

**Ministry of Energy, Mines & Petroleum Resources**  
Mining & Minerals Division  
BC Geological Survey

**Assessment Report  
Title Page and Summary**

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

TOTAL COST: \$ 9108.90

AUTHOR(S): Laurence Sookochoff, PEng

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Date: 2016.10.15 22:20:02 -08'00'

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): \_\_\_\_\_

YEAR OF WORK: 2016

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5621359 October 8, 2016

PROPERTY NAME: Toni

CLAIM NAME(S) (on which the work was done): 1047102

COMMODITIES SOUGHT: Copper Gold

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092HNE292

MINING DIVISION: Nicola

NTS/BCGS: 092H.098 092H.099 092I.099

LATITUDE: 50 ° 01 ' 18 " LONGITUDE: 120 ° 18 ' 27 " (at centre of work)

OWNER(S):

1) Victory Resources Corporation

2) \_\_\_\_\_

MAILING ADDRESS:

132366 Cliffstone Court

Lake Country BC V4V 2R1

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

1) Victory Resources Corporation

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

Jurassic, Pennask Batholith, Granodiorite, Chloritized, Magnetite, Chalcocite, Chalcopyrite, Bornite, Cross-Structure

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 4320, 7293, 7776, 8970, 16008, 28905, 31422, 32160, 35869, 35870, 35872, 36138

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<b>GEOLOGICAL (scale, area)</b>			
Ground, mapping			
Photo interpretation	332 hectares	1047102	\$ 6,000.00
<b>GEOPHYSICAL (line-kilometres)</b>			
Ground			
Magnetic	3.2	1047102	3,108.90
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
Soil			
Silt			
Rock			
Other			
<b>DRILLING (total metres; number of holes, size)</b>			
Core			
Non-core			
<b>RELATED TECHNICAL</b>			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
<b>PROSPECTING (scale, area)</b>			
<b>PREPARATORY / PHYSICAL</b>			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
			<b>TOTAL COST:</b>

# VICTORY RESOURCES CORPORATION

*(Owner & Operator)*

## GEOLOGICAL & GEOPHYSICAL

### ASSESSMENT REPORT

*(Event 5621359)*

*Work done on*

**Tenure 1047102**

*of the 11 Tenure*

**Toni 1047102 Claim Group**

*(Work done from October 5, 2016 to October 8, 2016)*

*Nicola Mining Division*

*BCGS Maps 092H.098/.099 & 092I.009*

*Centre of work*

**5544522N, 692868E**

*(Zone 10U NAD 83)*

*Author & Consultant*

**Laurence Sookchoff, PEng  
Sookchoff Consultants Inc.**

*Submitted*

**October 15, 2016**

**BC Geological Survey  
Assessment Report  
36264**

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## SUMMARY

The 11 claim 3967 hectare Toni 1047102 claim group is located 218 kilometres from Vancouver, 10 kilometres from the past productive Elk mine, and 24 kilometres from the formerly productive Brenda mine where production began in 1970 with measured geological (proven) reserves of 160,556,700 tonnes grading 0.183 per cent copper and 0.049 per cent molybdenum. The Brenda mineral deposit was hosted by the "Brenda stock", a composite quartz diorite/granodiorite body which forms part of the Pennask batholith. Mineralization decreased outwardly from the most intensely fractured/mineralized rock and the centre of the main mineral zone.

At the ELK past producer (*MINFILE 092HNE096*) numerous surficial mineral indicators to an underlying mineral resource were primarily indicated at structural intersections. The location of the cross-structures are obvious in the many associated mineral zones as shown on Figure 12. At one of these cross-structures, the surficially indicated mineral zone was developed to a productive stage with the recovery of a reported 48,830 ounces of gold between 1992 and 1995 and with a 2012 reported reserve of 564,000 ounces gold in all categories.

Thus, a cross-structural location would be the most prospective areas to explore for surficial geological indicators of a potential masked mineral resource. This location would be the zone of maximum brecciation with depth extension which could tap a hydrothermal fluid source at depth and provide most favorable conduit for hydrothermal fluids to surface and imprint its constituents or indicators such as, alteration, pathfinder minerals or any other geological indication.

The structural analysis of Tenure indicated two cross-structures which are located within the Pennask Batholith. These two locations should be the focus of exploration for a Brenda style porphyry deposit where another "Brenda stock" with associate mineralization, may be located. Indicated potential mineral resources in the immediate area of the two cross-structures are reported in the Minfiles of the SNOW showing (*MINFILE 092HNE292*) and the WAVE 1 anomaly(*MINFILE 092HNE311*).

The localized magnetometer survey results over cross-structure "B", indicated a general correlation between the mag LO trend and the trend of the two structure that comprise the cross-structure, There is a high probability that this correlation indicates an alteration association. With the approximate location of the cross-structure with the anomalous mag LO within the mag LO trend, the indication is that the anomalous mag LO indicates a highly altered zone within the intrusive which could substantiate a hydrothermally altered zone at the cross-structure in association with a possible breccia pipe.

Thus, the localized area of the anomalous mag LO zone should be explored for geological signatures to a potential concealed porphyritic mineral resource. Some of these geological signatures can be found in the included Minfile reports and more specifically in the Brenda Minfile (*092HNE047*).

## INTRODUCTION

From October 5, 2016 to October 8, 2016 a structural analysis and a localized magnetic survey were completed on Tenure 1047102 of the 11claim Toni 1047102 claim group ("Property"). The purpose of the program was to delineate potential mineral controlling structures and to determine correlative magnetic responses which may be integral in geological controls to potentially mineral resources that may occur within Tenure 1047102 or other claims of the Property.

Information for this report was obtained from sources as cited under Selected References.

## PROPERTY DESCRIPTION AND LOCATION

### Description

The Property is comprised of 11 contiguous claims covering an area of 3967.5566 hectares. Particulars are as follows:

*Table I. Property Tenures*

<u>Tenure Number</u>	<u>Type</u>	<u>Claim Name</u>	<u>Good Until</u>	<u>Area (ha)</u>
<a href="#">833943</a>	Mineral	SNOW	20161029	415.5088
<a href="#">898131</a>	Mineral	SNOW 3	20161010	415.6527
<a href="#">898133</a>	Mineral	SNOW 5	20161010	311.6187
<a href="#">1032320</a>	Mineral		20161130	623.5115
<a href="#">1037890</a>	Mineral		20161130	83.0803
<a href="#">1037891</a>	Mineral		20161130	498.5898
<a href="#">1039173</a>	Mineral		20161008	311.4889
<a href="#">1039181</a>	Mineral		20161130	373.8098
<a href="#">1040777</a>	Mineral		20161230	269.989
<a href="#">1043058</a>	Mineral		20170326	332.1543
<a href="#">1047102</a>	Mineral		20171005	332.1528

\*Upon the approval of the assessment work filing, Event 5621359.

