Assessment Report

2007 Work Program
Prospecting, Rock Sampling, Stream Sediment Sampling

on the

MAC PROPERTY

NTS 82L/2E

Lat: 50° 04' 20'' N Long: 118° 32' 30'' W
(at approximate centre of property)

Vernon Mining Division
British Columbia, Canada

Prepared for:
TMBW International Resources Corp.
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1.0 SUMMARY

The Mac property is located about 55 kilometres southeast of Vernon, B.C. and covers a known gold occurrence near McIntyre Lake (Minfile #082LSE017). There is excellent road access to the claims. The Mac zone, the only area of known mineralization on the property, is situated immediately adjacent to Highway 6, 85 kilometres by road east from Vernon. The property consists of 1 Mineral Titles On-line map cell claim, covering an area of 332 hectares. This report summarizes the results of a small program of prospecting, rock sampling, silt and panned concentrate stream sediment sampling completed on the claim during the spring and summer of 2007.

The property is entirely underlain by the Spruce Grove Pluton, a Jurassic granodiorite belonging to the Nelson Batholith. At the Mac showing, a shallowly dipping mineralized shear zone on the property ranges up to 15 metres in width. Mineralization consists of pyrite, arsenopyrite, and quartz-carbonate veinlets in an intensely altered (clay + gouge) shear zone in a possible pendant of older volcanics (or younger dike material) within fresh granodiorite. The mineralized zone has been tested by trenching on surface, where it has returned up to 16.8 g/t Au across 12.5 metres. A total of 46 holes have been drilled to test the mineralization at depth and a 126.5 metre long decline (now flooded) was driven to test the mineralized zone approximately 18 metres vertically below surface, within the area of detailed drilling. At the base of the decline, the mineralized zone averaged 9 metres in thickness, and returned an average grade of 14.1 g/t Au.

Ore microscopy and electron microprobe analysis has been done in an attempt to understand the nature of the Mac zone mineralization. This work has shown that approximately 25% of the gold occurs as free gold, with 75% occurring as submicroscopic gold locked within sulfide minerals (likely in arsenopyrite). Preliminary metallurgical testing has resulted in poor gold and silver recoveries and additional metallurgical testing is required to identify a method which improves these recoveries. Neither finer grinding or direct cyanidation have been successful at liberating the gold which occurs as submicroscopic gold. Pre-oxidation (i.e. roasting, autoclaving or bio-oxidization), followed by cyanidation (with or without flotation) has been suggested as a possible method of improving gold and silver recovery from the Mac mineralization. During the current program, several hundred kilograms of mineralization was collected from the dump of a trench at the Mac zone, for future metallurgical work.

A short prospecting, rock and stream sediment sampling program was carried out on the Mac property during May and August 2007. Most of the rock seen during the course of the prospecting program was granodiorite intrusive with no evidence of alteration or mineralization. Locally, several dykes and quartz veins were discovered in outcrop and in float. Weakly altered granodiorite with minor pyrite was noted in float/subcrop on the property, which returned elevated gold (sample 8004, 325 ppb Au).

Panned concentrate stream sediment samples were collected from the 3 prominent creeks draining the Mac hillside. Traverses were done from north to south on the western and middle creek drainages and an attempt was made to collect silt samples at regularly spaced intervals along these drainages. In most places, however, there was little or no transported sediment. Only one sample returned a gold value above detection limit (sample 8501, 39 ppb Au). This sample was the northernmost sample collected on the middle creek, and suggest potential for mineralization north of the property boundary. The lack of transported sediment in the creeks is problematic and the lack of significant gold values in the silt and pan concentrate samples should not be considered as conclusive evidence of a lack of mineralization on the hillside.

2.0 INTRODUCTION

2.1 Property Location and Description

The Mac property is situated located about 55 kilometres southeast of Vernon, B.C., as shown on Figure 1. The property is centred at latitude 50° 04' 20'' N and longitude 118° 32' 30'' W on NTS map sheet 82L/2E. It covers an area of about 332 hectares and is underlain entirely by crown land.

The property consists of one MTO claim, located on Mineral Tenure map sheet 082L.008 in the Vernon Mining Division, as shown on Figure 1 and listed below in Table 1. The property is owned by John Kemp and Jason Turner and is held under option to TMBW International Resources Corp.

CLAIM NAME	TENURE #	Hectares	EXPIRY DATE*
MAC	533438	331.771	2010/Jun/30

* expiry dates listed are after filing this report

Table 1: Claim Information

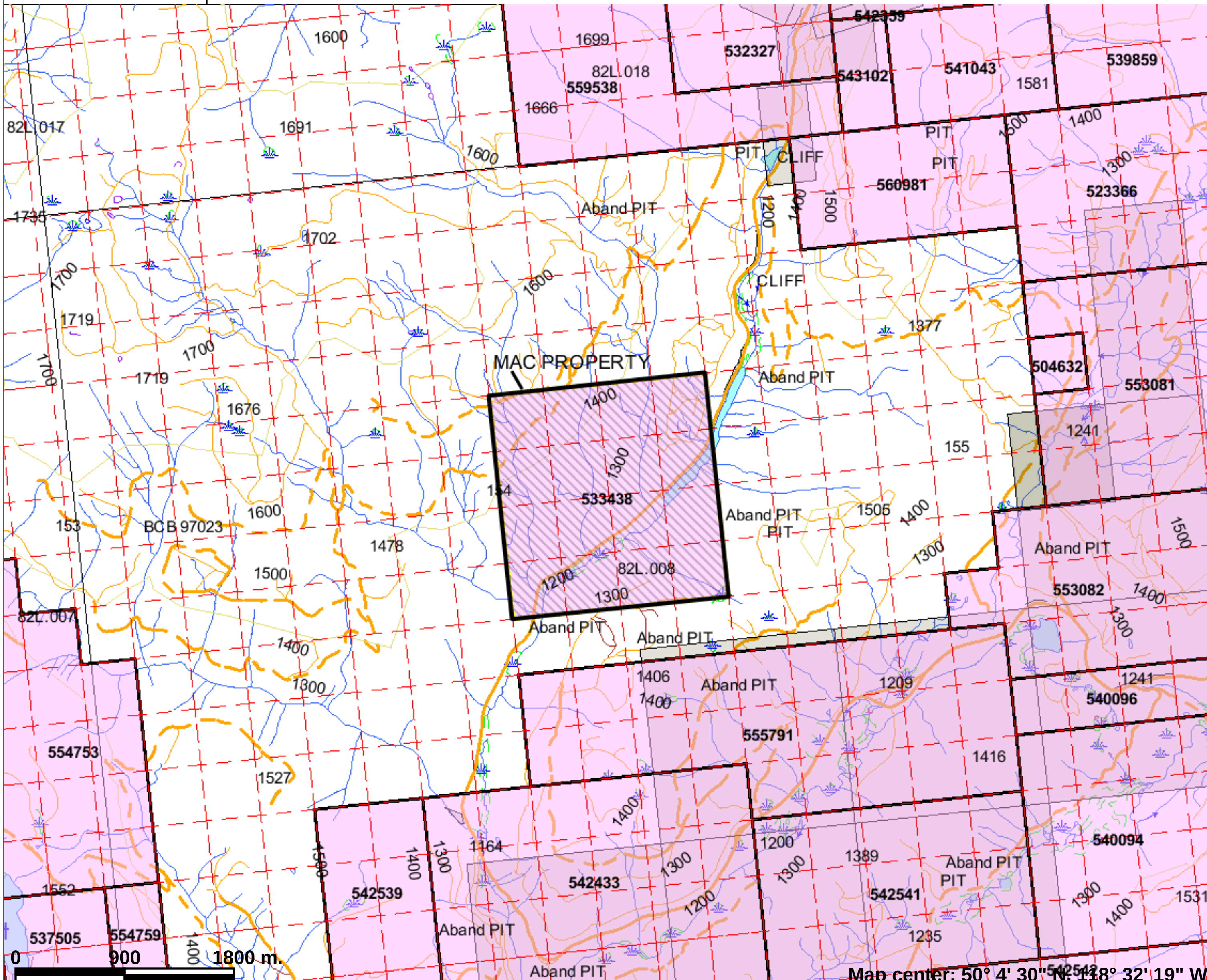
2.2 Access, Climate, Local Resources, Infrastructure & Physiography

Access to the Mac property is east from Vernon on Highway 6 for 85 kilometres, to McIntyre Lake. The Roddy Creek Main logging road provides road access to the northwest part of the property. The main area of mineralization on the property (the Mac zone) is situated immediately north of the highway, about 750 metres south of the south end of the lake, at UTM 5547545N 389320E (Nad 83).

The property straddles the northeast trending McIntyre Creek valley. Elevations range from about 1200 metres in the valley bottom, in the southeastern portion of the property, to about 1400 metres in the northwestern portion of the property. The Mac zone and essentially all the previous work on the property has been on the northwest side of the McIntyre Creek valley (northwest of the highway). The topography in this area is moderate to steeply southeast sloping, with numerous steep southeast flowing drainages, in deeply incised gullies. Generally the area is heavily forested with limited outcrop. Minor patchy logged areas are present.

The climate is moderately wet, although generally quite mild. Snowfall is heavy, typically in the order of 2 - 3 metres. There is abundant water on the property for drilling, from the decline (now flooded) or from numerous creeks or ponds.

Figure 1 - Mac Property Location and Claims



Legend

- Indian Reserves
- National Parks
- Parks
- Mineral Titles Grid (LRDW)

Mineral Tenures (Mineral - LRDW)

- Mineral Claim
- Mineral Lease

Reserves (Mineral - LRDW Sites)

- Placer Claim Designation
- Placer Lease Designation
- No Staking Reserve
- Conditional Reserve
- Release Required Reserve
- Surface Restriction
- Recreation Area
- Others
- Mining Division (MTO)
- Survey Parcels
- BCGS Grid

Contours (1:250K)

- Contour - Index
- Contour - Intermediate
- Areaof Exclusion
- Areaof Indefinite Contours

Transportation - Points (TRIM)

- Helipad

Transportation - Lines (TRIM)

- Airfield
- Airport
- Airstrip
- Airport.Abandoned
- Ferry Route
- Road (Gravel Undivided) - 1 Lane

Scale: 1:50,000

This map is a user generated static output from an Internet mapping site and is for general 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.

3.0 HISTORY

3.1 History of Exploration, Mac Property

Gold mineralization was first discovered on the Mac property (then known as the Top property) in 1969, during construction of Highway 6. Limited surface work was done during 1969.

In 1973 New Cinch Uranium Ltd carried out a combined trenching, soil sampling and diamond drilling program on the property. Trenching exposed the mineralization on surface in several places, returning up to 4.2 g/t Au over 12 metres in one trench (Trench 2). Five diamond drill holes, totalling 305 metres, were drilled. Results were inconclusive due to poor core recovery and failure to intersect the zone in some holes (Chisholm, 1974; Daughtry, 1977).

New Aston Resources acquired the property in 1977 but no work was carried out.

Brican Resources Ltd optioned the property in 1980 and over the next several years completed soil and rock sampling, ground geophysics (mag) and trenching (Gilmour, 1981, 1982, 1983). In 1983, Brican carried out a diamond drill program comprising 323.7 metres in 8 holes (Daughtry 1984). Significant results included:

ddh 83-2	1.8	m	@	10.3	g/t Au
ddh 83-5	0.3	m	@	7.6	g/t Au
ddh 83-6	10.2	m	@	10.2	g/t Au
ddh 83-7	5.1	m	@	2.5	g/t Au
ddh 83-8	1.1	m	@	10.8	g/t Au

In 1984 Kerr Addison Mines optioned the property from Brican Resources and drilled 11 holes (783 metres) before returning the property to Brican (Clendenan, 1984). Significant results were as follows:

ddh 84-9	10.6	m	@	4.3	g/t Au
ddh 84-10	7.5	m	@	3.8	g/t Au
ddh 84-19	0.8	m	@	15.4	g/t Au

Brican drilled a further 8 holes in 1986 before relinquishing the property. Data is only available for one of the 1986 holes (86-27, reported in Peto, 1989). There were no significant results from this hole.

In 1988 El Paraiso Resources (later Commonwealth Gold Corporation) and Venturex Resources carried out an exploration program on the property that included additional ground geophysics (VLF/IP) and diamond drilling (460.8 metres in 13 holes) (Peto, 1989). Significant results from drilling included:

ddh 88-28	1.8	m	@	9.5	g/t Au
ddh 88-29	5.5	m	@	8.8	g/t Au
ddh 88-30	14.3	m	@	14.9	g/t Au
ddh 88-31	2.4	m	@	4.9	g/t Au
ddh 88-33	6.1	m	@	2.2	g/t Au
ddh 88-34	8.6	m	@	2.8	g/t Au
ddh 88-36	9.2	m	@	2.5	g/t Au

In 1990, Commonwealth drove a 126.5 metre 3x3 metre decline to gain access to the lower levels of the mineralized zone. At the base of the decline the mineralized zone averaged 9 metres in width and returned an average grade of 14.1 g/t Au. (Twyman, 1991). Rasmussen and Carpenter (2004) report that "A personal communication with Mr. Ben Ainsworth, P.Geo., indicates that metallurgical testing of mineralized rock from the Mac property was carried out in 1991 by Commonwealth Gold Corporation. This work indicated that recovery by conventional cyanide leach of the gold contained in rock at the Mac property amounted to 20% of the material indicated by assaying."

No further work was done after Commonwealth's underground development program in the early 1990's and the claims eventually lapsed. The property was re-staked in the summer of 1999 as the Mac property, previous exploration data was compiled and a small rock sampling program was completed (Caron, 2000).

In 2002, the Mac property was optioned to Cantech Ventures Ltd. (later New Cantech Ventures Ltd.). New Cantech completed limited backhoe trenching at the Mac showing during 2003, to expose fresh mineralization so that samples could be collected for metallurgical testing. An average grade of 16.8 g/t Au was returned across 12.5 metres in the trench (NCV news release, Aug 22, 2003). Process Research Associates Ltd then completed cyanide leach tests, at several different grind sizes, on a composite sample from the trench. Gold and silver recoveries were low, to a maximum of 21.1 % recovery for gold and 58.7% recovery for silver. Refractory gold was postulated by PRA, who suggested that pre-treatment of the ore be carried out by pressure leaching, bioleaching and roasting combined with a preconcentration step (gravity or flotation) prior to cyanide leaching (Tse, 2003). The Process Research Report has not been previously filed and, although no costs associated with this work have been included with this work program, a copy of this report is included in Appendix 3 so that this data is preserved in the public record. A 43-101 Technical Report was prepared by Rasmussen and Carpenter (2004) for New Cantech Ventures.

In the 2004, New Cantech optioned the property to WebSmart.com Communications (later Gold Reach Resources). Additional testing, including ore microscopy, electron microprobe analysis and fire assay was carried out by SGS Lakefield Research Limited on behalf of WebSmart, in an attempt to understand the deportment of gold and silver in the Mac mineralization. This work suggests that approximately 25% of the gold occurs as free gold, with 75% occurring as submicroscopic gold locked within sulfide minerals (likely in arsenopyrite). This submicroscopic gold is not recoverable by finer grinding or by direct cyanidation. Pre-oxidation (i.e. roasting, autoclaving or bio-oxidization), followed by cyanidation (with or without flotation) was recommended in an attempt to achieve greater gold recovery (Zhou and Martin, 2004). As above, the SGS Lakefield report has not been previously filed. Again, no costs associated with this work are included with the current program, however a copy of the Lakefield report is similarly included in Appendix 3 so that the data is preserved in the public record.

Gold Reach Resources, and subsequently New Cantech Resources, dropped their option on the Mac property late in 2004. No further work was completed on the property until it was acquired by TMBW International Resources Corp. in the spring of 2007 and the work program described in this report was completed.

3.2 Summary of 2007 Work Program

During April-August 2007, a small prospecting, rock and stream sediment sampling program was carried out on the property, as detailed in this report. A one-day property examination was done on April 28, 2007 by Linda Caron. Several hundred kilograms of mineralized rock from the Mac showing was collected for subsequent metallurgical testing.

During May 2007, 2 man-days were spent prospecting and collecting panned concentrate stream sediment from creek drainages on the property. Regional prospecting and rock sampling was also done (6 man-days) and 6 rock samples were collected, all of which were situated off the Mac property. Neither the labour nor the analytical costs related to work off the property have been filed for assessment purposes, although sample descriptions and results have been included in the appendices of this report, for documentation purposes. Prospecting, rock and panned concentrate stream sampling was done by John Kemp and Carole Kemp. Samples were submitted to Loring Laboratories in Calgary for preparation and analysis for gold and a multi-element ICP suite. Panned concentrate samples were screened to 3 different mesh sizes for analysis, with a magnetic separation done on one of the size fractions. Details are given in Section 5.0 of the report.

On August 17, 18, and 19th, an additional 6 man-days were spent on the property, prospecting and collecting silt sediment samples from the main creek drainages. Work was done by Roger Kennedy and Terry Pidwerbeski. A total of 11 silt samples and 7 rock samples were collected. Samples were submitted to Loring Laboratories in Calgary for preparation and analysis for gold and for a multi-element ICP suite. One of the rock samples was situated off the property. As above, costs associated with this sample have not been filed for assessment purposes, however the sample description and results are included in the appendices for documentation sake.

4.0 GEOLOGY, STRUCTURE AND MINERALIZATION

The Mac property covers a known gold occurrence near McIntyre Lake (Minfile #082LSE017). The property is entirely underlain by the Spruce Grove Pluton, a Jurassic granodiorite belonging to the Nelson Batholith. At the Mac showing, a shallowly dipping mineralized shear zone on the property ranges up to 15 metres in width. Mineralization occurs in a complex north-trending zone of faulting and dyking, within fresh granodiorite.

As detailed in Section 3.1, the mineralized zone has been tested by trenching on surface, where it has returned up to 16.8 g/t Au across 12.5 metres. A total of 46 holes have been drilled to test the mineralization at depth. All 46 of these holes were collared within an area of less than 225 by 125 metres, with 34 of the 46 holes drilled within an area measuring less than 100 by 50 metres in size. A 126.5 metre long decline was driven to test the mineralized zone approximately 18 metres vertically below surface, within the area of detailed drilling. At the base of the decline, the mineralized zone averaged 9 metres in thickness, and returned an average grade of 14.1 g/t Au.

Rasmussen and Carpenter (2004) describe the mineralization and structural controls on the property as follows:

> "Mineralization on the Mac property is shear-zone hosted and intrusion-related. Intrusive units more mafic in composition than the host granodiorite were controlled by dilatant structures within the plutonic body, along which hydrothermal fluids were also focused, possibly toward a Tertiary-aged epithermal zone on or within a volcanic edifice.
>
> Mineralization at Mac occurs in irregular bodies of strongly clay-altered lamprophyre. The dip of the mineralized zone changes from moderately west-dipping in the southern portion to steeply west-dipping on the north side. This pattern suggests a structure that cuts across the Mac block (Caron's "B-Block") defined by 010º trending faults on either side. It could be a transfer fault, ranging between two dominant left-lateral faults, in antithetic angular relation to master boundaries (010º faults) of a Reidel shear system. If this analysis is correct, mineralization occurs in a dilatant environment caused by antithetic movement in the interior of the 010º defined block. This dilatancy is also important for the emplacement of mafic to intermediate dikes, and where most pronounced, for carbonate-quartz-sulfide alteration of the lamprophyres.
>
> Mineralization consists of pyrite, arsenopyrite, and quartz-carbonate veinlets in an intensely altered (clay+gouge) shear zone in a possible pendant of older volcanics (or younger dike material) within fresh granodiorite. The shear trends northeast and dips to the west at about 30-45°. Both the granodiorite and the altered shear zone are cut by andesite and biotite lamprophyre dikes. The dikes and the granodiorite may be altered within the mineralized shear. The extent of alteration and abundance of syn- and post-mineral faulting within the mineralized zone makes identification of the mineralized host difficult, and previous workers have widely differing descriptions of both the host to the mineralization and the timing of the mineralization. Some feel mineralization is hosted in dikes, others in volcanics. Some suggest that mineralization is Tertiary, post-dating the intrusion of biotite lamprophyre dikes. Alternately, alteration of these dikes may be a late event distinct from an earlier mineralizing event.
>
> Mac mineralization is structurally controlled and strongly associated with mafic intrusions, the emplacement of which was also controlled by the same structures. It has been obvious to all observers on the property that the dominant structural grain is defined by 010°--018° faults characterized by shear textures, gouge, and andesitic and to biotite-lamprophyre intrusions. Kinematic indicators in these faults clearly show sinistral movement, with moderate to shallow

plunge northward. In the vicinity of the Mac claims, in roadcuts adjacent to MacIntyre Lake, and in roadcuts on Hwy. 6 south of the Mac, 010° faults appear to have a periodicity of 200-300 metres. On the Mac claims, L.Caron identified three principal shear zones with 010º bearing, defining 3 blocks, A,B, and C, from north to south. The middle of the three shear zones is the one most closely associated with mineralization, and could be referred to as the 'main' shear on the Mac.

A fourth shear zone was identified, immediately at the mine road crossing of the creek west of the Mac portal. This fourth zone is the west boundary of Caron's "C Block". These four faults are much more closely grouped than the similar faults mappable along Hwy. 6. The four faults near the Mac deposit form a zone, in which alteration, mineralization, and the abundance of mafic intrusive material are significantly more pronounced than in exposures distal to the deposit. This then is perhaps the structural signature of the deposit: a closely-spaced group of N-trending faults, creating blocks exposed to extensional stress caused by the bounding strike-slip faults."

Rasmussen and Carpenter (2004) summarize the results of the 2004 geological mapping program as follows:

1. "Mineralization is strongly associated with mafic intrusive rocks strongly altered to carbonate-quartz-sulfide compositions.
2. Intrusions are controlled by N-NNE faults, each of which is a 1-2 metre wide zone of alteration, gouge, brittle deformation, and andesitic to lamprophyric lithologies in various states of quartz-sericite alteration.
3. The density of N-NNE trending structures in the area is greatest on the Mac property, and decrease away from the Mac. On the Mac property, these structures have an average separation of approximately 50 metres. Away from the deposit site, the separation increases to 100 to 200 metres.
4. The N-NNE trending structures on the Mac claims are associated with significant alteration and intrusive complexity, suggesting that these structures on the Mac property represent inter-connected strands of a shear zone, referred to herein as the Mac Shear Zone. To the north along Hwy 6, N-NNE striking faults are single faults, without sympathetic anastomosing components. Within the Mac Shear Zone, however, dilation on antithetic structures apparently forms an environment susceptible to intrusion by any available magmas and hydrothermal fluids.
5. The Mac Shear Zone is the controlling feature of mineralization and should therefore be the target of future exploration activities.
6. Geophysical data may be useful in delineating the Mac Shear Zone to the north and south of the Mac deposit.
7. A diamond drill program is probably the best tool to explore the Mac Shear Zone."

