BC Geological Survey Assessment Report 40118

Ministry of Energy and Mines
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Geological, Geochemical

TOTAL COST: $11,040

AUTHOR(S): Connor Malek **SIGNATURE(S):** cM

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): **YEAR OF WORK:** 2021

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5864093

PROPERTY NAME: Big Copper

CLAIM NAME(S) (on which the work was done): 1065350

COMMODITIES SOUGHT: Cu, Ag

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 082FNE100; 082FNE091

MINING DIVISION: Fort Steele **NTS/BCGS:** 82F/15; 82F/10

LATITUDE: 49 ° 45 '49.5 " **LONGITUDE:** 116 ° 31 '16.2 " **(at centre of work)**

OWNER(S):

1) Jack Denny 2)

MAILING ADDRESS:

Box 325

Salmo BC VOG 1Z0

OPERATOR(S) [who paid for the work]:

1) Rokmaster Resources 2)

MAILING ADDRESS:

615-625 Howe Street

Vancouver, BC V6C 2T6

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Lower Kitchener Formation, Creston Formation, Sediment-hosted copper, chalcopyrite, covellite

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 6206, 33347

Next Page

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock	Seven Samples Total	1065350	$6,040
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic	Five Samples Total	1065350	$5,000
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	$11,040

ASSESSMENT REPORT

BIG COPPER PROPERTY

KIMBERLEY, BRITISH COLUMBIA

FORT STEELE MINING DIVISION

49°45'49.5" N LATITUDE, 116°31'16.2"W LONGITUDE

UTM: NAD 83 ZONE 11N, 534630 E, 5512400 N

NTS 82F/15 82F/10

Big Copper Property: Bracebridge area outcrop (photo from Denny and Igreda, 2012)

Prepared for:

Rokmaster Resources Corp.

By:

First Geolas Consulting

Connor Malek, B.Sc.

March 16, 2022

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Summary

The Big Copper Property is located in the Purcell Mountains in southeastern British Columbia, approximately 50 km west of Kimberley. The 334 hectare Property is underlain by Neoproterozoic clastic and lesser carbonate sediments of the larger Purcell Supergroup, and may contain similar stratigraphy which hosts several large sediment-hosted copper-silver deposits in the Idaho and Montana.

The Property has a limited documented exploration history but hosts at least seven adits, several trenches, and several drillholes. Drilling completed in 1965 and 1967 intersected meter-scale intervals of up to 3.30 % copper and 12.0 g/t silver which has not been subject to significant follow-up work.

A day of prospecting and sampling on the Property in 2021 saw the collection of 7 rock samples and 5 petrography samples. Meter-scale zones of highly deformed quartzite and phyllite host disseminated chalcopyrite-pyrite mineralization and local quartz-siderite veins contain clotted chalcopyrite grains. Grab samples in 2021 returned up to 12.56 % copper and 147.0 g/t silver confirming historical results. All five petrographic samples display significant deformation with strong limonite- and chlorite-alteration. A sample of vein material with chalcopyrite mineralization (BC_05) shows that chalcopyrite crystals are concentrated along the contact of the quartz and calcite rich portions of the sample, and also occur along fractures and cleavage planes within calcite. Trace pyrite, pyrrhotite, and covellite were also encountered in this sample, with the latter concentrated in the vicinity of chalcopyrite crystals.

The following report details the location, tenure, geology, history, and the 2021 exploration program on the Big Copper Property. Conclusions and recommendations follow, with detailed costs, maps, sample data, and petrographic descriptions in the appendices.

1 Location, Infrastructure, and Tenure

The Big Copper Property is located in the Purcell Mountains of southeastern BC, approximately 50 kilometers west of Kimberley. Kimberly, and the neighboring town of Cranbrook, offer all the amenities for mineral exploration including groceries, lodging, medical faculties, and regional airport.

The Big Copper Property lies in the western part of the St. Mary River valley and straddles a portion of the west fork of the St. Mary River. The area is steeply sloped with vertical relief in excess of 1,500 meters. Brush is normally good in the timber with open stands of pine, spruce, cedar, hemlock and fir, depending on the maturity of the forest. Valley bottoms and slide chutes are typically brushy with thick alder and devils club. Elevations above approximately 1,900 m are barren of trees and brush and often cliffy and scree covered.

The Property can be accessed using the Main West Fork St. Mary Forest Service Road as well as old exploration trails. Helicopter access is possible for the higher elevations at the north end of the Property.

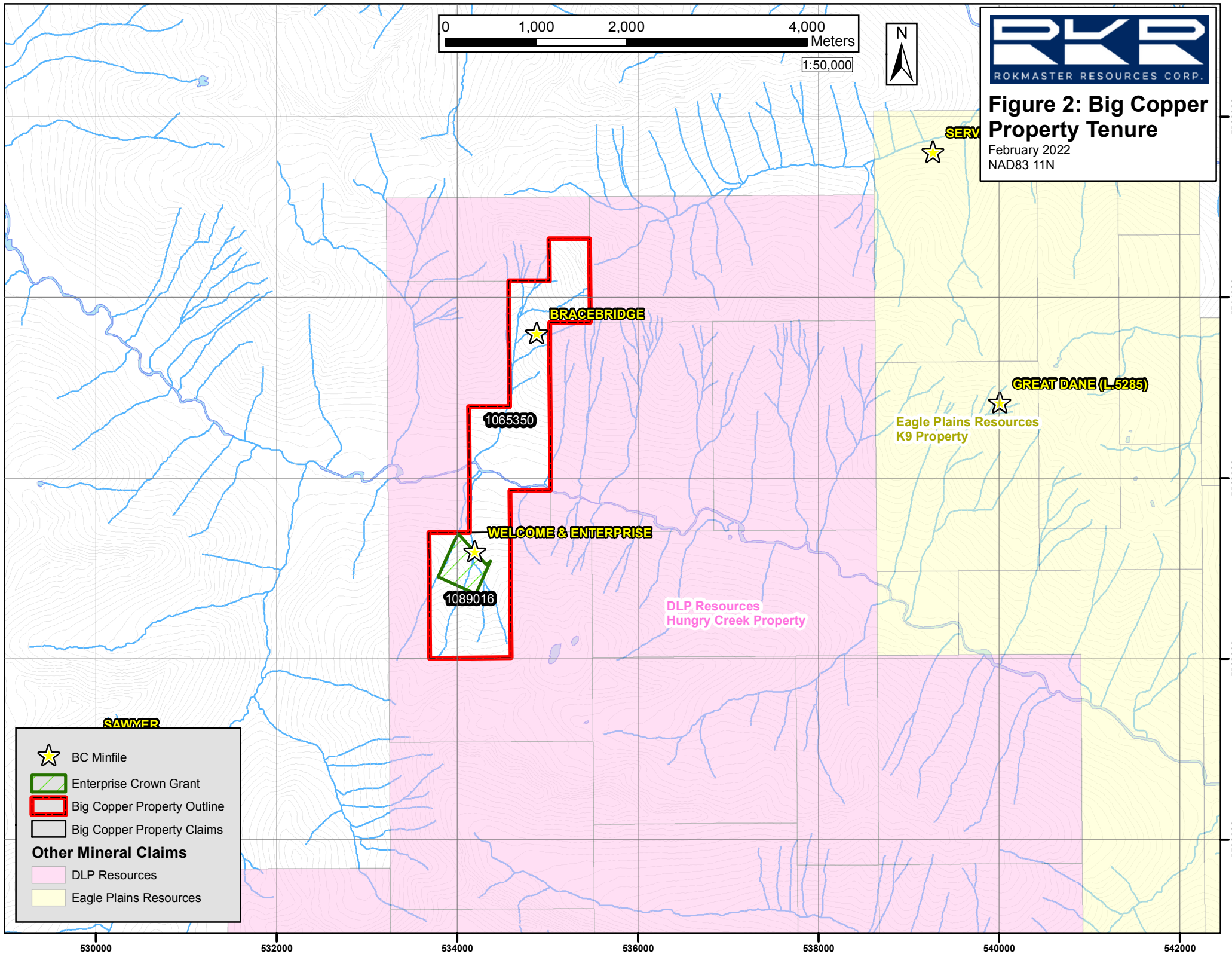

0 5 10 20 Kilometers
1:300,000
N
ROKMASTER RESOURCES CORP.
Figure 1: Big Copper Property Location
February 2022
NAD83 11N
Big Copper Property
Sullivan Mine
Historic Production:
34 Blb Pb+Zn
285 Moz Ag
Bluebell Mine
Historic Production:
6.1 Moz Ag, 6.2 Mlb Cu,
515 Mlb Pb, 548 Mlb Zn
Kimberley, BC
Kootnay Lake
Big Copper Property
BC Parks
Roads

As shown in Table 1 below, the Big Copper Property comprises two Mineral Titles Online ("MTO") mineral claims totaling 333.9 hectares. The Big Copper Property is owned by Jack and Bob Denny and is under option to Rokmaster Resources. It is noted that mineral claim "BC2" was acquired in early 2022, while this report discusses work completed in 2021 on the "BIG COPPER" mineral claim.

As shown on figure 2 below, the Enterprise crown grant is still active and not owned by Rokmaster Resources. The district lot number is L.3559 and the crown grant number is 1697/121.

Table 1: *Big Copper Property Mineral Claims*

Tenure Number	Claim Name	Owner	Issue Date	Hectares
1065350	BIG COPPER	Jack Norman Denny	December 31, 2018	208.7
1089016	BC2	Bob Ian Denny	January 20, 2022	125.3
				333.9


0
1,000
2,000
4,000
Meters
1:50,000
N
ROKMASTER RESOURCES CORP.
Figure 2: Big Copper Property Tenure
February 2022
NAD83 11N
SERV
BRACEBRIDGE
1065350
GREAT DANE (L.5285)
Eagle Plains Resources
K9 Property
WELCOME & ENTERPRISE
1089016
DLP Resources
Hungry Creek Property
SAWYER
BC Minfile
Enterprise Crown Grant
Big Copper Property Outline
Big Copper Property Claims
Other Mineral Claims
DLP Resources
Eagle Plains Resources
5516000
5514000
5512000
5510000
5508000
530000
532000
534000
536000
538000
540000
542000

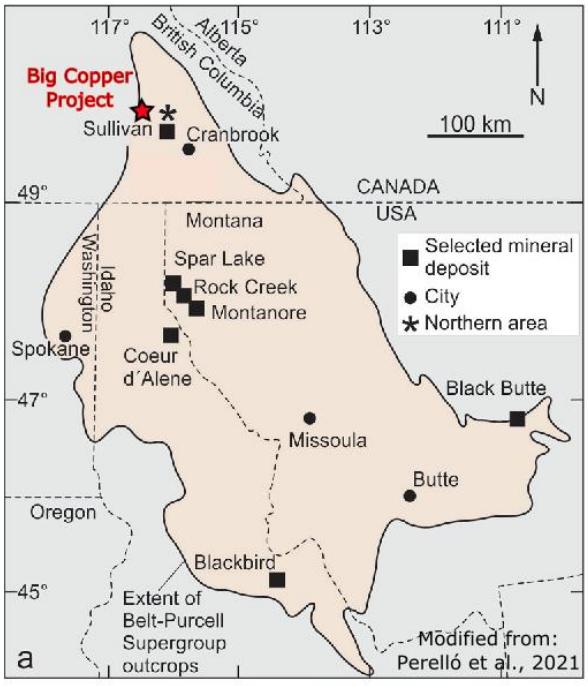
2 Geology

The Big Copper Property is underlain by rocks of the Purcell Supergroup, a group of mid-Proterozoic clastic sediments, gabbro-diorite intrusive sills and dykes, and flood basalts. The Property is located along the western limb of the Purcell Anticlinorium, a broad northerly dipping fold.

Mapping by the Geological survey of Canada (shown in figure 4 below) indicates that the rocks on the Big Copper Property are within the Neoproterozoic Lower Kitchener Formation (formally Coppery Creek Group) which is comprised of green and beige siltstone, dark grey argillite, and dolomitic siltstone.

Historical and current observations suggest that quartzite rocks on the Property may represent a transitional contact with the underlying Creston Formation. The Creston formation is correlative with the Revett Formation which hosts several large copper-silver deposits and undeveloped occurrences in northern Montana and Idaho, including the Spar Lake, Montanore, and Rock Creek deposits (Figure 3). Like the large sediment hosted copper deposits in the Revett formation, the Big Copper Property is unusual in that it hosts both copper and silver at significant levels.

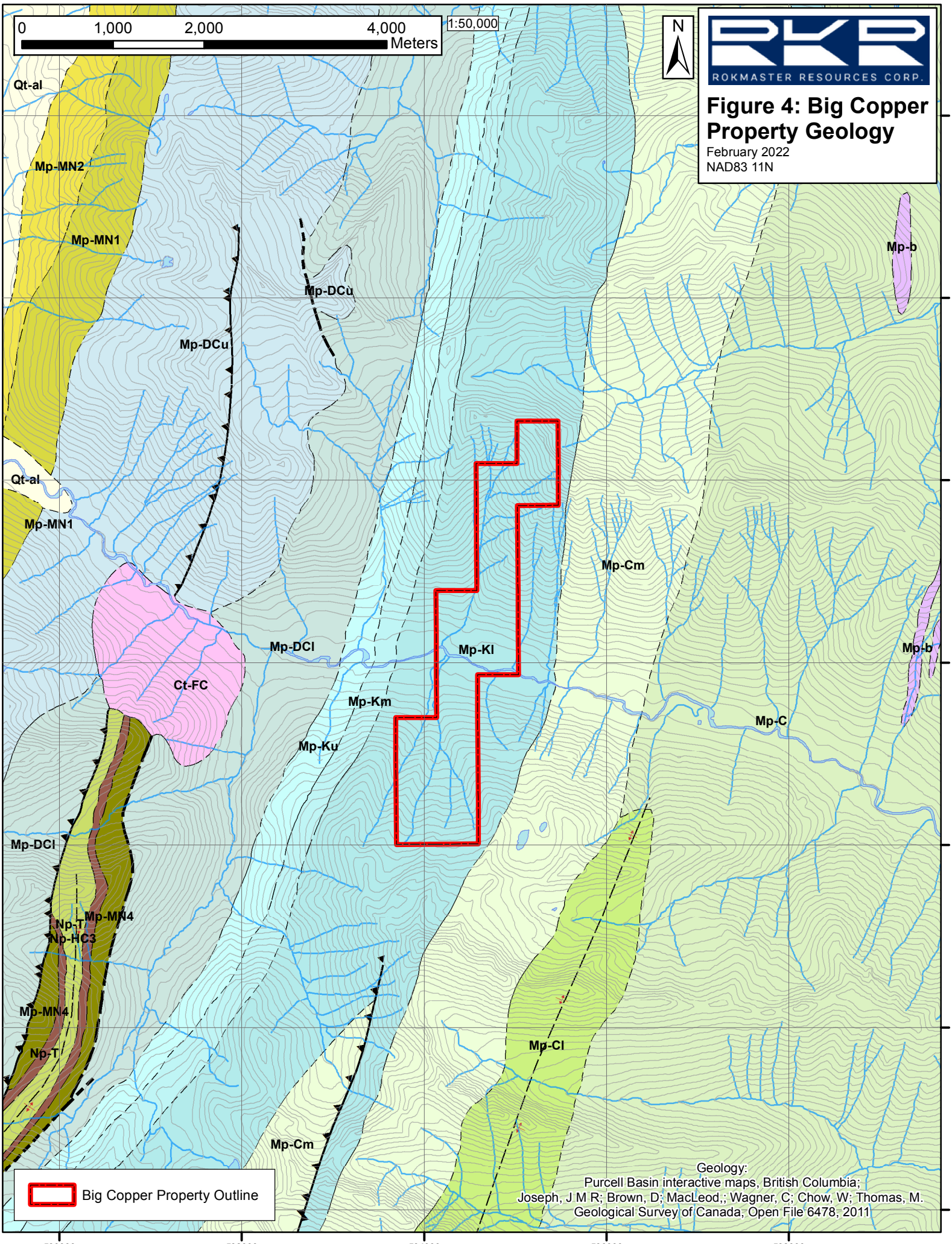
Figure 3: *Big Copper Regional Geology*



Mineralization at the Big Copper Property has two dominant styles including:

1. Disseminated chalcopyrite-pyrite grains forming parallel to the dominant foliation and locally forming discrete sulphide bands.
2. Clotted chalcopyrite grains hosted within bedding parallel, deformed quartz-siderite veins

Mineralization is proximal from the transition from bright green, chlorite rich sediments to thin bedded yellow-cream quartz rich sediments. This color change may represent the change from reduced to oxidized fluids, a common signature of mineralization at sediment hosted copper deposits.


0 1,000 2,000 4,000 Meters
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ROKMASTER RESOURCES CORP.
Figure 4: Big Copper Property Geology
February 2022
NAD83 11N
Qt-al
Mp-MN2
Mp-MN1
Mp-DCù
Mp-DCu
Mp-b
Qt-al
Mp-MN1
Mp-Cm
Mp-DCl
Mp-Kl
Ct-FC
Mp-Km
Mp-Ku
Mp-C
Mp-b
Mp-DCl
Np-T
Mp-MN4
Np-HC3
Mp-MN4
Np-T
Mp-Cl
Mp-Cm
Big Copper Property Outline
Geology:
Purcell Basin interactive maps, British Columbia;
Joseph, J M R; Brown, D; MacLeod,; Wagner, C; Chow, W; Thomas, M.
Geological Survey of Canada, Open File 6478, 2011
5518000
5516000
5514000
5512000
5510000
5508000
5506000
530000
532000
534000
536000
538000


ECt-WC1 - WHITE CREEK BATHOLITH: Biotite-epidote granodiorite.


ECt-WC2 - WHITE CREEK BATHOLITH: Hornblende granodiorite.


ECt-WC3 - WHITE CREEK BATHOLITH: Biotite monzogranite with megacrysts of potassium feldspar; aplite and pegmatite.


ECt-WC4 - WHITE CREEK BATHOLITH: Biotite -muscovite leucomonzogranite.


ECt-WC5 - WHITE CREEK BATHOLITH: Biotite monzogranite.


Jr-ub - Ultramafic rocks, serpentinized peridotite.

Mp-Al - ALDRIDGE FORMATION: LOWER: rusty brown weathering, thin- to medium-bedded, quartz wacke, quartz arenite.