### Location

The Property is located within BCGS Maps 092H.098/.099 & 092I.009 of the Nicola Mining Division, 218 kilometres northeast of Vancouver, and 32 kilometres southeast of Merritt in south-central British Columbia.

Figure 1. Location Map



## ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

### Access

Access to the Property is southward from Merritt via Highway 5A/97C for 27 kilometres to the Aspen Grove Junction thence eastward via the Okanagan Connector for 13 kilometres to the Loon Lake Junction, thence eastward and northward for 14 kilometres to the southern boundary of Tenure 1032320 of the Toni 1047102 Claim Group.

### Climate

The Property is situated within the dry belt of British Columbia with rainfall between 25 and 30 cm per year. Temperatures during the summer months could reach a high of 35°C and average 25°C with the winter temperatures reaching a low of -10°C and averaging 8°C. On the Property snow cover on the ground could be from December to April and would not hamper a year-round exploration program.

### Local Resources and Infrastructure

Merritt, and/or Kamloops, historic mining centres could be a source of experienced and reliable exploration and mining personnel and a supply for most mining related equipment. Kamloops is serviced daily by commercial airline and is a hub for road and rail transportation. Vancouver, a port city on the southwest corner of, and the largest city in, the Province of British Columbia is four hours distant by road and less than one hour by air from Kamloops.

### Physiography

The topography of Tenure 1047102 is of gentle sloped forested hills. Relief is in the order of 139 metres ranging from elevations of 1,108 metres in the northwest corner to 1,358 metres on a knoll near the southwestern corner.



Figure 2. Claim Location  
(from Google Earth)

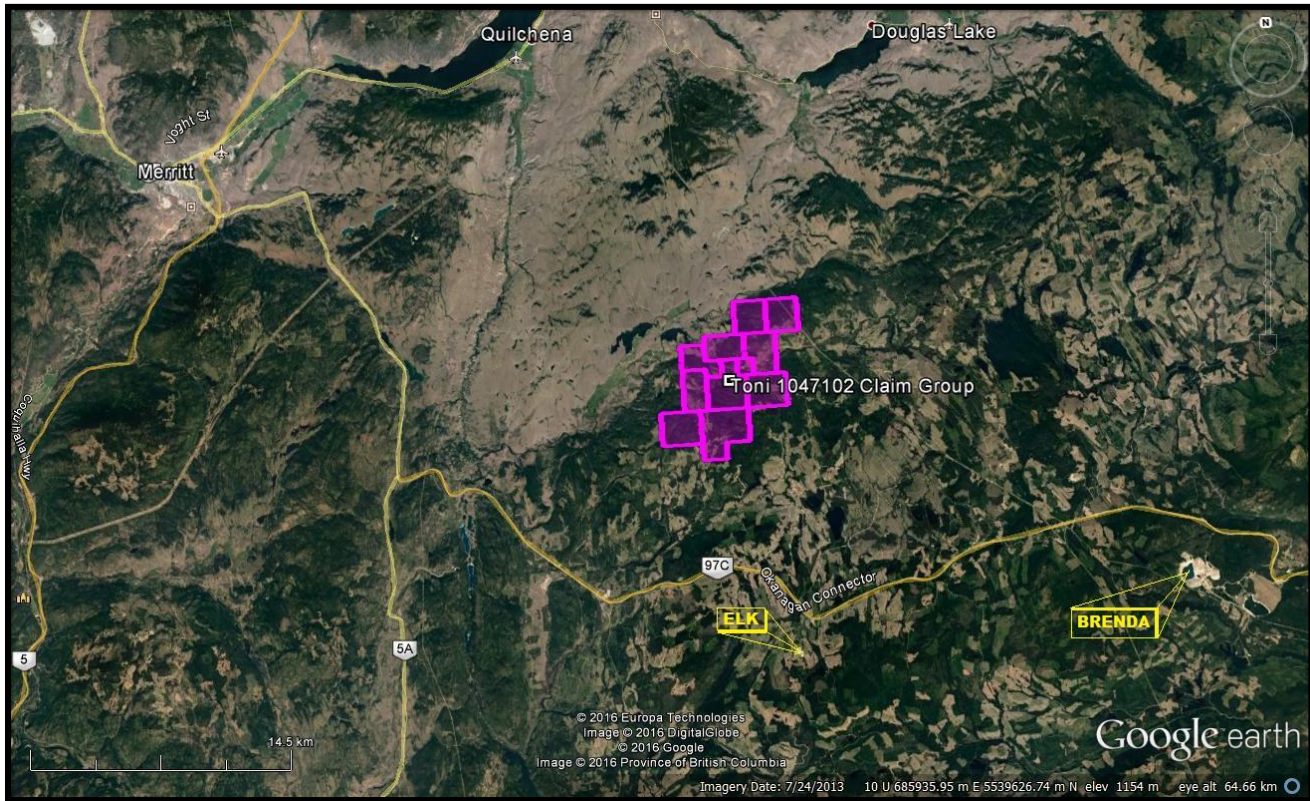
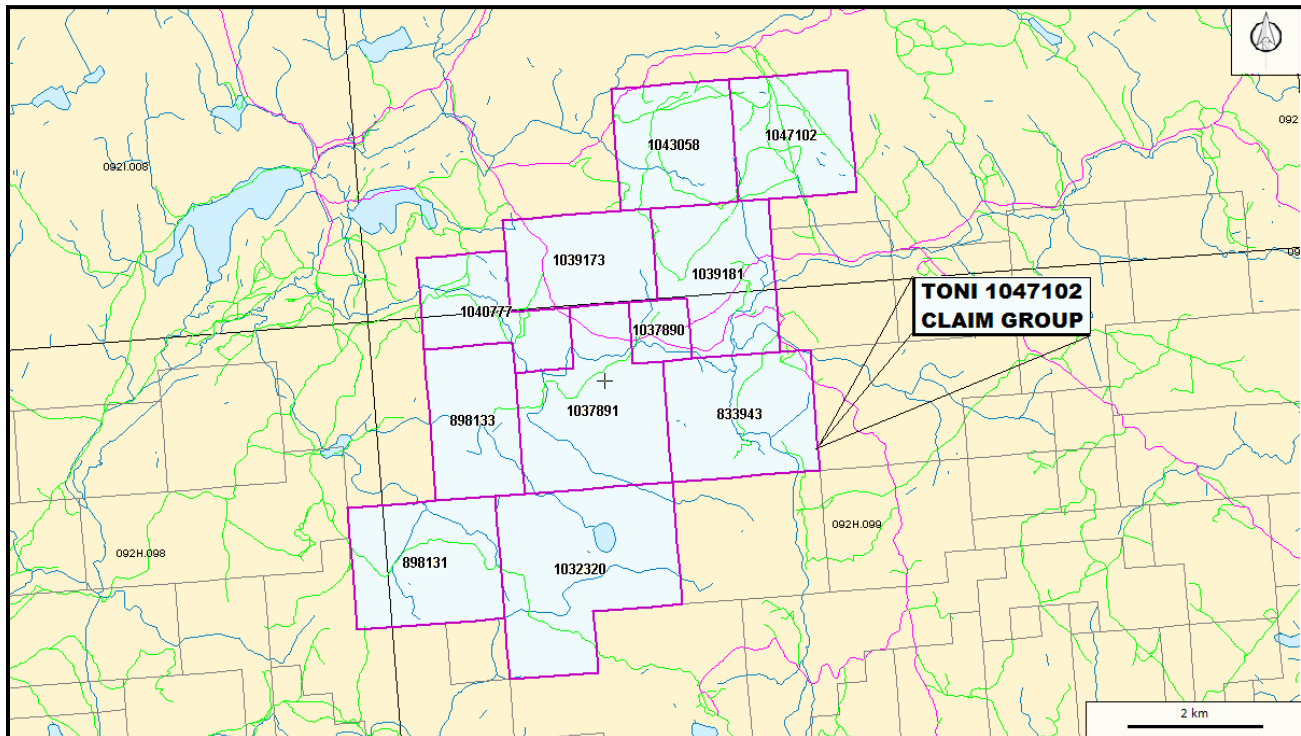