Widespread quartz-sericite-pyrite alteration occurs 3 kilometres to the south of the Mac shear zone, near the Spruce Grove Cafe. The alteration occurs at a possible junction between the N-trending Mac shear zone, and a NE-striking structure. Rasmussen and Carpenter (2004) postulated that mineralization on the Mac property occurs at a similar junction (between the same Mac shear zone and a NE-striking fault that forms the topographic declivity filled by McIntyre Lake) and that the two NE structures may be continuations of the same fault, displaced in a left-lateral sense by the Mac shear zone.

5.0 PROSPECTING, ROCK & STREAM GEOCHEMISTRY

A short prospecting, rock and stream sediment sampling program was carried out on the Mac property during May and August 2007. Work was done by John Kemp, Carole Kemp, Terry Pidwerbeski and Roger Kennedy. Prospecting traverses included the western and middle prominent creeks draining the steep southeast facing hillside on which the Mac shear is situated, the Roddy Creek Main logging road and spurs, and southeast-northwest traverses across the property, on both the northwest and southeast side of the highway.

Most of the rock seen during the course of the prospecting program was Nelson granodiorite intrusive with no evidence of alteration or mineralization. Locally, several dykes and quartz veins were discovered in outcrop and in float. Weakly altered granodiorite with minor pyrite was noted in float/subcrop on the property. In total, only 6 rock samples were collected on the property from the various prospecting traverses and submitted for analysis.

Rock sample descriptions (with UTM coordinates) are contained in Appendix 1 and sample locations are shown on Figure 2. Samples were shipped to Loring Laboratories Ltd. in Calgary for preparation and analysis for gold by 30 gram Fire Assay-AA/ICP finish plus a 30 element ICP suite, following an aqua regia digestion. Complete analytical results are included in Appendix 2 and results for gold are shown on Figure 3. Only one sample returned a gold value above detection limit (sample 8004, 325 ppb Au). This sample was collected approximately 100 metres east of the westernmost creek, from altered, pyritic granodiorite intrusive exposed in the roots of a blow-down tree. Follow-up is warranted in this area, to attempt to define the extent of alteration and mineralization.

Traverses were done from north to south on the western and middle creek drainages on the southeast facing hillside on which the Mac zone is situated. An attempt was made to collect silt samples at regularly spaced intervals along the creek drainages, however this proved impossible due to the lack of sediment within the creeks. There was little or no transported sediment in most places, and the silt that was sampled was typically black organic rich material. Because of the lack of transported sediment, silt sampling is a poor technique for identifying areas of mineralization in this area. Silt sample locations are shown on Figure 2. Silt samples were shipped to Loring Laboratories Ltd. in Calgary for preparation and analysis for gold by 30 gram Fire Assay-AA/ICP finish plus a 30 element ICP suite, following an aqua regia digestion. Complete analytical results are included in Appendix 2 and results for gold are shown on Figure 3. Only one sample returned a gold value above detection limit (sample 8501, 39 ppb Au). This sample was the northernmost sample collected on the middle creek, and suggest potential for mineralization north of the property boundary.

Panned concentrate stream sediment samples were collected from each of the 3 prominent creeks draining, as shown on Figure 2. At each site, a 5 gallon pail of sediment from the creek was collected and reduced by panning in the field, to approximately 1 kilogram of material. Samples were shipped to Loring Laboratories Ltd. in Calgary for preparation and analysis. In the lab, each sample was screened to 3 size fractions, a +40 mesh fraction, a –40 mesh + 100 mesh fraction and a –100 mesh fraction. The +40 mesh fraction was pulverized and then analysed for gold by 30 gram Fire Assay-AA/ICP finish and for a 30 element ICP suite, following an aqua regia leach. The –40 mesh + 100 mesh fraction was similarly analysed (without prior pulverizing) for gold and a 30 element ICP suite. A magnetic separation was done on the –100 mesh fraction to produce a heavy magnetic, a heavy non-magnetic and a heavy paramagnetic fraction. Each of these fractions was then analysed for gold and a 30 element ICP suite, as above. Complete analytical results for the stream sediment samples are contained in Appendix 2. Results for gold are included on Figure 3. All of the samples, for all of the size fractions, returned < 5 ppm Au. As with silt samples, the lack of transported sediment in the creeks is problematic and the lack of significant gold values in the sediment samples should not be considered as conclusive evidence of a lack of mineralization on the hillside.

In addition to the above program, several hundred kilograms of mineralized rock from the dump of a sloughed and partially backfilled trench at the Mac zone was collected, so that the recommended additional metallurgical testwork can be completed.

Figure 2 - Rock and Silt Sample Locations

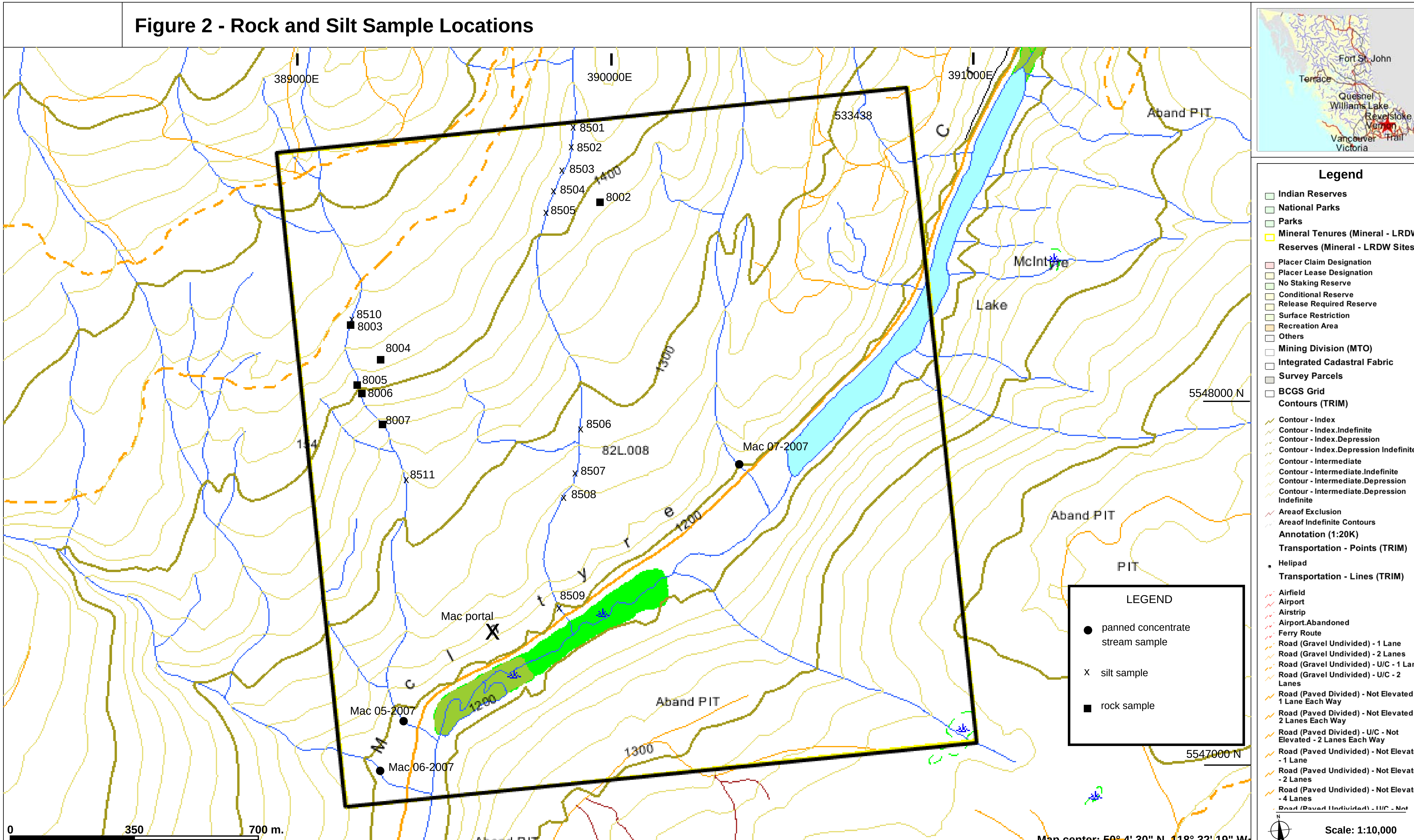


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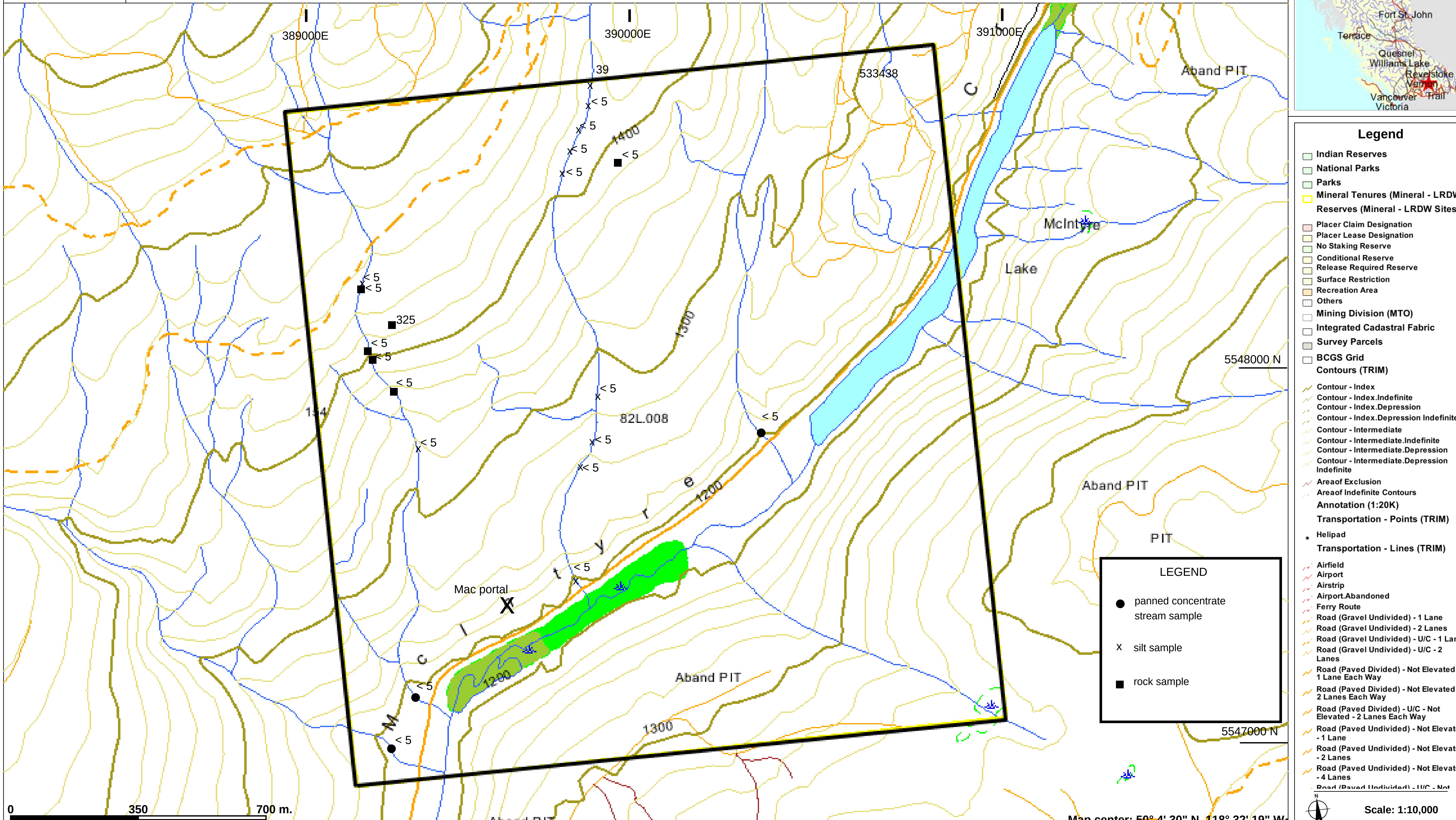
Figure 3 - Rock and Silt Sample Results - Au (ppb)



This map is a user generated static output from an Internet mapping site and is for general 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.

6.0 RECOMMENDATIONS

Detailed prospecting should be done in the vicinity of rock sample 8004 (325 ppb Au) in an attempt to locate additional samples of altered and mineralized intrusive. The area north and northwest of the current property boundary should similarly be prospected in greater detail to follow-up elevated gold in silt sample 8501, and in two rock samples collected northeast of the claim boundary. A zone of widespread quartz-sericite-pyrite alteration near Spruce Grove should also be prospected and sampled.

Additional metallurgical testing is also recommended, with the goal of identifying a metallurgical process resulting in acceptable gold and silver recovery from the Mac zone mineralization.

7.0 STATEMENT OF QUALIFICATIONS

I, Linda J. Caron, certify that:

1. I am an independent consulting geologist residing at 717 75th Ave (Box 2493), Grand Forks, B.C., V0H 1H0

2. I obtained a B.A.Sc. in Geological Engineering (Honours) in the Mineral Exploration Option, from the University of British Columbia (1985) and graduated with an M.Sc. in Geology and Geophysics from the University of Calgary (1988).

3. I have practised my profession since 1987 and have worked in the mineral exploration industry since 1980. Since 1989, I have done extensive geological work in Southern B.C. and particularly in the Greenwood - Grand Forks area, both as an employee of various exploration companies and as an independent consultant.

4. I am a member in good standing with the Association of Professional Engineers and Geoscientists of B.C. with professional engineer status.

5. I have visited the Mac property on several occasions. I supervised the work program described in this report.

Linda Caron, M.Sc., P. Eng.

PROFESSIONAL PROVINCE OF L. J. CARON BRITISH COLUMBIA ENGINEER

Sept 23/07

Date of signing

8.0 COST STATEMENT

Labour:

John Kemp	Prospector - prospecting, panned concentrate stream sampling 1 day @ $265.00/day	$	265.00
Carole Kemp	Prospector - prospecting, panned concentrate stream sampling 1 day @ $185.50/day	$	185.50
Terry Pidwerbeski	Prospector – prospecting, silt and rock sampling 3 days @ $318/day	$	954.00
Roger Kennedy	Prospector – prospecting, rock sampling 2.5 days @ $250/day	$	625.00
Linda Caron	Geologist – property examination, program supervision report preparation 1.5 days @ $636.00/day	$	954.00
		$	2,983.50

Analytical Costs:

Loring Laboratory, Calgary, Alberta 3 panned concentrate stream samples, 11 silt samples, 6 rock samples 30 element ICP + Au FA/AA finish	$	630.40

Expenses:

Vehicle rental: 6 days @ $75/day	$	450.00
Fuel	$	196.54
Food & Accommodation	$	339.08
	$	985.62
	$	**4,599.52**

9.0 REFERENCES

Caron, L., 2000.
Assessment Report on 1999 Geology and Rock Sampling Program, Mac Property. Assessment Report 26,349.

Chisholm, E.O., 1974.
Drilling Report on the Gold 1-10 Claims Group, McIntyre Lake Area; for New Cinch Uranium Ltd. Assessment Report 4,946.

Clendenan, A.J., 1984.
Diamond Drilling Assessment Report on the Top Property, McIntyre Lake; for Kerr Addison Mines Ltd and Brican Resources Ltd. Asessment Report 12,749.

Daughtry, K.L., 1977.
Report on Monashee Pass Gold Property, private report for New Aston Resources (quoted and referenced in Peto, 1989).

Daughtry, K.L., 1984.
Diamond Drilling Assessment Report on the Top Property, McIntyre Lake; for Brican Resources Ltd. Assessment Report 12,093.

Gilmour, W.R., 1981.
Geochemical Assessment Report on the Top Property, McIntyre Lake; for Brican Resources Ltd. Assessment Report 9,304.

Gilmour, W.R., 1982.
Geological and Geochemical Assessment Report on the Top Property, McIntyre Lake; for Brican Resources Ltd. Assessment Report 10,414.

Gilmour, W.R., 1983.
Geophysical Assessment Report on the Top Property; for Brican Resources Ltd. Assessment Report 11,191.

Peto, P., 1989.
Geological, Geophysical, Geochemical, Drilling and Physical Work on the Top Property; for Commonwealth Gold Corp. Assessment Report 18,426.

Rasmussen, M. and T. Carpenter, 2004.
Exploration Potential of the Mac property, Vernon Mining Division, for New Cantech Ventures, July 12, 2004.

Tse, P., 2003
Cyanide Leach Testing, Mac property, by Process Research Associates Ltd., for New Cantech Ventures Ltd., August 4, 2003 (internal company report included as Appendix 3).

Twyman, M.P., 1991.
Assessment Report on the Geochemical Survey and Decline Workings and Sampling Program, Top Property; for Commonwealth Gold Corp. Assessment Report 21,656.

Zhou, J. and C. Martin, 2004.
Deportment of Gold and Silver in the Mac Sample, by SGS Lakefield Research Limited Mineral Technologies, for Gold Reach Resources Ltd. October 27, 2004 (internal company report included as Appendix 3).

APPENDIX 1

Rock and Stream Sediment Sample Descriptions

ROCK SAMPLE DESCRIPTIONS

Sample #	UTM Northing	UTM Easting	Sample Type	Description
Mac 01-2007	5545977	389425	Grab	S of property. Sample from 2 float boulders, 1 m x 1 m in size, with weak narrow chalcedony veinlets in fine grained to aphanitic muddy brown massive +/- bleached Eocene dyke? or volcanic? Numerous other large similar looking boulders (without veining) were also located nearby.
Mac 02-2007	5545536	389835	Grab	S of property. 1 metre wide fine grained, dark grey magnetic basalt dyke, hosted in monzonite. Numerous similar parallel dykes occur nearby. Dykes trend 160°/90°.
Mac 03-2007	5546174	388992	Grab	S of property. High temperature barren looking quartz in zone of quartz flooding at contact between granitic rocks on north and basalt dyke on south. Patchy fine grained semi-massive pyrite along contact, up to 5% locally. Most of quartz has no sulfides.
Mac 04-2007	5549333	391088	Grab	NE of property. Narrow 6 cm rusty quartz vein in granitic rocks with patchy fine pyrite + apy? To 5% in white softer sericite rich zones Possible shear zone in intrusive. Trends 160°/90°?
Mac 08-2007	5549571	390360	Grab	N of property. Granitic intrusive, mod magnetic. Siliceous and chloritic. Rusty weathering with pyrite.
Mac 09-2007	5549301	391068	Grab	NE of property. 30 m south of Mac 04-2007. Rusty 2 cm quartz vein in siliceous granitic intrusive with biotite (+ garnet?)
8001	5549612	390367	Grab	N of property, at ~ same location as Mac 08-2007. Outcrop of altered granodiorite intrusive in shear zone, with py.
8002	5548790	389930	Float	Near middle creek. Dyke? with black phenos in grey-green matrix, minor pyrite mixed in with pieces of angular granitic rock.
8003	5548538	389173	Creek float	Fist sized pieces of quartz from western creek. Lots of small 3-4 cm qtz pieces in creekbed for next 150 m downstream of this.

8004	5548454	389186	Float	Float/subcrop from blowdown, ~ 75-100 m east of creek. Granitic rock with py cubes, weakly altered.
8005	5548376	389176	Creek float	Granitic intrusive with magnetite and some alteration veining, from western creek below large granitic outcrop.
8006	5548355	389168	Grab	20 m granitic outcrop in western creek gully. Weak alteration, magnetite. Both sides of creek.
8007	5548249	389197	Creek float	Float from western creek. Altered granitic intrusive with py and qtz veining. Weakly magnetic. Similar float nearby.

* UTM Nad 83, Zone 11

STREAM SEDIMENT SAMPLE DESCRIPTIONS

Sample #	UTM Northing	UTM Easting	Sample Type	Description
Mac 05-2007	5547349	389178	Pan concentrate stream sediment	From closest creek southwest of portal. 5 gallon pail of stream sediment collected from above disturbed area and panned to concentrate. Oversize boulders are granitic rocks and syenite.
Mac 06-2007	5547228	389127	Pan concentrate stream sediment	From second creek southwest of portal. 5 gallon pail of sediment collected and panned, as in Mac 05-2007. Oversize boulders are granitic but more chloritic than at Mac 05-2007 and sometimes weakly magnetic. Minor quartz float with pyrite.
Mac 07-2007	5547994	390228	Pan concentrate stream sediment	From stream northeast of portal. Same as Mac 05-2007.
8501	5549008	389875	Silt	Middle Creek. Dark black silt with some organics from small pool in seasonal streambed.
8502	5548966	389885	Silt	Middle Creek. Black silty soil with 5% fine pebbles and sand, 2% organics. 0.5 m creek in spruce and cedar grove.
8503	5548905	389938	Silt	Middle Creek. Dark brown/black silt with 5% fine pebbles, 4% organics, from small pool in trickling creekbed. Fresh granitic outcrop both sides of creek.
8504	5548852	389984	Silt	Middle Creek. Black silt with 5% fine gravels, 10% organics, from edge of small pool in trickling creek gully. Fresh granitic outcrop, both sides of creek. Lots of moss.
8505	5548786	389991	Silt	Middle Creek. Dark brown/black silts, 2% fine gravel, 10% organics from 1 m creekbed in cedar/spruce gully.
8506	5548135	389763	Silt	Middle Creek. Open clearing creekbed. Black silt with some muddy organics near creek edge. Pan for gold – no colours.
8507	5548042	389757	Silt	Middle Creek. Edge of trickling creek. Brown black sandy silt sample with 10% organics in fine gravely creekbed.

8508	5547976	389741	Silt	Middle Creek. Black silt with 4% fine gravel, 5% muddy mix, 15% organics. Level flowing creek on N side of new logging road.
8509	5547697	389568	Silt	Middle Creek. Black organic silt soil, steep slope drainage with thick devils club, spruce, cedar. No flowing creek at this point.
8510	5548535	389166	Silt	Western Creek. Silt from moist dry creek, 5% fine gravel, 15% organics. Steep walled gully.
8511	5548093	389237	Silt	Western Creek. Grey silt from dry creekbed just below new logging road. 10% organics.

