214	Vegetation	<0.01	1.4	0.063	33.7	2	5	<0.01	<0.001	0.35	<0.1	0.3	<0.02	0.08	13	<0.1	<0.02	<0.1	0.015	<0.01	<0.001
L226	Vegetation	<0.01	1.3	0.062	50.5	2	2	<0.01	<0.001	0.39	<0.1	0.2	<0.02	0.07	11	<0.1	<0.02	0.1	0.018	<0.01	<0.001
L227	Vegetation	0.01	1.4	0.075	49.2	2	2	<0.01	<0.001	0.27	<0.1	0.2	<0.02	0.07	13	<0.1	<0.02	0.1	<0.005	<0.01	<0.001
L228	Vegetation	<0.01	1.3	0.057	52.5	2	3	<0.01	<0.001	0.37	<0.1	0.2	<0.02	0.06	10	<0.1	<0.02	0.1	0.009	<0.01	<0.001
L229	Vegetation	<0.01	1.5	0.058	48.5	2	5	<0.01	<0.001	0.46	<0.1	0.2	<0.02	0.07	8	<0.1	<0.02	0.1	0.010	<0.01	<0.001

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**Project:** Pirate  
**Report Date:** July 16, 2014

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## CERTIFICATE OF ANALYSIS

WHI14000039.1

Method	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte	Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt	
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb	
MDL	0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1	
L213	Vegetation	<0.01	2.4	<0.02	<0.001	0.01	0.009	0.03	<0.02	<1	<0.1	0.07	<2	<1
L214	Vegetation	<0.01	2.0	<0.02	<0.001	<0.01	0.002	0.01	<0.02	<1	<0.1	0.07	<2	<1
L226	Vegetation	<0.01	2.7	<0.02	<0.001	<0.01	0.003	0.02	<0.02	<1	<0.1	0.04	<2	<1
L227	Vegetation	<0.01	0.9	<0.02	<0.001	<0.01	0.006	0.04	<0.02	<1	<0.1	0.08	<2	<1
L228	Vegetation	<0.01	3.1	<0.02	<0.001	<0.01	0.005	0.02	<0.02	<1	<0.1	0.06	<2	<1
L229	Vegetation	<0.01	2.9	<0.02	<0.001	<0.01	0.001	0.02	<0.02	<1	<0.1	0.05	<2	<1