Figure 3. Claim Map  
(Base map from MapPlace)



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**HISTORY: PROPERTY AREA**

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Property is reported in the Minfile published records as follows. The distance is relative to the Toni 1047102 Claim Group.

**MAL** prospect (Cu skarn; Fe skarn; Au skarn)

MINFILE 092HNE002

Five kilometres west

*Initial work consisted of diamond drilling and trenching in the early 1960s on the main showing (Malachite 1 2 and Chalcocite 1-2 claims), on which the occurrence is centred. This is located on access road number 5116, 1 kilometre south of Quilchena Creek, 11.5 kilometres east-northeast of the community of Aspen Grove. A second showing, smaller and less significant but with the same characteristics, is located 1 kilometre to the southwest (Malachite 7, 092HNE269).*

**BRENDA** past producer (Porphyry Cu +/- Mo +/- Au)

MINFILE 092HNE047

Twenty-four kilometres south-southeast

*The Brenda mine began production in early 1970 with measured geological (proven) reserves of 160,556,700 tonnes grading 0.183 per cent copper and 0.049 per cent molybdenum at a cutoff of 0.3 per cent copper equivalent [ $eCu = \% Cu + (3.45 \times \% Mo)$ ]. The mine officially closed June 8, 1990.*

**ECHO** showing (Volcanic redbed Cu)

MINFILE 092HNE058

Three kilometres west

*The Echo occurrence refers to a group of minor copper showings in an area east of the historical Aspen Grove copper camp, between Merritt and Princeton. The occurrence is centred on the northernmost of three showings which were worked on in the 1960s, in a small area (less than 0.5 square kilometre) located southeast of Quilchena Creek, 8.5 kilometres west-northwest of Boot Lake, and 13 kilometres east of the community of Aspen Grove (Assessment Report 1586).*

**BIG SIOUX** past producer (Volcanic redbed Cu; Alkalic porphyry Cu-Au)

MINFILE 092HNE073

Fourteen kilometres west

*This deposit was one of the first showings to be explored in the Aspen Grove copper camp. It was staked in 1899, and investigated periodically by H.H. Schmidt up to 1914. One shaft, 10 metres deep, an adit, 46 metres long, and numerous pits and trenches were excavated during this time. Forty-four tonnes of ore were shipped in 1918 grading 9.78 per cent copper and 67.9 grams per tonne silver. David Minerals Ltd., Amax Exploration Inc. and Norranco Mining and Refining completed soil and rock geochemical and geophysical surveys over the deposit between 1968 and 1978.*

*The occurrence was restaked in 1989 after copper mineralization was exposed in a road cut along the north side of the recently completed Coquihalla Highway (Phase 3 - Okanagan Connector). The deposit was subsequently mapped and sampled by Amex Exploration Services Ltd. in 1990, Northair Mines Ltd. in 1991 and Placer Dome Inc. in 1992.*

**History: Property Area** (cont'd)

**ELK** past producer (Intrusion-related Au pyrrhotite veins; Polymetallic veins  
Ag-Pb-Zn +/-Au; Au-quartz veins)

MINFILE 092HNE096

Ten kilometres south

*From 1992 and 1995 (inclusive), 16,570 tonnes of ore were mined and milled and 1,518,777 grams (48,830 ounces) of gold and 1,903,000 grams (61,183 ounces) of silver recovered.*

*In 1996, Fairfield shipped all remaining stockpiles, estimated to contain 2700 tonnes and grading greater than 12 grams per tonne (Information Circular 1997-1, page 21). A total of 994 metres of ramp access and three development levels exist underground.*

**MIN** showing (Plutonic rocks)

MINFILE 092ISE197

One kilometre west

*In 1969, the area was prospected by Cannoo Mines as a part of their Minnie Lake property. From 1979 to 1981, Dakota Energy completed a program of geochemical sampling, induced polarization and VLF-EM surveys on the Min group.*

**KIT** showing (Alkalic porphyry Cu-Au; Porphyry Mo (Low F- type)

MINFILE 092HNE270

Nine kilometres west

*The Kit showing is exposed on the north bank of Quilchena Creek, 2.0 kilometres east-northeast of the creek's confluence with Pothole Creek and 7.8 kilometres northeast of Aspen Grove.*

*The intrusive was first prospected for molybdenum by J.E. Bate in 1915. Marengo Mines Ltd. excavated one trench, 60 metres long, and drilled two holes in 1967.*

**WAVE 1** anomaly (Polymetallic veins Ag-Pb-Zn +/-Au)

MINFILE 092HNE311

Four kilometres east

*Between 1986 and 1995, Fairfield Minerals conducted exploration, including a program of wide-spaced grid soil sampling. The Wave 1 and 2 claims were staked to cover areas of mineralized quartz float and coincidental soil and stream anomalies. Recently, the area has been explored by Sookochoff Consultants as a part of the Toni property.*

**WAVE 2** anomaly (Polymetallic veins Ag-Pb-Zn +/-Au)

MINFILE 092HNE312

Six kilometres east

*Between 1986 and 1995, Fairfield Minerals explored the area and completed a program of wide-spaced grid soil sampling. The Wave 1 and 2 claims were staked to cover areas of mineralized quartz float and coincidental soil and stream anomalies. In 1991, samples of mineralized vein float, up to 0.20 metres in diameter, returned up to 25.7 parts per million silver, 1732 parts per million lead and 2107 parts per million zinc (Assessment Report 22864). Recently, the area has been explored by Sookochoff Consultants as a part of the Toni property.*

## GEOLOGY: REGIONAL

The Aspen Grove geological district is located within the regional Quesnel Trough, a 30 to 60, km wide belt of Lower Mesozoic volcanic and related strata enclosed between older rocks and much invaded by batholiths and lesser intrusions (Campbell and Tipper, 1970). The southern part is the well-known Nicola belt, continuing nearly 200 km to its termination at the U.S. border and containing the important copper deposits of Highland Valley, Craigmont, Copper Mountain, Afton, Brenda, in addition to the historic Hedley gold camp.