* UTM Nad 83, Zone 11

APPENDIX 2

Analytical Results

Loring Laboratories Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 274-2777 Fax: 275-0541
loringlabs@telus.net

TO: LINDA CARON **FILE: 49796**
Box 2493
Grande Forks, B.C.
V0H 1H0 **DATE: July 13, 2007**

30 ELEMENT ICP ANALYSIS

Sample No.	Ag ppm	Al %	As ppm	Au ppb	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
Mac 01-2007	<0.5	1.79	5	<5	2	347	<1	0.91	1	24	31	89	2.18	0.54	33	0.60	542	2	0.10	6	0.07	190	3	223	7	0.15	<1	57	<1	97
Mac 02-2007	<0.5	2.07	8	<5	3	855	<1	2.72	1	40	109	36	3.99	0.15	68	1.09	908	2	0.05	31	0.16	193	2	228	<1	0.03	<1	106	<1	83
Mac 03-2007	0.8	0.53	4	4370	3	87	<1	0.29	<1	30	135	18	1.26	0.12	11	0.12	473	1	0.02	10	0.03	39	1	20	<1	0.01	<1	13	<1	24
Mac 04-2007	2.4	0.94	5	1930	9	82	<1	0.25	1	66	64	<1	7.05	0.33	12	0.11	433	3	0.03	1	0.05	62	5	15	<1	<0.01	<1	16	<1	28
Mac 08-2007	<0.5	0.67	1	20	<1	213	<1	2.22	<1	17	73	6	1.73	0.30	37	0.06	771	<1	0.05	2	0.06	26	<1	103	<1	<0.01	<1	25	<1	36
Mac 09-2007	<0.5	1.18	2	<5	<1	80	<1	0.52	<1	19	63	10	1.85	0.32	27	0.19	852	<1	0.06	<1	0.07	16	<1	34	1	<0.01	<1	24	<1	48
Mac 05-2007 Conc.																														
(+40)	<0.5	1.24	8	<5	3	66	<1	0.35	<1	19	79	7	1.71	0.22	16	0.35	471	<1	0.05	12	0.06	<1	<1	29	4	0.03	<1	40	<1	33
(-40+100)	<0.5	1.24	12	<5	3	70	<1	0.35	<1	25	35	12	2.28	0.14	16	0.58	660	<1	0.01	17	0.08	<1	2	24	2	0.03	<1	49	<1	41
(-100Mag.))	<0.5	0.60	3	<5	28	16	<1	0.31	2	132	106	<1	28.68	0.03	21	0.16	795	<1	0.01	26	0.11	9	20	8	<1	0.07	<1	565	<1	51
(-100 Para-mag.)	<0.5	2.74	25	<5	1	160	<1	0.63	1	54	91	99	5.56	0.27	35	1.30	1584	<1	0.01	38	0.14	4	5	45	9	0.07	<1	118	<1	90
(-100 non-mag.)	<0.5	0.70	7	<5	<1	34	<1	0.47	<1	7	19	40	0.61	0.09	15	0.15	368	<1	0.01	5	0.15	6	<1	16	<1	<0.01	<1	16	<1	20
Mac06-2007 Conc.																														
(+40)	<0.5	0.83	1	<5	<1	53	<1	0.27	<1	15	65	5	1.47	0.15	13	0.13	442	<1	0.05	5	0.05	2	1	27	<1	0.02	<1	29	<1	31
(-40+100)	<0.5	0.68	2	<5	4	48	<1	0.26	<1	28	20	4	2.76	0.07	16	0.16	464	<1	0.01	2	0.06	<1	<1	21	<1	0.02	<1	61	<1	57
(-100Mag.))	<0.5	0.53	<1	<5	31	20	4	0.32	3	123	236	<1	33.87	0.00	23	0.12	890	<1	0.01	36	0.11	7	21	12	<1	0.07	<1	751	<1	77
(-100 Para-mag.)	<0.5	1.74	8	<5	8	127	<1	0.56	1	64	26	40	7.26	0.15	36	0.43	1259	2	0.02	12	0.10	10	5	48	19	0.07	<1	144	<1	95
(-100 non-mag.)	<0.5	0.47	2	<5	<1	31	<1	0.79	<1	6	4	20	0.51	0.04	24	0.05	230	1	0.01	1	0.29	5	<1	33	<1	0.01	<1	12	10	20
Mac07-2007 Conc.																														
(+40)	<0.5	0.95	3	<5	3	55	<1	0.36	<1	19	44	8	1.84	0.14	13	0.21	452	<1	0.06	2	0.04	<1	<1	31	<1	0.06	<1	51	<1	35
(-40+100)	<0.5	0.70	3	<5	2	40	<1	0.26	<1	27	9	7	2.87	0.05	11	0.18	353	<1	0.01	<1	0.05	<1	2	17	<1	0.04	<1	65	<1	37
(-100Mag.))	<0.5	0.30	<1	<5	36	6	5	0.36	3	111	95	<1	37.68	<0.01	22	0.08	726	<1	0.01	32	0.14	4	22	6	<1	0.06	<1	799	<1	53
(-100 Para-mag.)	<0.5	1.83	10	<5	5	96	<1	0.59	1	42	22	38	3.98	0.14	25	0.65	844	1	0.02	14	0.07	<1	3	44	2	0.12	<1	76	<1	91
(-100 non-mag.)	<0.5	0.41	2	<5	<1	32	5	0.32	<1	5	4	23	0.37	0.04	10	0.05	163	<1	0.01	2	0.09	3	<1	23	<1	0.01	<1	9	32	21
Mac 01-2007(Chk.)	<0.5	1.80	7	<5	1	349	<1	0.91	1	25	32	74	2.24	0.55	31	0.62	518	2	0.10	8	0.07	199	2	227	<1	0.15	<1	56	<1	97
Mac07- Conc.(-100 Para-mag.) (Chk.)	<0.5	1.75	10	<5	5	95	<1	0.56	1	41	20	42	3.74	0.13	25	0.63	810	2	0.02	15	0.07	<1	4	43	2	0.12	<1	70	<1	91
Mac 03-2007(Chk.)	---	---	---	4133	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

0.500 Gram sample is digested with Aqua Regia at 95 C for one hour and bulked to 10 ml with distilled water.
Partial dissolution for Al, B, Ba, Ca, Cr, Fe, K, La, Mg, Mn, Na, P, Sr, Ti, and W.
Gold analyzed by F.A./A.A.

Certified by: ________________________

Loring Laboratories Ltd.

629 Beaverdam Road N.E.,
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Tel: 274-2777 Fax: 275-0541
loringlabs@telus.net

TO: LINDA CARON
Box 2493
Grand Forks, B.C.,
V0H 1H0

FILE: 5 0 0 1 2

DATE: Sept 22, 2007

30 ELEMENT ICP ANALYSIS

Sample Type: Rock

Sample No.	Ag ppm	Al %	As ppm	Au ppb	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
8001	<0.5	0.19	12	58	36	51	<1	2.78	1	19	39	<1	1.69	0.15	25	0.30	758	<1	0.02	5	0.05	6	1	130	<1	<0.01	<1	46	<1	42
8002	<0.5	1.63	10	<5	37	64	<1	0.94	3	49	133	86	3.57	0.65	10	1.36	414	1	0.02	46	0.10	<1	7	33	<1	0.11	<1	111	<1	51
8003	0.5	0.06	5	<5	38	11	<1	0.03	<1	3	106	2	0.25	0.02	1	0.02	64	1	0.01	5	<0.01	5	5	1	<1	<0.01	<1	8	<1	4
8004	<0.5	0.56	5	325	37	38	<1	0.34	1	18	51	6	1.61	0.08	12	0.35	375	<1	0.04	7	0.06	<1	3	27	5	0.04	<1	50	<1	56
8005	<0.5	0.45	6	<5	34	33	<1	0.32	1	20	48	1	1.82	0.09	14	0.23	375	<1	0.05	5	0.06	<1	1	20	4	0.04	<1	50	<1	51
8006	<0.5	0.49	4	<5	35	42	<1	0.30	1	18	41	1	1.55	0.15	12	0.29	384	<1	0.05	5	0.06	<1	2	22	<1	0.05	<1	42	<1	50
8007	<0.5	0.33	3	<5	35	24	<1	0.16	1	11	49	1	0.94	0.12	6	0.18	219	<1	0.04	4	0.03	<1	3	14	<1	0.03	<1	23	<1	31
8001 ck	<0.5	0.19	12	61	35	49	<1	2.75	2	19	38	<1	1.71	0.14	24	0.30	768	<1	0.02	5	0.05	6	1	127	<1	<0.01	<1	50	<1	43

0.500 Gram sample is digested with Aqua Regia at 95 C for one hour and bulked to 10 ml with distilled water.
Partial dissolution for Al, B, Ba, Ca, Cr, Fe, K, La, Mg, Mn, Na, P, Sr, Ti, and W.

Gold analyzed using 30 gram Fire Assay with AA finish.

Certified by: ___________________________

Loring Laboratories Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 274-2777 Fax: 275-0541
loringlabs@telus.net

TO: LINDA CARON
Box 2493
Grand Forks, B.C.,
V0H 1H0

FILE: 5 0 0 1 2

DATE: Sept 22, 2007

30 ELEMENT ICP ANALYSIS

Sample Type: Silt

Sample No.	Ag ppm	Al %	As ppm	Au ppb	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
8501	1.5	2.14	4	39	<1	101	<1	0.49	2	21	15	21	1.91	0.17	44	0.36	578	3	0.03	12	0.08	<1	<1	47	5	0.06	<1	80	<1	79
8502	<0.5	1.92	4	<5	<1	99	<1	0.57	2	18	13	26	1.54	0.16	44	0.34	273	2	0.03	10	0.07	<1	<1	55	4	0.06	<1	91	<1	78
8503	<0.5	2.00	4	<5	<1	100	<1	0.48	2	20	12	19	1.79	0.16	46	0.34	534	3	0.03	11	0.08	<1	<1	46	5	0.06	<1	85	<1	79
8504	1.1	2.26	7	<5	<1	130	<1	0.75	3	23	12	22	2.18	0.17	49	0.34	851	3	0.03	11	0.08	<1	<1	76	1	0.06	<1	101	<1	78
8505	1.4	2.26	4	<5	<1	117	<1	0.54	3	23	14	22	2.04	0.18	50	0.39	613	3	0.04	12	0.09	<1	<1	51	7	0.07	<1	85	<1	90
8506	1.2	2.12	4	<5	<1	108	<1	0.51	3	21	12	20	1.94	0.16	46	0.36	554	3	0.03	10	0.09	<1	1	48	1	0.07	<1	90	<1	83
8507	1.2	2.21	5	<5	<1	123	<1	0.67	4	34	22	23	3.43	0.16	45	0.46	1132	2	0.03	16	0.07	<1	<1	70	<1	0.06	<1	96	<1	79
8508	<0.5	1.78	3	<5	<1	92	<1	0.56	2	22	20	18	2.10	0.13	36	0.39	263	2	0.03	11	0.06	<1	<1	57	5	0.05	<1	59	<1	73
8509	1.1	2.12	4	<5	<1	108	<1	0.51	2	21	12	20	1.99	0.16	44	0.36	556	3	0.03	13	0.09	<1	<1	48	3	0.07	<1	85	<1	84
8510	0.9	1.59	3	<5	<1	131	<1	0.49	3	23	9	13	2.20	0.12	29	0.23	1393	3	0.03	6	0.08	<1	<1	46	3	0.05	<1	80	<1	94
8511	0.6	1.37	4	<5	<1	94	<1	0.41	2	24	10	13	2.30	0.16	22	0.36	682	1	0.04	8	0.09	<1	2	37	4	0.07	<1	106	<1	90
8501chk	1.2	2.05	4	40	<1	105	<1	0.49	2	20	18	20	1.91	0.15	44	0.34	551	3	0.03	13	0.09	<1	<1	45	3	0.06	<1	85	<1	82

0.500 Gram sample is digested with Aqua Regia at 95 C for one hour and bulked to 10 ml with distilled water.
Partial dissolution for Al, B, Ba, Ca, Cr, Fe, K, La, Mg, Mn, Na, P, Sr, Ti, and W.

Gold analyzed using 30 gram Fire Assay with AA finish.

Certified by: ________________________

APPENDIX 3

Metallurgical Testing

Process Research Associates Ltd.
A Metallurgical and Environmental Laboratory

Company:	Cantech		**Date:**	August 4, 2003
Attention:	Dalton Dupasquien		**Fax No.:**	604-541-7286
From:	Peter Tse	**No. Of pages (including this page):**		5

FACSIMILE

Re: Cyanide Leaching on two different primary grind sizes

Dear Dalton:

Attached are the cyanide leach test reports. The composite 1-5 was made up from combining MAC 01, MAC 02, MAC 03, MAC 04 and MAC 05. The composite was riffled into 2kg charges for the metallurgical testing.

Two cyanide leaching test was perform on two different grind sizes of P80=104 and 76 microns. The gold extraction was poor for both tests at 16% and 18.9%, respectively. The silver extraction was better at 33.2% and 39.9%. The results indicate that the composite may be preg-robbing and/or refractory to cyanide leaching. The ICP analysis revealed that the samples are high in As content (1.2%-3.9%) except MAC 02. This indicates that the samples contain arsenopyrite and the gold might be finely disseminated in the mineral. Pre-treatment is required prior to cyanide leaching recovery. Pre-treatment can be pressure leaching, bioleaching and roasting.

A diagnostic leaching to determine the deportment of the gold in different minerals is recommended before further testing.

If you have any questions, please do not hesitate to call me.

Regards

Peter Tse

9145 Shaughnessey Street, Vancouver, B.C., Canada V6P 6R9
Phone: 604-322-0118 Fax: 604-322-0181 Email: pra@pralab.com
Website: www.pralab.com

Process Research Associates Ltd.

A Metallurgical and Environmental Laboratory

To:	Discovery Consultants, Vernon	**Date:**	Sept. 19, 2003
Attn.:	Bill Gilmore	**Fax No:**	250 542-4867
From:	Gie Tan	**No. of pages (including this page):**	3

FACSIMILE

Re: Fine Grind Test Results

Dear Bill:

Attached are results of test C3 on Composite 1-5, ground to a P80 of 45 microns, with a 48 hour retention time. The extractions improved as expected to 21.2% of the gold and 58.7% of the silver, confirming that the materials likely contain refractory gold.

As mentioned in Peter's previous fax, and in your conversations with myself and Frank Wright, bio-leaching could be considered, preferably with a preconcentration step (gravity or flotation) to improve process economics.

If you have any questions, please do not hesitate to call me.

Best Regards

Gie Tan

9145 Shaughnessey Street, Vancouver, B.C., Canada V6P 6R9
Phone: 604-322-0118 Fax: 604-322-0181 Email: pra@pralab.com
Website: www.pralab.com

CYANIDATION TEST REPORT

Client: Cantech
Test: C1
Sample: Comp 1-5

Date: 4-Aug-03
Project: 0305007

Objective: To extract Au from the sample using cyanide leaching at the primary grind size of P80=104 microns.

TEST CONDITIONS

Solids:	1,948	g
Solution:	3,000	g
Solids:	39	%
Grind Size - $P_{80:}$	104	µm
Initial NaCN:	1.0	g/L
Target pH:	11.0	
Test Duration:	24	hours

TEST DESCRIPTION

- ground sample for 10 minutes
- repulped to 40% solids
- adjusted to pH 11 with lime
- adjusted 1g/L NaCN
- sample solution @ 11 hours
- test ended after 24 hours
- filtered and displacement washed with hot cyanide solution followed by two hot water displacement washes
- solution and solids fire assayed for Au and Ag content

HEAD GRADE

	Au		Ag	
Calculated Total:	19.1	g/t	197	g/t
Measured Total:	n/a	g/t	n/a	g/t

LEACH TEST DATA

Time	NaCN		Lime	pH		dO_2	Slurry Weight	Solution					
								Vol.	Assay Vol.	Au		Ag	
(hours)	(g/L)	(g)	(g)	before	after	(mg/L)	(g)	(mL)	(mL)	(mg/L)	(mg)	(mg/L)	(mg)
0	1.00	2.93	4.95	6.6	11.0	1.2							
2	0.70	0.90	0.54	9.9	10.8	7.9			5				
5	1.00		0.83	10.1	11.2	7.5			30				
11	0.80	0.60	0.83	10.2	11.2	7.2	4,694	2,746	30	1.94	5.39	33.8	94
24	0.88				10.6	8.0	4,669	2,721		2.14	5.95	46.1	128
Total		4.43	7.14										

SOLIDS

Time	Residue				
	Weight	Au		Ag	
(hours)	(g)	(g/t)	(mg)	(g/t)	(mg)
24	1,948	16.0	31.2	132	257

CYANIDATION RESULTS

Product	Distribution		Reagent Consumption		Reducing Power
	Au	Ag	NaCN	$Ca(OH)_2$	0.1 N $KMnO_4$/L
	(%)	(%)	(kg/t)	(kg/t)	(mL)
11	14.5	24.5	0.84		
24	16.0	33.2	1.04	3.67	50
Residue	84.0	66.8			
Total	100.0	100.0			

SIZE ANALYSIS REPORT

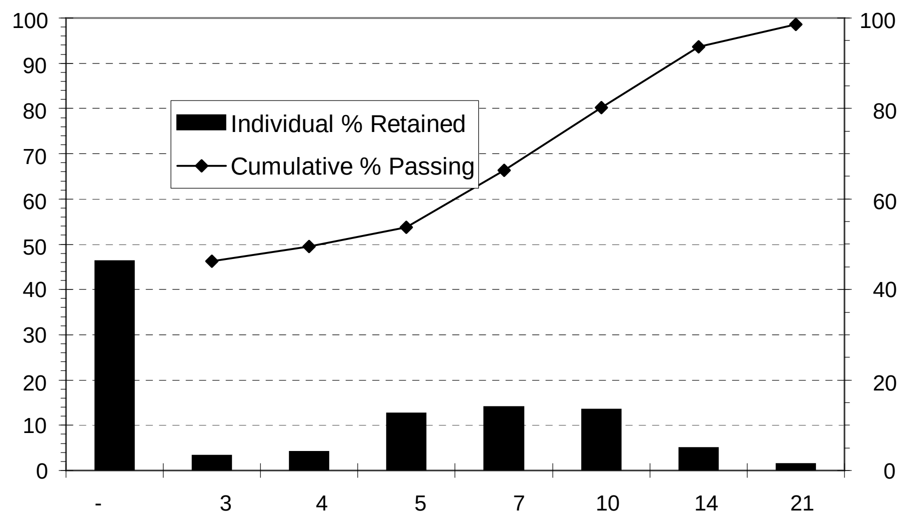
Client: Cantech
Test: C1
Sample: Comp 1-5
Grind: 2kg for 10 minutes @65% solids in Mill #2 stainless steel mill

Date: 4-Aug-03
Project: 0305007

Sieve Size		Individual	Cumulative
Tyler Mesh	**Micrometers**	**% Retained**	**% Passing**
65	210	1.3	98.7
100	149	5.0	93.6
150	105	13.4	80.3
200	74	13.9	66.3
270	53	12.6	53.7
325	44	4.2	49.5
400	37	3.3	46.3
Undersize	- 37	46.3	-
TOTAL:		100.0	

80 % Passing Size (µm) = 104

Size Distribution



CYANIDATION TEST REPORT

Client: Cantech
Test: C2
Sample: Comp 1-5

Date: 4-Aug-03
Project: 0305007

Objective: To extract Au from the sample using cyanide leaching at the primary grind size of P80=104 microns.

TEST CONDITIONS

Solids:	2,000 g
Solution:	3,000 g
Solids:	40 %
Grind Size - $P_{80:}$	76 µm
Initial NaCN:	1.0 g/L
Target pH:	11.0
Test Duration:	24 hours

TEST DESCRIPTION

- ground sample for 13 minutes
- repulped to 40% solids
- adjusted to pH 11 with lime
- adjusted 1g/L NaCN
- sample solution @ 11 hours
- test ended after 24 hours
- filtered and displacement washed with hot cyanide solution followed by two hot water displacement washes
- solution and solids fire assayed for Au and Ag content

HEAD GRADE

	Au	Ag
Calculated Total:	19.8 g/t	167 g/t
Measured Total:	n/a g/t	n/a g/t

LEACH TEST DATA

Time	NaCN		Lime	pH		dO_2	Slurry	Solution					
							Weight	Vol.	Assay Vol.	Au		Ag	
(hours)	(g/L)	(g)	(g)	before	after	(mg/L)	(g)	(mL)	(mL)	(mg/L)	(mg)	(mg/L)	(mg)
0	1.00	3.00	4.95	6.6	11.0	0.4							
2	0.70	0.90	0.54	10.0	11.6	7.8			5				
5	0.80	0.60	0.83	10.1	11.1	7.3			5				
11	0.90	0.30	0.83	10.2	11.2	6.8	5,026	3,026	30	2.09	6.35	34.6	105
24	0.70				10.6	8.1	5,041	3,041		2.43	7.47	43.3	133
Total		4.80	7.14										

SOLIDS

Time	Residue				
	Weight	Au		Ag	
(hours)	(g)	(g/t)	(mg)	(g/t)	(mg)
24	2,000	16.1	32.1	100	200

CYANIDATION RESULTS

Product	Distribution		Reagent Consumption		Reducing Power
	Au	Ag	NaCN	$Ca(OH)_2$	0.1 N $KMnO_4$/L
	(%)	(%)	(kg/t)	(kg/t)	(mL)
11	16.0	31.5	0.89		
24	18.9	39.9	1.34	3.57	85
Residue	81.1	60.1			
Total	100.0	100.0			

SIZE ANALYSIS REPORT

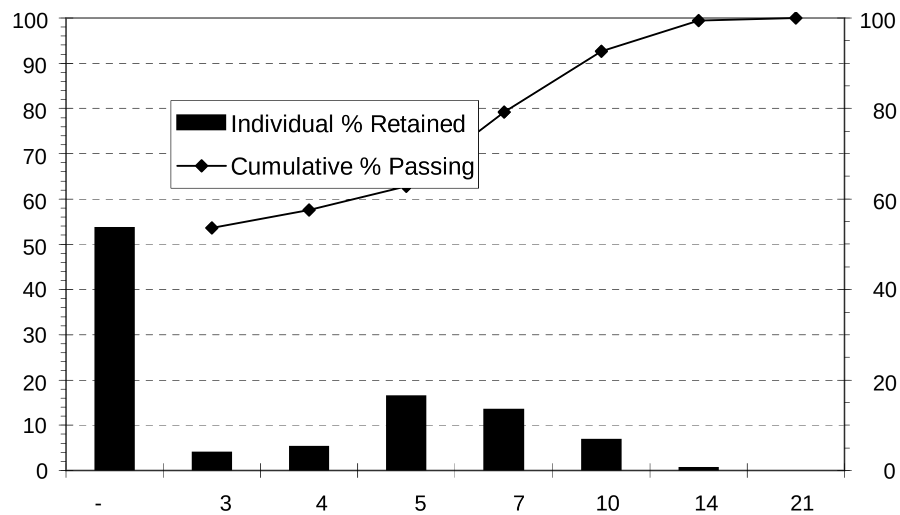
Client: Cantech
Test: C2
Sample: Comp 1-5
Grind: 2kg for 13 minutes @65% solids in Mill #2 stainless steel mill

Date: 4-Aug-03
Project: 0305007

Sieve Size		Individual	Cumulative
Tyler Mesh	**Micrometers**	**% Retained**	**% Passing**
65	210	0.0	100.0
100	149	0.6	99.4
150	105	6.8	92.6
200	74	13.5	79.2
270	53	16.4	62.8
325	44	5.2	57.6
400	37	4.0	53.6
Undersize	- 37	53.6	-
TOTAL:		100.0	

80 % Passing Size (µm) = 76

Size Distribution



CYANIDATION TEST REPORT

Client: Cantech
Test: C3
Sample: Comp 1-5

Date: 4-Aug-03
Project: 0305007

Objective: To extract Au from the sample using cyanide leaching at the primary grind size of P80=45 microns.