## QUALITY CONTROL REPORT

WHI14000039.1

Method		VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit		ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL		0.01	0.01	0.01	0.1	2	0.1	0.01	1	0.001	0.1	0.01	0.2	0.01	0.5	0.01	0.02	0.02	2	0.01	0.001	
Pulp Duplicates																						
B12	Vegetation	0.01	1.81	0.05	46.7	15	0.5	0.10	1098	0.008	<0.1	<0.01	<0.2	<0.01	15.1	<0.01	0.03	<0.02	<2	0.61	0.083	
REP B12	QC	0.02	1.96	0.06	44.6	14	0.5	0.09	1068	0.008	<0.1	<0.01	<0.2	<0.01	15.1	<0.01	0.04	<0.02	<2	0.62	0.080	
L184	Vegetation	<0.01	1.87	0.06	33.4	34	0.4	0.06	876	0.005	<0.1	<0.01	<0.2	<0.01	8.4	<0.01	0.06	<0.02	<2	0.40	0.058	
REP L184	QC	<0.01	1.99	0.05	33.3	29	0.4	0.05	878	0.005	<0.1	<0.01	<0.2	<0.01	8.4	<0.01	0.05	<0.02	<2	0.41	0.060	
Reference Materials																						
STD CDV-1	Standard	0.17	7.25	0.85	23.8	9	5.8	1.72	356	0.249	1.0	0.14	2.0	0.57	103.9	0.04	0.03	<0.02	3	1.77	0.037	
STD CDV-1	Standard	0.19	8.31	1.02	22.8	10	6.3	1.93	397	0.277	1.2	0.16	2.3	0.86	121.7	0.03	0.03	<0.02	3	2.06	0.040	
STD V16	Standard	1.14	5.60	2.49	31.0	35	6.1	0.90	625	0.350	1.3	<0.01	1.1	<0.01	9.1	0.07	0.06	<0.02	<2	0.28	0.043	
STD V16	Standard	1.52	6.40	2.83	38.4	40	8.1	1.14	711	0.455	1.5	<0.01	0.8	<0.01	10.5	0.08	0.07	<0.02	<2	0.32	0.048	
STD V16 Expected		1.6	6.69	3	39.2	32	7.4	1.11	720	0.4125	1.6		0.9		11.2	0.086	0.07			0.3	0.0488	
STD CDV-1 Expected		0.2	8.61	1	23.3	9	6.4	2	385	0.256	1.3	0.17	2.3	0.61	112	0.04	0.03	0.02	4.2	1.94	0.038	
FLOUR	Blank	0.58	3.74	0.02	25.8	<2	0.3	0.01	35	0.004	<0.1	<0.01	<0.2	<0.01	1.3	0.03	<0.02	<0.02	3	0.03	0.386	
BLK	Blank	<0.01	0.01	0.01	0.1	7	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001	
FLOUR	Blank	0.63	3.39	0.04	28.5	<2	0.2	<0.01	29	0.004	<0.1	<0.01	0.4	<0.01	1.2	0.03	<0.02	0.03	3	0.03	0.369	
BLK	Blank	<0.01	<0.01	0.02	<0.1	<2	<0.1	<0.01	<1	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	<2	<0.01	<0.001	
Prep Wash																						
RICE	Prep Blank	0.14	2.04	0.02	11.7	3	0.2	<0.01	5	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	5	<0.01	0.061	
RICE	Prep Blank	0.15	1.93	0.02	11.4	3	0.2	<0.01	6	<0.001	<0.1	<0.01	<0.2	<0.01	<0.5	<0.01	<0.02	<0.02	4	<0.01	0.060	

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Method		VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Ti	S	Hg	Se	Te	Ga	Cs	Ge	Hf
Unit		ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm
MDL		0.01	0.1	0.001	0.1	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.01	1	0.1	0.02	0.1	0.005	0.01	0.001
Pulp Duplicates																					
B12	Vegetation	0.01	1.2	0.062	42.0	2	2	<0.01	<0.001	0.35	<0.1	0.2	<0.02	0.08	13	<0.1	<0.02	<0.1	0.010	<0.01	<0.001
REP B12	QC	0.01	1.2	0.061	39.3	2	2	<0.01	<0.001	0.34	<0.1	0.2	<0.02	0.09	12	<0.1	<0.02	<0.1	0.008	<0.01	<0.001
L184	Vegetation	0.01	1.5	0.084	25.9	2	2	<0.01	0.002	0.24	<0.1	0.2	<0.02	0.06	17	<0.1	<0.02	<0.1	0.029	<0.01	<0.001
REP L184	QC	0.01	1.5	0.083	26.9	2	2	<0.01	<0.001	0.24	<0.1	0.3	<0.02	0.07	15	<0.1	<0.02	<0.1	0.030	<0.01	<0.001
Reference Materials																					
STD CDV-1	Standard	2.23	10.6	0.113	8.4	24	11	0.13	0.005	0.15	<0.1	0.8	<0.02	0.12	49	0.3	<0.02	0.6	0.107	0.01	0.042
STD CDV-1	Standard	2.89	12.9	0.123	9.3	27	13	0.14	0.005	0.17	<0.1	0.9	<0.02	0.12	51	0.3	<0.02	0.6	0.114	0.03	0.053
STD V16	Standard	0.04	267.5	0.048	1.8	9	5	0.05	0.001	0.19	<0.1	0.1	<0.02	0.03	49	<0.1	<0.02	0.2	0.031	0.04	0.004
STD V16	Standard	0.05	372.9	0.054	2.0	10	5	0.05	0.001	0.21	<0.1	0.2	<0.02	0.03	56	<0.1	<0.02	0.2	0.035	0.05	0.004
STD V16 Expected		0.05	323.1	0.0525	1.9	12	5	0.0454	0.0015	0.22				0.0177	41			0.2	0.036	0.05	0.006
STD CDV-1 Expected		2.31	12.1	0.12	9	30	12	0.15	0.0052	0.18		0.8		0.1	41	0.3		0.5	0.121	0.03	0.046
FLOUR	Blank	<0.01	1.4	0.153	3.7	5	<1	<0.01	<0.001	0.36	<0.1	0.2	<0.02	0.15	1	0.6	<0.02	<0.1	<0.005	0.02	<0.001
BLK	Blank	<0.01	0.1	<0.001	<0.1	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	0.02	<1	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
FLOUR	Blank	<0.01	1.7	0.137	3.0	3	<1	<0.01	<0.001	0.31	<0.1	0.2	<0.02	0.21	1	0.7	<0.02	<0.1	<0.005	<0.01	<0.001
BLK	Blank	<0.01	0.2	<0.001	0.1	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	0.03	<1	<0.1	<0.02	<0.1	<0.005	<0.01	<0.001
Prep Wash																					
RICE	Prep Blank	<0.01	1.4	0.009	0.2	1	<1	<0.01	<0.001	0.06	<0.1	0.2	<0.02	0.10	1	0.1	<0.02	<0.1	<0.005	<0.01	<0.001
RICE	Prep Blank	<0.01	1.4	0.010	0.1	1	<1	<0.01	<0.001	0.05	<0.1	0.1	<0.02	0.10	4	0.1	<0.02	<0.1	<0.005	<0.01	<0.001