Mp-Am - ALDRIDGE FORMATION: MIDDLE grey to rusty weathering, thick- to thin-bedded, quartzofeldspathic wacke, intercalated argillite and siltite,


Mp-Au - ALDRIDGE FORMATION: UPPER: rusty brown weathering, grey to dark grey, fissile to platy, laminated silty argillite and siltite.

Mp-C - light grey, mauve, or green siltstone and argillite;thin to medium-bedded quartz arenite, quartz wacke;lenticular bedding, ripples,cross-bedding, and mudcracks occur locally.

Mp-Cl - CRESTON FORMATION: LOWER: waxy-green to olive, tan-weathering, thin to thick-bedded to laminated argillite and siltstone; lesser fine-grained quartz wacke; wavy bedding and abundant mudcracks

Mp-Clmc - CRESTON FORMATION: Mud-cracked member

Mp-Cm - CRESTON FORMATION: MIDDLE: light grey, mauve, or purple, thin to medium-bedded quartz arenite; quartz wacke; lesser grey siltstone and argillite; white quartzite interbeds; lenticular bedding, ripples, cross-bedding, and mudcracks occur locally.

Mp-K - KITCHENER FORMATION: Undivided meta-sedimentary rocks: thin-bedded, brown-weathering dolomitic silt stone and green argillite.

Mp-Kl - KITCHENER FORMATION: LOWER: green and beige siltstone, dark grey argillite; dolomitic siltstone.

Mp-Km - KITCHENER FORMATION: MIDDLE: commonly buff-weathering dolomitic siltstone, dolomitic argillite, and dolomite; argillite, siltstone, quartzite; green tinged dolomitic siltstone near base.

Mp-Ku - KITCHENER FORMATION: UPPER: thin- to thick-bedded, white to grey dolomite, with interbedded white quartzite.


Mp-M - MOYIE INTRUSTIONS: "Moyie sills": dark-green to black, medium to fine-grained gabbro and hornblende quartz diorite sills and dikes; several to hundreds of metres thick.


Mp-b - Post-Moyie Instrusions:(nicol creek feeders?) Mafic sills and rare dikes hosted in Kitchener Formation. Olive green, massive to plagioclase porphyritic.

Qt-al - Unconsolidated sediments: alluvium; colluvium; diamictite

Contact Approx; Dikes Dash

Contact_Assumed; Dikes

Contact Defined; Sill Solid

Contact Quaternary

Contact Subdivided

Fault Approximate


Fault Normal Approximate

Fault Normal Defined

Fault_Reverse App; Fault Thrust

Fault_Reverse Assumed

Fault Thrust Defined

Folds

Anticline Approximate

Syncline defined

Purcell Basin interactive maps, British Columbia;
Joseph, J M R; Brown, D; MacLeod,; Wagner, C; Chow, W; Thomas, M.
Geological Survey of Canada, Open File 6478, 2011

3 Historical Technical Work

3.1 Government Mapping and Surveys

The Geological Survey of Canada (“GSC”) have completed geological mapping and research at various scales in the Big Copper Property area:

- Between 1938 and 1940, Rice completed a 1:253,440 scale geological map and accompanying report of the geology between Kaslo and Creston for the Geological Survey of Canada (Rice, 1938, 1940).
- In 1996, Ressor published a 1:100,000 scale geological map of the area east of Kootenay Lake (Reesor, 1996). This mapping was largely used for the digital compilation described below and shown on figure 4.
- In 2011, Joseph et al. (2011) compiled the geological mapping of the Purcell Basin to create a series of digital GIS files.

3.2 Historical Exploration

As the Big Copper Property is in the vicinity of the Sullivan Mine, which operated for nearly 100 years, there has been repeated exploration efforts focused on the outcropping copper-sulphide mineralization on the Property. The following chronological summary is largely sourced from assessment reports contained in the BC Ministry of Energy, Mines, and Petroleum Resources' Assessment Report Database ("ARIS").

Likely built prior to the 1950's, five adits are known on the south side of the St. Mary River and 2 old adits exist on the north side of the River.

In 1976, Meridian Resources completed an EM survey and a program of geological mapping, including detailed mapping of the historical trenches, on the Big Copper Property (ARIS #6206). The report provides a good account, and map, of the historical work that was completed prior to assessment reporting and documents that:

In 1965, Cominco collared 5 diamond drill holes at an elevation of approximately 1,830 m on the north side of the Saint Mary River. Four out of the five drillholes cored significant copper mineralization; significantly silver was not assayed for.

DDH 1A: 4.4 m of 3.30% Cu (within 29.7 m of 1.40% Cu).
DDH 3: 4.1 m of 1.20% Cu.
DDH 4: 3.0 m of 0.20% Cu.
DDH 5. 1.5 m of 1.60% Cu.

In 1967, Pharaoh Mines completed four percussion drillholes targeted the Big Copper mineralized zone at an elevation of 1,370 m, also on the north side of the Saint Mary River, cut:
Drillhole S1: 12.2 m of 0.92% Cu and 6.2 g/t Ag.
Drillhole S2: 9.1 m of 0.57% Cu and 3.4 g/t Ag.
Drillhole S3: 9.1 m of 0.19% Cu and trace Ag.
Drillhole S4: 9.1 m of 0.85% Cu and 12.0 g/t Ag

It is noted that the above drilling intercepts are likely not true widths of mineralization and the original report(s) have not been sourced. The 1976 report also records geochemical results for

numerous trenches. Many of the trenches north of the river returned meter-scale intervals of strong copper and silver mineralization. Samples from the 4600 level adit south of the River returned 2.1 m of 1.69 % Cu and 1.70 oz/t Ag. The location of these trenches and drillholes are shown in figure 6 below.

In 1985, two shallow diamond drillholes were completed north of the St. Mary River at ~4,400' by Deck, Kuntz, and Jackson (ARIS #14750). Issues with equipment precluded access and drilling and although sulphide mineralization is reported, no results are available.

In 1988, South Kootenay Goldfields had D. Jackson complete prospecting, apparently with a focus for galena mineralization, on the Big Copper Property (ARIS #18258). Five rock samples were collected south of the St. Mary River and returned anomalous copper (3.29 % Cu) and silver (13.96 oz/t Ag) results.

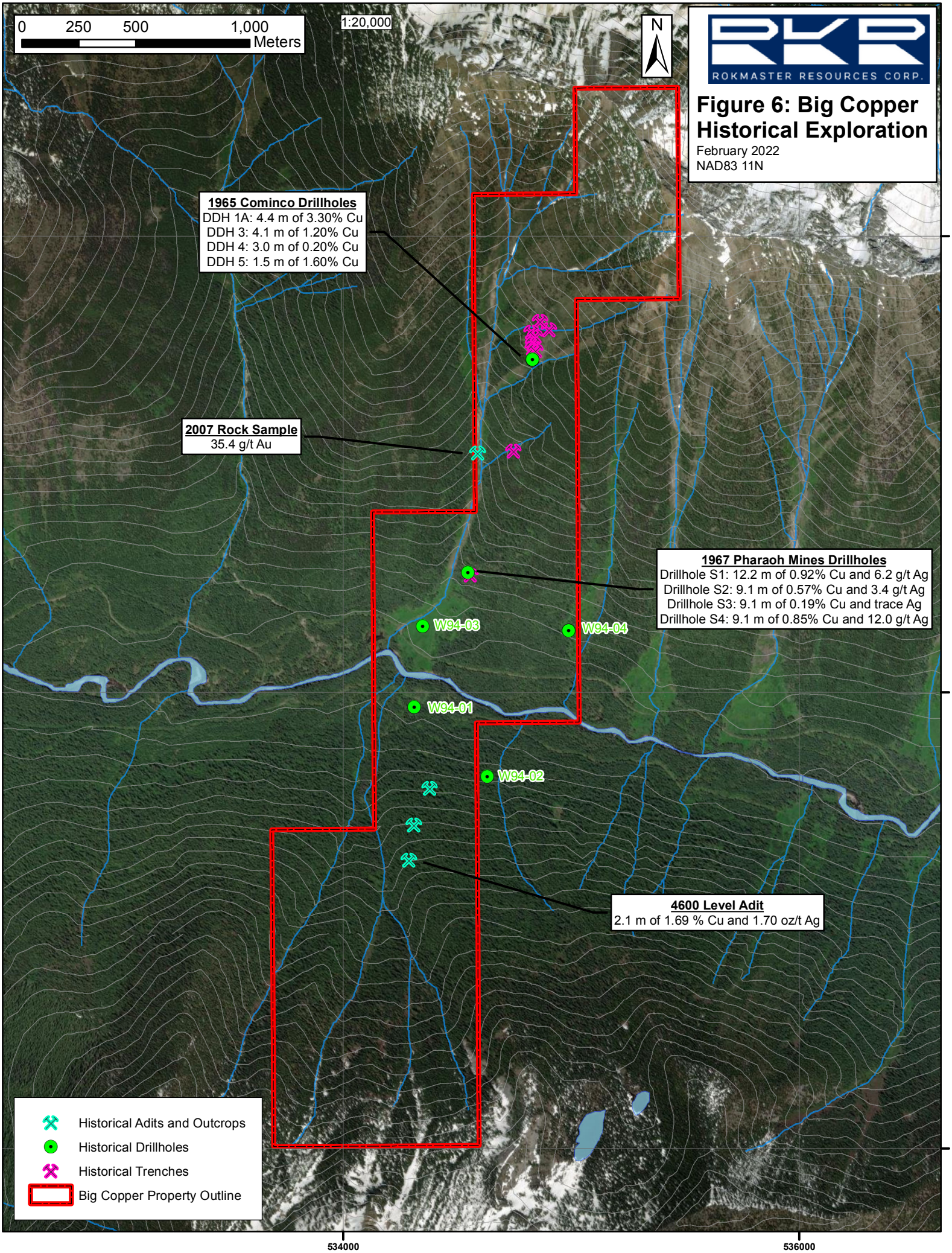
In 1990, a small VLF-EM and magnetic survey was completed on the lower slopes north of the St, Mary River (ARIS #20515). Conductive and magnetic anomalies were detected as a result of the limited survey.

In 1994, Pacific Mariner Explorations completed a VLF-EM and magnetometer survey and limited soil sampling on the Property, south of the St. Mary River (ARIS #23605). Anomalies in both geophysical methods were detected, and soils anomalous in lead, zinc, and copper were described to be spatially related to magnetic linear features.

In 1995, Abitibi Mining collared four drillholes near the St. Mary River, with two each on both the north and south side of the River (ARIS #24268). A total of 306.3 m of NQ core was drilled in four drillholes. Sheared sediments and minor disseminated pyrite and chalcopyrite were described and no samples were taken for assay.

In 2007, Ruby Red Resources completed a prospecting program on the Property collecting 27 rock samples from north of the St. Mary River (ARIS #30297). Many samples from old workings and showings returned >1.0 % copper with related elevations in silver, lead, and zinc. Notably, a sample of a 15 cm quartz vein hosting chalcopyrite and pyrite returned 35.4 g/t Au (Figure 6).

In 2012, Jack Denny completed a program of soil and rock sampling on the Big Copper Property (ARIS #33347). Rock samples collected from the Bracebridge area north of the River returned up to 3.175 % Cu and a mineralized shear south of the River returned 1.026 % Cu.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Meters
1:20,000
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ROKMASTER RESOURCES CORP.
Figure 6: Big Copper Historical Exploration
February 2022
NAD83 11N
1965 Cominco Drillholes
DDH 1A: 4.4 m of 3.30% Cu
DDH 3: 4.1 m of 1.20% Cu
DDH 4: 3.0 m of 0.20% Cu
DDH 5: 1.5 m of 1.60% Cu
2007 Rock Sample
35.4 g/t Au
1967 Pharaoh Mines Drillholes
Drillhole S1: 12.2 m of 0.92% Cu and 6.2 g/t Ag
Drillhole S2: 9.1 m of 0.57% Cu and 3.4 g/t Ag
Drillhole S3: 9.1 m of 0.19% Cu and trace Ag
Drillhole S4: 9.1 m of 0.85% Cu and 12.0 g/t Ag
W94-03
W94-04
W94-01
W94-02
4600 Level Adit
2.1 m of 1.69 % Cu and 1.70 oz/t Ag
Historical Adits and Outcrops
Historical Drillholes
Historical Trenches
Big Copper Property Outline
5514000
5512000
5510000
534000
536000

4 2021 Exploration Program

On September 3, 2021, a Rokmaster Resources geologist and three prospectors spent the day prospecting on the Big Copper Property. Access to the Property was achieved by a helicopter that was being used to support concurrent exploration on Rokmaster Resources' Revel Ridge Property. A total of 7 rock samples and 5 petrography samples were collected from the Property to verify the historical results and to investigate the mineral assemblage of the copper-silver mineralization and related alteration.

Rock samples were collected with notes of the lithology, alteration, and mineralization with available structural information. The strike and dip measurements in section 4.1 below follow the right hand convention where the strike is measured with the dip direction at 90° to the strike azimuth (strike°/dip°). The rock samples are grab and continuous chip samples representative of the mineralization observed, table 2 below specifies each sample. All rock samples were subject to preparation of crushing to 70% passing 2 mm, splitting 500 g, then pulverizing to 85% passing 75µm (MSA Labs Code: PRP-915). Geochemical analysis was by 50 gram fire assay with AAS finish (MSA Labs Code: FAS-221) and four acid digestion with ICP-AES finish for 30 elements (MSA Labs Code: ICP-240). Standard reference material samples were inserted sporadically throughout the sample sequence and these all passed within a three standard deviation threshold of the expected value.

The petrography samples were prepared to 30 micron polished thin sections at Precision Petrography of Langley. The thin sections were described by Krisztina Pandur of First Geolas Consulting using a Leica DM2700P petrographic microscope in February 2022.

4.1 Rock Sample Geochemistry

All seven rock samples collected on the Big Copper Property in 2021 returned anomalous copper and silver concentrations. The 2021 sampling was largely focused in the Bracebridge area, near the 1965 Cominco drillholes, in the northern portion of the Property. There, quartz-siderite veins hosting chalcopyrite and malachite mineralization are found hosted in strongly sericite-altered quartzite. The quartzite notably hosts trace disseminated chalcopyrite over significant widths, as indicated by sample P304018 which is a 1.10 m continuous chip sample that returned 0.88 % Cu and 34 g/t Ag. The veins are parallel to strongly developed foliation which is oriented 018°/35°.

Another two grab samples from the Bracebridge area, samples P310220 and P304022, assayed up to 12.56 % Cu and 147 g/t Ag. Highly oxidized decimeter-scale quartz-siderite-pyrite-chalcopyrite veins are found hosted in an approximately 60 m wide deformation zone.

Approximately 950 meters south of the Bracebridge area, samples P304019 and P304020 returned up to 2.93 % Cu and 128 g/t Ag. There, quartz-siderite chalcopyrite veins are hosted in sericite-altered phyllite. The veining is conformable to the strongly developed foliation, which has an attitude of 314°/68°.

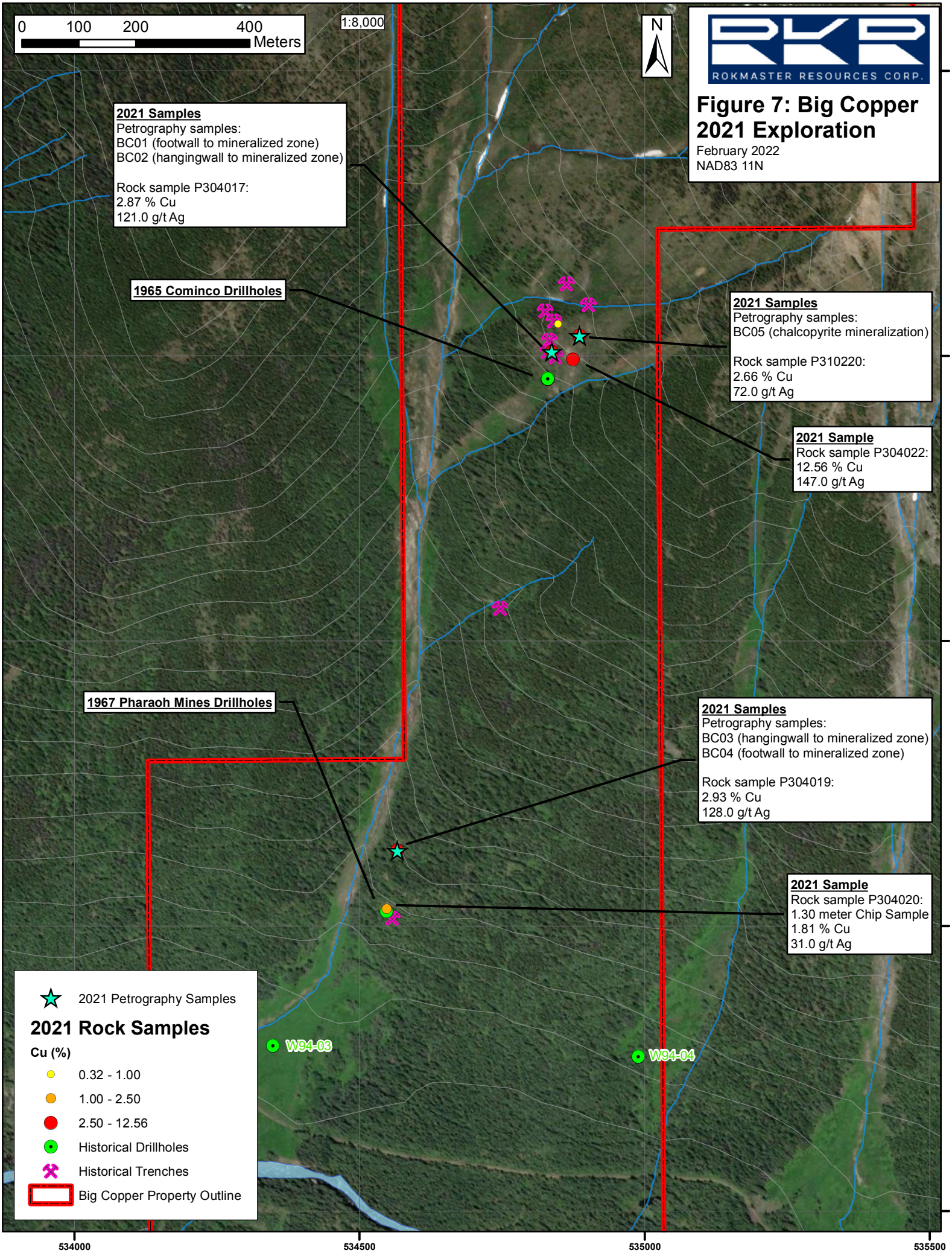
Galena was not identified in the 2021 field work and the low lead results in this limited sample set suggests that galena is not a significant host for the high silver assay results. Silver mineralization in the sediment-hosted copper deposit model may be partitioned in bornite (Perelló et al., 2021).