TEST CONDITIONS

Solids:	2,000	g
Solution:	3,000	g
Solids:	40	%
Grind Size - $P_{80:}$	45	µm
Initial NaCN:	1.0	g/L
Target pH:	11.0	
Test Duration:	48	hours

TEST DESCRIPTION

- ground sample for 25 minutes
- repulped to 40% solids
- adjusted to pH 10.5 with lime
- adjusted 1g/L NaCN
- sample solution @ 2, 8, 24 hours
- test ended after 48 hours
- filtered and displacement washed with hot cyanide solution followed by two hot water displacement washes
- solution and solids fire assayed for Au and Ag content

HEAD GRADE

	Au		Ag	
Calculated Total:	18.0	g/t	140	g/t
Measured Total:	n/a	g/t	n/a	g/t

LEACH TEST DATA

Time	NaCN		Lime	pH		dO_2	Slurry Weight	Solution					
								Vol.	Assay Vol.	Au		Ag	
(hours)	(g/L)	(g)	(g)	before	after	(mg/L)	(g)	(mL)	(mL)	(mg/L)	(mg)	(mg/L)	(mg)
0	1.00	3.00	5.45	6.4	10.6	4.5	5,000						
1	0.62	1.14	0.83	9.9	10.6	4.7			5				
2	1.04		0.83	10.2	10.6	6.8	5,010	3,010	30	1.77	5.33	26.0	78
5	1.02		0.17	10.3	10.5				5				
8	0.98	0.06	0.33	10.3	10.6	7.9	5,031	3,031	30	2.04	6.19	36.5	111
24	0.70	0.90	0.50	10.1	10.6	8.1	5,026	3,026	35	2.19	6.69	47.5	145
32	0.82	0.54	0.50	10.2	10.6	8.4			5				
48	0.76				10.3	7.9	5,216	3,216		2.31	7.63	50.0	165
Total		5.64	8.58										

SOLIDS

Time	Residue				
	Weight	Au		Ag	
(hours)	(g)	(g/t)	(mg)	(g/t)	(mg)
48	2,000	14.2	28.3	58	116

CYANIDATION RESULTS

Product	Distribution		Reagent Consumption		Reducing Power
	Au	Ag	NaCN	$Ca(OH)_2$	0.1 N $KMnO_4$/L
	(%)	(%)	(kg/t)	(kg/t)	(mL)
2 hrs Solution	14.8	27.9	0.59		
8 hrs Solution	17.2	39.4	1.01		
24 hrs Solution	18.6	51.5	2.07		
48hrs Solution	21.2	58.7	1.60	4.29	120
Residue	78.8	41.3			
Total	100.0	100.0			

HEAD ANALYSIS RESULTS

Client: Cantech
Sample: As per ID's

Date: 20-Aug-03
PRA Project: 0305007

Symbol	Units	Sample ID							Detection Limits		Analytical
		MAC 01	MAC 02	MAC 03	MAC 04	MAC 05	MAC 06	MAC 07	Min	Max	Method
Au	g/mt	30.0	11.5	19.5	10.8	11.0	0.02	0.02	0.01	9999	FA/AAS
Au	g/mt	31.0	11.0	20.0	10.5	11.0	0.02	0.02	0.01	9999	FA/AAS
Al	ppm	25504	73326	44558	62100	58283	73884	79795	100	50000	ICPM
Sb	ppm	227	65	301	251	119	<5	<5	5	2000	ICPM
As	ppm	33228	9993	38868	38759	11700	<5	<5	5	10000	ICPM
Ba	ppm	28	79	24	746	448	1671	474	2	10000	ICPM
Bi	ppm	<2	<2	<2	<2	<2	<2	<2	2	2000	ICPM
Cd	ppm	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	2000	ICPM
Ca	ppm	4242	37972	7614	20668	6020	47737	29223	100	100000	ICPM
Cr	ppm	247	285	283	362	322	283	102	1	10000	ICPM
Co	ppm	18	37	30	41	32	41	6	1	10000	ICPM
Cu	ppm	52	15	44	55	44	31	9	1	20000	ICPM
Fe	ppm	50139	63640	55168	72828	51631	63282	19773	100	50000	ICPM
La	ppm	6	22	9	16	25	45	15	2	10000	ICPM
Pb	ppm	81	44	34	43	97	34	26	2	10000	ICPM
Mg	ppm	1813	17954	3118	7002	3540	49245	4088	100	100000	ICPM
Mn	ppm	194	901	124	418	63	1256	673	1	10000	ICPM
Hg	ppm	<3	<3	<3	<3	<3	<3	<3	3	10000	ICPM
Mo	ppm	6	12	8	6	7	5	2	1	1000	ICPM
Ni	ppm	53	125	98	131	115	123	2	1	10000	ICPM
P	ppm	1144	2832	2274	2649	4455	3685	415	100	50000	ICPM
K	ppm	11203	32611	21130	27876	27051	25951	28390	100	100000	ICPM
Sc	ppm	6	17	7	13	10	21	4	1	10000	ICPM
Ag	ppm	337.1	9.8	13.7	15.9	215.9	1.8	1	0.1	100	ICPM
Na	ppm	266	1890	582	1000	812	22124	26917	100	100000	ICPM
Sr	ppm	55	254	70	264	158	617	411	1	10000	ICPM
Tl	ppm	<2	<2	<2	<2	<2	<2	<2	2	1000	ICPM
Ti	ppm	1083	3918	2684	3624	7825	8799	1172	100	100000	ICPM
W	ppm	<5	14	6	10	20	<5	7	5	1000	ICPM
V	ppm	70	165	112	173	138	174	36	1	10000	ICPM
Zn	ppm	255	131	110	93	161	91	44	1	10000	ICPM
Zr	ppm	16	55	33	58	73	267	19	1	10000	ICPM

SGS Lakefield Research Limited

Mineral Technologies

Deportment of Gold and Silver in the Mac Sample

Submitted by

Gold Reach Resources
8901-450 - LIMS: MI5013-SEP04

DRAFT

NOTE: This report refers to the samples as received.

Lakefield Research

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Member of SGS Group (Société Générale de Surveillance)

October 27, 2004

Deportment of Gold and Silver in the Mac Sample

1. Introduction

One ore sample, identified as the Mac sample, was submitted by ***Gold Reach Resources*** for gold deportment study. The objective of the investigation was to determine the modes of occurrence of gold and the cause for low gold recovery.

2. Study Procedure

Approximately two kilograms of rock chips were selected from the as-received Mac sample and stage-crushed to 80% passing 75 µm. The -75 µm material was split for assays and for preconcentration using standard procedures for investigation of gold and silver deportment. A comprehensive mineralogical and analytical approach including fire assay, ore microscopy, image analysis and electron microprobe quantitative analysis (EMP) was used for the current study. The main steps of the study included:

1. Preconcentration of one kg of -75 µm material by heavy liquid at 3.0 g/cm^3 in a centrifuge to produce a Float fraction (composed mainly of quartz and silicate, with disseminated pyrite or arsenopyrite) and a Sink fraction (composed mainly of liberated sulfides, with some composite particles).
2. The Sink fraction was further concentrated using a superpanner to separate gold and silver particles and sulfides.
3. Polished sections were prepared from the superpanner tip, sulfide and middlings, as well as the float fraction, for systematic gold scanning under the optical microscope at 500X magnification for gold and silver mineral species, size distribution, association and composition.
4. The Float fraction and the superpanner middling fraction were assayed for Au and Ag to determine the amount of gold and silver associated with silicates or sulfides.
5. Gold and silver mineral particles were selected for electron microprobe analysis to determine the Au and Ag content.
6. Representative digital photomicrographs were taken to show the occurrence of gold and silver minerals.

By employing such a procedure, all liberated gold and silver minerals would be separated and observed. Any gold attachments to and inclusions in sulfide and other minerals would also be observed. Figure 1 shows the sample preparation procedure.

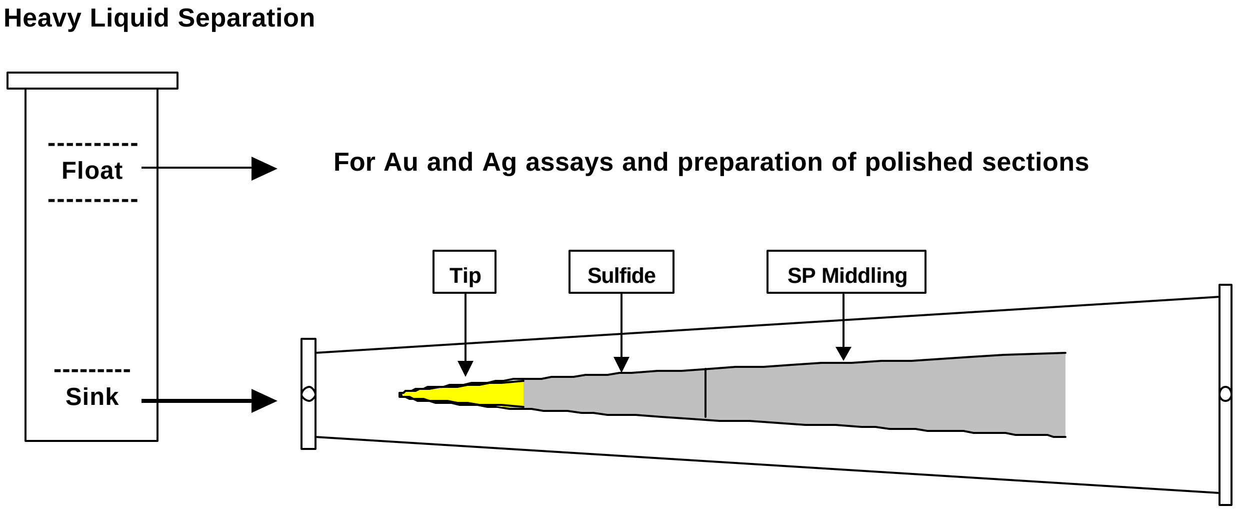

Figure 1: Schematic preconcentration procedure

3. General Mineralogy

The Mac sample was composed mainly of non-opaque minerals (mainly quartz, with a minor amount of silicate and carbonate, accounting for approximately 90% in total), with minor amounts of sulfide minerals (8.5%) and trace amounts of magnetite, hematite, gold and silver minerals.

Sulfide minerals included arsenopyrite (FeAsS) (7%), pyrite (FeS_2) (1.5%) and some other minerals, such as sphalerite (ZnS), chalcopyrite ($CuFeS_2$) and pyrrhotite ($Fe_{1-x}S$).

Arsenopyrite and pyrite occurred as liberated particles and particles attached to or included in non-opaque minerals. Morphologically, arsenopyrite and pyrite occurred as euhedral and anhedral particles. In the Float fraction, arsenopyrite and pyrite occurred as fine-grained particles locked in non-opaque minerals (Figure 2). The morphological types of these two minerals and gold scanning indicated that arsenopyrite and pyrite, particularly arsenopyrite, are possible major gold carriers in the Mac sample (see next section for details).

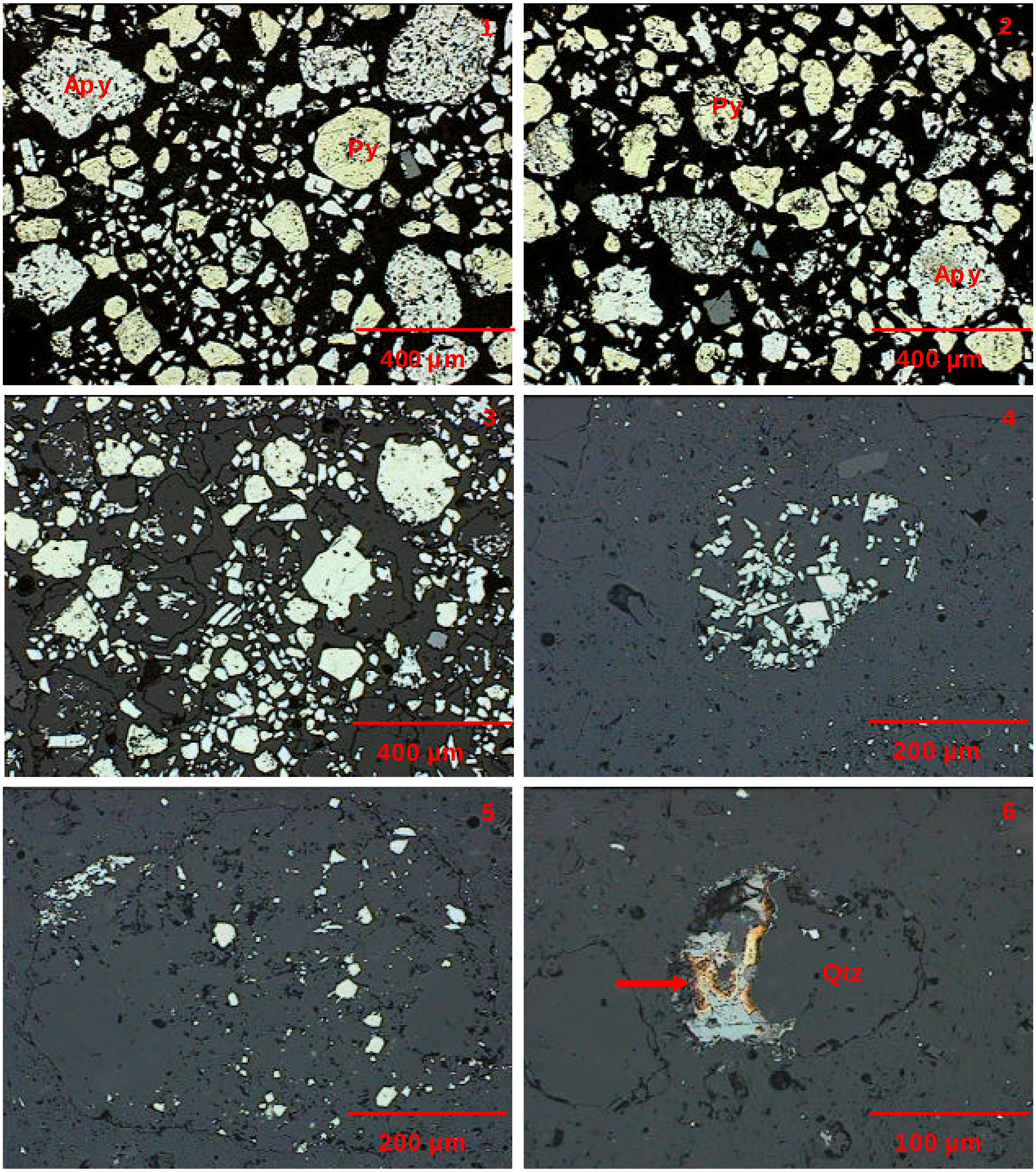

Figure 2: 50X-200X, reflected light photomicrographs showing the general mineralogy, association and morphological types of sulfide minerals in the Mac sample. 1 & 2: SP Tip and Sulfide were mainly composed of arsenopyrite and pyrite; 3: SP Middling was composed of sulfide and quartz; 4 & 5: fine-grained arsenopyrite and pyrite particles disseminated in quartz; 6: native silver (yellow) and stephanite (gray) attached to quartz. Py: pyrite; Apy: arsenopyrite; Qtz: quartz.

4. Deportment of Gold and Silver

4.1 Certified Assays

Certified Au and Ag assays, along with the mass balance and gold and silver distributions of the Mac sample are presented in Table 1.

Table 1: Certified Assays, Mass Balance and Gold Distribution

Sample ID			As (%)	S^{2-} (%)	Au (g/t)	Ag (g/t)	Wt.(g)	Wt.(%)	Distribution (%)	
									Au	Ag
Mac	Head[1)]		3.51	2.18	21.6, 21.7	344	996.75	100.0	100	100
	Float		-	-	11.0	156	955.5	95.86	48.8	43.5
	Sink	SP Tip	-	-	-	-	0.5	0.05	25.0[1)]	56.5
		SP Sulfide	-	-	-	-	1.35	0.14	0.9[1)]	
		SP Middling	-	-	137, 140	-	39.4	3.95	25.3	

[1)] Calculated value. "-": not analyzed.

4.2 Gold Deportment

A total of seventy-eight (78) gold particles were observed and measured (Appendix 1-1). Gold in the Mac sample occurred as native gold, electrum and kustelite (Table 2), with the latter two being the major species. Gold minerals occurred as liberated fine- to medium-grained particles. The grain size ranged from 5 to 67 µm, with 80% being less than 30 µm (Figure 3). These liberated gold particles will be dissolved to completion during the normal cyanidation due to the small grain size. Some gold particles were coated by other silver minerals (such as acanthite) and may cause problems during cyanidation.

Table 2: Gold and Silver Minerals observed in the MAC Sample

Mineral Name	Formula	Au/Ag Content
Native gold	Au	Au 77.3%, Ag 22.0%
Electrum	(Ag, Au)	Au 67.3%, Ag 31.2%
Kustelite	(Au, Ag)	Au 44.3%, Ag 41.8%
Native silver	Ag	Ag 97.4%
Acanthite	Ag_2S	Ag 85.0%
Stephanite	Ag_5SbS_4	Ag 70.6%
Pyrargyrite	Ag_3SbS_3	Ag 53.6%
Freibergite	$(Ag, Cu, Fe)_{12}(Sb, As)_4S_{13}$	Ag 23.4%

No gold attachments or inclusions were observed. This indicates that the liberation of gold particles was good and no further grinding is required.

The gold balance (Table 1) showed that the gold in the SP Tip (superpan concentrate) accounted for 25% of the head assay, which can be considered to be the amount of directly cyanidable gold. Gold in the Float fraction (composed mainly of non-opaque minerals with disseminated sulfide particles) and pan middling fraction (composed mainly of liberated and disseminated sulfide particles) accounted for 49% and 25% of the head assay, respectively. Systematic scanning under the microscope at 500X on these two fractions did not reveal any occurrence of gold particles (note: at 500X, gold inclusions =0.5 µm will be detected). This indicates that in these two fractions (1) gold was carried by sulfide minerals; (2) the grain size of gold was smaller than 0.5 µm. Based on the sulfide mineralogy, it is reasonable to assume that the majority of gold in the Mac sample (~75%) was locked in sulfide minerals (most likely in arsenopyrite) in the form of submicroscopic gold, which was the cause for low gold recovery by cyanidation.

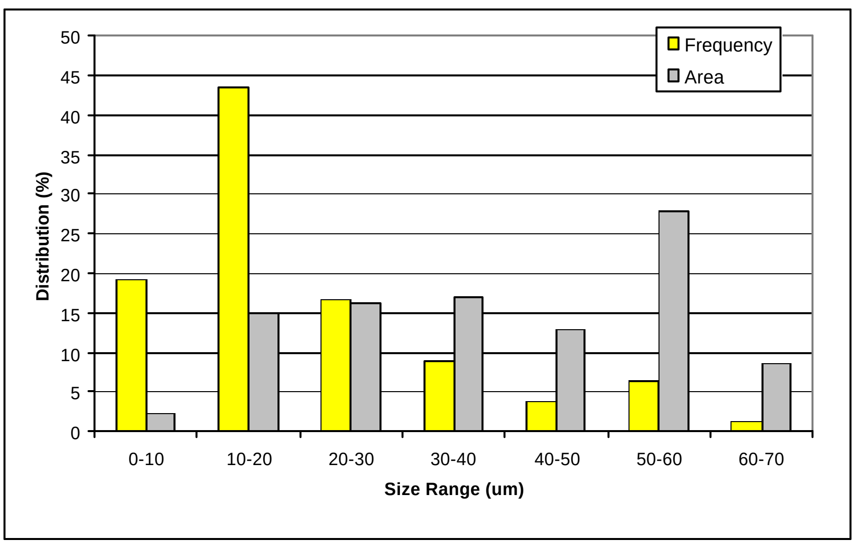

Figure 3: Size distribution of gold particles in the Mac Sample.

Locking of the submicroscopic gold or fine-grained microscopic gold in sulfide minerals is the most common cause for low gold recovery from refractory ores. Submicroscopic gold in sulfide minerals is not recoverable by finer grinding or direct cyanidation. It can only be recovered by pre-oxidation (such as roasting, autoclaving or bio-oxidation), followed by cyanidation with or without prior concentration by flotation.

4.3 Silver Deportment

A total of three hundred and fifty-eight (358) silver particles were observed and measured (Appendix 1-2). Silver occurred mainly as native silver (Ag), stephanite (Ag_5SbS_4) and pyrargyrite (Ag_5SbS_4), with minor amounts of freibergite ($(Ag, Cu, Fe)_{12}(Sb, As)_4S_{13}$) and acanthite ($Ag_2S$). Silver minerals occurred mainly as liberated particles, and also as composite particles (such as native silver with acanthite rim, native silver with stephanite and/or pyrargyrite inclusions or attachments, and binaries of stephanite and pyrargyrite). Gold minerals, including native gold, electrum and kustelite were also minor silver carriers.

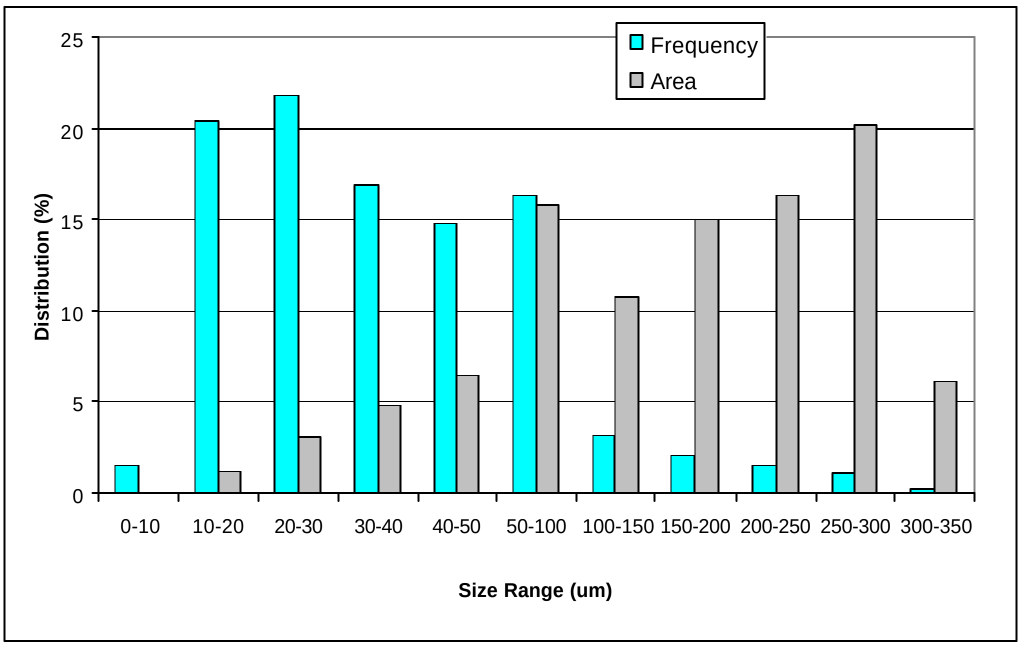

Figure 4: Size distribution of liberated silver minerals in the Mac Sample.