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Method		VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101	VG101
Analyte		Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb
MDL		0.01	0.1	0.02	0.001	0.01	0.001	0.01	0.02	1	0.1	0.01	2	1
Pulp Duplicates														
B12	Vegetation	<0.01	3.1	<0.02	<0.001	<0.01	0.008	0.02	<0.02	<1	<0.1	0.03	<2	<1
REP B12	QC	<0.01	3.0	<0.02	<0.001	<0.01	0.006	0.03	<0.02	<1	<0.1	0.04	<2	<1
L184	Vegetation	<0.01	3.3	<0.02	<0.001	0.01	0.007	0.02	<0.02	<1	<0.1	0.05	<2	<1
REP L184	QC	<0.01	3.4	<0.02	<0.001	0.01	0.006	0.02	<0.02	<1	<0.1	0.04	<2	<1
Reference Materials														
STD CDV-1	Standard	0.04	2.2	0.07	<0.001	1.17	1.315	4.59	<0.02	<1	<0.1	0.51	<2	<1
STD CDV-1	Standard	0.06	2.4	0.09	<0.001	1.28	1.517	5.94	<0.02	<1	<0.1	0.56	<2	<1
STD V16	Standard	0.07	1.4	0.19	<0.001	0.14	0.040	0.10	<0.02	<1	<0.1	0.04	<2	<1
STD V16	Standard	0.09	1.6	0.24	0.001	0.15	0.042	0.12	<0.02	<1	<0.1	0.06	<2	<1
STD V16 Expected		0.11	1.7	0.23		0.18	0.043	0.1				0.07		
STD CDV-1 Expected		0.05	2.3	0.08		1.2	1.41	4.9				0.56		
FLOUR	Blank	<0.01	2.5	<0.02	<0.001	<0.01	0.002	<0.01	<0.02	<1	<0.1	0.07	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
FLOUR	Blank	<0.01	2.4	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	0.08	<2	<1
BLK	Blank	<0.01	<0.1	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
Prep Wash														
RICE	Prep Blank	<0.01	1.7	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1
RICE	Prep Blank	<0.01	1.7	<0.02	<0.001	<0.01	<0.001	<0.01	<0.02	<1	<0.1	<0.01	<2	<1