Notably, the 2021 rock sample geochemical results contain elevated gold assay values. The anomalous gold, up to 0.35 g/t Au, within the copper-silver mineralization on the Big Copper Property is intriguing and has been reported to be correlated to copper mineralization in other sediment-hosted copper occurrences in Creston Formation correlative rocks (Perelló et al., 2021).

Table 2 and figure 7 below exhibit the samples that were collected in 2021:

Table 2: *2021 Rock Samples*

Sample	Type	Easting	Northing	Cu %	Ag g/t	Au g/t	Pb %	Zn %
P304017	Grab	534837	5513508	**2.87**	**121.00**	**0.26**	0.01	0.05
P304018	1.1 m Chip	534837	5513508	0.88	34.00	0.14	0.01	0.02
P304019	Grab	534566	5512633	**2.93**	**128.00**	0.19	0.01	0.05
P304020	1.3 m Chip	534548	5512530	**1.81**	**31.00**	0.08	0.01	0.01
P304021	Grab	534848	5513556	0.32	7.00	0.02	0.01	0.01
P304022	Grab	534874	5513494	**12.56**	**147.00**	**0.35**	0.01	0.08
P310220	Grab	534886	5513536	**2.66**	**72.00**	0.13	0.02	0.04


0 100 200 400 Meters
1:8,000
N
ROKMASTER RESOURCES CORP.
Figure 7: Big Copper 2021 Exploration
February 2022
NAD83 11N
2021 Samples
Petrography samples:
BC01 (footwall to mineralized zone)
BC02 (hangingwall to mineralized zone)
Rock sample P304017:
2.87 % Cu
121.0 g/t Ag
1965 Cominco Drillholes
2021 Samples
Petrography samples:
BC05 (chalcopyrite mineralization)
Rock sample P310220:
2.66 % Cu
72.0 g/t Ag
2021 Sample
Rock sample P304022:
12.56 % Cu
147.0 g/t Ag
1967 Pharaoh Mines Drillholes
2021 Samples
Petrography samples:
BC03 (hangingwall to mineralized zone)
BC04 (footwall to mineralized zone)
Rock sample P304019:
2.93 % Cu
128.0 g/t Ag
2021 Sample
Rock sample P304020:
1.30 meter Chip Sample
1.81 % Cu
31.0 g/t Ag
W94-03
W94-04
2021 Petrography Samples
2021 Rock Samples
Cu (%)
0.32 - 1.00
1.00 - 2.50
2.50 - 12.56
Historical Drillholes
Historical Trenches
Big Copper Property Outline
5514000
5513500
5513000
5512500
5512000
534000
534500
535000
535500

4.2 Petrography

Five samples were collected during the 2021 summer field program on the Big Copper Property for petrographic analysis. Two samples capture the deformed host rocks in the footwall and hanging wall (BC_01 and BC_02, respectively) of a strongly oxidized sulphide rich vein in the vicinity of the historical collar locations of the 1965 Cominco drillholes. Two samples were collected from the hanging wall and footwall (BC_03 and BC_04, respectively) of a strongly mineralized quartz-siderite vein near the 1967 Pharaoh Mines drillhole collar locations. One mineralized grab sample (BC_05) was collected from an old trench hosting siderite and chalcopyrite in an approximately 60 m wide shear zone NE of samples BC_01 and BC_02. Given the limited amount of samples examined, the following summary is to be considered a preliminary look at the host rocks and mineralization at the Big Copper Property. The following paragraphs contain a summary of the lithological features, microstructures, as well as the observed alteration and mineralization characteristics, followed by detailed descriptions for each thin section. Each petrographic description is followed by several photomicrographs (referred to and explained in the description text), where “PPL” denotes plane polarized light image in transmitted light, “XPL” denotes cross polarized light image in transmitted light, and “REF” denotes plane polarized light image in transmitted light.

Three out of four host rock samples (BC_01, BC_02, BC_03) capture strongly deformed, sheared and folded mica schist. Samples BC_01 and BC_02 are of quartz-muscovite-chlorite schist and sample BC_03 is of quartz-muscovite schist. These samples consist dominantly of quartz and muscovite, with BC_01 and BC_02 also containing lesser chlorite. Trace disseminated apatite, titanite, zircon and tourmaline crystals were observed in the mica schist samples. Siderite is observed throughout BC_02 and BC_03, and appears to be an interstitial, vug filling phase. Calcite is present in sample BC_03, mostly altered to limonite. Limonite and some residual hematite (mostly altered to limonite) is common in the mica schist samples, commonly forming irregular and discontinuous bands along foliation. Limonite alteration is strongly associated with calcite crystals in the samples, and the alteration is controlled by fractures and cleavage planes. Sample BC_03 contains disseminated illmenite and pyrrhotite crystals. Sample BC_04 captures weakly deformed quartzite with abundant calcite rich patches and strong limonite alteration.

Sample BC_05 captures strongly gossaneous, limonite altered carbonate-quartz vein, hosting abundant chalcopyrite. The quartz rich portion of the vein brecciates the calcite crystals in this

sample. Chalcopyrite crystals are concentrated along the contact of the quartz and calcite rich portions of the sample, and also occur along fractures and cleavage planes within calcite. Trace pyrite, pyrrhotite, and covellite were also encountered in this sample, with the latter concentrated in the vicinity of chalcopyrite crystals. The sample shows strong limonite alteration. Rare disseminated sphalerite and chalcopyrite are also present in the quartzite host rock in sample BC_04.

All of the thin section samples display significant deformation. The quartz and calcite crystals, particularly in the mineralized sample (BC_05) and also in the quartzite sample (BC_04) display several deformation microstructures (undulose extinction, deformation lamellae, sutured grain boundaries, etc.), whereas the muscovite crystals in the mica schist samples display strong crenulation cleavage. Chlorite appears to form along foliation in some of the samples, however most of the chlorite crystals show orientations unrelated to the foliation. Most observed σ-type mantled quartz porphyroclasts and muscovite and chlorite σ-clasts show displacement in the sinistral sense in the samples.

5 Conclusions and Recommendations

A small program to collect rock samples for geochemical and petrographic analysis was completed on the Big Copper Property in 2021. The work was successful in verifying historical results of high grade copper and silver in multiple locations on the Property. Rock samples collected in 2021 that are separated by approximately 950 meters returned >2.0 % copper and >120.0 g/t silver. Over the same distance, drilling in 1965 and 1967 intersected meter-scale intervals of strong copper-silver mineralization that has not been subject to significant follow-up work. If the 4600 Level Adit south of the St.Mary River is included, then significant copper-silver mineralization may be followed over a strike length of approximately 2,400 meters.

The limited petrographic work shows strong deformation and limonite- and chlorite-alteration in the samples that were collected adjacent to mineralization. A sample of chalcopyrite mineralization shows that chalcopyrite crystals are concentrated along the contact of the quartz and calcite rich portions of the sample, and also occur along fractures and cleavage planes within calcite. Trace pyrite, pyrrhotite, and covellite were also encountered in this sample, with the latter concentrated in the vicinity of chalcopyrite crystals. In sediment-hosted copper deposits, covellite typically occurs in the transition zone between oxidized and reduced sediments (Cox et al., 2007).

Further prospecting on the Big Copper Property, on both sides of the St, Mary River, is recommended to relocate the trenching and adits shown in the 1967 map (Holcapek, 1967). Geological mapping is also recommended to either confirm or reassess the mapping done by the GSC that shows the Property is entirely underlain by the Lower Kitchener Formation (Joseph et al., 2011 and Ressor, 1996). There has been essentially no soil sampling on the Big Copper Property which may help to track the mineralized deformation zone over areas of limited outcrop exposure. Further petrography samples of mineralized outcrops and veins is recommended to gain insight into the host sulphide for the silver mineralization, and may help to determine zonation in the redox front through sulphide and alteration assemblages.

References

Cox, D.P., Lindsey, D.A., Singer, D.A. and Diggles, M.F., 2007. Sediment-hosted copper deposits of the world: Deposit models and database (pp. 03-107). Reston, VA, USA: US Department of the Interior, US Geological Survey.

Joseph, J M R; Brown, D; MacLeod, ; Wagner, C; Chow, W; Thomas, M; 2011. Purcell Basin interactive maps, British Columbia. Geological Survey of Canada, Open File 6478.

Perelló, J., Clifford, J.A., Wilson, A.J., Kennedy, S., Creaser, R.A. and Valencia, V.A., 2021. On the timing and metallogenic implications of the sediment-hosted stratiform copper–silver mineralization in the Creston Formation (Belt-Purcell Supergroup), British Columbia, Canada. Ore Geology Reviews, 131, p.104032.

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Rice, H. M. A. 1938. East Half Nelson map area, British Columbia. Geological Survey of Canada, Paper 38-17.

Rice, H. M. A. 1940. Nelson, East Half, Kootenay District, British Columbia. Geological Survey of Canada, "A" Series Map 603A.

ARIS Report	Year	Report Title	Operator	Author	Cost of Work (2002 dollars)
6206	1976	Geological and Geophysical Report on The Brace Bridge Property, Kimberley Area	Meridian Res.	Holcapek, F.	$48,701.59
14750	1985	Drilling Report on the Breacebridge Group	Jackson, Donald C.	Jackson, Donald C.	$8,382.31
18258	1988	Mineral Assessment Report on the Enterprise Property	South Kootenay Goldfields Inc.	MacDonald, E.D.	$5,617.98
20515	1990	Geophysical Report on the Bracebridge Property	Jackson, Donald C.	Klewchuk, Peter	$2,506.38
23605	1994	Geochemical and Geophysical Report on the Lill, Welcome CG, Surprize, and Dream Claims	Pacific Mariner Explorations Ltd.	Rodgers, Glen M. (FMC#123054)	$4,078.21
24268	1995	Diamond Drilling Report Welcome Property	Pacific Mariner Explorations Ltd.	Rodgers, Glen M. (FMC#123054)	$20,021.65
30297	2007	Geochemical Report on the Bracebridge Property	Ruby Red Resources Inc.	Kennedy, Sean J. (FMC # 142365)	$3,352.63
33347	2012	Big Copper 2012 Prospecting and Geochemistry Report	Rockmaster Resources Corp.	Denny, Jack; Igreda, Luis	$12,026.01

Statements of Qualifications

Statement of Qualifications

I, Connor Malek do hereby certify that:

1. I am currently working with First Geolas Consulting under the business address:

   P.O Box 2600
   Chilliwack, British Columbia
   V2R 1A8

2. I am a graduate of the University of Saskatchewan with the degree of Bachelor of Science (high honors) in Geology (2015).

3. I have worked as a geologist continuously since my graduation on my own properties and for many resource exploration companies on a variety of commodities and deposit types.

4. I participated in and completed field work during the 2021 exploration programs on the Big Copper Property

5. This report, authored by myself, is based on personal examination of all available company and government reports pertinent to the Big Copper Property.

Dated this 17th Day of February, 2022, in Chilliwack, British Columbia.

SIGNATURE:

Connor W. Malek, B.Sc.

Appendices

Appendix A: Cost Statement

Big Copper Property 2021 Cost Statement

Exploration Work Type	Details	Days	Rate	Subtotal
Personnel- Field Work				
Rokmaster Resources - Geologist	September 3, 2021	1	$650.00	$650.00
Rokmaster Resources - Prospector	September 3, 2021	1	$460.00	$430.00
Rokmaster Resources - Prospector	September 3, 2021	1	$350.00	$350.00
Rokmaster Resources - Prospector	September 3, 2021	1	$350.00	$350.00
Geochemical				
MSA Labs	Rock Samples (total of 7 samples)			$210.00
First Geolas Consulting	Preparation and description of petrographic samples (total of 5 samples)			$1,750.00
Rentals, Consumables, Travel, Accommodation				
Interior Helicopters	2.5 hours of helicopter use (incl. fuel) for access			$5,500.00
Rokmaster Resources	Accommodation in Revelstoke - Sept 3, 2021			$400.00
Rokmaster Resources	Food - Sept 3, 2021			$200.00
Office Studies/Logistics				
First Geolas Consulting	Assessment Report Writing	3	$400.00	$1,200.00
Total Expenditures				$11,040.00

Appendix B: Large Format Maps

ROKMASTER RESOURCES CORP.

Appendix B: Big Copper 2021 Samples

February 2022

NAD83 11N

N

1:2,000

0 100 200 400 Meters

2021 Rock Samples (Ag ppm)

Big Copper Property Outline

7

72

12134

147

128

31

534200 534400 534600 534800 535000 535200

5513800 5513600 5513400 5513200 5513000 5512800 5512600 5512400 5512200

ROKMASTER RESOURCES CORP.

Appendix B: Big Copper 2021 Samples

February 2022

NAD83 11N

N

1:2,000

0 100 200 400 Meters

2021 Rock Samples (Cu %)

Big Copper Property Outline

0.317

2.659

2.8670.876

12.559

2.927

1.81

534200 534400 534600 534800 535000 535200

5513800 5513600 5513400 5513200 5513000 5512800 5512600 5512400 5512200

ROKMASTER RESOURCES CORP.

Appendix B: Big Copper 2021 Samples

February 2022

NAD83 11N

N

1:2,000

0 100 200 400 Meters

2021 Petrography Samples

2021 Rock Samples

Big Copper Property Outline

P304021

BC05 P310220

P304017 P304018

BC01+BC02

P304022

BC03+BC04 P304019

P304020

534200 534400 534600 534800 535000 535200

5513800 5513600 5513400 5513200 5513000 5512800 5512600 5512400 5512200

Appendix C: Sample Data

Big Copper 2021 Rock Samples

Sample	Notes	Easting	Northing	Au_ppm	Ag_ppm	Pb_pct	Zn_pct	Al_pct	As_pct	Ba_pct	Be_pct	Bi_pct	Ca_pct	Cd_pct	Co_pct	Cr_pct	Cu_pct	Fe_pct	K_pct	La_pct	Li_pct	Mg_pct	Mn_pct	Mo_pct	Na_pct	Ni_pct	P_pct	S_pct	Sb_pct	Sr_pct	Ti_pct	Tl_pct	V_pct	W_pct
P304017	Strongly oxidized sulphide-rich vein with remnant cpy, strong malachite; approximately 10cm wide; part of a sequence of tightly folded qtz-sericite rock with weak diss cpy and at least 1 other narrow strongly malachite stained zone; sulphide veins are foliation parallel; S1: 018/35E	534837.000000	5513508.000000	0.260000	121.000000	0.005000	0.050000	1.380000	0.002500	0.005000	0.000500	0.012000	0.025000	0.000500	0.004000	0.003000	2.867000	23.120000	0.500000	0.002500	0.002500	0.100000	0.300000	0.000500	0.025000	0.006000	0.010000	2.040000	0.002500	0.005000	0.060000	0.002500	0.001000	0.005000
P304018	1.1m chip across zone as noted above;	534837.000000	5513508.000000	0.140000	34.000000	0.005000	0.020000	4.370000	0.002500	0.019000	0.000500	0.002500	0.100000	0.000500	0.003000	0.004000	0.876000	11.480000	2.100000	0.002500	0.002500	0.290000	0.360000	0.000500	0.200000	0.004000	0.030000	0.440000	0.002500	0.005000	0.220000	0.002500	0.004000	0.005000
P304019	Cleared out old hole with strongly mineralized qtz-siderite vein; 3-4% visible cpy, malachite;	534566.000000	5512633.000000	0.190000	128.000000	0.005000	0.050000	1.030000	0.002500	0.005000	0.000500	0.008000	0.370000	0.000500	0.004000	0.003000	2.927000	7.360000	0.500000	0.002500	0.002500	0.025000	0.140000	0.000500	0.025000	0.003000	0.005000	0.860000	0.002500	0.005000	0.025000	0.002500	0.001000	0.005000
P304020	large opening with old cat trenching; large face of deformed sediments; 1.3m chip across strong malachite stained sediments (qtz-sericite phyllites with narrow discontinuous qtz-siderite-cpy veins; S1: 314/68NE; veining conformable with foliation;	534548.000000	5512530.000000	0.080000	31.000000	0.005000	0.010000	4.980000	0.002500	0.028000	0.000500	0.006000	0.130000	0.000500	0.003000	0.004000	1.810000	4.360000	2.800000	0.002500	0.002500	0.170000	0.170000	0.000500	0.280000	0.002000	0.030000	1.430000	0.002500	0.005000	0.200000	0.002500	0.004000	0.005000
P304021	partially oxidized qtz-siderite-cp-py vein; 0.5% dis cpy; 10cm wide; in situ;	534848.000000	5513556.000000	0.020000	7.000000	0.005000	0.010000	0.940000	0.002500	0.002000	0.000500	0.002500	3.140000	0.000500	0.003000	0.002000	0.317000	13.130000	0.100000	0.002500	0.002500	0.460000	1.150000	0.000500	0.025000	0.002000	0.005000	0.200000	0.002500	0.005000	0.025000	0.002500	0.001000	0.005000
P304022	15-20cm wide insitu qtz-siderite-cp vein; strong malachite, 10-12% cp; partially oxidized;	534874.000000	5513494.000000	0.350000	147.000000	0.010000	0.080000	0.180000	0.002500	0.000500	0.000500	0.002500	0.160000	0.000500	0.006000	0.002000	12.559000	18.860000	0.050000	0.002500	0.002500	0.025000	0.070000	0.000500	0.025000	0.004000	0.005000	10.100000	0.002500	0.005000	0.025000	0.002500	0.000500	0.005000
P310220	200' wide shear zone. Grab sample of siderite with chalcopyrite from old trench	534886.000000	5513536.000000	0.130000	72.000000	0.020000	0.040000	0.220000	0.002500	0.001000	0.000500	0.009000	9.010000	0.000500	0.008000	0.002000	2.659000	14.380000	0.050000	0.002500	0.002500	3.790000	0.460000	0.000500	0.025000	0.006000	0.005000	5.170000	0.002500	0.005000	0.025000	0.002500	0.000500	0.005000

Appendix D: Sample Procedures and Laboratory Certificates

DETERMINATION OF GOLD IN MINERAL SAMPLES USING FIRE ASSAY LEAD COLLECTION AND AAS OR ICP-OES FINISH

METHOD CODES: FAS-111, FAS-121, FAS-114, FAS-124, FAS-211, FAS-221, FAS-214, FAS-224
AuAg-12, AuAg-22
MET-FA1, MET-FA2

DESCRIPTION:

Received samples are dried and prepared to meet passing criteria of 85% - 75µm for rocks, drill core and similar materials, and 180µm for soils, sediments and similar sample matrices.