Silver minerals ranged from 4 to 316 µm in grain size. Among the liberated silver particles, the majority of particles were less than 50 µm (accounting for 75% of total particles). But, based on the surface area, particles larger than 50 µm accounted for approximately 85% of the silver (Figure 4) which indicates that the majority of liberated silver can be effectively recovered by flotation. Among all of the silver minerals, native silver (the majority was larger than 60 µm) was coarser than others (the majority was less than 60 µm) (Appendix 1-2). Silver inclusions and attachments were fine- to medium-grained (4-49 µm) (Figure 5).

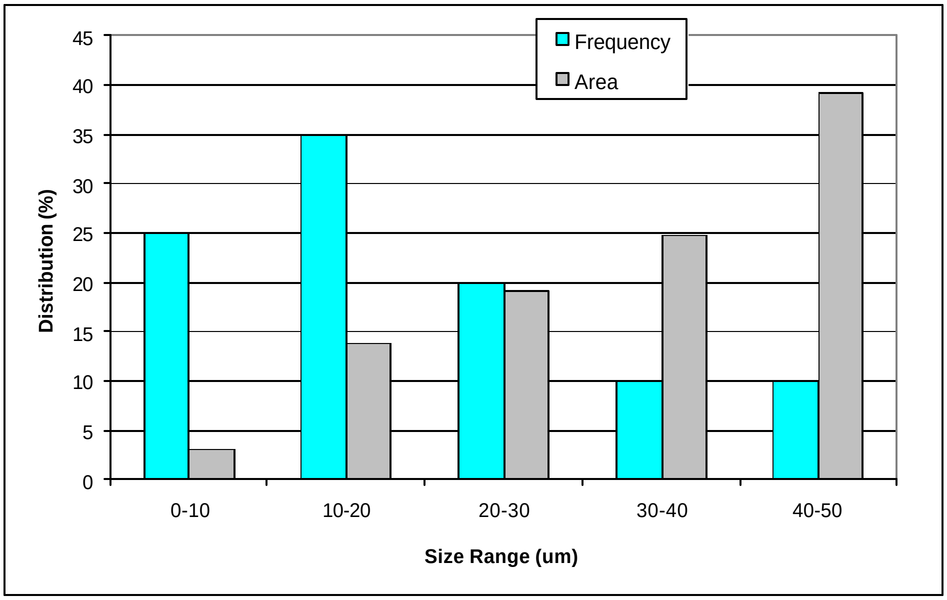

Figure 5: Size distribution of associated silver minerals in the Mac Sample.

Unlike gold, silver minerals occurred mainly as liberated particles (accounting for approximately 94% of total silver particles by frequency). Based on the silver balance (Table 1), silver minerals in the Sink fraction (mainly liberated) accounted for ~57% of the head assay. Silver in the Float fraction (accounting for ~43% of the head assay) was considered to be associated with quartz as attachments and inclusions based on the assays and silver scanning.

The occurrence of pyrargyrite and stephanite was considered to be the main cause for low silver recovery due to the refractoriness of these minerals, although the majority of them were liberated. Under normal cyanide leach conditions, pyrargyrite and stephanite usually don't dissolve to completion causing low silver recovery.

It is recommended that a follow-up study be conducted including the determination of submicroscopic gold in sulfide minerals and the systematic scanning of silver minerals in the cyanide leach tail to quantify the amount of refractory gold and silver.

Figures 6 - 8 show the mode of occurrence of gold and silver minerals observed in the Mac sample.

SGS Lakefield Research Limited
October 27, 2004

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Technical Support by: Anita Coppaway, Rick Wittekoek and Julie Phillips, Sample Preparation
Oleg Valeyev, Electron Microprobe Analysis

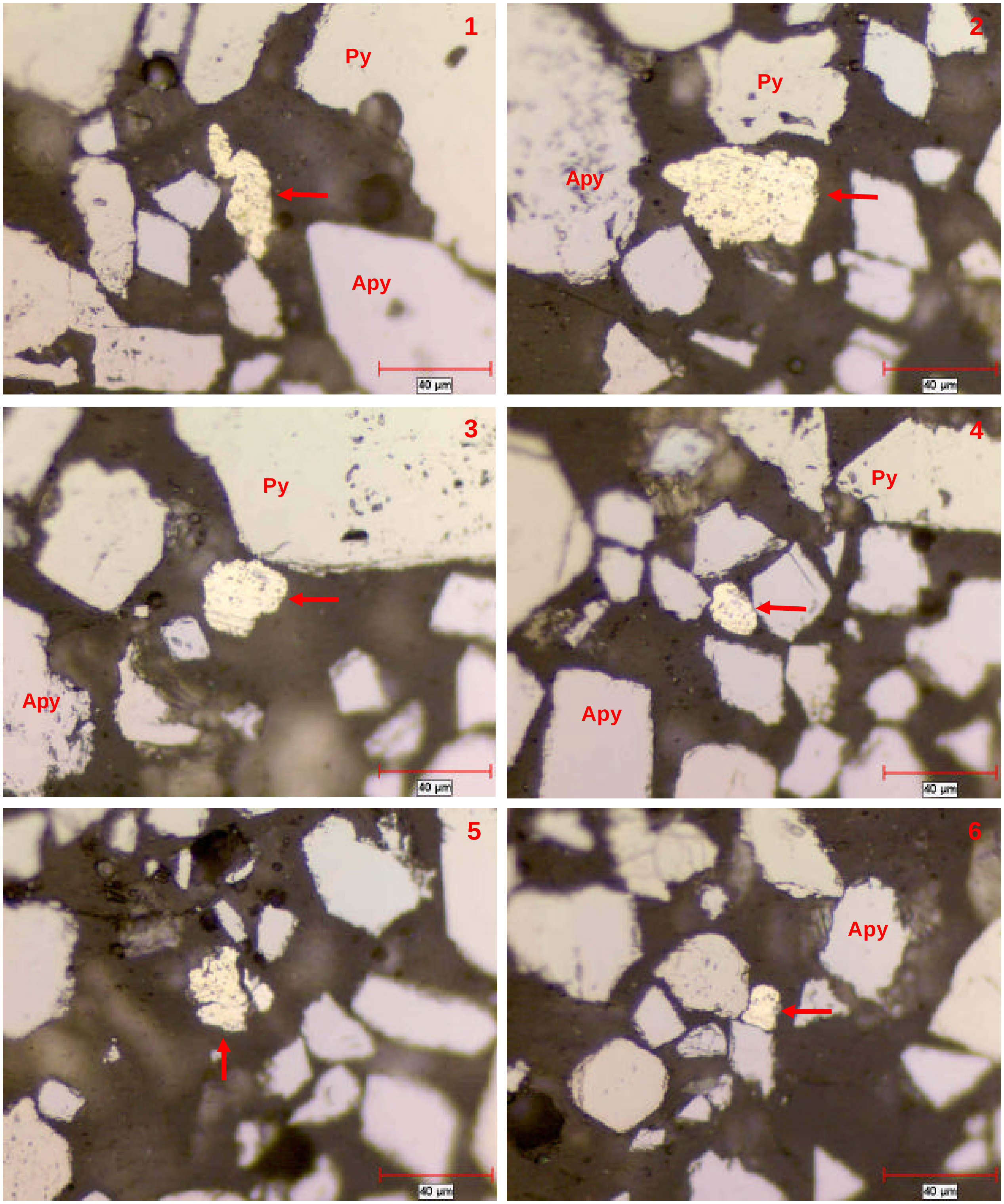

Figure 6: 500X, reflected light photomicrographs showing the gold particles (indicated by red arrows) observed in the Mac sample. 1: native gold; 2 – 5: electrum; 6: kustelite. The majority of gold particles were liberated, and fine- to medium-grained. Py: pyrite; Apy: arsenopyrite.

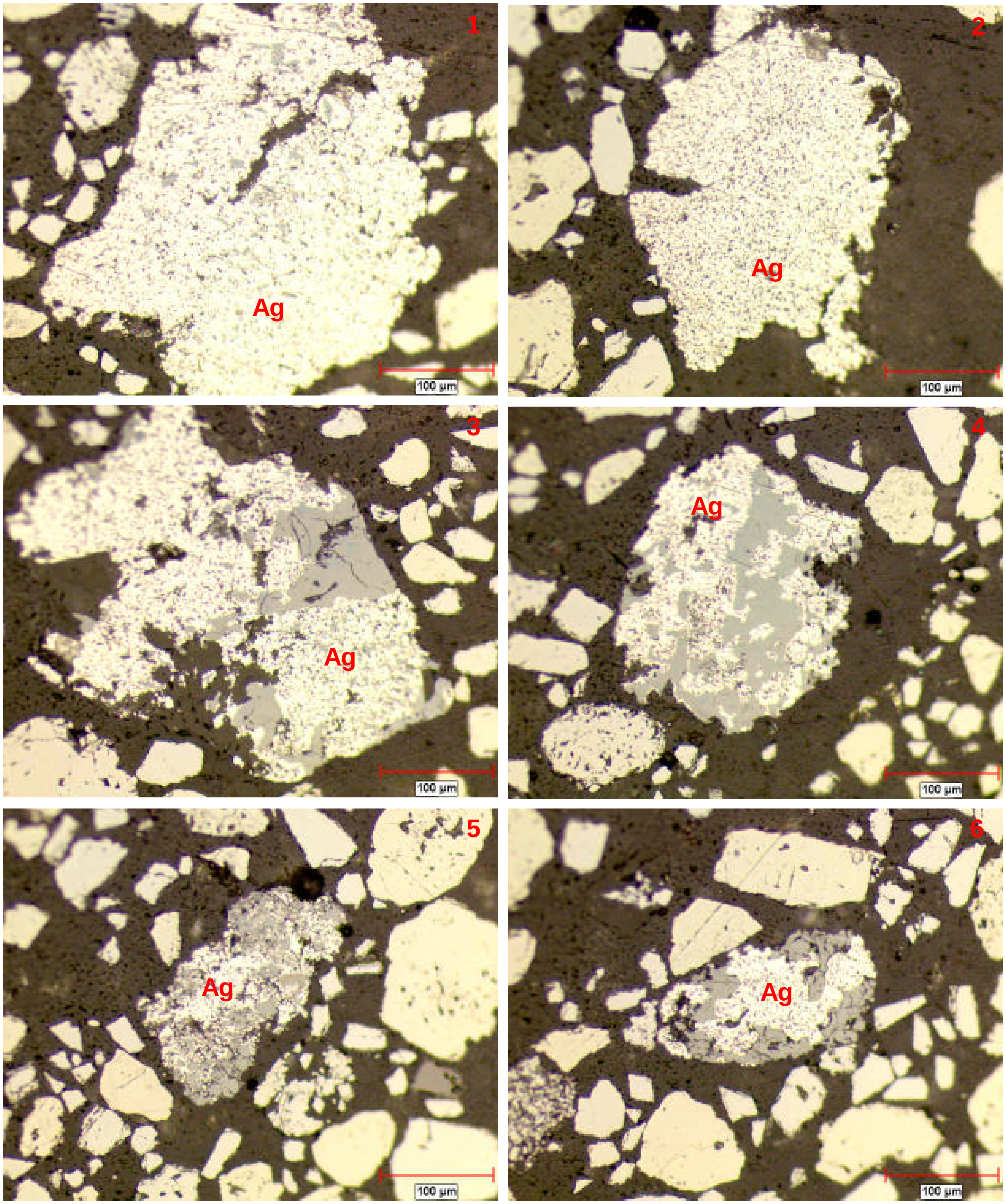

Figure 7: 200X, reflected light photomicrographs showing the silver particles observed in the Mac sample. Yellowish white: native silver (Ag); brownish gray: stephanite or pyrargyrite. Compared to gold particles, the majority of silver particles were liberated and fine- to coarse-grained. Native silver often had attached or locked stephanite and/or pyrargyrite. Other minerals shown on the pictures are pyrite and arsenopyrite.

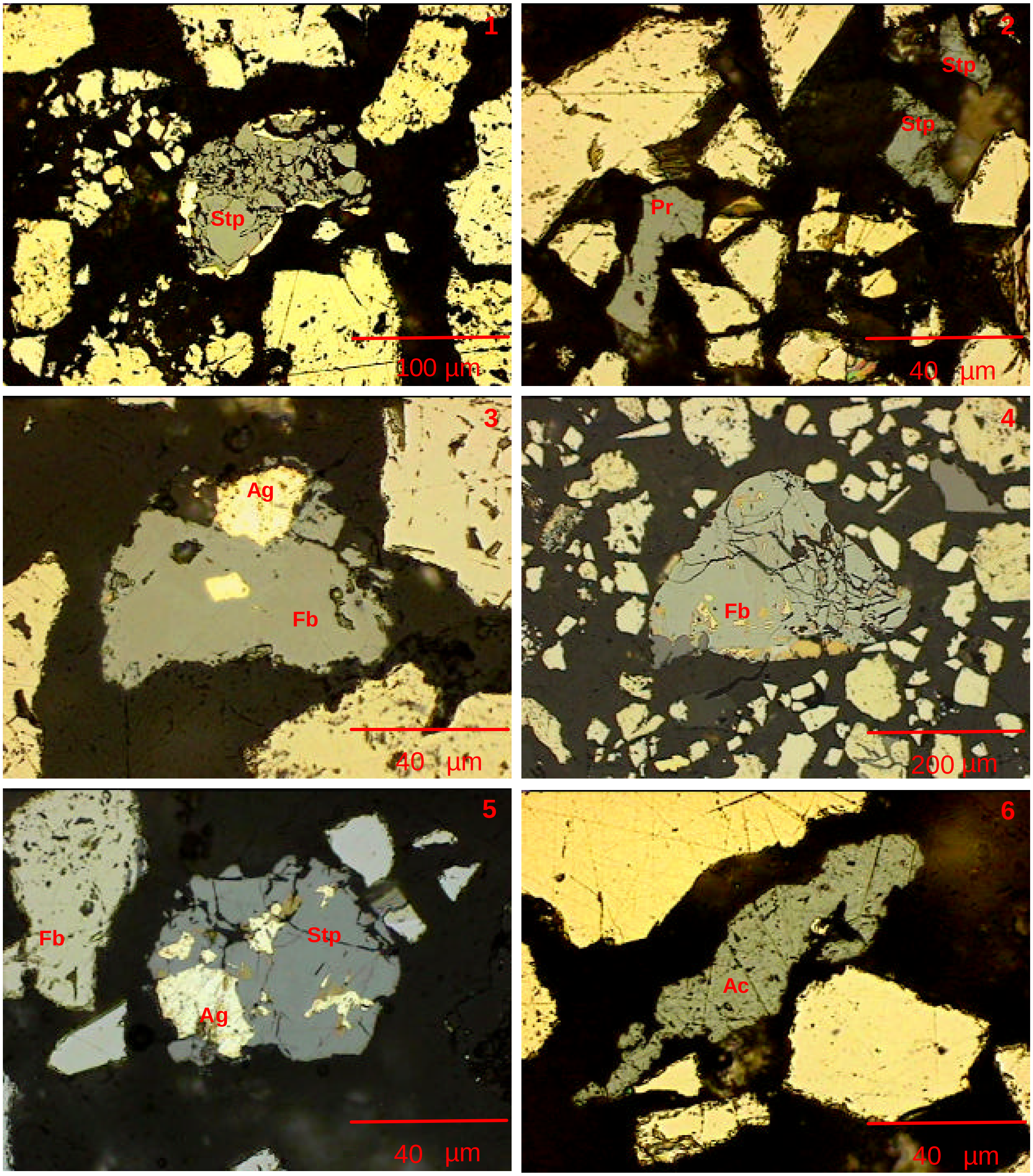

Figure 8: 100X-500X, reflected light photomicrographs showing the silver minerals observed in the Mac sample. 1: stephanite (Stp) with native silver rim; 2: liberated stephanite (Stp) and pyrargyrite (Pr); 3: freibergite (Fb) with native silver (Ag); 4: freibergite (Fb) with pyrargyrite attachment; 5: stephanite (Stp) with native silver attachment and inclusions (Ag); 6: liberated acanthite. Other minerals shown on the pictures are pyrite and arsenopyrite.

Appendix 1: Size Distribution and Association of Gold and Silver Minerals

Appendix 1-1: Size Distribution and Association of Gold Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
1	30	150	4500	67	Kustelite/Acanthite	Liberated	
2	25	140	3500	59	Kustelite	Liberated	
3	30	100	3000	55	Kustelite	Liberated	
4	40	70	2800	53	Kustelite	Liberated	
5	30	90	2700	52	Kustelite	Liberated	
6	30	90	2700	52	Kustelite	Liberated	
7	30	80	2400	49	Kustelite	Liberated	
8	40	60	2400	49	Kustelite	Liberated	Coated
9	40	50	2000	45	Kustelite/Acanthite	Liberated	
10	10	150	1500	39	Electrum	Liberated	
11	15	100	1500	39	Kustelite	Liberated	
12	30	50	1500	39	Kustelite	Liberated	
13	25	50	1250	35	Kustelite	Liberated	Coated
14	30	40	1200	35	Kustelite	Liberated	
15	25	40	1000	32	Electrum	Liberated	
16	25	40	1000	32	Kustelite	Liberated	Coated
17	30	30	900	30	Kustelite	Liberated	Coated
18	15	60	900	30	Kustelite	Liberated	Coated
19	15	60	900	30	Kustelite	Liberated	
20	15	55	825	29	Kustelite	Liberated	
21	25	30	750	27	Electrum	Liberated	
22	25	25	625	25	Electrum	Liberated	
23	15	40	600	24	Electrum	Liberated	
24	20	30	600	24	Kustelite	Liberated	
25	15	35	525	23	Kustelite	Liberated	
26	20	25	500	22	Electrum	Liberated	
27	10	50	500	22	Kustelite	Liberated	Coated
28	15	30	450	21	Native gold	Liberated	
29	15	30	450	21	Electrum	Liberated	
30	20	20	400	20	Electrum	Liberated	
31	20	20	400	20	Electrum	Liberated	
32	20	20	400	20	Kustelite	Liberated	
33	15	25	375	19	Electrum	Liberated	
34	15	25	375	19	Kustelite	Liberated	
35	12	30	360	19	Kustelite	Liberated	
36	15	20	300	17	Electrum	Liberated	
37	15	20	300	17	Electrum	Liberated	
38	15	20	300	17	Kustelite	Liberated	
39	10	30	300	17	Kustelite	Liberated	
40	7	35	245	16	Electrum	Liberated	
41	15	15	225	15	Native gold	Liberated	
42	15	15	225	15	Electrum	Liberated	
43	15	15	225	15	Kustelite	Liberated	
44	15	15	225	15	Kustelite	Liberated	
45	6	35	210	14	Electrum	Liberated	
46	10	20	200	14	Native gold	Liberated	
47	10	20	200	14	Native gold	Liberated	
48	10	20	200	14	Electrum	Liberated	
49	10	20	200	14	Electrum	Liberated	
50	10	20	200	14	Kustelite	Liberated	
51	10	20	200	14	Kustelite	Liberated	
52	10	20	200	14	Kustelite	Liberated	Coated
53	10	15	150	12	Native gold	Liberated	
54	10	15	150	12	Native gold	Liberated	
55	10	15	150	12	Electrum	Liberated	

Appendix 1-1 (Cont.): Size Distribution and Association of Gold Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
56	6	25	150	12	Electrum	Liberated	
57	10	15	150	12	Electrum	Liberated	
58	10	15	150	12	Electrum	Liberated	
59	10	15	150	12	Electrum	Liberated	
60	10	15	150	12	Electrum	Liberated	
61	10	15	150	12	Kustelite	Liberated	
62	8	16	128	11	Electrum	Liberated	
63	8	15	120	11	Electrum	Liberated	
64	7	15	105	10	Electrum	Liberated	
65	5	20	100	10	Electrum	Liberated	
66	10	10	100	10	Electrum	Liberated	
67	10	10	100	10	Electrum	Liberated	
68	10	10	100	10	Electrum	Liberated	
69	10	10	100	10	Electrum	Liberated	
70	8	12	96	10	Electrum	Liberated	
71	8	12	96	10	Kustelite	Liberated	
72	8	10	80	9	Kustelite	Liberated	
73	6	12	72	8	Kustelite	Liberated	
74	8	8	64	8	Kustelite	Liberated	
75	6	10	60	8	Electrum	Liberated	
76	5	10	50	7	Electrum	Liberated	
77	5	10	50	7	Electrum	Liberated	
78	5	5	25	5	Electrum	Liberated	