The Nicola Group has been divided into western, central, and eastern belts on the basis of lithology and litho-geochemistry and by major fault systems.

Variation from calc-alkaline to shoshonitic compositions from west to east has been interpreted to reflect eastward dipping subduction in the Nicola arc. The Property is situated within the eastern belt of the Nicola Group which is bounded on the west by the northerly striking Kentucky-Alleyne fault zone.

## GEOLOGY: PROPERTY AREA

The geology on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Property (Figure 4) is reported as follows. The distance is relative to the Toni 1047102 Claim Group

**MAL** prospect (Cu skarn; Fe skarn; Au skarn)

MINFILE 092HNE002

Five kilometres west

*The occurrence lies in the northern assemblage of the Eastern belt or facies of the Nicola Group (after Preto, Bulletin 69). This assemblage mainly consists of well-bedded submarine volcanoclastic rocks and volcanic flows. The main Aspen Grove copper camp lies several kilometres to the west in the Central belt, separated by the north-striking Kentucky-Alleyne fault system (Bulletin 69).*

*The area of the Malachite occurrence is underlain by dark green, augite porphyritic andesitic to basaltic volcanics and fragmental rocks, with subordinate black argillite with local limy horizons, and feldspar porphyry (Assessment Reports 449, 1586).*

*Some volcanic flow breccia contains pink trachytic fragments (Assessment Report 9590). Stratified rocks strike north-northwest and dip moderately to steeply west (Geological Survey of Canada Map 41-1989).*

*Within 1 or 2 kilometres to the north of these rocks is the east-trending contact of the Early Jurassic Pennask batholith, a large intrusion of medium-grained granodiorite to quartz diorite.*

*The volcanics and sedimentary rocks have been altered, probably the result of hydrothermal activity related to the Pennask batholith. Epidote alteration is common; potassium feldspar alteration is more restricted. Skarn alteration is most characteristic of this occurrence, as it hosts the main mineralization. It is closely associated with limy rocks, and is marked by epidote and garnet. North-trending gossanous shear zones have been exposed in trenches near the skarn zones (Assessment Report 449).*

**BRENDA** past producer (Porphyry Cu +/- Mo +/- Au)

MINFILE 092HNE047

Twenty-four kilometres south-southeast

**Geology: Property Area (cont'd)****Brenda past producer (cont'd)**

The Pennask Mountain area is mainly underlain by a roof pendant comprising westerly younging, Upper Triassic sedimentary and volcanoclastic rocks of the Nicola Group.

These are intruded and enclosed to the north, east and south by plutonic rocks of the Early Jurassic Pennask batholith and Middle Jurassic Osprey Lake batholith.

Both the Nicola rocks and the Pennask batholith are unconformably overlain by Tertiary sediments and volcanics of the Princeton Group.

The Brenda copper-molybdenum deposit is within the "Brenda stock", a composite quartz diorite/granodiorite body which forms part of the Pennask batholith. Several ages and compositions of pre and post-ore dikes cut the stock. The deposit is approximately 390 metres from the contact with Nicola Group rocks to the west.

Nicola Group tuffs, volcanic breccias and flows adjacent to the Brenda stock have been altered to "schistose hornfels". This hornfels, which is as wide as 450 metres, is characterized by the development of bands and aligned lenses of felted brown to black biotite. Schistosity generally strikes roughly parallel to the intrusive contact and dips west at 30 to 70 degrees. The schistose hornfels grades westerly into recognizable west-dipping volcanic rocks which in turn are overlain by greywacke, argillite and shales.

The Brenda stock is a composite, zoned quartz diorite to granodiorite body which can be divided into two units. Unit 1 is of quartz diorite composition and contains abundant mafic minerals (hornblende > biotite) and angular quartz grains, whereas unit 2 is porphyritic granodiorite and contains fewer mafic minerals (biotite > hornblende), well-defined biotite phenocrysts and subhedral quartz grains.

The contact between units 1 and 2 is generally gradational, but locally sharp. At sharp contacts, unit 2 is chilled against unit 1.

Dikes of several ages and compositions cut the Brenda stock. At least four types, aplite-pegmatite, andesite, trachyte porphyry and basalt, have been identified in the Brenda orebody.

Similar dikes, as well as felsite, dacite and quartz diorite have been mapped beyond the limits of economic mineralization. The aplite-pegmatite dikes are cut by all other dikes and by all mineralized fractures. The andesite dikes have been altered and mineralized during ore formation. Two types of quartz diorite dikes are found and both are cut by quartz-sulphide veins. Dacite porphyry and felsite dikes are also cut by quartz-sulphide veins

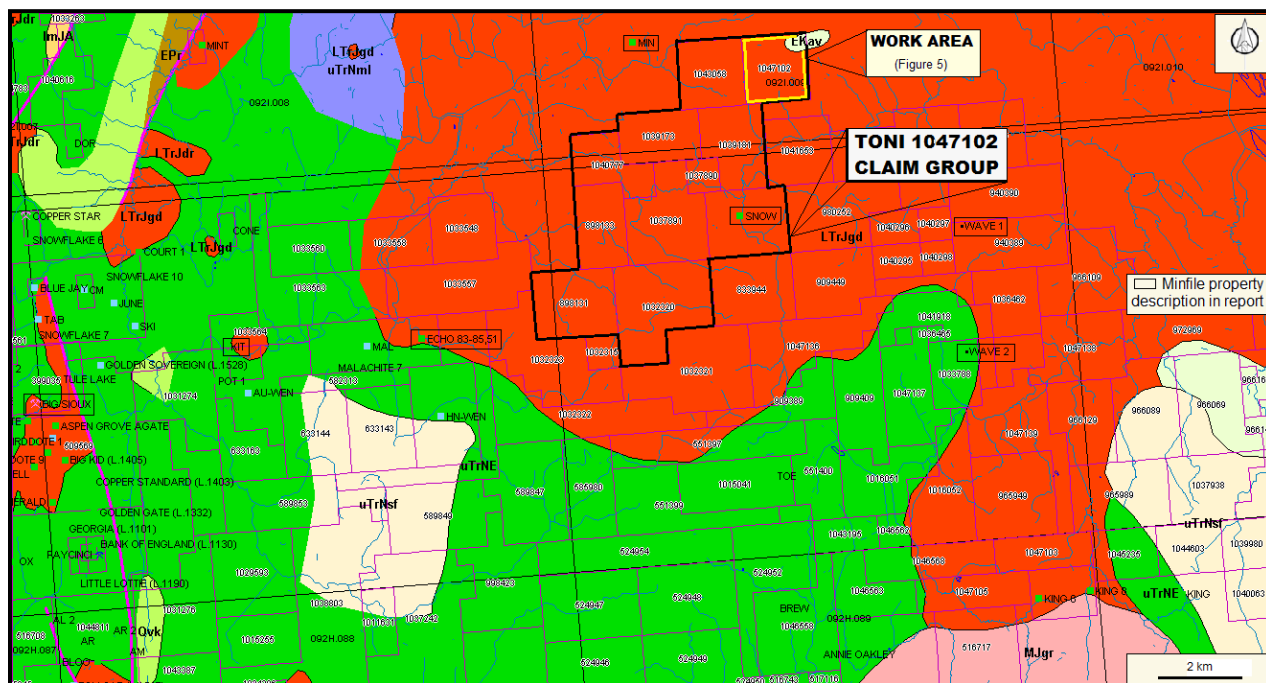
A trachyte porphyry dike up to 4.5 metres wide and 300 metres in strike length is exposed in the Brenda pit. A weakly mineralized vein was observed in the dike which suggested an intermineral age for the dike.