The homogeneous pulverized sample is weighed, mixed with flux (a blend of litharge, soda ash, borax, silica, silver and various other essential reagents), and then fused to produce a lead button. The gold-containing lead button is cupelled to remove the lead and yield a bead which contains precious metals. The bead is then digested with nitric acid and hydrochloric acid. After the digestion is complete, the solution is bulked up to volume with dilute hydrochloric acid. The final solution is analyzed either by AAS or ICP-OES.

Quantitation Limits for Elements Reported by the Fire Assay Instrumental Finish Method

Method Code	Parameter	Finish	Fusion Size (g)	Detection Limit (ppm)	Upper Quantitation Limit (ppm)
FAS-111	Au	AAS	30	0.005	10
FAS-121	Au	AAS	50	0.005	10
FAS-114	Au	ICP-OES	30	0.002	10
FAS-124	Au	ICP-OES	50	0.002	10
FAS-211	Au	AAS	30	0.01	100
FAS-221	Au	AAS	50	0.01	100
FAS-214	Au	ICP-OES	30	0.01	100
FAS-224	Au	ICP-OES	50	0.01	100
AuAg-12	Au	AAS	30	0.005	10
AuAg-22	Au	AAS	50	0.005	10
MET-FA1	Au	AAS	30	0.005	10
MET-FA2	Au	AAS	30	0.01	100

REPORTING UNITS: As noted in the table.

QUALITY CONTROL: Preparation duplicates are randomly inserted at a rate of one for every thirty samples during the sample login stage. For every analytical batch of 42 fusions, one analytical blank, two analytical duplicates, and two certified reference materials are randomly distributed. Results are evaluated prior to release of the final test report.

SAMPLE REQUIREMENTS: Sample size requested to perform analysis is 100g.

SAMPLE PREPARATION OF MINERAL SAMPLES

METHOD CODES: PRP-910, PRP-915, PRP-920, PRP-950, PRP-999

DESCRIPTION:

Preparation of drill core, rock and other mineralogical samples requires meticulous care to produce a homogeneous sub-sample for further analysis.

After a sample is received and logged into the tracking system, it must be dried prior to sample preparation. The dried sample is crushed to 70% passing 2mm, and then passed through a riffle splitter to obtain a homogenized, representative split. This sub-sample is then pulverized to 85% passing 75micron.

The preparation packages shown below encompass the basic procedures for rocks, drill core and chip samples. Sample preparation can be customized to suit client needs upon request.

Package Code	Method Description
PRP-910	Dry, crush to 2mm, split off a 250g sub-sample and pulverize to 85% passing 75micron
PRP-915	Dry, crush to 2mm, split off a 500g sub-sample and pulverize to 85% passing 75micron
PRP-920	Dry, crush to 2mm, split off a 1000g sub-sample and pulverize to 85% passing 75micron
PRP-999	Preparation package-client specification

QUALITY CONTROL: Samples are prepared with suitable blanks and/or duplicates. Results are evaluated prior to release.

SAMPLE REQUIREMENTS: Sample size requested to perform preparation step(s) is 1000g.

SAMPLE PREPARATION OF SOIL AND SEDIMENT SAMPLES

METHOD CODES: PRP-757, PSC-999

DESCRIPTION:

Preparation of soil and sediment samples requires meticulous care to produce a homogeneous sub-sample for further analysis.

After a sample is received and logged into the tracking system, it is dried prior to sample preparation. The entire soil or sediment sample is screened using a Tyler 80 mesh screen to remove larger particles, rocks, and/ or vegetative matter. Other sieve sizes are available upon client request. The oversized “plus fraction” is discarded while the undersized portion (“minus fraction”) is used for the analysis.

The preparation method for soil is based on samples of up to 500g. Samples that are excessively wet will require additional drying time prior to preparation.

Sample preparation can be customized to suit customer needs upon request.

Package Code	Method Description
PRP-757	Dry, Screen to 80 mesh, Discard Plus Fraction
PSC-999	Screening - Customer Specification

QUALITY CONTROL: Samples are prepared with suitable blanks and/or duplicates. Results are evaluated prior to release.

SAMPLE REQUIREMENTS: Sample size requested to perform preparation step(s) is 500g.

MULTI-ELEMENT DETERMINATION OF MINERAL SAMPLES USING A FOUR ACID DIGESTION AND ICP-OES FINISH

METHOD CODES: ICP-240, ICF-6xx*

DESCRIPTION:

Received samples are dried and prepared to meet passing criteria of 85% - 75µm for rocks, drill core and similar materials, and 180µm for soils, sediments and similar sample matrices.

The prepared homogeneous sample is weighed and digested using the sequential addition of hydrofluoric acid, hydrochloric acid, nitric acid and perchloric acid. Upon completion of the digestion steps, the sample is made up to volume with deionized water. This sample solution is then analyzed by Inductively Coupled Plasma-Optical Emission Spectroscopy. The quantified multi-element concentrations are reported as noted in the table below.

NOTE: Any volatilization losses occurring during digestion may result in the partial recovery of As.

Quantitation Limits for Elements Reported by the 4-Acid ICP-OES Finish Method

Element	Range	Element	Range	Element	Range
Ag	1 – 1,000 ppm	Cu	0.001 – 40 %	P	0.01 – 10 %
Al	0.05 – 30 %	Fe	0.05 – 50 %	Pb	0.01 – 20 %
As	0.005 – 10 %	K	0.1 – 30 %	S	0.05 – 10 %
Ba	0.001 – 5 %	La	0.005 – 5 %	Sb	0.005 – 5 %
Be	0.001 – 1 %	Li	0.005 – 5 %	Sr	0.01 – 10 %
Bi	0.005 – 5 %	Mg	0.05 – 50 %	Ti	0.05 – 30 %
Ca	0.05 – 50 %	Mn	0.01 – 10 %	Tl	0.005 – 1 %
Cd	0.001 – 1 %	Mo	0.001 – 5 %	V	0.001 – 10 %
Co	0.001 – 5 %	Na	0.05 – 30 %	W	0.01 – 5 %
Cr	0.001 – 10 %	Ni	0.001 – 10 %	Zn	0.01 – 40 %

REPORTING UNITS: As noted in the table.

QUALITY CONTROL: Samples are analyzed with suitable reference materials, blanks, and duplicates. Corrections are made for spectral inter-element interferences. Results are evaluated prior to release of the final test report.

SAMPLE REQUIREMENTS: Sample size requested to perform analysis is 10g.

MSALABS
Unit 1, 20120 102nd Avenue
Langley, BC V1M 4B4
Phone: +1-604-888-0875

To: **Rokmaster Resources**
1150-625 Howe Street
Vancouver, BC, V6C 2T6
Canada

TEST REPORT:	**YVR2110901**

Project Name:	Big Copper
Job Received Date:	09-Sep-2021
Job Report Date:	18-Oct-2021
Number of Samples:	7
Report Version:	Final

COMMENTS:

Test results reported relate to the tested samples only on an "as received" basis. Unless otherwise stated above, sufficient sample was received for the methods requested and all samples were received in acceptable condition. Analytical results in unsigned reports marked "provisional" are subject to change, pending final QC review and approval. The customer has not provided any information than can affect the validity of the test results. Please refer to MSALABS' Schedule of Services and Fees for our complete Terms and Conditions. Preliminary results are applicable when a portion of samples in a job is 100% completed and reported or 1 of a number of methods on the same job have been completed 100%. Results cannot change, but additional results or results for additional methods can be added.

SAMPLE PREPARATION	
METHOD CODE	DESCRIPTION
PRP-910	Dry, Crush to 70% passing 2mm, Split 250g, Pulverize to 85% passing 75µm

ANALYTICAL METHODS	
METHOD CODE	DESCRIPTION
FAS-211	Au, Fire Assay, 30g fusion, AAS, Ore Grade
ICP-240	Multi-Element, 0.2g, 4-Acid, ICP-AES, Ore Grade

Signature:

Yvette Hsi, BSc.
Laboratory Manager
MSALABS

MSALABS
Unit 1, 20120 102nd Avenue
Langley, BC V1M 4B4
Phone: +1-604-888-0875

To: **Rokmaster Resources**
1150-625 Howe Street
Vancouver, BC, V6C 2T6
Canada

TEST REPORT: YVR2110901

Project Name: Big Copper
Job Received Date: 09-Sep-2021
Job Report Date: 18-Oct-2021
Report Version: Final

Sample ID	Sample Type	PWE-100 Rec. Wt. kg 0.01	Method Analyte Units LOR	FAS-211 Au ppm 0.01	ICP-240 Ag ppm 1	ICP-240 Al % 0.05	ICP-240 As % 0.005	ICP-240 Ba % 0.001	ICP-240 Be % 0.001	ICP-240 Bi % 0.005	ICP-240 Ca % 0.05	ICP-240 Cd % 0.001
Granite Blank	QC-P-BK	--		<0.01	<1	6.34	<0.005	0.076	<0.001	<0.005	1.59	<0.001
Granite Blank	QC-P-BK	--		<0.01	<1	6.35	<0.005	0.076	<0.001	<0.005	1.59	<0.001
P304017	Rock	0.77		0.26	121	1.38	<0.005	0.005	<0.001	0.012	<0.05	<0.001
P304018	Rock	1.05		0.14	34	4.37	<0.005	0.019	<0.001	<0.005	0.10	<0.001
P304019	Rock	2.68		0.19	128	1.03	<0.005	0.005	<0.001	0.008	0.37	<0.001
P304020	Rock	3.88		0.08	31	4.98	<0.005	0.028	<0.001	0.006	0.13	<0.001
P304021	Rock	0.72		0.02	7	0.94	<0.005	0.002	<0.001	<0.005	3.14	<0.001
P304022	Rock	1.98		0.35	147	0.18	<0.005	<0.001	<0.001	<0.005	0.16	<0.001
P310220	Rock	2.02		0.13	72	0.22	<0.005	0.001	<0.001	0.009	9.01	<0.001
P310220PD	QC-PD	--		0.13	73	0.21	<0.005	0.001	<0.001	0.013	8.88	<0.001
STD BLANK					<1	<0.05	<0.005	<0.001	<0.001	<0.005	<0.05	<0.001
STD BLANK				<0.01								
STD MP-1b					50	1.49	2.309	<0.001	<0.001	0.097	2.50	0.053
STD OxD167				0.47								

***Please refer to the cover page for comments regarding this test report. ***

MSALABS
Unit 1, 20120 102nd Avenue
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Phone: +1-604-888-0875

To: **Rokmaster Resources**
1150-625 Howe Street
Vancouver, BC, V6C 2T6
Canada

TEST REPORT: YVR2110901

Project Name: Big Copper
Job Received Date: 09-Sep-2021
Job Report Date: 18-Oct-2021
Report Version: Final

	ICP-240 Co %	ICP-240 Cr %	ICP-240 Cu %	ICP-240 Fe %	ICP-240 K %	ICP-240 La %	ICP-240 Li %	ICP-240 Mg %	ICP-240 Mn %	ICP-240 Mo %	ICP-240 Na %	ICP-240 Ni %
Sample ID	0.001	0.001	0.001	0.05	0.1	0.005	0.005	0.05	0.01	0.001	0.05	0.001
Granite Blank	<0.001	0.002	<0.001	2.02	1.7	<0.005	<0.005	0.46	0.06	<0.001	3.68	<0.001
Granite Blank	<0.001	0.002	<0.001	2.09	1.7	<0.005	<0.005	0.46	0.06	<0.001	3.66	<0.001
P304017	0.004	0.003	2.867	23.12	0.5	<0.005	<0.005	0.10	0.30	<0.001	<0.05	0.006
P304018	0.003	0.004	0.876	11.48	2.1	<0.005	<0.005	0.29	0.36	<0.001	0.20	0.004
P304019	0.004	0.003	2.927	7.36	0.5	<0.005	<0.005	<0.05	0.14	<0.001	<0.05	0.003
P304020	0.003	0.004	1.810	4.36	2.8	<0.005	<0.005	0.17	0.17	<0.001	0.28	0.002
P304021	0.003	0.002	0.317	13.13	0.1	<0.005	<0.005	0.46	1.15	<0.001	<0.05	0.002
P304022	0.006	0.002	12.559	18.86	<0.1	<0.005	<0.005	<0.05	0.07	<0.001	<0.05	0.004
P310220	0.008	0.002	2.659	14.38	<0.1	<0.005	<0.005	3.79	0.46	<0.001	<0.05	0.006
P310220PD	0.009	0.002	2.663	14.22	<0.1	<0.005	<0.005	3.74	0.45	<0.001	<0.05	0.006
STD BLANK	<0.001	<0.001	<0.001	<0.05	<0.1	<0.005	<0.005	<0.05	<0.01	<0.001	<0.05	<0.001
STD BLANK												
STD MP-1b	<0.001	<0.001	3.055	8.20	0.2	0.006	<0.005	<0.05	0.05	0.028	<0.05	<0.001
STD OxD167												

***Please refer to the cover page for comments regarding this test report. ***

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To: **Rokmaster Resources**
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Canada

TEST REPORT: YVR2110901

Project Name: Big Copper
Job Received Date: 09-Sep-2021
Job Report Date: 18-Oct-2021
Report Version: Final

	ICP-240 P %	ICP-240 Pb %	ICP-240 S %	ICP-240 Sb %	ICP-240 Sr %	ICP-240 Ti %	ICP-240 Tl %	ICP-240 V %	ICP-240 W %	ICP-240 Zn %
Sample ID	0.01	0.01	0.05	0.005	0.01	0.05	0.005	0.001	0.01	0.01
Granite Blank	0.04	<0.01	<0.05	<0.005	0.02	0.21	<0.005	0.003	<0.01	<0.01
Granite Blank	0.04	<0.01	0.07	<0.005	0.02	0.21	<0.005	0.003	<0.01	<0.01
P304017	0.01	<0.01	2.04	<0.005	<0.01	0.06	<0.005	0.001	<0.01	0.05
P304018	0.03	<0.01	0.44	<0.005	<0.01	0.22	<0.005	0.004	<0.01	0.02
P304019	<0.01	<0.01	0.86	<0.005	<0.01	<0.05	<0.005	0.001	<0.01	0.05
P304020	0.03	<0.01	1.43	<0.005	<0.01	0.20	<0.005	0.004	<0.01	0.01
P304021	<0.01	<0.01	0.20	<0.005	<0.01	<0.05	<0.005	0.001	<0.01	0.01
P304022	<0.01	0.01	>10	<0.005	<0.01	<0.05	<0.005	<0.001	<0.01	0.08
P310220	<0.01	0.02	5.17	<0.005	<0.01	<0.05	<0.005	<0.001	<0.01	0.04
P310220PD	<0.01	0.02	5.12	<0.005	<0.01	<0.05	<0.005	<0.001	<0.01	0.04
STD BLANK	<0.01	<0.01	<0.05	<0.005	<0.01	<0.05	<0.005	<0.001	<0.01	<0.01
STD BLANK										
STD MP-1b	0.02	2.09	>10	<0.005	<0.01	<0.05	<0.005	<0.001	0.10	16.89
STD OxD167										

***Please refer to the cover page for comments regarding this test report. ***

Appendix E: Petrography Report

Big Copper Property

Petrography Report

Krisztina Pandur, PhD

First Geolas Consulting

2022 February 17

Summary

Five samples were collected during the 2021 summer field program on the Big Copper Property for petrographic analysis. Two samples capture the deformed host rocks in the footwall and hanging wall (BC_01 and BC_02, respectively) of a strongly oxidized sulphide rich vein in the vicinity of the historical collar locations of the 1965 Cominco drillholes. Two samples were collected from the hanging wall and footwall (BC_03 and BC_04, respectively) of a strongly mineralized quartz-siderite vein near the 1967 Pharaoh Mines drillhole collar locations. One mineralized grab sample (BC_05) was collected from an old trench hosting siderite and chalcopyrite in an approximately 60 m wide shear zone NE of samples BC_01 and BC_02. Given the limited amount of samples examined, the following summary is to be considered a preliminary look at the host rocks and mineralization at the Big Copper Property. The following paragraphs contain a summary of the lithological features, microstructures, as well as the observed alteration and mineralization characteristics, followed by detailed descriptions for each thin section. Each petrographic description is followed by several photomicrographs (referred to and explained in the description text), where “PPL” denotes plane polarized light image in transmitted light, “XPL” denotes cross polarized light image in transmitted light, and “REF” denotes plane polarized light image in transmitted light.

Three out of four host rock samples (BC_01, BC_02, BC_03) capture strongly deformed, sheared and folded mica schist. Samples BC_01 and BC_02 are of quartz-muscovite-chlorite schist and sample BC_03 is of quartz-muscovite schist. These samples consist dominantly of quartz and muscovite, with BC_01 and BC_02 also containing lesser chlorite. Trace disseminated apatite, titanite, zircon and tourmaline crystals were observed in the mica schist samples. Siderite is observed throughout BC_02 and BC_03, and appears to be an interstitial, vug filling phase. Calcite is present in sample BC_03, mostly altered to limonite. Limonite and some residual hematite (mostly altered to limonite) is common in the mica schist samples, commonly forming irregular and discontinuous bands along foliation. Limonite alteration is strongly associated with calcite crystals in the samples, and the alteration is controlled by fractures and cleavage planes. Sample BC_03 contains disseminated illmenite and pyrrhotite crystals. Sample BC_04 captures weakly deformed quartzite with abundant calcite rich patches and strong limonite alteration.