Appendix 1-2: Size Distribution and Association of Silver Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
1	250	400	100000	316	Native silver	Liberated	
2	220	400	88000	297	Native silver	Liberated	
3	200	410	82000	286	Native silver	Liberated	
4	200	400	80000	283	Native silver	Liberated	
5	200	400	80000	283	Native silver	Liberated	
6	200	300	60000	245	Native silver	Liberated	
7	200	300	60000	245	Freibergite/Stephanite	Liberated	
8	150	350	52500	229	Native silver	Liberated	
9	200	250	50000	224	Native silver	Liberated	
10	220	200	44000	210	Native silver	Liberated	
11	200	200	40000	200	Native silver	Liberated	
12	200	200	40000	200	Native silver	Liberated	
13	150	250	37500	194	Native silver	Liberated	
14	140	250	35000	187	Native silver	Liberated	
15	160	200	32000	179	Native silver	Liberated	
16	160	200	32000	179	Native silver	Liberated	
17	140	200	28000	167	Native silver	Liberated	
18	140	160	22400	150	Native silver	Liberated	
19	100	200	20000	141	Native silver/Stephanite	Liberated	
20	110	180	19800	141	Native silver	Liberated	
21	120	140	16800	130	Native silver	Liberated	
22	100	160	16000	126	Native silver	Liberated	
23	100	160	16000	126	Native silver/Stephanite	Liberated	
24	90	160	14400	120	Native silver	Liberated	
25	100	140	14000	118	Native silver	Liberated	
26	90	140	12600	112	Native silver	Liberated	
27	60	200	12000	110	Native silver	Liberated	
28	60	200	12000	110	Native silver	Liberated	
29	60	150	9000	95	Native silver	Liberated	
30	90	90	8100	90	Native silver	Liberated	
31	80	100	8000	89	Native silver	Liberated	
32	60	120	7200	85	Native silver	Liberated	
33	70	100	7000	84	Native silver	Liberated	
34	70	100	7000	84	Native silver	Liberated	
35	80	80	6400	80	Native silver	Liberated	
36	70	90	6300	79	Stephanite	Liberated	
37	60	100	6000	77	Acanthite	Liberated	
38	50	120	6000	77	Acanthite	Liberated	
39	60	100	6000	77	Native silver	Liberated	
40	60	100	6000	77	Native silver	Liberated	
41	60	100	6000	77	Native silver	Liberated	
42	50	120	6000	77	Pyrargyite	Liberated	
43	60	100	6000	77	Pyrargyite	Liberated	
44	60	90	5400	73	Native silver/Stephanite	Liberated	
45	20	250	5000	71	Native silver	Liberated	
46	50	100	5000	71	Native silver	Liberated	
47	70	70	4900	70	Native silver	Liberated	
48	70	70	4900	70	Native silver	Liberated	
49	60	80	4800	69	Native silver	Liberated	
50	40	120	4800	69	Native silver	Liberated	
51	60	80	4800	69	Native silver	Liberated	
52	60	80	4800	69	Native silver	Liberated	
53	60	80	4800	69	Stephanite	Liberated	
54	30	150	4500	67	Pyrargyite	Liberated	
55	50	90	4500	67	Pyrargyite	Liberated	

Appendix 1-2 (Cont.): Size Distribution and Association of Silver Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
56	50	90	4500	67	Pyrargyite	Liberated	
57	60	70	4200	65	Native silver/Pyrargyite	Liberated	
58	60	70	4200	65	Pyrargyite	Liberated	
59	40	100	4000	63	Native silver	Liberated	
60	50	80	4000	63	Native silver	Liberated	
61	20	200	4000	63	Native silver	Liberated	
62	40	100	4000	63	Native silver	Liberated	
63	60	60	3600	60	Acanthite	Liberated	
64	60	60	3600	60	Pyrargyite	Liberated	
65	60	60	3600	60	Pyrargyite	Liberated	
66	50	70	3500	59	Native silver	Liberated	
67	50	70	3500	59	Native silver	Liberated	
68	50	70	3500	59	Native silver/Acanthite	Liberated	
69	50	70	3500	59	Freibergite	Liberated	
70	50	70	3500	59	Pyrargyite	Liberated	
71	50	70	3500	59	Pyrargyite	Liberated	
72	50	70	3500	59	Pyrargyite	Liberated	
73	50	70	3500	59	Stephanite	Liberated	
74	50	70	3500	59	Stephanite	Liberated	
75	40	80	3200	57	Pyrargyite	Liberated	
76	40	80	3200	57	Pyrargyite	Liberated	
77	40	80	3200	57	Pyrargyite	Liberated	
78	40	80	3200	57	Pyrargyite	Liberated	
79	40	80	3200	57	Stephanite	Liberated	
80	25	120	3000	55	Acanthite	Liberated	
81	50	60	3000	55	Pyrargyite	Liberated	
82	40	70	2800	53	Native silver	Liberated	
83	40	70	2800	53	Pyrargyite	Liberated	
84	50	50	2500	50	Native silver	Liberated	
85	50	50	2500	50	Native silver	Liberated	
86	50	50	2500	50	Pyrargyite	Liberated	
87	50	50	2500	50	Pyrargyite	Liberated	
88	50	50	2500	50	Pyrargyite	Liberated	
89	35	70	2450	49	Native silver	Liberated	
90	35	70	2450	49	Freibergite	Liberated	
91	35	70	2450	49	Pyrargyite	Liberated	
92	35	70	2450	49	Stephanite	Liberated	
93	40	60	2400	49	Native silver	Liberated	
94	40	60	2400	49	Pyrargyite	Liberated	
95	40	60	2400	49	Pyrargyite	Liberated	
96	40	60	2400	49	Pyrargyite	Liberated	
97	30	80	2400	49	Pyrargyite	Liberated	
98	40	60	2400	49	Pyrargyite	Liberated	
99	40	60	2400	49	Pyrargyite	Liberated	
100	40	60	2400	49	Pyrargyite	Liberated	
101	40	60	2400	49	Stephanite	Liberated	
102	35	60	2100	46	Native silver	Liberated	
103	30	70	2100	46	Native silver	Liberated	
104	30	70	2100	46	Native silver	Liberated	
105	35	60	2100	46	Freibergite	Liberated	
106	35	60	2100	46	Pyrargyite	Liberated	
107	30	70	2100	46	Pyrargyite	Liberated	
108	45	45	2025	45	Stephanite	Liberated	
109	25	80	2000	45	Acanthite	Liberated	
110	40	50	2000	45	Acanthite	Liberated	

Appendix 1-2 (Cont.): Size Distribution and Association of Silver Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
111	40	50	2000	45	Native silver	Liberated	
112	40	50	2000	45	Native silver	Liberated	
113	40	50	2000	45	Native silver	Liberated	
114	20	100	2000	45	Native silver	Liberated	
115	40	50	2000	45	Pyrargyite	Liberated	
116	40	50	2000	45	Pyrargyite	Liberated	
117	40	50	2000	45	Pyrargyite	Liberated	
118	40	50	2000	45	Stephanite	Liberated	
119	40	50	2000	45	Stephanite	Liberated	
120	40	50	2000	45	Stephanite	Liberated	
121	35	55	1925	44	Pyrargyite	Liberated	
122	30	60	1800	42	Acanthite	Liberated	
123	30	60	1800	42	Native silver	Liberated	
124	30	60	1800	42	Native silver	Liberated	
125	30	60	1800	42	Freibergite	Liberated	
126	30	60	1800	42	Freibergite	Liberated	
127	30	60	1800	42	Pyrargyite	Liberated	
128	30	60	1800	42	Pyrargyite	Liberated	
129	30	60	1800	42	Pyrargyite	Liberated	
130	30	60	1800	42	Stephanite	Liberated	
131	35	50	1750	42	Acanthite	Liberated	
132	25	70	1750	42	Pyrargyite	Liberated	
133	35	50	1750	42	Pyrargyite	Liberated	
134	25	65	1625	40	Acanthite	Liberated	
135	40	40	1600	40	Native silver	Liberated	
136	40	40	1600	40	Native silver	Liberated	
137	80	20	1600	40	Native silver	Liberated	
138	40	40	1600	40	Pyrargyite	Liberated	
139	40	40	1600	40	Pyrargyite	Liberated	
140	40	40	1600	40	Pyrargyite	Liberated	
141	20	80	1600	40	Pyrargyite	Liberated	
142	40	40	1600	40	Tetrahedrite	Liberated	
143	35	45	1575	40	Pyrargyite	Liberated	
144	15	100	1500	39	Acanthite	Liberated	
145	30	50	1500	39	Acanthite	Liberated	
146	30	50	1500	39	Acanthite	Liberated	
147	30	50	1500	39	Acanthite	Liberated	
148	30	50	1500	39	Pyrargyite	Liberated	
149	25	60	1500	39	Pyrargyite	Liberated	
150	30	50	1500	39	Pyrargyite	Liberated	
151	30	50	1500	39	Pyrargyite	Liberated	
152	25	60	1500	39	Pyrargyite	Liberated	
153	30	50	1500	39	Pyrargyite	Liberated	
154	30	50	1500	39	Pyrargyite	Liberated	
155	30	50	1500	39	Pyrargyite	Liberated	
156	30	50	1500	39	Pyrargyite	Liberated	
157	25	60	1500	39	Pyrargyite	Liberated	
158	30	50	1500	39	Pyrargyite	Liberated	
159	25	60	1500	39	Pyrargyite	Liberated	
160	30	50	1500	39	Pyrargyite	Liberated	
161	25	60	1500	39	Pyrargyite	Liberated	
162	30	50	1500	39	Stephanite	Liberated	
163	20	70	1400	37	Native silver	Liberated	
164	20	70	1400	37	Native silver	Liberated	
165	20	70	1400	37	Native silver/Stephanite	Liberated	
166	35	40	1400	37	Pyrargyite	Liberated	

Appendix 1-2 (Cont.): Size Distribution and Association of Silver Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
167	20	70	1400	37	Pyrargyite	Liberated	
168	20	65	1300	36	Pyrargyite	Liberated	
169	25	50	1250	35	Acanthite	Liberated	
170	25	50	1250	35	Native silver	Liberated	
171	25	50	1250	35	Pyrargyite	Liberated	
172	25	50	1250	35	Pyrargyite	Liberated	
173	25	50	1250	35	Stephanite	Liberated	
174	25	50	1250	35	Stephanite	Liberated	
175	35	35	1225	35	Stephanite	Liberated	
176	30	40	1200	35	Native silver	Liberated	
177	30	40	1200	35	Freibergite	Liberated	
178	30	40	1200	35	Freibergite	Liberated	
179	30	40	1200	35	Pyrargyite	Liberated	
180	20	60	1200	35	Pyrargyite	Liberated	
181	30	40	1200	35	Pyrargyite	Liberated	
182	20	60	1200	35	Pyrargyite	Liberated	
183	30	40	1200	35	Stephanite	Liberated	
184	30	40	1200	35	Stephanite	Liberated	
185	30	35	1050	32	Pyrargyite/Stephanite	Liberated	
186	25	40	1000	32	Acanthite	Liberated	
187	25	40	1000	32	Native silver	Liberated	
188	25	40	1000	32	Native silver	Liberated	
189	20	50	1000	32	Freibergite	Liberated	
190	25	40	1000	32	Freibergite	Liberated	
191	30	30	900	30	Native silver	Liberated	
192	30	30	900	30	Native silver	Liberated	
193	30	30	900	30	Native silver/Stephanite	Liberated	
194	30	30	900	30	Freibergite	Liberated	
195	15	60	900	30	Pyrargyite	Liberated	
196	30	30	900	30	Pyrargyite	Liberated	
197	30	30	900	30	Pyrargyite	Liberated	
198	15	60	900	30	Pyrargyite	Liberated	
199	30	30	900	30	Pyrargyite	Liberated	
200	25	35	875	30	Native silver	Liberated	
201	25	35	875	30	Pyrargyite	Liberated	
202	25	35	875	30	Pyrargyite	Liberated	
203	25	35	875	30	Stephanite	Liberated	
204	25	35	875	30	Stephanite	Liberated	
205	25	35	875	30	Tetrahedrite	Liberated	
206	20	40	800	28	Acanthite	Liberated	
207	20	40	800	28	Acanthite	Liberated	
208	20	40	800	28	Acanthite	Liberated	
209	10	80	800	28	Native silver	Liberated	
210	20	40	800	28	Native silver/Acanthite	Liberated	
211	20	40	800	28	Pyrargyite	Liberated	
212	20	40	800	28	Pyrargyite	Liberated	
213	20	40	800	28	Pyrargyite	Liberated	
214	20	40	800	28	Pyrargyite	Liberated	
215	20	40	800	28	Pyrargyite	Liberated	
216	20	40	800	28	Pyrargyite	Liberated	
217	20	40	800	28	Stephanite	Liberated	
218	20	40	800	28	Tetrahedrite	Liberated	
219	25	30	750	27	Acanthite	Liberated	
220	25	30	750	27	Pyrargyite	Liberated	

Appendix 1-2 (Cont.): Size Distribution and Association of Silver Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
221	15	50	750	27	Pyrargyite	Liberated	
222	25	30	750	27	Pyrargyite	Liberated	
223	25	30	750	27	Tetrahedrite	Liberated	
224	20	35	700	26	Acanthite	Liberated	
225	20	35	700	26	Pyrargyite	Liberated	
226	20	35	700	26	Pyrargyite	Liberated	
227	15	45	675	26	Pyrargyite	Liberated	
228	25	25	625	25	Pyrargyite	Liberated	
229	25	25	625	25	Stephanite	Liberated	
230	20	30	600	24	Acanthite	Liberated	
231	20	30	600	24	Acanthite	Liberated	
232	20	30	600	24	Acanthite	Liberated	
233	20	30	600	24	Acanthite	Liberated	
234	10	60	600	24	Acanthite	Liberated	
235	20	30	600	24	Native silver	Liberated	
236	20	30	600	24	Native silver	Liberated	
237	15	40	600	24	Freibergite	Liberated	
238	15	40	600	24	Freibergite	Liberated	
239	20	30	600	24	Pyrargyite	Liberated	
240	10	60	600	24	Pyrargyite	Liberated	
241	15	40	600	24	Pyrargyite	Liberated	
242	15	40	600	24	Pyrargyite	Liberated	
243	20	30	600	24	Pyrargyite	Liberated	
244	20	30	600	24	Pyrargyite	Liberated	
245	20	30	600	24	Pyrargyite	Liberated	
246	20	30	600	24	Pyrargyite	Liberated	
247	10	60	600	24	Pyrargyite	Liberated	
248	20	30	600	24	Pyrargyite	Liberated	
249	20	30	600	24	Pyrargyite	Liberated	
250	20	30	600	24	Pyrargyite	Liberated	
251	20	30	600	24	Stephanite	Liberated	
252	20	30	600	24	Stephanite	Liberated	
253	20	30	600	24	Stephanite	Liberated	
254	15	35	525	23	Native silver	Liberated	
255	15	35	525	23	Stephanite	Liberated	
256	20	25	500	22	Native silver/Acanthite	Liberated	
257	20	25	500	22	Pyrargyite	Liberated	
258	20	25	500	22	Pyrargyite	Liberated	
259	15	30	450	21	Acanthite	Liberated	
260	15	30	450	21	Native silver	Liberated	
261	15	30	450	21	Native silver	Liberated	
262	15	30	450	21	Freibergite	Liberated	
263	15	30	450	21	Pyrargyite	Liberated	
264	15	30	450	21	Pyrargyite	Liberated	
265	20	20	400	20	Acanthite	Liberated	
266	20	20	400	20	Native silver	Liberated	
267	20	20	400	20	Freibergite	Liberated	
268	20	20	400	20	Pyrargyite	Liberated	
269	20	20	400	20	Pyrargyite	Liberated	
270	20	20	400	20	Pyrargyite	Liberated	
271	20	20	400	20	Pyrargyite	Liberated	
272	20	20	400	20	Pyrargyite	Liberated	
273	20	20	400	20	Pyrargyite	Liberated	
274	20	20	400	20	Pyrargyite	Liberated	
275	20	20	400	20	Pyrargyite	Liberated	

Appendix 1-2 (Cont.): Size Distribution and Association of Silver Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
276	20	20	400	20	Pyrargyite	Liberated	
277	20	20	400	20	Pyrargyite	Liberated	
278	20	20	400	20	Tetrahedrite	Liberated	
279	15	25	375	19	Acanthite	Liberated	
280	15	25	375	19	Native silver	Liberated	
281	15	25	375	19	Native silver/Acanthite	Liberated	
282	15	25	375	19	Pyrargyite	Liberated	
283	15	25	375	19	Pyrargyite	Liberated	
284	15	25	375	19	Pyrargyite	Liberated	
285	15	25	375	19	Pyrargyite	Liberated	
286	15	25	375	19	Pyrargyite	Liberated	
287	15	25	375	19	Pyrargyite	Liberated	
288	15	25	375	19	Tetrahedrite	Liberated	
289	6	60	360	19	Acanthite	Liberated	
290	10	35	350	19	Pyrargyite	Liberated	
291	15	20	300	17	Native silver	Liberated	
292	15	20	300	17	Native silver	Liberated	
293	15	20	300	17	Native silver	Liberated	
294	15	20	300	17	Native silver	Liberated	
295	15	20	300	17	Pyrargyite	Liberated	
296	10	30	300	17	Pyrargyite	Liberated	
297	15	20	300	17	Pyrargyite	Liberated	
298	15	20	300	17	Pyrargyite	Liberated	
299	10	30	300	17	Pyrargyite	Liberated	
300	15	20	300	17	Pyrargyite	Liberated	
301	15	20	300	17	Pyrargyite	Liberated	
302	10	30	300	17	Pyrargyite	Liberated	
303	15	20	300	17	Pyrargyite	Liberated	
304	15	20	300	17	Pyrargyite	Liberated	
305	15	20	300	17	Pyrargyite	Liberated	
306	15	20	300	17	Pyrargyite	Liberated	
307	15	20	300	17	Tetrahedrite	Liberated	
308	10	25	250	16	Pyrargyite	Liberated	
309	10	25	250	16	Pyrargyite	Liberated	
310	10	25	250	16	Pyrargyite	Liberated	
311	15	15	225	15	Acanthite	Liberated	
312	15	15	225	15	Pyrargyite	Liberated	
313	15	15	225	15	Pyrargyite	Liberated	
314	15	15	225	15	Pyrargyite	Liberated	
315	15	15	225	15	Pyrargyite	Liberated	
316	10	20	200	14	Acanthite	Liberated	
317	10	20	200	14	Native silver	Liberated	
318	8	25	200	14	Pyrargyite	Liberated	
319	10	20	200	14	Pyrargyite	Liberated	
320	10	20	200	14	Pyrargyite	Liberated	
321	10	20	200	14	Pyrargyite	Liberated	
322	10	20	200	14	Pyrargyite	Liberated	
323	10	20	200	14	Pyrargyite	Liberated	
324	3	60	180	13	Native silver/Stephanite	Liberated	
325	3	60	180	13	Tetrahedrite	Liberated	
326	10	15	150	12	Acanthite	Liberated	
327	10	15	150	12	Pyrargyite	Liberated	
328	10	15	150	12	Pyrargyite	Liberated	
329	10	15	150	12	Pyrargyite	Liberated	
330	10	15	150	12	Pyrargyite	Liberated	
331	10	15	150	12	Pyrargyite	Liberated	
332	10	15	150	12	Pyrargyite	Liberated	
333	5	25	125	11	Pyrargyite	Liberated	
334	7	15	105	10	Native silver	Liberated	
335	10	10	100	10	Pyrargyite	Liberated	
336	5	15	75	9	Acanthite	Liberated	
337	10	6	60	8	Acanthite	Liberated	
338	6	10	60	8	Pyrargyite	Liberated	

Appendix 1-1 (Cont.): Size Distribution and Association of Silver Minerals

Particle #	X (um)	Y (um)	Surface Area (um^2)	Size (um)	Mineral ID	Association	Host Mineral
339	35	70	2450	49	Pyrargyite/Acanthite	Attached	Quartz
340	40	50	2000	45	Acanthite	Attached	Quartz
341	40	40	1600	40	Acanthite	Attached	Quartz
342	30	40	1200	35	Tetrahedrite	Attached	Sphalertie
343	25	25	625	25	Stephanite	Attached	Chalcopyrite
344	20	30	600	24	Pyrargyite	Attached	Quartz
345	20	25	500	22	Acanthite	Attached	Quartz
346	10	30	300	17	Pyrargyite	Attached	Galena
347	10	30	300	17	Pyrargyite	Attached	Quartz
348	10	25	250	16	Pyrargyite	Attached	Quartz
349	10	15	150	12	Tetrahedrite	Attached	Chalcopyrite
350	10	14	140	12	Kustelite	Attached	Quartz
351	6	20	120	11	Tetrahedrite	Attached	Quartz
352	10	10	100	10	Pyrargyite	Attached	Galena
353	5	15	75	9	Tetrahedrite	Attached	Galena
354	5	15	75	9	Tetrahedrite	Attached	Quartz
355	6	12	72	8	Pyrargyite	Attached	Quartz
356	8	55	440	21	Pyrargyite	Locked	Quartz
357	10	30	300	17	Pyrargyite	Locked	Quartz
358	3	5	15	4	Acanthite	Locked	Quartz

Appendix 2: Electron Microprobe Analysis

Appendix 2-1: Electron Microprobe Analysis of Gold Minerals

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Native Gold	35	78.49	20.57	0.35	0.07	0.54	0.00	0.00	0.00	0.20	0.07	0.00	0.00	0.00	0.09	0.00	0.01	100.40
Native Gold	35	78.44	20.60	0.36	0.01	0.54	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.05
Native Gold	36	76.24	23.31	0.15	0.00	0.63	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.01	100.40
Native Gold	36	76.10	23.66	0.00	0.00	0.65	0.00	0.03	0.00	0.06	0.00	0.00	0.00	0.00	0.06	0.00	0.01	100.56
	Mean	**77.32**	**22.04**	**0.21**	**0.02**	**0.59**	**0.00**	**0.01**	**0.02**	**0.07**	**0.02**	**0.00**	**0.00**	**0.00**	**0.04**	**0.00**	**0.01**	**100.35**
	Min	76.10	20.57	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.05
	Max	78.49	23.66	0.36	0.07	0.65	0.00	0.03	0.09	0.20	0.07	0.00	0.00	0.00	0.09	0.01	0.01	100.56
	StDev	1.33	1.68	0.17	0.04	0.06	0.00	0.01	0.05	0.09	0.04	0.00	0.00	0.00	0.05	0.00	0.00	