Further evidence has clearly shown that the dikes cut all stages of mineralization, except some of the latest quartz veins (Canadian Institute of Mining and Metallurgy Special Volume 15). Several post-mineral hornblende lamprophyre dikes also occur within the Brenda orebody and are probably genetically related to the trachyte porphyry dikes.

Geology: Property Area (cont'd)

Figure 4. Geology, Claim, Index & Minfile

(Base map from MapPlace)



**GEOLOGY MAP LEGEND**

**Pleistocene to Holocene**

**Qvk**  
unnamed alkalic  
volcanic rocks

**Upper Triassic**

**Nicola Group**

**Eastern Volcanic Facies**

**uTrNE**  
basaltic volcanic rocks

**uTtNsf**  
mudstone, siltstone, shale,  
fine clastic sedimentary rocks

**uTrNMI**  
lower amphibolite/kyanite  
grade metamorphic rocks

**uTrJum**  
unnamed ultramafic rocks

**Central Volcanic Facies**

**uTrNC**  
andesitic volcanic rocks

**Late Triassic to Early Jurassic**

**LTrJgd**  
unnamed granodiorite intrusive  
rocks

**LTrJdr**  
dioritic to gabbroic intrusive rocks

**Geology: Property Area (cont'd)****Brenda past producer (cont'd)**

*Irregular, branching basalt dikes, probably related to Tertiary volcanism, have been intruded along pre-existing fault zones. They cut all phases of mineralization and alteration.*

*Initial potassium-argon dating of two samples from the Brenda mine area resulted in different ages for hornblende (176 Ma) and biotite (148 Ma). Interpretation of these results suggests that the Brenda stock crystallized about 176 million years ago.*

*Biotite samples from the pit area have been dated at about 146 Ma, which probably represents the age of mineralization (Canadian Institute of Mining and Metallurgy Special Volume 15).*

*Faults in the Brenda pit are expressed as fracture zones in which the rock is intensely altered to clay minerals, sericite, epidote and chlorite. These fracture zones range in width from a few centimetres to 9 metres. Most strike 070 degrees and dip steeply south. Northwest-striking faults exhibit left-lateral movement. The faults transect all mineralization, except some calcite veins. Sulphides, especially molybdenite, have been smeared along fault planes. Shear zones are wider and more numerous in the north half of the pit, where they control bench limits.*

**ECHO** showing (Volcanic redbed Cu)

MINFILE 092HNE058

Three kilometres west

*The Echo occurrence is hosted in the Upper Triassic Nicola Group, which regionally consists of alkalic and calcalkalic volcanics and intrusions of island arc origin, and which is the principal component of the Quesnel Terrane in southern British Columbia (Geological Survey of Canada Maps 41-1989, 1713A). This belt has been of major economic interest because of its potential for porphyry copper-gold mineralization.*

*The occurrence lies in the northern assemblage of the Eastern belt of the Nicola Group (after Preto, Bulletin 69). This assemblage mainly consists of well-bedded submarine volcanoclastic rocks and volcanic flows. The main Aspen Grove copper camp lies several kilometres to the west in the Central belt, separated by the north-striking Kentucky-Alleyne fault system (Bulletin 69).*

*The volcanics may be affected by low grade propylitic and chloritic alteration. Less than 1 kilometre to the north of the occurrence is the east-striking contact of the Early Jurassic Pennask batholith, a large intrusion of medium-grained granodiorite to quartz diorite.*

**BIG SIOUX** past producer (Volcanic redbed Cu; Alkalic porphyry Cu-Au)

MINFILE 092HNE073

Fourteen kilometres west

*The Fairweather Hills region is underlain by the Central volcanic facies of the Upper Triassic Nicola Group, comprising intermediate, feldspar and feldspar augite porphyritic pyroclastics and flows, and associated alkaline intrusions. The intrusions vary from diorite to monzonite in composition and are thought to be comagmatic with the Nicola Group, ranging in age from Late Triassic to Early Jurassic.*

*Locally, the area is underlain by red and green laharic breccias, augite andesite porphyry and minor sediments of the Nicola Group (Central belt, Bulletin 69).*

**Geology: Property Area (cont'd)****Big Sioux past producer (cont'd)**

*The units generally strike north-northwest and dip east. This sequence is broken up into a series of tilted fault blocks trending north.*

*The occurrence is hosted in variably amphibole, augite and feldspar porphyritic basaltic andesite, subjected to extensive fracturing, shearing and faulting. Alteration minerals include abundant epidote, and minor silica and chlorite. Some microdiorite and diorite are also present.*

**ELK** past producer (Intrusion-related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn +/-Au; Au-quartz veins)

MINFILE 092HNE096

Ten kilometres south

*The Elk property is underlain by Upper Triassic volcanics and sediments of the Nicola Group and by Middle Jurassic granites and granodiorites of the Osprey Lake batholith. The contact between these units trends northeasterly across the property. Early Tertiary feldspar porphyry stocks and dikes of the Otter intrusions occur throughout the property.*

*The western property area is underlain by steeply west-dipping andesitic to basaltic flows, agglomerates, tuffs and minor siltstone and limestone units of the Nicola Group. The eastern half of the property is underlain by granitic rocks of the Osprey Lake batholith.*