Sample BC_05 captures strongly gossaneous, limonite altered carbonate-quartz vein, hosting abundant chalcopyrite. The quartz rich portion of the vein brecciates the calcite crystals in this

sample. Chalcopyrite crystals are concentrated along the contact of the quartz and calcite rich portions of the sample, and also occur along fractures and cleavage planes within calcite. Trace pyrite, pyrrhotite, and covellite were also encountered in this sample, with the latter concentrated in the vicinity of chalcopyrite crystals. The sample shows strong limonite alteration. Rare disseminated sphalerite and chalcopyrite are also present in the quartzite host rock in sample BC_04.

All of the thin section samples display significant deformation. The quartz and calcite crystals, particularly in the mineralized sample (BC_05) and also in the quartzite sample (BC_04) display several deformation microstructures (undulose extinction, deformation lamellae, sutured grain boundaries, etc.), whereas the muscovite crystals in the mica schist samples display strong crenulation cleavage. Chlorite appears to form along foliation in some of the samples, however most of the chlorite crystals show orientations unrelated to the foliation. Most observed σ-type mantled quartz porphyroclasts and muscovite and chlorite σ-clasts indicate sinistral shear sense in the samples.

BC01

Location: Sample P304017 – Sample from footwall of approximately 10 cm wide, strongly oxidized sulphide rich vein with remnant chalcopyrite and strong malachite staining.

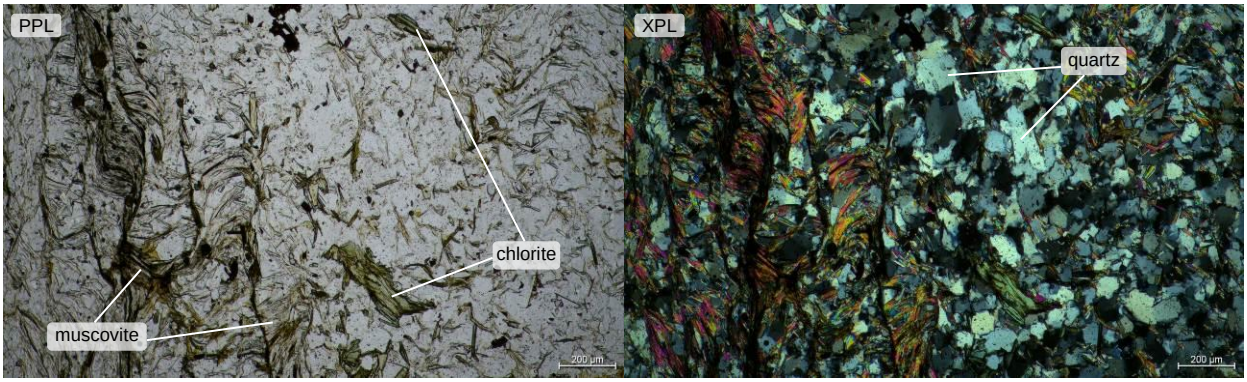
Hand Specimen Description: Light grey, fine grained, strongly deformed and folded mica schist with alternating quartz rich and mica rich bands, and weak limonite and chlorite alteration.

Mineralogy:

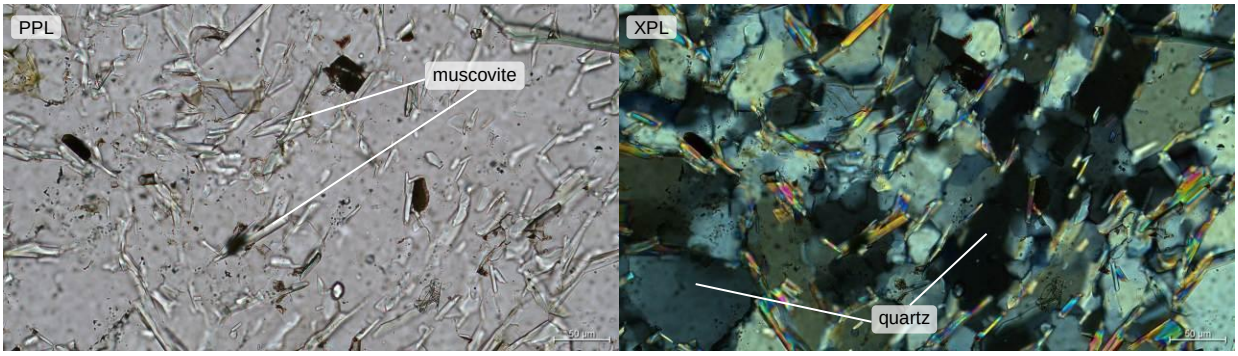
Mineral	%	Size	Distribution and Characteristics
Quartz	55	10 µm – 300 µm	Anhedral crystals, commonly displaying undulose extinction and locally sutured grain boundaries
Muscovite	30	5 µm – 400 µm	Euhedral, commonly kinked and crenulated crystals, forming crenulated cleavage domains, also present interstitial to quartz
Chlorite	10	5 µm – 400 µm	Euhedral, commonly kinked crystals, locally forming clusters/stacks
Limonite	3	<20 µm	Vug filling, fine grains, mostly poorly crystallized with occasional clear, brown limonite pseudorphs after thin, phyllic crystals (hematite?), also partially replacing hematite crystals
Hematite	1	10 µm – 100 µm	Partially replaced subhedral crystals in the centre of limonite clusters, altered to limonite, also euhedral disseminated crystals, mostly replaced by limonite
Pyrite	tr	2 µm – 8 µm	Subhedral to anhedral inclusions in limonite patches
Tourmaline	tr	5 µm – 50 µm	Euhedral, brown, prismatic crystals, in the vicinity of muscovite
Apatite	tr	5 µm – 40 µm	Euhedral, prismatic crystals, disseminated
Zircon	tr	20 µm – 40 µm	Subhedral, prismatic crystals, disseminated

Petrographic Description:

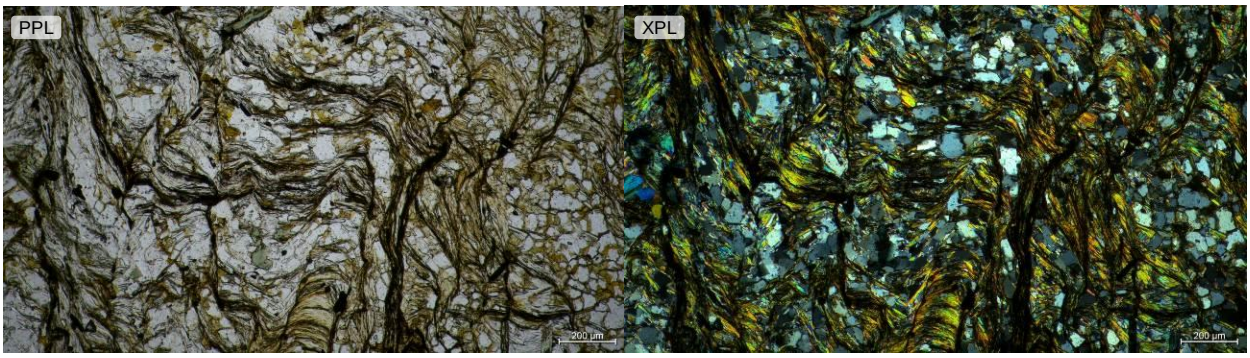
- Moderately deformed, inequigranular quartz-muscovite-chlorite schist, consisting dominantly of quartz, muscovite and lesser chlorite.
- Spaced cleavage is displayed by wriggly, anastomosing, cleavage domains (40%) consisting primarily of muscovite and chlorite, separating irregular microlithons (60%) consisting primarily of quartz and lesser muscovite and chlorite (Photomicrograph BC01_01). The transition between the cleavage domains and microlithons is gradational. Strong crenulation cleavage can be observed, and it is selectively developed in the mica crystals.
- The quartz porphyroclasts are anhedral and are relatively uniform in size (100 µm – 300 µm) with fewer fine quartz crystals (10 µm – 100 µm) throughout the sample. The coarser quartz crystals display undulose extinction. Sutured grain boundaries were observed between individual quartz grains locally (low temperature grain boundary migration/bulging recrystallization), although quartz grain boundaries are hard to observe as fine muscovite crystals are generally present interstitially to the quartz grains (Photomicrograph BC01_02), even within the quartz rich microlithons.
- Muscovite crystals are euhedral and commonly crenulated within the cleavage domains. The crenulation on a micro-scale is irregular (Photomicrograph BC01_03).
- Chlorite crystals are euhedral, and locally kinked. Chlorite clusters/stacks were observed in microlithons. Most chlorite crystals are randomly oriented and not aligned with the crenulation observed in muscovite (Photomicrograph BC01_04), indicating that some of the chlorite might be secondary in the sample.
- Trace disseminated euhedral zircon, apatite, and tourmaline crystals were observed throughout the sample. The tourmaline crystals are generally associated with muscovite rich cleavage domains.
- Disseminated euhedral, phyllic hematite crystals and limonite rich pseudomorphs after hematite are commonly aligned with muscovite crystals in the cleavage domains, and fine grained limonite forms randomly oriented patches in the quartz rich microlithons (Photomicrograph BC01_05). The limonite patches contain rare, fine subhedral hematite crystals. Fine limonite also appears as a late vug filling phase in the rock.
- Rare subhedral to anhedral, fine pyrite inclusions were observed in limonite rich patches.



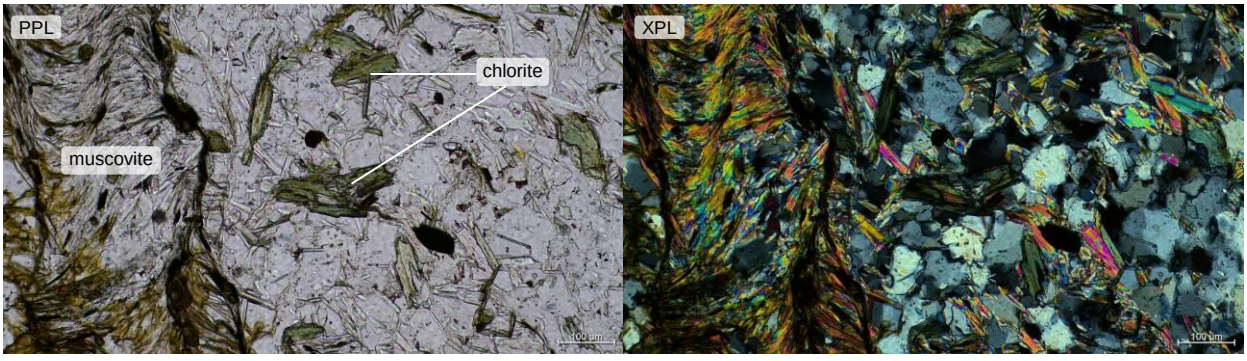
Photomicrograph BC01_01



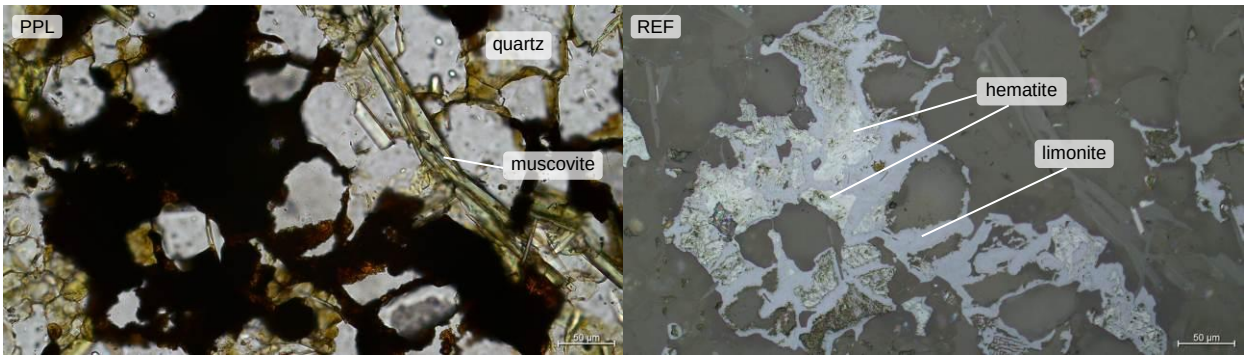
Photomicrograph BC01_02



Photomicrograph BC01_03

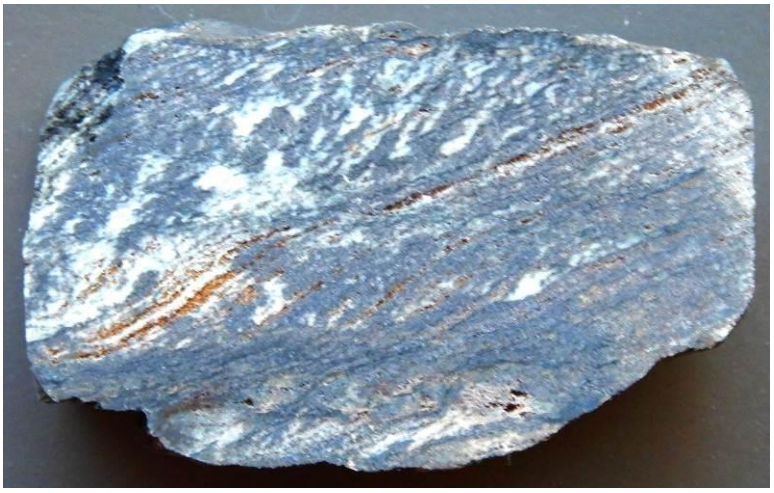


Photomicrograph BC01_04



Photomicrograph BC01_05

BC02



Location: Sample P304017 – Sample from hanging wall of approximately 10 cm wide, strongly oxidized sulphide-rich vein with remnant chalcopyrite and strong malachite staining.

Hand Specimen Description: Light brownish grey, fine grained, and strongly deformed mica schist with alternating bands of quartz and muscovite. Moderate limonite alteration can be observed in the sample.

Mineralogy:

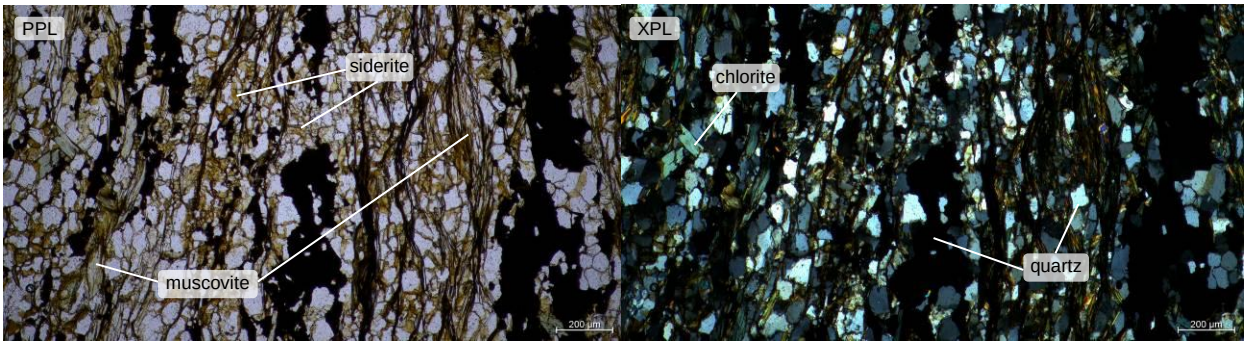
Mineral	%	Size	Distribution and Characteristics
Quartz	45	10 µm – 400 µm	Anhedral crystals, commonly displaying undulose extinction and locally sutured grain boundaries
Muscovite	25	5 µm – 300 µm	Euhedral, commonly kinked and crenulated crystals, forming crenulated bands and also interstitial to quartz
Chlorite	10	5 µm – 400 µm	Euhedral, commonly kinked crystals, locally forming clusters/stacks
Siderite	10	10 µm – 100 µm	Light brown, pleochroism commonly masks interference colours, abundance increases in the vicinity of limonite and hematite
Limonite	6	<5 µm	Vug filling, fine grains, poorly crystallized, replacing hematite, commonly forming pseudomorphs after hematite crystals
Hematite	2	10 µm – 150 µm	Partially replaced subhedral crystals in the centre of limonite clusters, also euhedral, elongated disseminated crystals, replaced by limonite
Pyrite	tr	5 µm – 20 µm	Rare, subhedral crystals, inclusions in limonite pseudomorphs
Titanite	tr	10 µm – 400 µm	Rare, euhedral disseminated crystals
Tourmaline	tr	20 µm – 150 µm	Rare, euhedral brown crystals
Apatite	tr	5 µm – 20 µm	Rare, euhedral disseminated crystals

Petrographic Description:

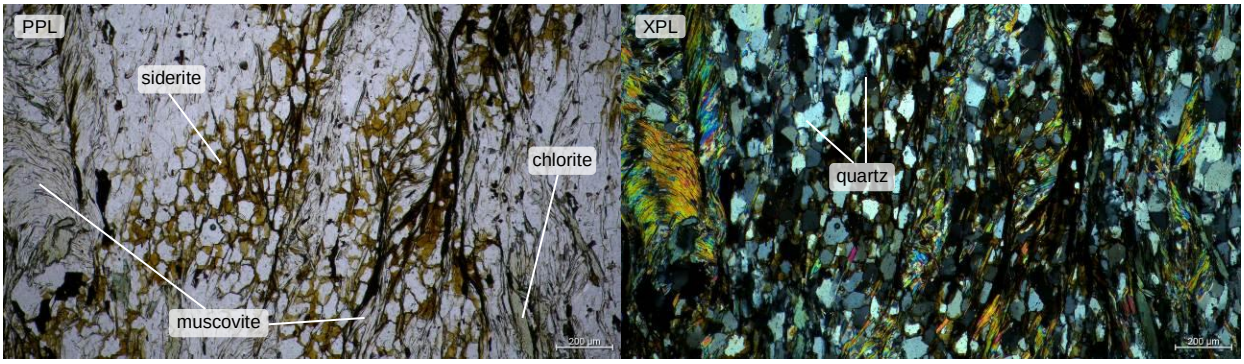
- Strongly sheared deformed, equigranular quartz-muscovite-chlorite schist, consisting dominantly of quartz, muscovite and lesser chlorite and siderite, with abundant iron oxides and oxide-hydroxides forming bands along foliation.
- Zonal cleavage is displayed by closely stacked, smooth cleavage domains (80%) consisting primarily of muscovite, chlorite and siderite, separating irregular microlithons (20%) consisting primarily of quartz and lesser muscovite, chlorite and siderite. In one half of the thin section the cleavage domains are parallel (Photomicrograph BC02_01), whereas in the other half of the sample they are anastomosing (Photomicrograph BC02_02). The transition between the cleavage domains and microlithons is gradational. Strong crenulation cleavage can be observed, and it is selectively developed in the mica crystals.
- The quartz crystals are anhedral and commonly display undulose extinction. Sutured grain boundaries were observed between individual quartz grains locally, although quartz grain boundaries are hard to observe as fine muscovite crystals are generally present interstitially to the quartz grains, even within the quartz rich microlithons. Rare boudinaged quartz rich patches (“quartz eyes”) and σ-type mantled quartz porphyroclasts surrounded by mica rich pressure shadows indicate sinistral shear sense (Photomicrograph BC02_03).
- The muscovite crystals are euhedral and strongly crenulated within the cleavage domains (Photomicrograph BC02_04). Abundant deformed mica fish generally indicate sinistral shear sense (Photomicrograph BC02_05).
- Chlorite crystals are euhedral, and locally kinked. Chlorite clusters/stacks were observed in microlithons. The chlorite crystals are generally well-aligned with the foliation displayed by muscovite (Photomicrograph BC02_06). Rare deformed chlorite fish indicate sinistral shear sense (Photomicrograph BC02_07).
- Light brown siderite crystals were observed throughout the sample, mainly interstitial to quartz (Photomicrograph BC02_08), in the vicinity of increased limonite and hematite, indicating that siderite is a secondary alteration phase.
- Trace disseminated euhedral titanite, apatite, and tourmaline crystals were observed throughout the sample.
- Disseminated euhedral, phyllic hematite crystals and limonite rich pseudomorphs after hematite are commonly aligned with muscovite crystals in the cleavage domains (Photomicrograph BC02_09). Fine grained limonite forms randomly oriented patches in

the quartz rich microlithons. The limonite patches contain euhedral hematite crystals, which are locally kinked. The limonite and hematite rich patches form irregular and discontinuous bands along foliation (Photomicrograph BC02_10). Fine limonite and hematite also appear along fractures parallel to foliation.