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Electrum	2	74.69	23.65	0.05	0.00	0.39	0.00	0.06	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.01	**98.99**
Electrum	94	72.20	27.26	0.00	0.00	1.12	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.05	0.01	0.01	**100.69**
Electrum	94	71.91	25.77	0.25	0.00	1.32	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.03	0.01	0.01	**99.33**
Electrum	64	71.85	27.77	0.00	0.00	0.77	0.00	0.00	0.05	0.13	0.00	0.00	0.00	0.00	0.33	0.00	0.02	**100.92**
Electrum	64	71.53	27.58	0.00	0.04	0.73	0.00	0.00	0.07	0.03	0.10	0.00	0.00	0.08	0.42	0.01	0.01	**100.60**
Electrum	44	69.39	29.93	0.00	0.00	0.48	0.00	0.13	0.00	0.11	0.03	0.00	0.00	0.05	0.27	0.00	0.02	**100.41**
Electrum	1	69.23	29.14	0.39	0.00	0.69	0.00	0.00	0.01	0.00	0.08	0.00	0.04	0.00	0.08	0.46	0.01	**100.14**
Electrum	62	69.18	30.20	0.00	0.00	0.68	0.00	0.02	0.09	0.16	0.00	0.00	0.00	0.00	0.04	0.00	0.02	**100.40**
Electrum	62	68.35	30.11	0.38	0.00	0.71	0.00	0.00	0.26	0.17	0.00	0.00	0.00	0.04	0.00	0.00	0.00	**100.01**
Electrum	44	68.12	30.01	0.00	0.00	0.57	0.00	0.08	0.04	0.12	0.03	0.00	0.00	0.56	0.00	0.00	0.01	**99.54**
Electrum	25	67.32	31.49	0.00	0.00	0.73	0.00	0.04	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.04	0.02	**99.71**
Electrum	25	66.96	31.73	0.00	0.02	0.76	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.01	**99.56**
Electrum	61	63.37	35.21	0.50	0.12	0.68	0.00	0.00	0.00	0.07	0.14	0.00	0.00	0.08	0.22	0.00	0.02	**100.40**
Electrum	101	63.19	36.46	0.05	0.00	0.60	0.00	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.03	**100.42**
Electrum	61	63.13	35.03	0.00	0.00	0.78	0.00	0.01	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.02	0.01	**99.13**
Electrum	101	63.07	36.59	0.00	0.01	0.61	0.00	0.00	0.09	0.02	0.00	0.00	0.00	0.00	0.07	0.00	0.03	**100.49**
Electrum	49	62.94	32.93	0.00	0.00	2.67	0.00	0.00	0.00	0.76	0.00	1.04	0.00	0.00	0.48	0.00	0.01	**100.83**
Electrum	49	62.90	32.67	0.28	0.01	2.10	0.00	0.01	0.08	0.24	0.00	1.58	0.00	0.00	0.23	0.00	0.01	**100.12**
Electrum	5	58.91	39.45	0.00	0.00	0.78	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.02	0.00	0.02	**99.25**
	Mean	**67.28**	**31.21**	**0.10**	**0.01**	**0.90**	**0.00**	**0.02**	**0.04**	**0.11**	**0.03**	**0.14**	**0.00**	**0.04**	**0.12**	**0.03**	**0.02**	100.05
	Min	58.91	23.65	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.99
	Max	74.69	39.45	0.50	0.12	2.67	0.00	0.13	0.26	0.76	0.14	1.58	0.04	0.56	0.48	0.46	0.03	100.92
	StDev	4.27	4.06	0.17	0.03	0.57	0.00	0.03	0.06	0.17	0.05	0.42	0.01	0.13	0.16	0.11	0.01	

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Kustelite	100	45.07	52.44	0.21	0.00	0.93	0.00	0.00	0.08	0.21	0.00	1.33	0.00	0.02	0.00	0.00	0.02	**100.32**
Kustelite	100	44.77	52.42	0.00	0.27	0.88	0.00	0.07	0.00	0.15	0.00	0.94	0.00	0.00	0.09	0.04	0.02	**99.67**
Kustelite	99	43.08	20.50	0.40	0.47	5.54	0.00	0.10	0.20	14.27	0.00	2.02	0.00	0.09	13.28	0.11	0.03	**100.09**
	Mean	**44.31**	**41.79**	**0.20**	**0.25**	**2.45**	**0.00**	**0.06**	**0.09**	**4.88**	**0.00**	**1.43**	**0.00**	**0.04**	**4.46**	**0.05**	**0.02**	**100.02**
	Min	43.08	20.50	0.00	0.00	0.88	0.00	0.00	0.00	0.15	0.00	0.94	0.00	0.00	0.00	0.00	0.02	99.67
	Max	45.07	52.44	0.40	0.47	5.54	0.00	0.10	0.20	14.27	0.00	2.02	0.00	0.09	13.28	0.11	0.03	100.32
	StDev	1.07	18.43	0.20	0.24	2.67	0.00	0.05	0.10	8.13	0.00	0.55	0.00	0.05	7.64	0.05	0.01	

Appendix 2-2: Electron Microprobe Analysis of Native Silver

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Silver	7	0.00	99.73	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.08	**99.82**
Silver	4	0.00	99.39	0.00	0.00	0.09	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.15	0.00	0.00	0.01	**99.80**
Silver	3	0.00	99.28	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	**99.38**
Silver	9	0.00	99.00	0.00	0.00	0.25	0.02	0.03	0.08	0.09	0.00	1.29	0.00	0.00	0.07	0.00	0.06	**100.89**
Silver	70	0.12	98.83	0.07	0.00	0.20	0.27	0.08	0.00	0.50	0.03	0.32	0.00	0.00	0.00	0.01	0.05	**100.49**
Silver	41	0.00	98.81	0.16	0.00	0.19	0.14	0.01	0.00	0.29	0.00	0.21	0.00	0.00	0.04	0.00	0.05	**99.89**
Silver	8	0.00	98.74	0.00	0.00	0.02	0.00	0.04	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.07	**98.99**
Silver	70	0.00	98.74	0.00	0.00	0.18	0.01	0.06	0.01	0.44	0.00	0.29	0.00	0.03	0.03	0.00	0.05	**99.84**
Silver	7	0.02	98.72	0.00	0.04	0.02	0.13	0.04	0.00	0.01	0.00	0.34	0.00	0.01	0.00	0.00	0.04	**99.38**
Silver	9	0.00	98.69	0.00	0.05	0.23	0.09	0.02	0.00	0.10	0.00	0.91	0.00	0.00	0.04	0.00	0.06	**100.18**
Silver	43	0.16	98.67	0.10	0.01	0.25	0.00	0.00	0.00	0.09	0.00	0.53	0.00	0.00	0.00	0.01	0.05	**99.89**
Silver	27	0.00	98.66	0.52	0.01	0.28	0.11	0.09	0.04	0.69	0.00	0.39	0.00	0.12	0.00	0.00	0.05	**100.98**
Silver	28	0.05	98.60	0.17	0.00	0.29	0.19	0.03	0.00	0.64	0.02	0.58	0.00	0.01	0.03	0.00	0.05	**100.68**
Silver	18	0.40	98.59	0.72	0.01	0.24	0.00	0.00	0.05	0.28	0.02	0.34	0.00	0.21	0.05	0.01	0.07	**100.98**
Silver	17	0.00	98.53	0.00	0.00	0.16	0.10	0.08	0.00	0.18	0.17	0.21	0.00	0.00	0.00	0.00	0.06	**99.49**
Silver	41	0.00	98.50	0.10	0.00	0.20	0.26	0.08	0.03	0.45	0.00	0.30	0.00	0.00	0.00	0.00	0.04	**99.96**
Silver	14	0.17	98.46	0.00	0.00	0.29	0.00	0.16	0.00	0.51	0.00	0.00	0.00	0.00	0.58	0.03	0.06	**100.27**
Silver	29	0.00	98.44	0.21	0.13	0.25	0.00	0.08	0.04	0.12	0.06	0.66	0.00	0.00	0.11	0.00	0.06	**100.17**
Silver	29	0.00	98.38	0.04	0.16	0.21	0.32	0.03	0.00	0.10	0.00	0.80	0.00	0.00	0.00	0.00	0.06	**100.11**
Silver	17	0.00	98.35	0.11	0.00	0.19	0.00	0.00	0.00	0.16	0.17	0.53	0.00	0.00	0.00	0.01	0.03	**99.56**
Silver	26	0.00	98.34	0.11	0.00	0.23	0.32	0.06	0.01	0.75	0.19	0.52	0.00	0.00	0.00	0.00	0.04	**100.57**
Silver	30	0.00	98.32	0.12	0.00	0.24	0.03	0.05	0.00	0.09	0.00	0.88	0.00	0.00	0.00	0.00	0.06	**99.79**
Silver	68	0.00	98.32	0.00	0.14	0.20	0.11	0.02	0.08	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.06	**99.37**
Silver	14	0.00	98.28	0.00	0.00	0.22	0.22	0.04	0.06	0.37	0.00	0.25	0.00	0.03	0.04	0.01	0.05	**99.55**
Silver	15	0.00	98.28	0.14	0.35	0.10	0.08	0.00	0.22	0.55	0.36	0.24	0.00	0.28	0.00	0.00	0.03	**100.62**
Silver	18	0.01	98.26	0.21	0.06	0.21	0.00	0.00	0.00	0.15	0.00	0.57	0.00	0.00	0.00	0.02	0.06	**99.55**
Silver	90	0.00	98.23	0.00	0.22	0.21	0.21	0.00	0.01	0.40	0.00	0.16	0.00	0.00	0.00	0.00	0.05	**99.49**
Silver	15	0.00	98.22	0.00	0.00	0.22	0.00	0.00	0.00	0.76	0.29	0.46	0.00	0.00	0.00	0.00	0.03	**99.98**
Silver	69	0.00	98.22	0.00	0.00	0.17	0.06	0.07	0.00	0.87	0.01	0.52	0.00	0.00	0.01	0.00	0.04	**99.97**
Silver	8	0.00	98.21	0.00	0.05	0.21	0.20	0.08	0.00	0.15	0.00	0.06	0.00	0.01	0.02	0.00	0.05	**99.04**
Silver	43	0.00	98.19	0.00	0.00	0.24	0.21	0.02	0.00	0.15	0.00	0.29	0.00	0.00	0.02	0.00	0.05	**99.17**
Silver	28	0.08	98.18	0.08	0.08	0.23	0.00	0.04	0.00	0.49	0.08	0.06	0.00	0.14	0.13	0.00	0.04	**99.64**
Silver	27	0.02	98.12	0.00	0.12	0.20	0.00	0.01	0.00	0.95	0.00	0.27	0.00	0.00	0.00	0.00	0.05	**99.76**
Silver	26	0.00	98.12	0.00	0.05	0.22	0.21	0.02	0.00	0.79	0.00	0.30	0.00	0.00	0.00	0.00	0.03	**99.74**
Silver	20	0.07	98.10	0.26	0.00	0.23	0.10	0.02	0.03	0.24	0.00	0.50	0.00	0.03	0.00	0.00	0.05	**99.61**
Silver	69	0.05	98.10	0.00	0.07	0.20	0.21	0.05	0.00	0.86	0.00	0.47	0.00	0.01	0.11	0.00	0.06	**100.21**
Silver	80	0.00	98.09	0.18	0.20	0.35	0.00	0.04	0.00	0.22	0.09	0.90	0.00	0.00	0.09	0.00	0.05	**100.21**
Silver	22	0.00	98.01	0.00	0.00	0.25	0.20	0.07	0.00	0.49	0.04	1.43	0.00	0.09	0.00	0.00	0.05	**100.63**
Silver	24	0.03	97.99	0.07	0.03	0.20	0.17	0.03	0.06	0.78	0.00	0.42	0.00	0.00	0.00	0.00	0.05	**99.83**
Silver	30	0.00	97.99	0.00	0.16	0.25	0.14	0.03	0.00	0.06	0.28	0.88	0.00	0.12	0.05	0.00	0.05	**100.01**
Silver	31	0.00	97.97	0.03	0.22	0.29	0.05	0.00	0.04	0.14	0.00	1.10	0.00	0.01	0.00	0.01	0.03	**99.91**
Silver	90	0.07	97.96	0.14	0.08	0.21	0.13	0.00	0.00	0.27	0.12	0.08	0.00	0.00	0.00	0.00	0.06	**99.12**
Silver	68	0.05	97.96	0.07	0.10	0.19	0.13	0.00	0.00	0.57	0.05	0.03	0.00	0.05	0.00	0.00	0.04	**99.23**
Silver	79	0.00	97.94	0.00	0.04	0.23	0.20	0.02	0.00	0.15	0.06	0.50	0.00	0.05	0.00	0.00	0.05	**99.25**
Silver	79	0.03	97.77	0.00	0.02	0.24	0.35	0.00	0.01	0.20	0.00	0.83	0.00	0.00	0.08	0.00	0.05	**99.58**
Silver	80	0.00	97.74	0.44	0.00	0.22	0.19	0.13	0.00	0.18	0.08	0.79	0.00	0.13	0.00	0.00	0.07	**99.97**
Silver	16	0.16	97.71	0.21	0.00	0.85	0.01	0.04	0.00	0.43	0.03	0.22	0.00	0.00	0.00	0.00	0.05	**99.72**
Silver	20	0.00	97.68	0.29	0.00	0.22	0.00	0.03	0.00	0.22	0.39	0.89	0.00	0.09	0.25	0.00	0.05	**100.12**
Silver	16	0.00	97.65	0.00	0.03	0.31	0.27	0.05	0.07	0.38	0.03	0.08	0.00	0.01	0.26	0.00	0.05	**99.18**
Silver	91	0.00	97.64	0.05	0.10	0.19	0.14	0.02	0.05	0.49	0.00	0.08	0.00	0.49	0.14	0.02	0.05	**99.47**
Silver	22	0.00	97.59	0.03	0.02	0.25	0.00	0.06	0.00	0.66	0.00	1.33	0.00	0.08	0.00	0.00	0.04	**100.06**
Silver	201	0.35	97.58	0.29	0.00	0.29	0.08	0.00	0.01	0.18	0.01	0.94	0.00	0.18	0.28	0.06	0.04	**100.29**
Silver	31	0.00	97.57	0.07	0.11	0.28	0.00	0.04	0.05	0.13	0.00	1.00	0.00	0.05	0.02	0.00	0.06	**99.37**
Silver	95	0.00	97.56	0.05	0.00	0.24	0.00	0.04	0.00	0.70	0.00	0.36	0.00	0.07	0.00	0.00	0.03	**99.07**
Silver	91	0.34	97.49	0.00	0.04	0.21	0.00	0.00	0.00	0.71	0.19	0.30	0.00	0.00	0.05	0.00	0.05	**99.40**
Silver	204	0.00	97.48	0.00	0.25	0.28	0.00	0.00	0.00	0.26	0.06	1.51	0.00	0.00	0.00	0.00	0.04	**99.87**
Silver	48	0.00	97.45	0.00	0.00	0.35	0.00	0.00	0.00	0.30	0.14	1.50	0.00	0.00	0.00	0.01	0.05	**99.79**
Silver	96	0.09	97.44	0.15	0.09	0.18	0.00	0.08	0.13	0.47	0.02	0.31	0.00	0.07	0.00	0.00	0.05	**99.06**
Silver	24	0.08	97.43	0.00	0.00	0.26	0.00	0.00	0.00	0.53	0.04	0.74	0.00	0.00	0.00	0.00	0.06	**99.13**
Silver	48	0.00	97.40	0.08	0.04	0.37	0.00	0.04	0.00	0.22	0.16	1.44	0.00	0.00	0.12	0.00	0.05	**99.92**
Silver	96	0.17	97.29	0.12	0.22	0.24	0.00	0.06	0.00	0.90	0.06	0.38	0.00	0.00	0.00	0.00	0.04	**99.48**
Silver	23	0.01	97.27	0.00	0.07	0.32	0.00	0.02	0.12	1.33	0.00	0.67	0.00	0.08	0.07	0.00	0.05	**99.99**

Appendix 2-2 (Cont.): Electron Microprobe Analysis of Native Silver

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Silver	95	0.10	97.26	0.00	0.00	0.22	0.19	0.05	0.00	0.78	0.00	0.00	0.00	0.04	0.17	0.00	0.05	**98.87**
Silver	13	0.00	97.22	0.71	0.00	0.22	0.20	0.00	0.00	0.05	0.04	1.36	0.00	0.12	0.00	0.00	0.02	**99.96**
Silver	23	0.00	97.02	0.00	0.00	0.29	0.11	0.00	0.03	1.05	0.00	0.43	0.00	0.13	0.29	0.00	0.05	**99.39**
Silver	21	0.29	97.00	0.30	0.15	0.23	0.00	0.00	0.11	0.23	0.12	0.55	0.00	0.08	0.20	0.00	0.06	**99.32**
Silver	13	0.13	96.98	0.20	0.18	0.20	0.20	0.07	0.00	0.09	0.00	1.62	0.00	0.07	0.34	0.00	0.06	**100.14**
Silver	21	0.00	96.92	0.82	0.23	0.21	0.77	0.00	0.00	0.02	0.00	0.49	0.00	0.18	0.00	0.00	0.06	**99.69**
Silver	97	0.00	96.85	0.00	0.02	0.39	0.00	0.10	0.00	0.92	0.00	1.28	0.00	0.00	0.02	0.00	0.04	**99.61**
Silver	301	0.20	96.84	0.00	0.12	0.39	0.02	0.00	0.00	0.62	0.00	1.64	0.00	0.36	0.00	0.07	0.04	**100.30**
Silver	201	0.26	96.80	0.46	0.17	0.29	0.03	0.00	0.13	0.09	0.00	1.05	0.00	0.34	0.31	0.08	0.05	**100.06**
Silver	42	0.00	96.66	0.71	0.06	0.10	0.39	0.03	0.07	0.41	0.00	0.42	0.00	0.24	0.00	0.00	0.04	**99.13**
Silver	301	0.20	96.65	0.00	0.19	0.31	0.14	0.00	0.03	0.28	0.00	1.52	0.00	0.40	0.00	0.07	0.03	**99.82**
Silver	93	0.00	96.55	0.00	0.15	0.36	0.03	0.04	0.00	0.92	0.00	1.69	0.00	0.05	0.04	0.00	0.05	**99.89**
Silver	208	0.42	96.49	0.33	0.25	0.09	0.07	0.00	0.00	0.18	0.19	1.58	0.00	0.05	0.24	0.07	0.07	**100.04**
Silver	97	0.12	96.48	0.00	0.06	0.36	0.00	0.07	0.08	0.81	0.15	1.53	0.00	0.00	0.00	0.00	0.05	**99.71**
Silver	92	0.09	96.45	0.34	0.10	0.21	0.00	0.00	0.00	0.75	0.03	0.69	0.00	0.05	0.00	0.00	0.06	**98.77**
Silver	93	0.00	96.44	0.00	0.02	0.34	0.17	0.04	0.00	1.01	0.04	1.65	0.00	0.00	0.00	0.00	0.05	**99.79**
Silver	205	0.36	96.37	0.39	0.25	0.39	0.08	0.00	0.07	0.14	0.00	0.03	0.00	0.25	0.29	0.09	0.06	**98.77**
Silver	73	0.00	96.32	0.07	0.00	0.34	0.00	0.00	0.01	0.12	0.00	3.02	0.00	0.00	0.00	0.00	0.04	**99.91**
Silver	74	0.00	96.21	0.31	0.03	0.51	0.00	0.01	0.00	0.17	0.00	3.49	0.00	0.08	0.09	0.00	0.05	**100.95**
Silver	74	0.00	96.03	0.00	0.01	0.54	0.00	0.04	0.00	0.09	0.11	3.28	0.00	0.03	0.03	0.00	0.06	**100.21**
Silver	75	0.00	95.96	0.06	0.00	0.43	0.00	0.05	0.01	0.13	0.05	4.19	0.00	0.00	0.00	0.00	0.05	**100.92**
Silver	92	0.00	95.95	0.14	0.01	0.22	0.59	0.05	0.00	0.66	0.14	0.75	0.00	0.17	0.00	0.00	0.05	**98.74**
Silver	42	0.41	95.92	0.69	0.84	0.22	0.00	0.05	0.00	0.47	0.00	0.23	0.00	0.16	0.06	0.00	0.06	**99.12**
Silver	202	0.32	95.85	0.02	0.77	0.38	0.02	0.00	0.00	0.29	0.00	1.41	0.00	0.05	0.19	0.05	0.06	**99.41**
Silver	75	0.00	95.85	0.64	0.00	0.43	0.00	0.07	0.00	0.14	0.25	3.48	0.00	0.11	0.00	0.00	0.05	**101.03**
Silver	207	0.30	95.83	0.22	0.17	0.63	0.03	0.00	0.04	0.51	0.07	1.11	0.00	0.02	0.27	0.05	0.08	**99.34**
Silver	73	0.00	95.81	0.25	0.00	0.31	0.00	0.03	0.00	0.07	0.15	3.16	0.00	0.06	0.31	0.00	0.05	**100.21**
Silver	208	0.37	95.78	0.16	0.11	0.09	0.03	0.00	0.09	0.16	0.19	1.45	0.00	0.02	0.40	0.08	0.06	**98.99**
Silver	311	0.35	95.70	0.00	0.25	0.43	0.00	0.00	0.02	0.34	0.14	1.71	0.00	0.00	0.14	0.05	0.57	**99.70**
Silver	204	0.08	95.65	0.00	0.66	0.41	0.03	0.00	0.00	0.45	0.02	1.39	0.00	0.00	0.28	0.06	0.06	**99.08**
Silver	47	0.24	94.83	0.00	0.01	0.84	0.00	0.09	0.00	1.27	0.28	1.26	0.00	0.00	0.15	0.36	0.07	**99.40**
Silver	10	0.04	94.65	0.00	0.18	0.35	0.00	0.01	0.00	0.42	0.35	3.42	0.00	0.87	0.01	0.01	0.04	**100.35**
Silver	47	0.00	94.51	0.00	0.23	0.88	0.94	0.03	0.38	1.21	0.00	1.44	0.00	0.00	0.00	0.27	0.05	**99.93**
Silver	10	0.00	94.37	0.06	0.16	0.28	0.00	0.12	0.00	0.56	0.57	3.36	0.00	0.31	0.00	0.00	0.03	**99.82**
Silver	202	0.32	94.30	0.00	0.80	0.40	0.03	0.01	0.18	0.38	0.00	2.19	0.00	0.00	0.27	0.06	0.07	**99.02**
Silver	309	0.02	93.90	1.37	0.29	0.51	0.12	0.00	0.00	0.55	0.60	2.05	0.00	0.91	0.09	0.06	0.06	**100.53**
	Mean	**0.07**	**97.39**	**0.14**	**0.10**	**0.28**	**0.10**	**0.03**	**0.02**	**0.41**	**0.07**	**0.94**	**0.00**	**0.08**	**0.07**	**0.02**	**0.06**	**99.78**
	Min	0.00	93.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	98.74
	Max	0.42	99.73	1.37	0.84	0.88	0.94	0.16	0.38	1.33	0.60	4.19	0.00	0.91	0.58	0.36	0.57	101.03
	StDev	0.12	1.22	0.23	0.16	0.15	0.16	0.03	0.05	0.31	0.12	0.93	0.00	0.15	0.11	0.05	0.05	