**MIN** showing (Plutonic rocks)

MINFILE 092ISE197

One kilometre west

*The area is underlain by granite of the Early Jurassic Pennask batholith.*

**KIT** showing (Alkalic porphyry Cu-Au; Porphyry Mo (Low F- type)

MINFILE 092HNE270

Nine kilometres west

*A small body of granodiorite of Late Triassic to Early Jurassic age intrudes volcanics of the Upper Triassic Nicola Group. The granodiorite is cut by narrow, steeply-dipping shears striking north and northeast, near the faulted contact with slightly pyritic Nicola Group greenstone to the northwest.*

**WAVE 1** anomaly (Polymetallic veins Ag-Pb-Zn+/-Au)

MINFILE 092HNE311

Four kilometres east

*The area is underlain by granitic rocks of the Jurassic Pennask batholith and basaltic volcanics of the Triassic Nicola Group.*

**WAVE 2** anomaly (Polymetallic veins Ag-Pb-Zn+/-Au)

MINFILE 092HNE312

Six kilometres east

*The area is underlain by granitic rocks of the Jurassic Pennask batholith and basaltic volcanics of the Triassic Nicola Group.*



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## GEOLOGY: PROPERTY

As indicated by the BC government supported MapPlace geological maps, the Property is entirely underlain by granodioritic rocks of the Late Triassic to Early Jurassic Pennask batholith (uTrJgd).

**SNOW** showing (Porphyry Cu+/-Mo+/-; Polymetallic veins Ag-Pb-Zn+/-Au  
MINFILE 092HNE292

Two kilometres southeast

*The Pine showing is 500 metres south of Quilchena Creek and 4.8 kilometres north-northeast of the north end of Boot Lake. A drillhole intersected minor copper mineralization in weakly to moderately chloritized granite of the Early Jurassic Pennask batholith.*

*A sample of drill core from 28.0 metres depth contained fine-grained magnetite accompanied by fine-grained chalcocite or bornite along the margins of a zeolite vein.*

## MINERALIZATION: PROPERTY AREA

The mineralization on some of the more significant mineral MINFILE reported showings, prospects, and past producers peripheral to the Property is reported as follows. The distance is relative to the Toni 1047102 Claim Group

**MAL** prospect (Cu skarn; Fe skarn; Au skarn)

MINFILE 092HNE002

Five kilometres west

*Copper mineralization is concentrated in the skarn zones. Pyrite and subordinate magnetite and chalcopyrite are associated with quartz-calcite veins, or are disseminated in variable amounts (Assessment Report 1586). Chalcocite and malachite are also present at the main showing (Assessment Report 8453). Finely disseminated pyrite is common in most rocks, particularly the argillaceous rocks (Assessment Reports 1718, 9590).*

*A zone of massive, medium-grained pyrite between 1 and 13 metres thick, in altered volcanic rocks, has been found below the surface by diamond drilling; the paragenesis is epidote, magnetite, pyrite (Assessment Report 9590).*

*Copper values appear to be erratic. In early diamond drilling, the best result reported is 1.62 per cent copper over 6 metres; this section contained at least 50 per cent magnetite (Assessment Report 449, page 6). More recent diamond drilling has resulted in generally low metal values, although one split core sample assayed 0.37 per cent copper and 6.8 grams per tonne silver (Assessment Report 9590).*

*A grab sample from the main trenched and drilled area assayed 0.34 gram per tonne gold, 3.4 grams per tonne silver, and 0.2 per cent copper (Assessment Report 8453).*

*The high magnetite and pyrite content of the rocks at this occurrence is reflected in significant magnetic and induced polarization anomalies, respectively, over the mineralized zones (Assessment Reports 1586, 8453).*

**Mineralization: Property Area** (cont'd)

**BRENDA** past producer (Porphyry Cu +/- Mo +/- Au)  
MINFILE 092HNE047

Twenty-four kilometres south-southeast

*The Brenda orebody is part of a belt of copper-molybdenum mineralization that extends north-northeast from the Nicola Group-Brenda stock contact. Mineralization of economic grade (0.3 per cent copper equivalent) is confined to a somewhat irregular zone approximately 720 metres long and 360 metres wide. Ore-grade mineralization extends more than 300 metres below the original surface.*

*Lateral boundaries of ore-grade mineralization are gradational and appear to be nearly vertical.*

*Primary mineralization is confined almost entirely to veins, except in altered dike rocks and in local areas of intense hydrothermal alteration which may contain minor disseminations. The grade of the orebody is a function of fracture (vein) density and of the thickness and mineralogy of the filling material. The average total sulphide content within the orebody is 1 per cent or less.*

*Chalcopyrite and molybdenite, the principal sulphides, generally are accompanied by minor, but variable, quantities of pyrite and magnetite. Bornite, specular hematite, sphalerite and galena are rare constituents of the ore. Johnson (1973), in a study of 17 samples from the deposit, reported minor pyrrhotite, mackinawite, carrollite, cubanite, ilmenite, rutile and native gold (?), as well as several secondary sulphides (Canadian Institute of Mining and Metallurgy Special Volume 15). Pyrite is most abundant in altered andesite dikes and in quartz-molybdenite veins. The ratio of pyrite to chalcopyrite in the orebody is about 1:10, with the chalcopyrite content diminishing beyond the ore boundaries.*

*Because mineralization is confined almost entirely to veins in relatively fresh homogeneous rock, the veins are divided into separate stages, based on crosscutting relations and their mineralogy and alteration effects on the hostrock. The vein density within the orebody is not uniform.*

*Ranges are recorded from less than 9 per metre near the periphery of the orebody to 63 per metre and occasionally 90 per metre near the centre of the orebody. Some veins have very sharp contacts with wallrocks, but most contacts are irregular in detail where gangue and sulphide minerals replace the wallrock.*

*A vein may show features characteristic of fracture-filling in one part and of replacement in another. Mineralized solutions were introduced into fractures and, during development of the resultant veins, minor replacement of the wallrock ensued.*

*The chronological stages of mineralization are as follows: (1) biotite-chalcopyrite (oldest); (2) quartz-potassium feldspar-sulphide; (3) quartz-molybdenite-pyrite; (4) epidote-sulphide-magnetite; and (5) biotite, calcite and quartz. Stages 1 through 4 are all genetically related to a single mineralizing episode, which was responsible for the orebody. Stage 5 represents a later, probably unrelated, event(s) (Canadian Institute of Mining and Metallurgy Special Volume 15). Stage 2 veins form the bulk of the mineralization in the deposit, and are the most important source of ore.*

*Hydrothermal alteration at the Brenda deposit generally is confined to narrow envelopes bordering veins.*

**Mineralization: Property Area (cont'd)****Brenda past producer (cont'd)**

These alteration envelopes commonly grade outward into unaltered or weakly propylitic-altered rock. Where veins are closely spaced, alteration envelopes on adjacent veins may coalesce to produce local areas of pervasive alteration. For the most part, hydrothermal alteration at the Brenda deposit is exceptionally weak for a porphyry copper system.