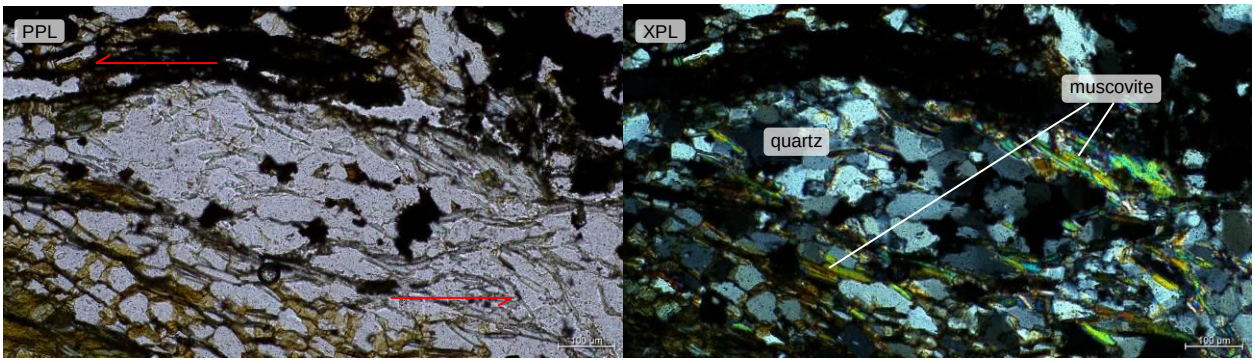
– Rare subhedral, fine pyrite inclusions were observed in limonite pseudomorphs.



Photomicrograph BC02_01



Photomicrograph BC02_02



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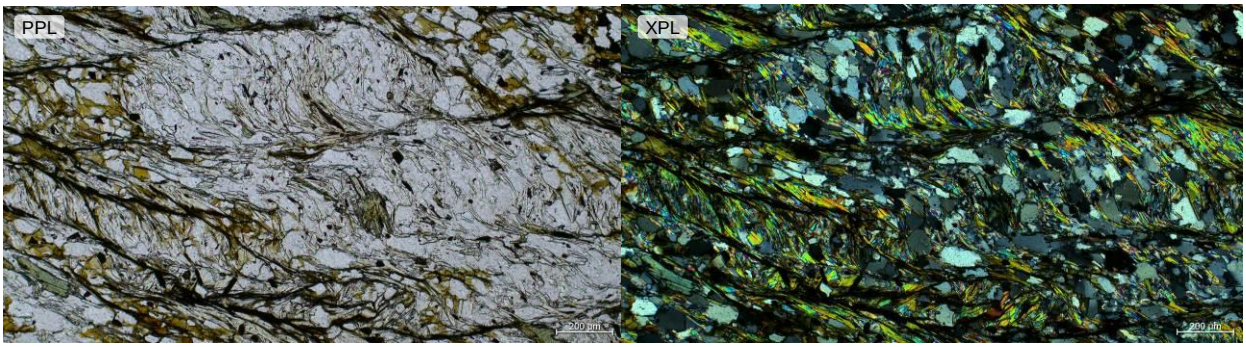
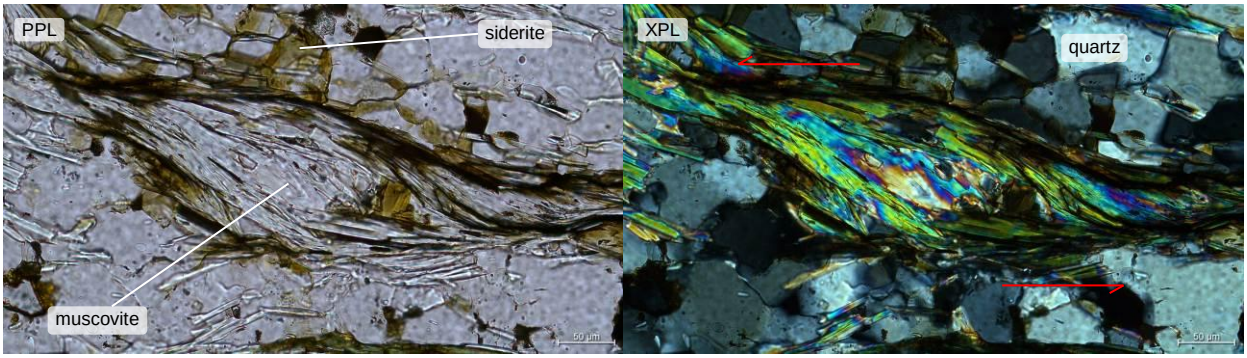
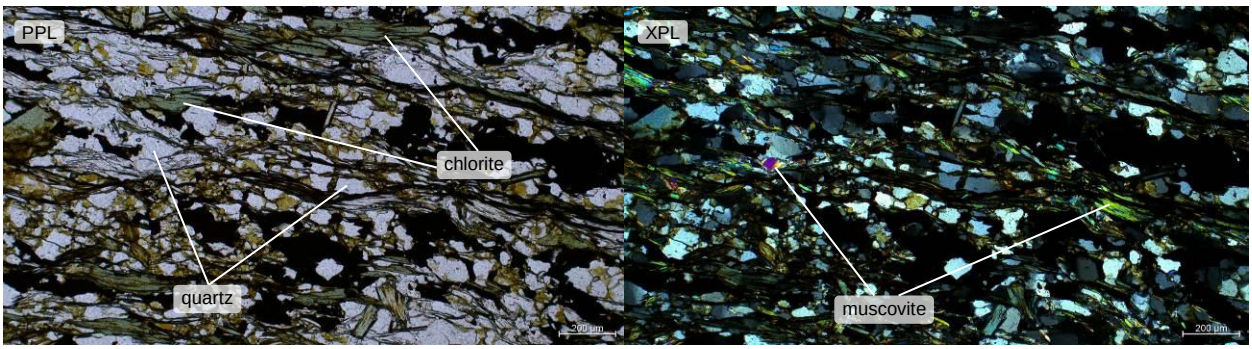


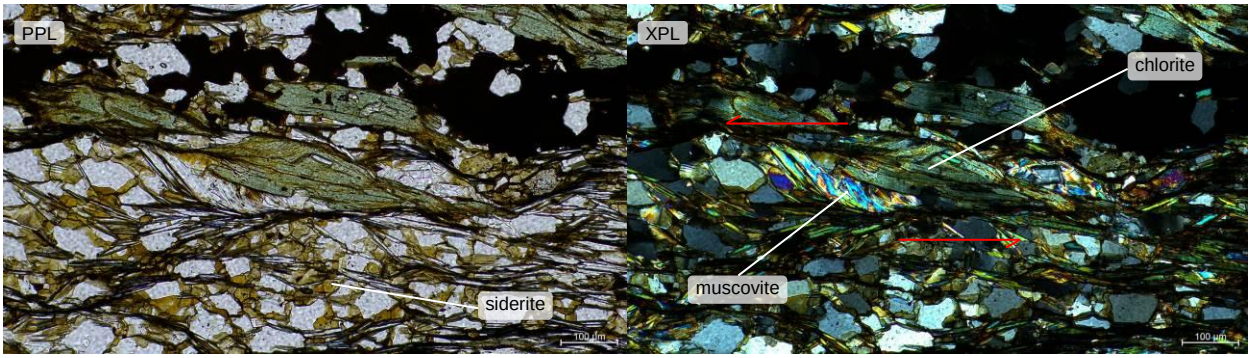
Photomicrograph BC02_04



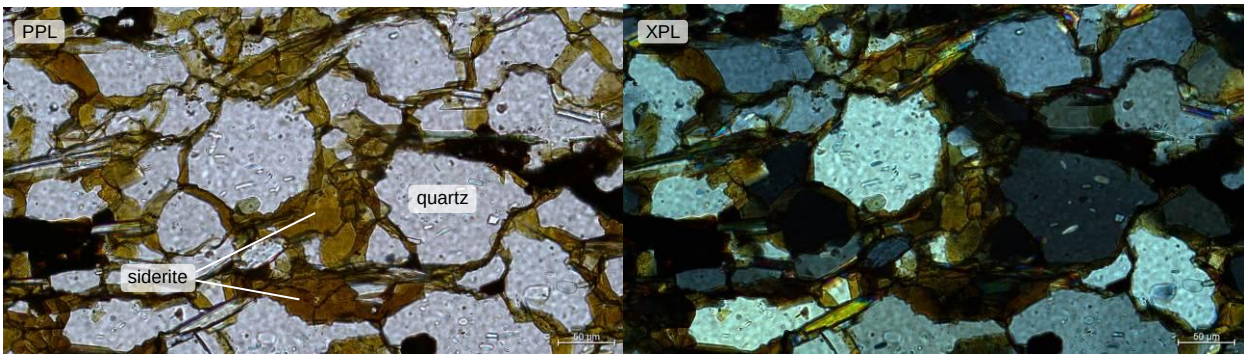
Photomicrograph BC02_05



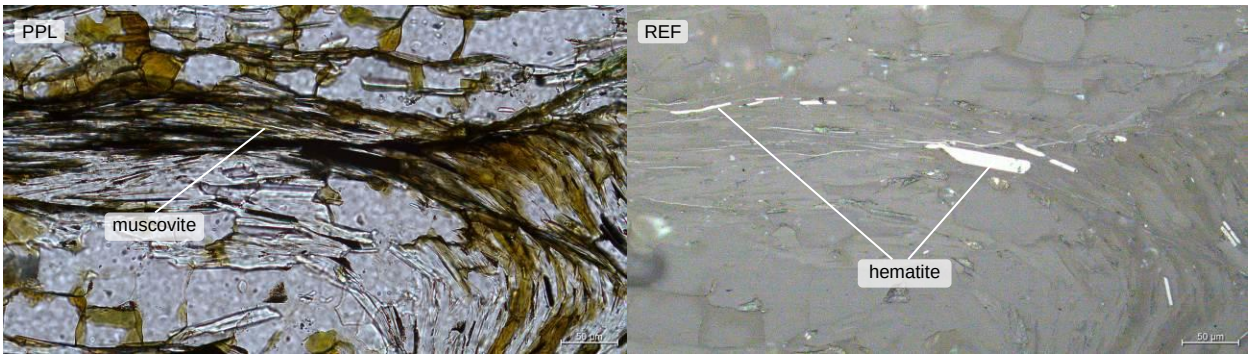
Photomicrograph BC02_06



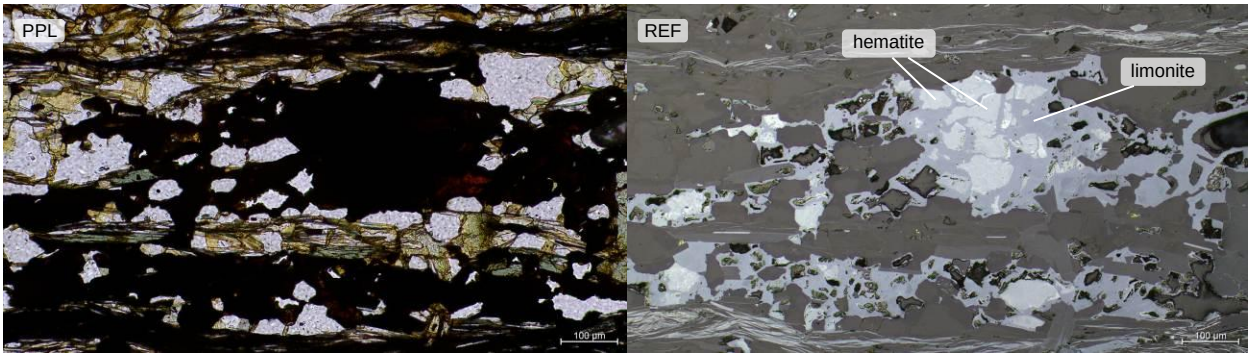
Photomicrograph BC02_07



Photomicrograph BC02_08



Photomicrograph BC02_09



Photomicrograph BC02_10

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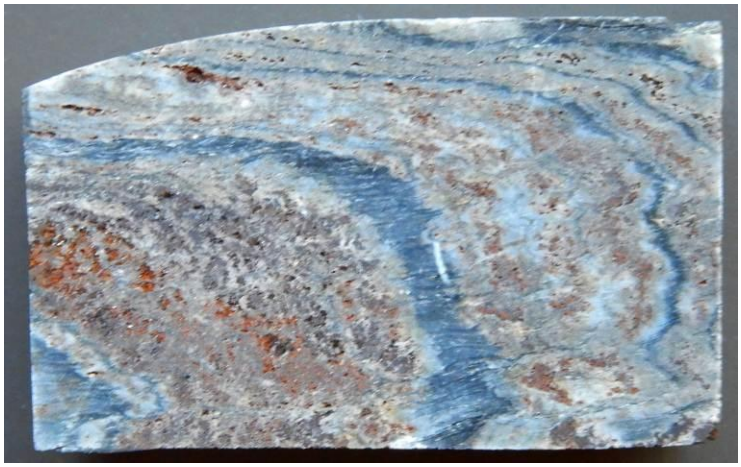
BC03



Location: Sample P304019 – Sample from hanging wall of strongly mineralized quartz-siderite vein hosting 3-4% visible chalcopyrite and malachite.

Hand Specimen Description: Brown-grey, fine to medium grained, folded, mica schist hosting alternating bands of quartz, muscovite, and calcite. The calcite bands are altered to limonite.

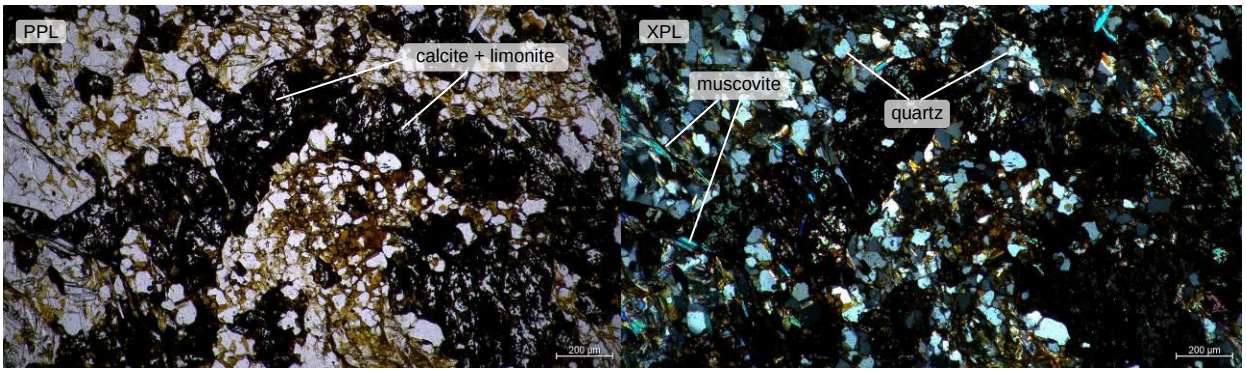
Mineralogy:

Mineral	%	Size	Distribution and Characteristics
Quartz	45	10 µm – 350 µm	Anhedral crystals, commonly displaying undulose extinction and locally sutured grain boundaries, coarser grains forming some stretched quartz eyes
Muscovite	40	20 µm – 400 µm	Euhedral, commonly kinked and crenulated crystals, forming crenulated bands in between more quartz rich bands
Siderite	5	5 µm – 400 µm	Light brown, pleochroism commonly masks interference colours, abundance increases in the vicinity of calcite and limonite
Calcite	3	20 µm – 80 µm	Anhedral crystals forming clusters with limonite, with limonite rimming the calcite crystals
Limonite	5	<5 µm	In the vicinity of calcite rich patches, commonly botryoidal growth inside calcite crystals and at the boundaries of calcite crystals
Hematite	tr	10 µm – 40 µm	Fine euhedral, fibrous crystals, encompassed by limonite
Ilmenite	2	10 µm – 200 µm	Subhedral to euhedral, tabular, locally embayed crystals, disseminated and commonly aligned along foliation, they contain <5 µm pyrrhotite inclusions
Pyrrhotite	tr	30 µm – 300 µm	Anhedral crystals, partially altered to limonite along lamellae, also rare <5 µm inclusions within ilmenite
Zircon	tr	30 µm – 50 µm	Euhedral crystals, disseminated
Tourmaline	tr	20 µm – 120 µm	Rare, euhedral brown crystals, locally concentrically zoned with more green core
Apatite	tr	10 µm – 50 µm	Rare euhedral crystals