Appendix 2-3: Electron Microprobe Analysis of Stephanite

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Stephanite	12	0.00	76.38	0.00	0.00	0.21	0.00	0.00	0.00	12.98	0.05	1.01	0.00	9.43	0.55	0.00	0.04	**100.64**
Stephanite	12	0.00	76.10	0.00	0.00	0.22	0.26	0.00	0.00	12.15	0.00	1.67	0.00	9.08	0.58	0.02	0.03	**100.12**
Stephanite	32	0.00	75.67	0.00	0.03	0.22	0.00	0.00	0.00	13.76	0.09	2.63	0.00	7.73	0.07	0.00	0.03	**100.24**
Stephanite	59	0.00	75.61	0.00	0.00	0.50	0.00	0.00	0.00	11.14	0.00	3.74	0.00	9.82	0.00	0.00	0.03	**100.85**
Stephanite	59	0.00	75.36	0.75	0.00	0.45	0.00	0.00	0.77	10.98	0.06	3.38	0.00	9.25	0.10	0.00	0.05	**101.14**
Stephanite	38	0.05	74.17	0.62	0.00	0.19	0.00	0.00	0.03	13.59	0.46	1.32	0.00	9.87	0.29	0.00	0.04	**100.63**
Stephanite	11	0.00	73.83	0.24	0.00	0.33	0.00	0.00	0.00	13.08	0.00	2.04	0.00	9.68	0.64	0.00	0.33	100.17
Stephanite	38	0.00	73.78	0.13	0.03	0.17	0.36	0.00	0.00	13.25	0.28	1.12	0.00	10.19	0.87	0.00	0.03	**100.21**
Stephanite	11	0.01	72.95	0.51	0.00	0.55	0.00	0.00	0.27	9.50	0.05	9.30	0.00	5.17	1.31	0.01	0.01	**99.65**
Stephanite	65	0.00	72.70	0.50	0.00	0.23	0.00	0.00	0.00	14.45	0.10	2.41	0.00	8.87	1.07	0.00	0.03	**100.37**
Stephanite	32	0.00	72.50	0.10	0.21	0.22	0.00	0.00	0.04	15.23	0.00	3.36	0.00	8.36	0.09	0.00	0.03	**100.15**
Stephanite	83	0.08	72.45	0.00	0.11	0.20	0.03	0.00	0.03	15.60	0.12	1.16	0.00	8.88	0.81	0.00	0.04	**99.52**
Stephanite	33	0.15	72.42	0.00	0.20	0.25	0.00	0.00	0.00	15.05	0.26	2.69	0.00	9.34	0.31	0.00	0.03	**100.70**
Stephanite	65	0.00	72.38	0.49	0.00	0.22	0.00	0.00	0.00	14.98	0.00	2.76	0.00	8.61	0.71	0.00	0.03	**100.19**
Stephanite	206	0.00	72.37	2.67	0.00	0.24	0.00	0.00	0.00	15.40	0.00	1.50	0.00	8.39	0.39	0.00	0.00	**100.95**
Stephanite	203	0.01	72.34	0.28	0.00	0.29	0.00	0.00	0.08	15.04	0.13	1.53	0.00	9.46	1.05	0.00	0.03	**100.24**
Stephanite	4	0.00	72.30	0.00	0.00	0.00	0.00	0.00	0.00	16.06	0.00	0.00	0.00	11.08	0.00	0.00	0.04	**99.48**
Stephanite	4	0.00	72.27	0.00	0.00	0.00	0.00	0.00	0.00	15.77	0.00	0.00	0.00	11.20	0.00	0.00	0.05	**99.29**
Stephanite	82	0.03	72.19	0.10	0.00	0.21	0.00	0.00	0.40	13.17	0.13	3.18	0.00	9.33	1.00	0.00	0.03	**99.77**
Stephanite	83	0.00	72.18	0.00	0.00	0.22	0.00	0.00	0.00	16.63	0.05	1.49	0.00	9.56	0.70	0.00	0.03	**100.87**
Stephanite	11	0.17	72.17	0.70	0.00	0.60	0.00	0.00	0.00	9.71	0.00	9.53	0.00	5.25	1.33	0.07	0.04	**99.58**
Stephanite	82	0.10	72.06	0.19	0.07	0.24	0.00	0.00	0.05	13.90	0.00	2.69	0.00	9.48	0.73	0.02	0.03	**99.55**
Stephanite	206	0.00	72.06	2.29	0.00	0.26	0.00	0.00	0.00	14.95	0.00	1.63	0.00	8.82	0.93	0.00	0.03	**100.98**
Stephanite	45	0.00	72.04	0.00	0.00	0.29	0.00	0.00	0.00	15.99	0.10	1.77	0.00	10.39	0.33	0.00	0.04	**100.96**
Stephanite	6	0.00	71.99	0.00	0.00	0.00	0.00	0.00	0.00	16.27	0.00	0.00	0.00	11.24	0.00	0.00	0.04	**99.54**
Stephanite	60	0.00	71.95	0.00	0.13	0.35	0.00	0.00	0.01	15.05	0.11	2.82	0.00	8.03	0.54	0.00	0.04	**99.03**
Stephanite	203	0.37	71.84	0.37	0.05	0.36	0.00	0.00	0.00	15.08	0.02	1.61	0.00	9.29	1.06	0.05	0.06	**100.17**
Stephanite	19	0.01	71.81	0.00	0.14	0.22	0.00	0.00	0.07	15.66	0.03	1.49	0.00	10.17	0.47	0.00	0.03	**100.11**
Stephanite	45	0.04	71.80	0.00	0.01	0.28	0.00	0.00	0.00	15.00	0.20	1.77	0.00	9.88	0.26	0.00	0.04	**99.28**
Stephanite	6	0.05	71.75	0.00	0.08	0.09	0.00	0.00	0.00	16.16	0.23	0.08	0.00	11.45	0.12	0.00	0.02	**100.04**
Stephanite	308	0.01	71.68	1.02	0.00	0.84	0.00	0.00	0.00	14.37	0.00	2.88	0.00	8.93	0.17	0.00	0.03	**99.92**
Stephanite	33	0.01	71.68	0.00	0.00	0.44	0.05	0.00	0.24	14.49	0.83	2.71	0.00	9.70	0.07	0.06	0.03	**100.31**
Stephanite	19	0.00	71.62	0.02	0.00	0.19	0.00	0.00	0.00	15.75	0.00	1.31	0.00	9.82	0.73	0.00	0.03	**99.48**
Stephanite	67	0.06	71.57	0.25	0.00	0.26	0.46	0.00	0.20	15.81	0.02	1.38	0.00	9.93	0.58	0.07	0.03	**100.62**
Stephanite	40	0.03	71.57	0.00	0.03	0.18	0.09	0.00	0.00	16.07	0.20	1.59	0.00	10.05	0.51	0.00	0.03	**100.35**
Stephanite	46	0.09	71.56	0.09	0.00	0.33	0.00	0.00	0.00	15.39	0.00	2.30	0.00	10.39	0.30	0.00	0.03	**100.48**
Stephanite	37	0.00	71.42	0.00	0.00	0.18	0.00	0.00	0.00	15.80	0.24	1.36	0.00	9.44	0.58	0.00	0.04	**99.06**
Stephanite	67	0.00	71.39	0.00	0.00	0.22	0.00	0.00	0.00	16.49	0.00	1.05	0.00	9.91	0.46	0.07	0.03	**99.62**
Stephanite	58	0.00	71.38	0.00	0.05	0.42	0.00	0.00	0.02	15.27	0.02	3.48	0.00	8.67	1.04	0.00	0.03	**100.37**
Stephanite	209	0.00	71.38	0.94	0.00	0.61	0.00	0.00	0.00	14.54	0.00	2.77	0.00	9.42	0.48	0.00	0.02	**100.15**
Stephanite	37	0.00	71.37	0.13	0.16	0.19	0.00	0.00	0.08	16.07	0.00	1.35	0.00	9.58	0.37	0.00	0.03	**99.32**
Stephanite	998	0.00	71.35	0.00	0.00	0.42	0.00	0.00	0.00	16.27	0.00	0.00	0.00	11.63	0.84	0.00	0.04	**100.55**
Stephanite	46	0.03	71.33	0.00	0.04	0.30	0.00	0.00	0.10	15.36	0.00	2.69	0.00	9.59	0.34	0.00	0.04	**99.83**
Stephanite	34	0.00	71.29	0.00	0.12	0.30	0.00	0.00	0.19	14.71	0.12	2.82	0.00	9.52	0.08	0.01	0.04	**99.20**
Stephanite	34	0.04	71.27	0.00	0.00	0.30	0.00	0.00	0.06	14.19	0.00	2.81	0.00	9.82	0.63	0.02	0.03	**99.17**
Stephanite	39	0.06	71.20	1.06	0.00	0.34	0.00	0.00	0.00	14.38	0.00	2.98	0.00	9.21	1.12	0.00	0.05	**100.39**
Stephanite	60	0.09	71.18	0.10	0.01	0.32	0.00	0.01	0.00	15.51	0.09	2.69	0.00	8.47	0.78	0.00	0.05	**99.30**
Stephanite	39	0.00	71.14	1.03	0.00	0.30	0.00	0.00	0.04	14.58	0.24	2.63	0.00	8.87	0.83	0.00	0.03	**99.70**
Stephanite	209	0.00	71.14	1.61	0.00	0.62	0.00	0.00	0.00	14.46	0.00	2.63	0.00	9.16	0.73	0.00	0.03	**100.39**
Stephanite	58	0.00	71.05	0.00	0.02	0.81	0.00	0.00	0.00	15.95	0.13	3.43	0.00	8.33	0.75	0.01	0.02	**100.50**
Stephanite	40	0.08	71.04	0.53	0.09	0.19	0.00	0.00	0.00	15.41	0.00	1.50	0.00	10.18	0.56	0.00	0.05	**99.63**
Stephanite	87	0.00	70.97	2.26	0.00	0.21	0.00	0.00	0.00	14.40	0.01	1.27	0.00	9.23	0.33	0.01	0.04	**98.73**
Stephanite	87	0.02	70.85	2.18	0.09	0.20	0.12	0.00	0.00	14.53	0.00	1.13	0.00	9.67	0.62	0.00	0.04	**99.44**
Stephanite	66	0.09	70.83	0.00	0.03	0.19	0.00	0.00	0.00	15.55	0.55	3.62	0.00	8.24	0.80	0.00	0.02	**99.92**
Stephanite	66	0.00	70.81	0.21	0.13	0.20	0.00	0.00	0.07	15.37	0.10	3.05	0.00	8.28	1.15	0.00	0.03	**99.41**
Stephanite	999	0.00	70.75	0.01	0.18	0.49	0.00	0.00	0.00	16.37	0.05	0.01	0.00	11.93	1.01	0.00	0.03	**100.84**
Stephanite	89	0.00	70.61	1.55	0.04	0.31	0.00	0.00	0.05	15.06	0.00	2.23	0.00	9.49	0.71	0.00	0.04	**100.09**
Stephanite	88	0.00	69.99	1.92	0.12	0.26	0.18	0.00	0.00	15.36	0.00	1.52	0.00	9.91	0.41	0.00	0.03	**99.69**
Stephanite	88	0.01	69.90	1.25	0.00	0.25	0.09	0.00	0.03	15.47	0.05	1.84	0.00	9.81	0.38	0.00	0.04	**99.12**
Stephanite	89	0.07	69.47	1.79	0.20	0.23	0.00	0.00	0.02	15.82	0.08	2.49	0.00	9.42	0.64	0.00	0.03	**100.24**
Stephanite	77	0.00	68.01	1.73	0.00	0.38	0.00	0.00	0.14	14.26	0.00	6.08	0.00	8.45	1.84	0.00	0.03	**100.92**
Stephanite	78	0.00	68.01	2.16	0.16	0.43	0.00	0.13	0.00	12.82	0.27	5.42	0.00	10.11	1.15	0.00	0.04	**100.70**
Stephanite	302	0.00	67.94	3.18	0.00	0.33	0.00	0.00	0.11	15.08	0.00	2.36	0.00	9.87	0.97	0.03	0.03	**99.90**
Stephanite	53	0.00	67.85	0.01	0.26	0.35	0.00	0.00	0.11	16.92	0.14	3.15	0.00	10.14	0.59	0.01	0.03	**99.56**
Stephanite	302	0.00	67.82	3.24	0.00	0.28	0.00	0.00	0.00	14.71	0.00	2.67	0.00	9.53	1.07	0.00	0.03	**99.34**
Stephanite	54	0.00	67.79	0.00	0.01	0.41	0.00	0.00	0.00	16.77	0.57	3.84	0.00	9.93	0.69	0.00	0.03	**100.05**
Stephanite	77	0.20	67.76	1.39	0.00	0.40	0.00	0.00	0.04	14.18	0.07	6.45	0.00	8.69	1.70	0.00	0.04	**100.92**

Appendix 2-3 (Cont.): Electron Microprobe Analysis of Stephanite

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Stephanite	55	0.00	67.58	0.14	0.00	0.35	0.00	0.00	0.00	16.46	0.32	4.26	0.00	10.03	0.71	0.00	0.04	**99.89**
Stephanite	53	0.00	67.48	0.21	0.00	0.32	0.00	0.00	0.00	16.69	0.00	3.43	0.00	10.31	1.12	0.00	0.03	**99.59**
Stephanite	55	0.00	67.36	0.00	0.06	0.36	0.00	0.00	0.00	16.48	0.08	4.85	0.00	10.00	1.27	0.00	0.03	**100.49**
Stephanite	78	0.03	67.22	2.52	0.00	0.51	0.00	0.00	0.06	12.53	0.61	5.87	0.00	9.10	1.43	0.05	0.03	**99.96**
Stephanite	76	0.00	66.95	1.19	0.03	0.29	0.00	0.00	0.00	16.18	0.39	4.55	0.00	9.70	1.20	0.01	0.04	**100.52**
Stephanite	98	0.00	66.56	0.00	0.04	0.20	0.58	0.00	0.00	17.20	0.28	0.50	0.00	14.19	0.05	0.00	0.04	**99.65**
Stephanite	76	0.00	66.51	1.64	0.02	0.28	0.00	0.00	0.12	16.07	0.16	4.92	0.00	9.71	1.14	0.01	0.04	**100.63**
Stephanite	210	0.00	66.22	7.03	0.00	0.55	0.00	0.00	0.00	14.85	0.01	2.42	0.00	7.77	0.49	0.00	0.03	**99.36**
Stephanite	210	0.06	66.08	7.67	0.00	0.61	0.00	0.00	0.00	14.97	0.00	2.87	0.00	7.93	0.75	0.00	0.05	**100.99**
Stephanite	98	0.00	65.92	0.24	0.00	0.20	0.02	0.00	0.00	16.27	0.03	0.39	0.00	16.07	0.08	0.00	0.03	**99.24**
Stephanite	57	0.00	65.68	0.00	0.02	0.25	0.00	0.00	0.00	17.60	0.29	3.81	0.00	12.25	0.66	0.00	0.03	**100.60**
Stephanite	57	0.01	65.32	0.03	0.06	0.28	0.00	0.00	0.00	17.08	0.39	3.52	0.00	12.79	0.56	0.00	0.04	**100.08**
Stephanite	56	0.00	64.74	0.00	0.16	0.30	0.00	0.00	0.00	16.72	0.19	2.63	0.00	14.21	0.40	0.01	0.03	**99.40**
Stephanite	56	0.00	64.36	0.61	0.00	0.33	0.00	0.00	0.03	17.03	0.23	3.34	0.00	14.40	0.44	0.00	0.03	**100.79**
Stephanite	54	0.07	63.91	0.51	0.00	0.43	0.00	0.00	0.03	17.47	0.02	3.93	0.00	12.92	0.70	0.00	0.03	**100.01**
	Mean	**0.03**	**70.60**	**0.75**	**0.04**	**0.31**	**0.03**	**0.00**	**0.04**	**15.03**	**0.11**	**2.62**	**0.00**	**9.78**	**0.65**	**0.01**	**0.04**	**100.03**
	Min	0.00	63.91	0.00	0.00	0.00	0.00	0.00	0.00	9.50	0.00	0.00	0.00	5.17	0.00	0.00	0.00	98.73
	Max	0.37	76.38	7.67	0.26	0.84	0.58	0.13	0.77	17.60	0.83	9.53	0.00	16.07	1.84	0.07	0.33	101.14
	StDev	0.06	2.76	1.34	0.06	0.15	0.10	0.01	0.11	1.58	0.16	1.77	0.00	1.67	0.41	0.02	0.03	

Appendix 2-4: Electron Microprobe Analysis of Pyrargyrite

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Pyrargyrite	81	0.00	63.40	0.00	0.00	0.24	0.22	0.00	0.02	12.39	0.09	0.51	0.00	22.16	0.51	0.00	0.03	**99.56**
Pyrargyrite	81	0.00	63.36	0.00	0.06	0.21	0.15	0.00	0.00	12.33	0.00	1.08	0.00	22.77	0.85	0.00	0.03	**100.84**
Pyrargyrite	307	0.01	53.68	0.00	0.00	0.58	0.00	0.00	0.00	19.40	0.00	3.42	0.00	23.74	0.09	0.00	0.01	**100.92**
Pyrargyrite	50	0.22	52.89	0.10	0.03	0.46	0.00	0.00	0.00	18.43	0.07	5.07	0.00	22.01	0.91	0.00	0.03	**100.21**
Pyrargyrite	50	0.07	52.71	0.00	0.00	0.46	0.00	0.00	0.00	18.55	0.14	5.11	0.00	22.37	0.83	0.00	0.02	**100.26**
Pyrargyrite	51	0.03	50.94	0.00	0.00	0.56	0.00	0.00	0.09	19.63	0.14	5.97	0.00	22.65	0.79	0.00	0.02	**100.83**
Pyrargyrite	52	0.12	50.74	0.00	0.03	0.48	0.00	0.00	0.00	19.23	0.08	5.36	0.00	23.49	1.28	0.00	0.02	**100.84**
Pyrargyrite	51	0.00	50.68	0.00	0.00	0.61	0.00	0.00	0.00	19.25	0.00	6.24	0.00	22.76	1.15	0.00	0.03	**100.72**
Pyrargyrite	306	0.00	50.43	0.00	0.00	0.73	0.00	0.00	0.00	18.21	0.00	6.53	0.00	23.28	0.23	0.00	0.00	**99.41**
Pyrargyrite	52	0.00	50.12	0.00	0.00	0.47	0.00	0.00	0.00	19.63	0.02	5.42	0.00	23.11	0.71	0.00	0.02	**99.50**
Pyrargyrite	306	0.00	50.07	0.29	0.00	0.74	0.00	0.00	0.00	18.51	0.00	6.74	0.00	22.94	0.27	0.00	0.00	**99.57**
	Mean	**0.04**	**53.55**	**0.04**	**0.01**	**0.50**	**0.03**	**0.00**	**0.01**	**17.78**	**0.05**	**4.68**	**0.00**	**22.84**	**0.69**	**0.00**	**0.02**	**100.24**
	Min	0.00	50.07	0.00	0.00	0.21	0.00	0.00	0.00	12.33	0.00	0.51	0.00	22.01	0.09	0.00	0.00	99.41
	Max	0.22	63.40	0.29	0.06	0.74	0.22	0.00	0.09	19.63	0.14	6.74	0.00	23.74	1.28	0.00	0.03	100.92
	StDev	0.07	5.01	0.09	0.02	0.17	0.08	0.00	0.03	2.72	0.06	2.12	0.00	0.54	0.38	0.00	0.01	

Appendix 2-5: Electron Microprobe Analysis of Freibergite

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Freibergite	303	0.00	30.68	23.96	0.00	5.84	0.00	0.00	0.00	18.01	0.00	4.05	0.00	16.48	0.25	0.00	0.00	**99.27**
Freibergite	303	0.00	30.31	23.59	0.00	5.17	0.00	0.00	0.00	18.88	0.00	4.15	0.00	17.00	0.48	0.00	0.00	**99.58**
Freibergite	86	0.01	25.36	19.35	0.00	1.77	0.00	0.00	0.00	22.66	4.41	1.19	0.00	24.14	1.43	0.00	0.05	**100.37**
Freibergite	211	0.00	25.28	23.98	0.00	0.26	0.00	0.00	0.00	23.00	0.00	5.77	0.00	19.73	2.71	0.00	0.00	**100.73**
Freibergite	86	0.00	25.23	19.62	0.00	1.92	0.04	0.00	0.04	22.29	3.91	1.79	0.00	24.29	1.28	0.01	0.04	**100.46**
Freibergite	211	0.00	23.65	24.44	0.00	0.37	0.00	0.00	0.00	22.98	0.00	6.13	0.00	20.02	2.99	0.00	0.00	**100.58**
Freibergite	84	0.00	19.91	21.21	0.00	2.56	0.00	0.00	0.03	23.87	3.65	2.49	0.00	24.94	1.57	0.00	0.03	**100.26**
Freibergite	84	0.00	19.73	21.67	0.00	2.53	0.00	0.00	0.00	23.91	3.45	2.49	0.00	25.07	1.66	0.00	0.02	**100.52**
Freibergite	85	0.00	19.21	21.84	0.00	5.10	0.00	0.00	0.00	23.88	1.22	3.29	0.00	24.04	2.02	0.01	0.00	**100.62**
Freibergite	85	0.09	19.01	21.69	0.00	5.41	0.00	0.00	0.00	23.73	1.14	3.16	0.00	24.17	2.24	0.00	0.01	**100.66**
Freibergite	310	0.00	18.44	24.68	0.00	1.79	0.00	0.00	0.00	23.47	3.62	2.53	0.00	24.68	0.13	0.00	0.00	**99.34**
	Mean	**0.01**	**23.35**	**22.37**	**0.00**	**2.98**	**0.00**	**0.00**	**0.01**	**22.43**	**1.95**	**3.37**	**0.00**	**22.23**	**1.52**	**0.00**	**0.01**	**100.22**
	Min	0.00	18.44	19.35	0.00	0.26	0.00	0.00	0.00	18.01	0.00	1.19	0.00	16.48	0.13	0.00	0.00	99.27
	Max	0.09	30.68	24.68	0.00	5.84	0.04	0.00	0.04	23.91	4.41	6.13	0.00	25.07	2.99	0.01	0.05	100.73
	StDev	0.03	4.46	1.88	0.00	2.05	0.01	0.00	0.02	2.05	1.85	1.55	0.00	3.28	0.95	0.01	0.02	

Appendix 2-6: Electron Microprobe Analysis of Acanthite

Mineral	Pt#	Au	Ag	Cu	Hg	Fe	Bi	Te	Se	S	Zn	Pb	Sn	Sb	As	Mn	Cd	Total
Acantite	305	0.00	85.17	0.00	0.00	0.50	0.00	0.00	0.00	14.43	0.00	0.64	0.00	0.00	0.00	0.00	0.02	**100.76**
Acantite	305	0.00	84.86	0.00	0.00	0.48	0.00	0.00	0.00	14.98	0.00	0.47	0.00	0.00	0.01	0.00	0.03	**100.82**
	Mean	**0.00**	**85.02**	**0.00**	**0.00**	**0.49**	**0.00**	**0.00**	**0.00**	**14.71**	**0.00**	**0.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**100.79**
	Min	0.00	84.86	0.00	0.00	0.48	0.00	0.00	0.00	14.43	0.00	0.47	0.00	0.00	0.00	0.00	0.02	100.76
	Max	0.00	85.17	0.00	0.00	0.50	0.00	0.00	0.00	14.98	0.00	0.64	0.00	0.00	0.01	0.00	0.03	100.82
	StDev	0.00	0.22	0.00	0.00	0.02	0.00	0.00	0.00	0.39	0.00	0.12	0.00	0.00	0.00	0.00	0.00	