Four types of alteration are recognized in the Brenda deposit, three of which are related to the mineralizing process. Two of these are potassic (potassium feldspar) and biotite, and the other is propylitic. Later argillic alteration has been superimposed on the system along post-mineral faults.

Potassium feldspar and biotite alteration generally are separated in space, but locally occur together. Both types of alteration accompanied sulphide deposition. Potassium feldspar replaces plagioclase adjacent to most stage 2 and, to a lesser extent, stage 3 veins. These irregular envelopes range in width from a centimetre or less up to a metre, with an average of about 2 centimetres.

Hydrothermal biotite replaces magmatic mafic minerals (hornblende, biotite) and, more rarely, plagioclase in hostrock adjacent to stage 2 and especially stage 3 veins. These envelopes of hydrothermal biotite range in width from less than 1 millimetre to several centimetres.

Weak to intense propylitic alteration, which is characterized by the development of chlorite and epidote, as well as less obvious microscopic sericite and carbonate, is sporadically distributed throughout the Brenda stock. Large areas within the orebody have not been propylitized and in these areas, veins with potassic alteration envelopes clearly cut across propylitized quartz diorite, indicating an early hydrothermal or even a pre-ore origin for the propylitization (Canadian Institute of Mining and Metallurgy Special Volume 15). A second period of propylitization accompanied the development of stage 4 veins and is reflected as envelopes of epidote and chlorite.

Locally intense argillic alteration is confined to post-mineral fault zones where the hostrock has been highly shattered. Kaolinite, sericite and epidote have almost completely replaced the host rocks.

Surface weathering, which is expressed predominantly by the development of limonite, extends as a highly irregular blanket over the mineralized zone for depths ranging from a few metres to greater than 30 metres. In this weathered area, limonite stains all fractures. Fault zones have been especially susceptible to surface weathering, and the argillic alteration of these zones may be primarily the result of groundwater action. Secondary minerals developed during weathering, all highly subordinate in quantity to limonite, include malachite, azurite, hematite, ferrimolybdite, powellite and cupriferous manganese oxides. Cuprite, covellite, chalcopyrite, native copper, tenorite and ilsemannite are rare constituents. Copper-molybdenum mineralization in the Brenda deposit was developed during several sequential stages, all of which constitute one mineralizing episode.

Each stage occupies unique sets of fractures, which are filled with specific combinations of metallic and gangue minerals.

**Mineralization: Property Area** (cont'd)**Brenda** past producer (cont'd)

Although the attitudes of veins in each stage are unique in detail, most stages include conjugate steeply dipping sets of northeast and northwest striking veins. If these veins occupy shear fractures, it is probable that they were formed by generally east-west compressive forces.

Examination of the structure in the Nicola Group rocks to the west reveals that north-northwest and north trending fold axes also indicate an east-west compression. It is suggested that intermittent east-west compressional forces intensely fractured the rocks of the Brenda stock during several stages of time and tapped a hydrothermal source, either a later phase of the Brenda stock or a separate intrusive system.

As each stage of fractures developed, hydrothermal fluids introduced vein material which healed the fractures. Renewed build-up of compressional forces again fractured the rocks, which were again healed. Repetition of this sequence can explain all stages of mineralization within the Brenda deposit. East-west compression continued after ore deposition ceased and produced prominent east-northeast and northwest striking shear zones (Canadian Institute of Mining and Metallurgy Special Volume 15).

**ECHO** showing (Volcanic redbed Cu)

MINFILE 092HNE059

Three kilometres west

Chalcopyrite and malachite are present in trenches and opencuts in volcanics over an area 1000 by 800 metres. Chalcopyrite is disseminated, or concentrated in quartz-calcite veins (Assessment Report 1586). The Echo occurrence lies directly along the strike of prominent fractures which host significant copper-silver mineralization at the HN-WEN occurrence (092HNE058), 2 kilometres to the south-southeast (Assessment Report 4230).

**BIG SIOUX** past producer (Volcanic redbed Cu; Alkalic porphyry Cu-Au)

MINFILE 092HNE073

Fourteen kilometres west

Pyrite, pyrrhotite, chalcopyrite and arsenopyrite are disseminated sporadically in the tuffaceous rocks and argillite, up to about 1 per cent, and also occur in fractures (Assessment Reports 11241, 16008). Native gold is associated with the sulphides in narrow quartz-filled fractures in these rocks (Assessment Report 16008). Minor malachite occurs in volcanics.

The overall extent of the mineralization has not been determined, although diamond drilling has demonstrated that minor pyrite, pyrrhotite and chalcopyrite, disseminated or associated with quartz or calcite fracture veinlets, does persist below the surface (Assessment Reports 11241, 16008).

Gold values in the area are generally low, but high values have been obtained from trench sampling and drill core at the main showing. Significant gold assays in chip samples range from 6.8 grams per tonne over 5.1 metres to 10.8 grams per tonne over 4.9 metres (Assessment Report 16008).

**Mineralization: Property Area** (cont'd)

**ELK** past producer (Intrusion-related Au pyrrhotite veins; Polymetallic veins  
Ag-Pb-Zn +/-Au; Au-quartz veins)

MINFILE 092HNE096

Ten kilometres south

*Gold-silver mineralization on the Elk property is hosted primarily by pyritic quartz veins and stringers in altered pyritic granitic and, less frequently, volcanic rocks. Crosscutting relationships indicate that the veins are Tertiary in age; they may be related to Tertiary Otter intrusive events.*

*To date, mineralization has been located in four areas on the Elk property: Siwash North, South Showing (092HNE261), North Showing (092HNE281) and Siwash Lake (092HNE041, 295).*

*The Siwash Lake zone is 800 metres south of the Siwash North deposit; the North Showing and South Showing areas are 2 and 3 kilometres south of Siwash North respectively.*

*In the Siwash North area, gold occurs in veins measuring 5-70 centimetres wide, hosted by a zone of strongly sericitic altered granite and, in the west, volcanic rocks.*

*In general, the mineralized zone trends east-northeast with southerly dips from 20-80 degrees (from east to west), and appears to be related to minor shearing. Quartz veining occurs in a number of parallel to subparallel zones. Each zone consists of one or more veins within an elevation range of 5 to 10 metres that can be correlated as a group to adjacent drillholes. In the eastern parts of the area, up to six subparallel zones occur.*

*Five of these zones are consistent enough to be labelled the A, B, C, D and E zones.*

*Mineralization in the west has been identified in one or locally two zones (the B and C zones). The main mineralized zone (B) is consistent, with only minor exceptions, across the entire drill grid.*