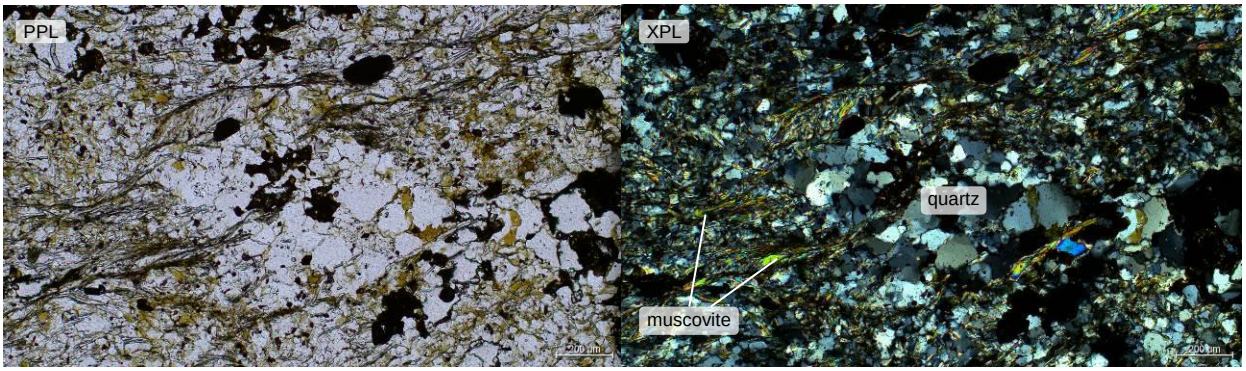
Petrographic Description:

- Moderately deformed, inequigranular quartz-muscovite schist, consisting dominantly of quartz, muscovite and lesser siderite and calcite.
- The sample was taken of a small fold, perpendicular to the hinge line, capturing the fold hinge and the top of one limb. Loosely spaced cleavage is displayed by wriggly, anastomosing, cleavage domains (25%) consisting primarily of crenulated muscovite, separating irregular microlithons (75%) consisting primarily of quartz and lesser muscovite, siderite and calcite. The transition between the cleavage domains and microlithons is gradational. Strong crenulation cleavage can be observed, and it is selectively developed in the mica crystals. In the hinge area of the small fold, irregular, folded bands of increased calcite and limonite were observed (Photomicrograph BC03_01).
- The quartz crystals are anhedral, they display strong undulose extinction and locally sutured grain boundaries. The coarser quartz grains form rare stretched, loosely defined σ-type mantled porphyroclasts with no clear shear sense indicated (Photomicrograph BC03_02). The quartz crystals are associated with abundant interstitial fine muscovite and siderite.
- The muscovite crystals are euhedral and strongly crenulated within the cleavage domains. The crenulation indicates multiple stages of deformation in the sample (Photomicrograph BC03_03). The shape of abundant deformed mica fish indicate both dextral and sinistral shear sense.
- Discontinuous bands of strongly altered calcite appear along the fold limb, and form irregular folded patches in the hinge of the fold. Coarser grained quartz crystals surround these calcite rich patches. The calcite is partially replaced by limonite and siderite. The limonite commonly displays botryoidal growth inside and along the boundaries of calcite crystals (Photomicrograph BC03_04).
- Light brown, anhedral siderite crystals were observed, interstitial to quartz in the vicinity of calcite and limonite rich patches and bands.
- Limonite is mainly constrained to the irregular, calcite rich patches, with the fine grains displaying botryoidal growth within the calcite. Rare, fine fibrous hematite crystals were observed encompassed by limonite.
- Subhedral to euhedral, tabular ilmenite crystals are disseminated throughout the sample (Photomicrograph BC03_05), and are commonly aligned along foliation, particularly in the muscovite rich crenulated cleavage domains.

- Rare disseminated, anhedral pyrrhotite crystals were also observed, and they are partially altered to limonite along lamellae (Photomicrograph BC03_06). Pyrrhotite is also found as rare <5 µm inclusions within ilmenite.
- The rock also contains trace euhedral apatite, zircon, and tourmaline. The tourmaline crystals display concentric zonation with green inner zone and brown outer zone (Photomicrograph BC03_07).



Photomicrograph BC03_01



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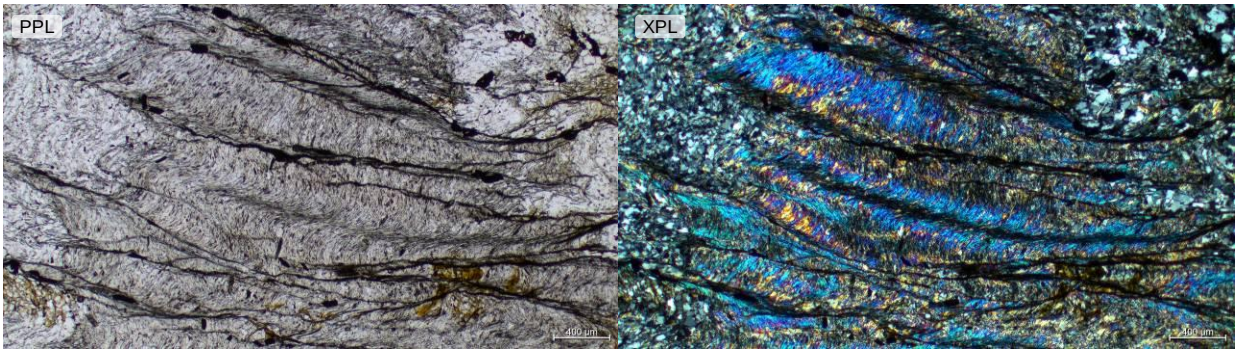
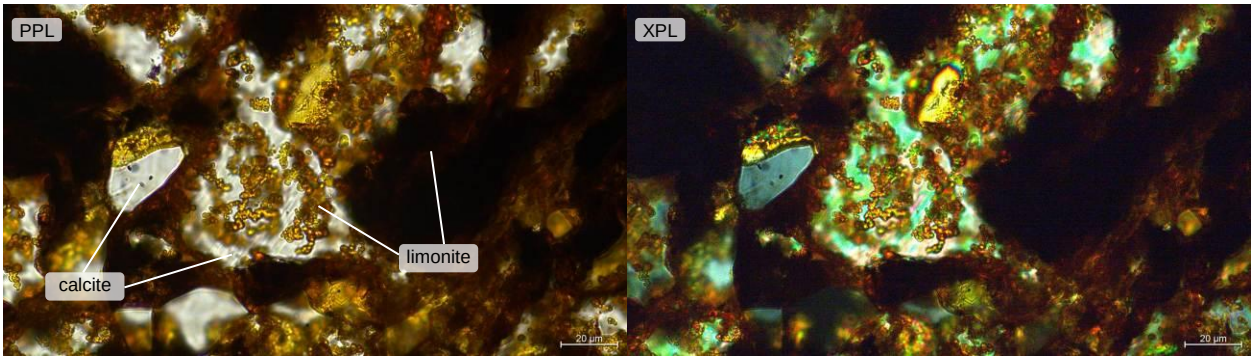
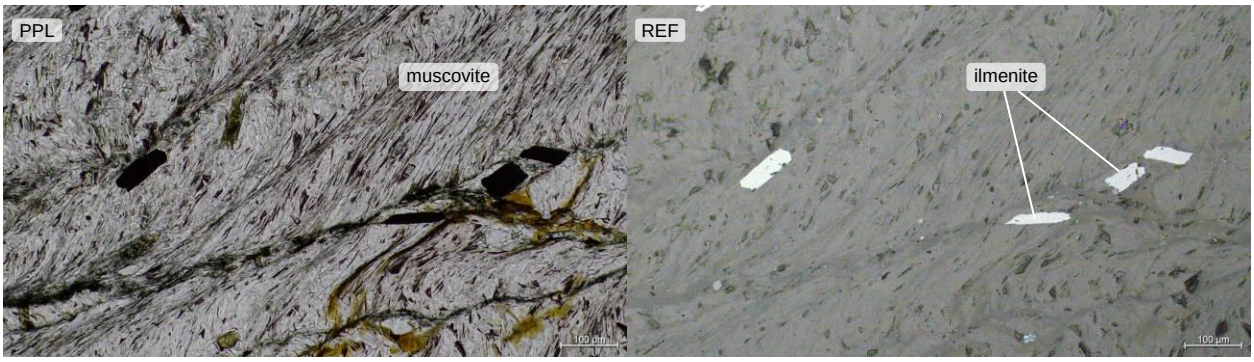


Photomicrograph BC03_03



Photomicrograph BC03_04



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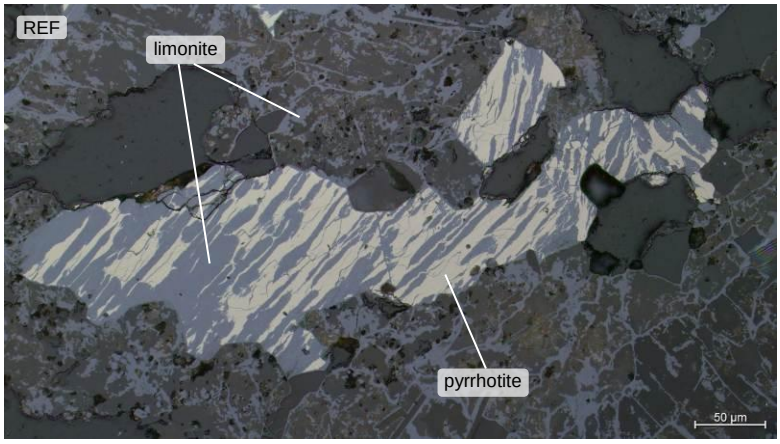

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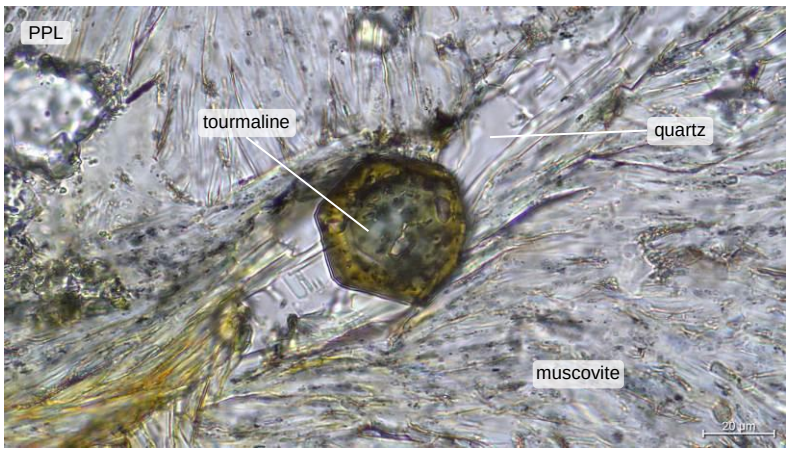


Photomicrograph BC03_07

BC04

Location: Sample P304019 – Sample from footwall of strongly mineralized quartz-siderite vein hosting 3-4% visible chalcopyrite and malachite.

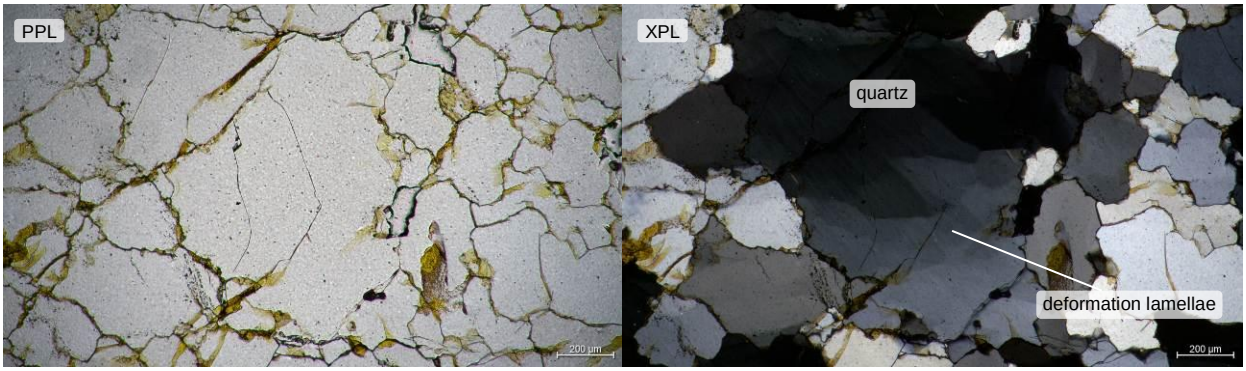
Hand Specimen Description: Rusty yellowish brown, coarse grained quartzite sample with irregular sections containing calcite. Up to 5 mm pyrite and chalcopyrite grains are found throughout the sample with strong limonite and malachite staining.

Mineralogy:

Mineral	%	Size	Distribution and Characteristics
Quartz	84	40 µm – 2.5 mm	Anhedral to subhedral crystals, commonly displaying strong undulose extinction and sutured grain boundaries
Calcite	10	2 µm – 6 mm	Anhedral to subhedral crystals, forming irregular patches, associated with increased limonite (limonite altering the carbonate)
Muscovite	tr	20 µm – 300 µm	Euhedral crystals, localized occurrence along the edge of calcite rich patches
Limonite	6	<2 µm	Anhedral grains, altering carbonate crystals, locally showing botryoidal growth along quartz grain boundaries and fractures, and forming veinlets, the limonite patches locally encompass hematite crystals
Hematite	tr	2 µm – 10 µm	Fine fibrous crystals, within limonite
Sphalerite	tr	20 µm – 500 µm	Rare, anhedral, red, concentrically zoned grains forming an isolated patch
Chalcopyrite	tr	120 µm	Singular, anhedral crystal, encompassed by sphalerite
Pyrite	tr	2 µm – 40 µm	Anhedral crystals, in the vicinity of limonite veinlet, fine crystals showing botryoidal growth within limonite rich veinlet

Petrographic Description:

- Weakly deformed, inequigranular, generally interlobate but locally polygonal quartzite containing irregular discontinuous patches of strongly altered calcite.
- The quartz crystals are anhedral to subhedral and they commonly display strong sweeping undulose extinction and some crystals contain deformation lamellae (Photomicrograph BC04_01). The quartz crystals have sutured grain boundaries with localized polygonal grain boundaries (Photomicrograph BC04_02). The quartz crystals are strongly fractured and abundant healed fractures host secondary fluid inclusion planes with two-phase (vapour and liquid) inclusions.
- Anhedral to subhedral calcite crystals form irregular, discontinuous patches throughout the sample. The larger, less altered calcite crystals show strong sweeping undulose extinction. The calcite crystals show variable intensities of limonite alteration (moderate to intense), and the alteration is generally fracture controlled (Photomicrograph BC04_03).
- Rare undeformed, euhedral muscovite crystals were observed interstitial to quartz proximal to the boundary of the calcite patches.
- Fine limonite was observed coating the quartz grain boundaries and replacing the calcite crystals. Limonite also occurs in an approximately 80 µm wide, irregular veinlet (Photomicrograph BC04_04). In this veinlet, the limonite encompasses fine pyrite crystals showing botryoidal growth. Trace fine anhedral pyrite crystals are hosted in quartz in the immediate vicinity of the limonite-hematite veinlet.
- The sample hosts a few anhedral, strongly fractured dark reddish brown sphalerite crystals, surrounded by limonite. One of the sphalerite crystals shows slight concentric colour zonation and contains an elongated, anhedral chalcopyrite crystal in its core (Photomicrograph BC04_05).



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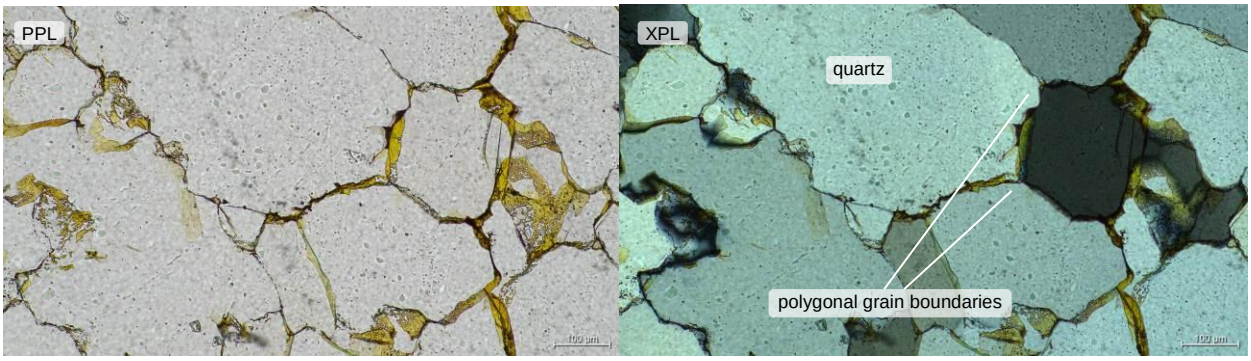

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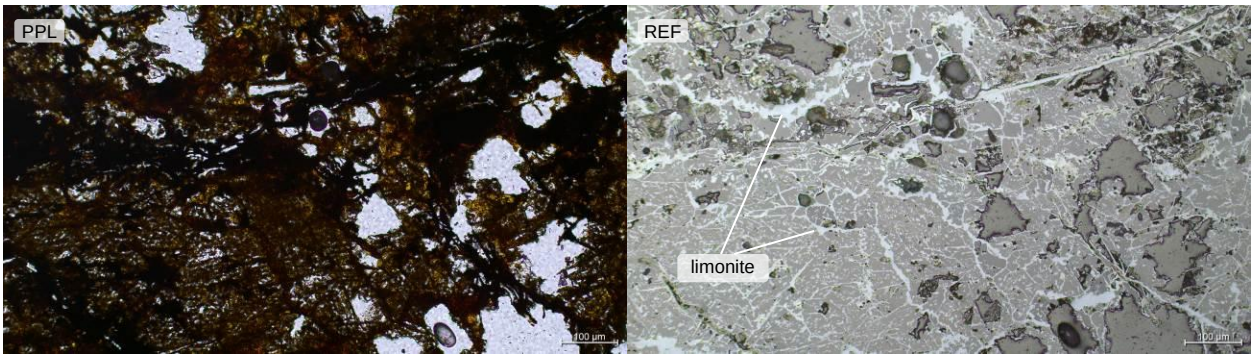
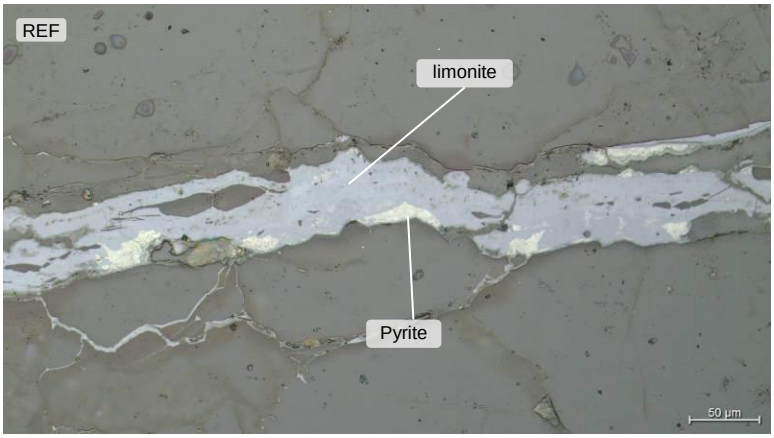
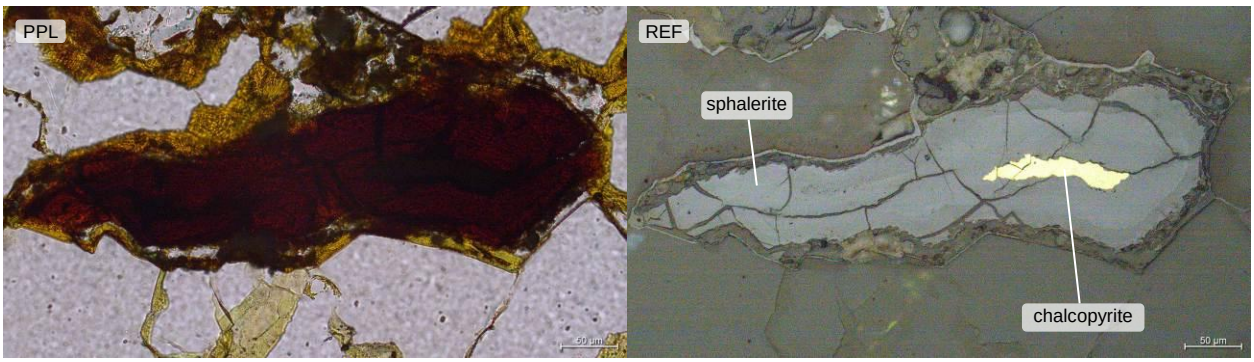


Photomicrograph BC04_03



Photomicrograph BC04_04



Photomicrograph BC04_05

BC05

Location: Sample P310220 – Grab sample of siderite with chalcopyrite from an old trench in approximately 60 m wide shear zone.

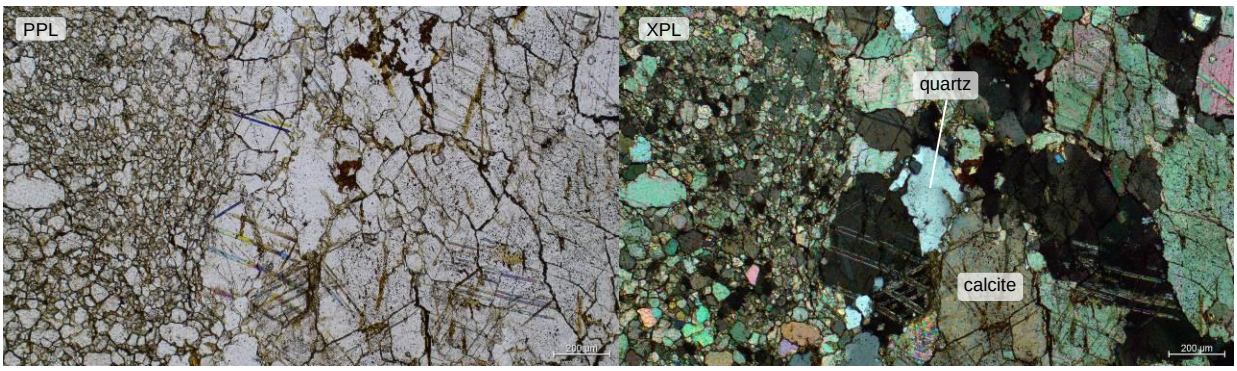
Hand Specimen Description: Coarse grained, strongly gossaneous carbonate-quartz vein hosting disseminated chalcopyrite. Limonite staining is dominant throughout the sample.

Mineralogy:

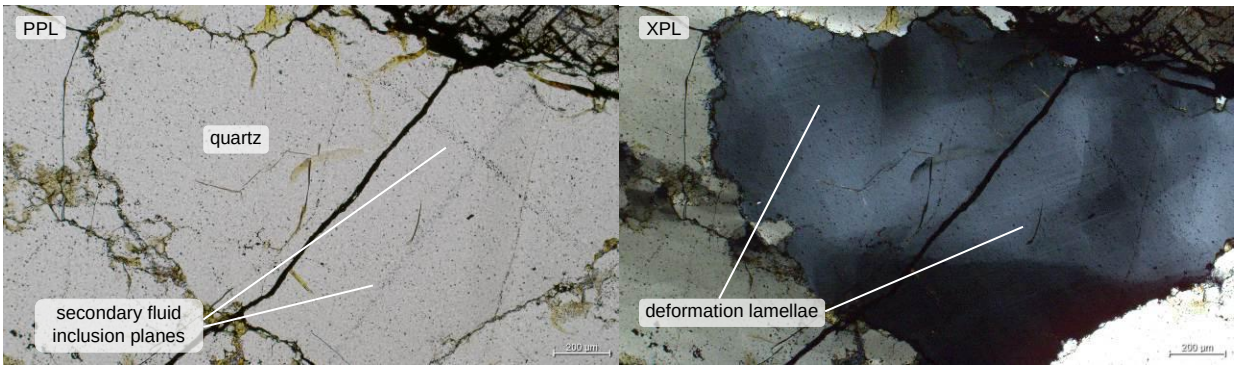
Mineral	%	Size	Distribution and Characteristics
Calcite	80	10 µm – 8 mm	Strongly fractured subhedral crystals, displaying undulose extinction and subgrain formation along grain boundaries
Quartz	12	20 µm – 4 mm	Anhedral crystals, commonly displaying strong undulose extinction and sutured grain boundaries
Muscovite	tr	400 µm – 600 µm	Rare, euhedral, kinked crystals
Limonite	1	<2 µm	Anhedral grains, altering carbonate crystals, also along quartz grain boundaries and fractures, the limonite patches locally encompass hematite crystals
Chalcopyrite	5	2 µm – 2 mm	Anhedral crystals, fractured, with hematite and limonite filling the fractures
Hematite	1	<2 µm	Fine crystals, mostly along fractures, largely altered to limonite
Pyrite	tr	2 µm – 200 µm	Disseminated, subhedral to euhedral crystals, also very fine (<1 µm) crystals encompassed in hematite/limonite
Pyrrhotite	tr	20 µm – 150 µm	Anhedral crystals, in the vicinity of chalcopyrite, partially altered to hematite/limonite
Covellite	tr	<5 µm	Fine grains rimming some chalcopyrite crystals

Petrographic Description:

- Mineralized calcite quartz vein sample with the quartz rich portion of the vein brecciating the calcite crystals.
- Subhedral, strongly fractured and brecciated calcite crystals comprise the majority of the vein. The calcite crystals display undulose extinction, deformation twinning and subgrain formation (subgrain rotation) along grain boundaries (Photomicrograph BC05_01).
- The quartz crystals are anhedral and they commonly display strong sweeping undulose extinction and some crystals contain deformation lamellae (Photomicrograph BC05_02). The quartz crystals have strongly sutured grain boundaries (low temperature grain boundary migration/bulging recrystallization) with localized zones of subgrains along the grain boundaries (formed by subgrain rotation) (Photomicrograph BC05_03). The quartz crystals are strongly fractured and host multiple cross-cutting secondary fluid inclusion planes with two-phase (vapour and liquid) inclusions.
- Rare, euhedral, kinked muscovite crystals were observed at the contact of quartz and calcite crystals.
- Fine limonite grains are present altering carbonate crystals (mainly along fractures), also along quartz grain boundaries and fractures. Limonite also completely replaces elongated, tabular crystals (possibly hematite or pyrrhotite) (Photomicrograph BC05_04). Limonite patches locally encompass fine anhedral hematite crystals.
- Disseminated, subhedral to euhedral pyrite crystals were encountered in the sample, and pyrite also occurs as very fine (<1 µm) crystals encompassed in hematite/limonite (Photomicrograph BC05_05).
- Anhedral chalcopyrite crystals are abundant at the contact of calcite and quartz crystals (forming patches, Photomicrograph BC05_06), and along fractures within calcite (forming elongated crystals, Photomicrograph BC05_07). The chalcopyrite crystals are fractured with hematite and limonite filling fractures. Locally, fine covellite was observed adjacent to the chalcopyrite (Photomicrograph BC05_08).
- Anhedral pyrrhotite crystals are commonly found in the vicinity of chalcopyrite and are altered to hematite/limonite along grain boundaries and along cleavage planes (Photomicrograph BC05_09).



Photomicrograph BC05_01



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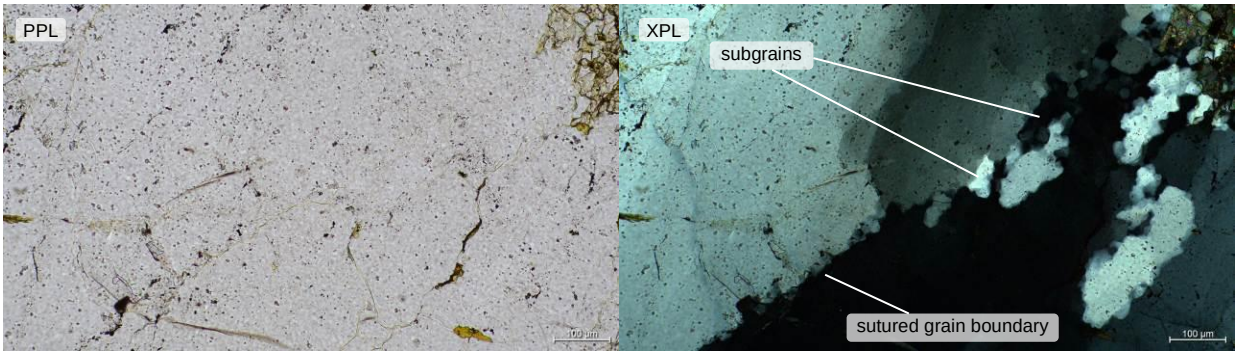

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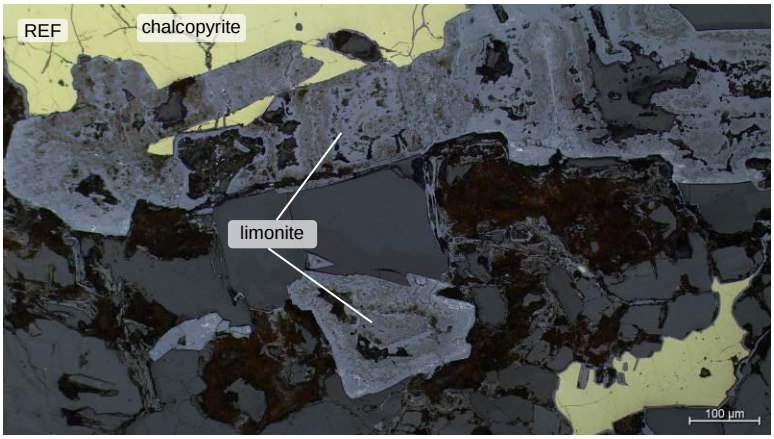

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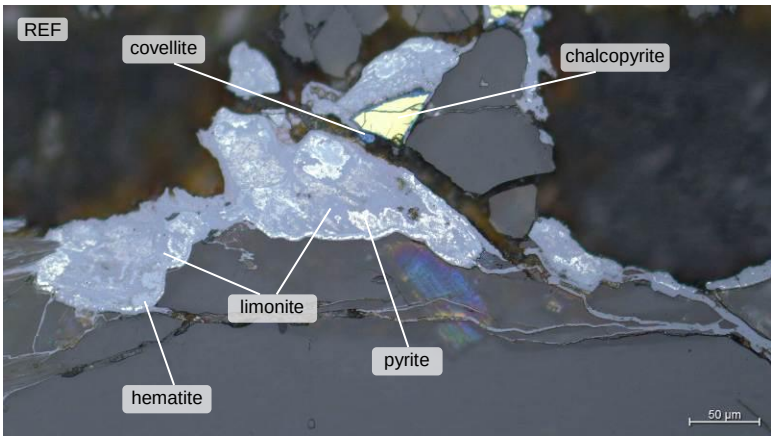
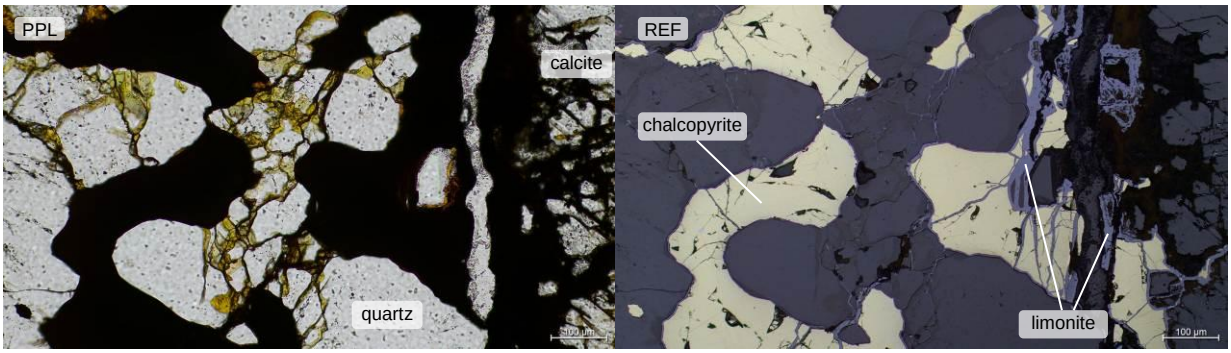


Photomicrograph BC05_05



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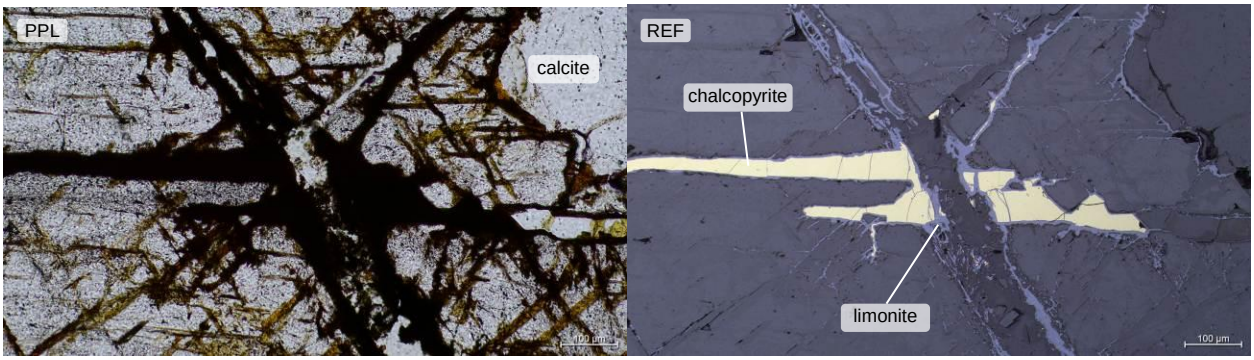

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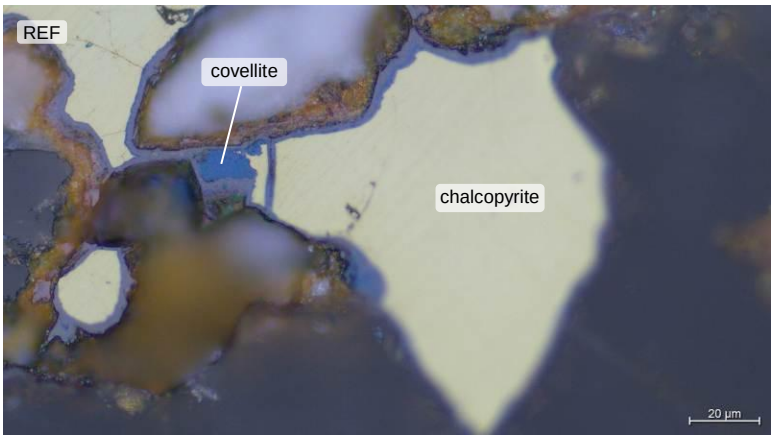

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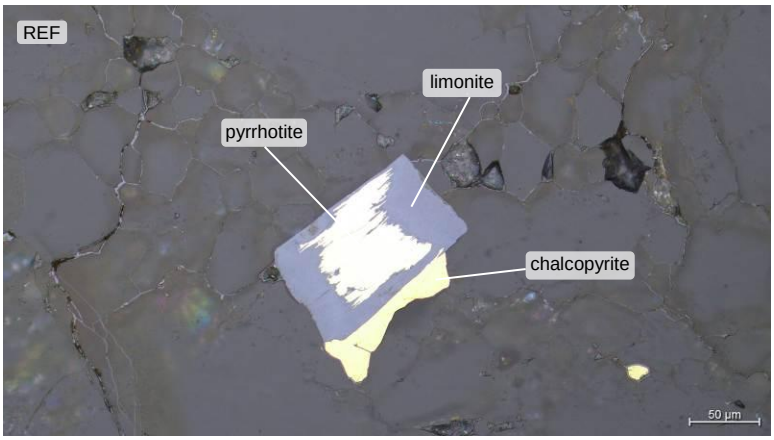

Photomicrograph BC05_09