*The Siwash North structure has been tested to 335 metres downdip and along a strike length of 925 metres. The zone remains open to depth and along strike.*

*At surface, supergene alteration has leached out most of the sulphides with some pyrite and chalcopyrite remaining. Mineralization occurs primarily as native gold, occasionally as spectacular aggregates of coarse flakes in frothy quartz (strong pyrite boxwork) or in fractures in the vein. Electrum was noted in one area as very coarse-grained flakes associated with strong manganese staining. Gold is rarely seen in boxworks in sericitic (phyllic) alteration.*

*In drill core, mineralization has not been affected by supergene processes. Metallic minerals in drill core include pyrite, chalcopyrite, sphalerite, galena, tetrahedrite, maldonite ? pyrrhotite and native gold in order of decreasing abundance).*

*Gold is strongly associated with pyrite and with a blue-grey mineral. Photomicrographs show the gold commonly in contact with this mineral, which may be a gold-bismuth alloy (maldonite?) or a copper-bismuth- antimony sulphosalt.*

*Gangue mineralogy consists primarily of quartz and altered wallrock fragments. Ankerite is commonly present, with lesser amounts of calcite. Minor barite is also present. Fluorite was noted in one vein as very small (less than 1 millimetre) zoned purple cubes scattered in the quartz.*

**Mineralization: Property Area** (cont'd)**Elk** past producer (cont'd)

Stronger alteration generally accompanies higher grade gold mineralization. Seven main types of alteration were recognized in the granitic rocks throughout the property: propylitic, argillic, sericitic, potassium feldspar stable phyllic, phyllic, advanced argillic and silicic.

Locally, potassic alteration, skarnification and silicification are evident, but are relatively minor and do not appear to be related to mineralization.

Propylitic alteration is generally light green with biotite and hornblende altered to chlorite, and plagioclase is saussuritized. In volcanics, the colour is generally olive green, and the rock is soft. Argillic alteration is exemplified by bleached rock, with plagioclase white and clay-altered; potassium feldspar is slightly altered. Volcanics are bleached to light green or grey.

Sericitic alteration is typically pale green with a micaceous sheen, with plagioclase altered to sericite; trace disseminated pyrite may be present.

This type of alteration is often associated with quartz veins and appears to be the lowest grade alteration associated with gold mineralization. It is not recognized in volcanics.

Potassium feldspar stable phyllic alteration is light pink, green or yellowish with potassium feldspar fresh and pink and blocky. Plagioclase and mafic minerals are altered to fine-grained quartz-sericite-pyrite. It often occurs with veins and is associated with gold mineralization; it is not recognized in volcanics.

Phyllic alteration is generally grey, fine-grained quartz-sericite-pyrite alteration usually associated with veins and often gradational to quartz and often auriferous. Advanced argillic alteration is exemplified by most or all of feldspar being destroyed, quartz is "free-floating". The alteration is often sheared and white in colour and is often associated with quartz veins. Volcanics are white or blue coloured. Silicic alteration is quartz veining or replacement that is hard with moderate conchoidal fracture. There is a strong symmetrical zoning of alteration around the quartz veins: vein-advanced argillic-phyllic-potassium feldspar stable phyllic-argillic-propylitic.

Measured geological reserves of the Siwash North deposit are 308,414 tonnes grading 22.17 grams per tonne gold and 24.68 grams per tonne silver using a cutoff grade of 10 grams per tonne gold. Reserves are based on results from 107 drillholes at 50-metre grid spacings along 804 metres of strike length to 304 metres downdip. All veining intercepts have been adjusted for true width and assays diluted to 2-metre mining widths (George Cross News Letter No. 223 (November), 1991).

The revised drill indicated reserve, based on more realistic open pit and underground mining widths of 0.39 to 0.79 metre with a 20.5 grams per tonne gold cutoff grade, is 122,458 tonnes averaging 54.5 grams per tonne gold (George Cross News Letter No. 65 (April 2), 1993).

Surface drilling was done on fences 10-50 metres apart, underground drilling on fences 10 metres apart. Reserve calculations by the company and consultant Roscoe Postle gave the following results (Explore B.C. Program 95/96 - A38):

Possible (undiluted) 50,260 tonnes at 66,400 tonnes at 42.0 g/t gold 31.4 g/t gold

Probable (undiluted) 16,991 tonnes at 28,200 tonnes at 50.2 g/t gold 26.6 g/t gold

**Mineralization: Property Area (cont'd)****Elk** past producer (cont'd)

The 1996 exploration program consisted of 6873 metres of drilling in 91 holes. The Siwash zone has been traced along a 914 metre strike length and down dip to 245 metres.

Reserves estimated by the company at January 1, 1996 were 121,350 tonnes grading 25.4 grams per tonne gold and 35.3 grams per tonne silver. These include a diluted, probable open-pit resource of 11,340 tonnes grading 58.97 grams per tonne gold, an underground probable resource below the open pit of 20,225 tonnes grading 26.74 grams per tonne gold, and a further possible underground resource of 89,790 tonnes grading 23.66 grams per tonne gold (Information Circular 1997-1, page 21).

Surface diamond drilling totaling 1413.96 metres in 12 holes was completed on the Siwash Mining lease during 2000 testing the B, WD and Gold Creek West (GCW) zones.

A trenching program was carried out in 2001 in the Siwash East Area consisting of six trenches totaling 202 meters. Almaden Resources and Fairfield Minerals Ltd. merged into Almaden Minerals Ltd. in February, 2002.

In 2002, Almaden undertook a 26 hole surface diamond drill program for a total of 4995.67 metres testing the B, WD, GCW and Bullion Creek zones. During the 2003 field season a 6570 metre, 30 hole, diamond drill program was carried out by Almaden in the Siwash North area testing the WD zone. The WD vein system is located approximately 100 metres north of the Siwash B zone vein and has been tested over a strike length of 610m and down dip for 380m.

By the end of May 2004, a total of eight mineralized veins had been discovered on the property. Four vein systems had been drilled in the Siwash area: the B system with a strike length of 900 m has been tested down dip to 320 m; the WD zone with a strike length of 650 m has been tested to 370 m down dip; the GCW zone with a strike length of 300 m has been tested to 130 m down dip and the Bullion Creek (BC) zone which has been tested with two holes to a depth of 75 m. A new 43-101 compliant resource was calculated using drill data for the Siwash B and WD veins, just two of eight known mesothermal vein structures on the property.

Global (bulk-tonnage and underground mineable) measured and indicated resources were reported to total 668,300 tonnes grading 9.66 grams per tonne gold (207,600 ounces) plus an additional 1,317,200 tonnes grading 4.91 grams per tonne gold (207,800 ounces) in the inferred category (News Release, Almaden Minerals Limited, May 28, 2004). Included in the global figures is a higher grade, underground-mineable resource totaling 164,000 tonnes grading 33.69 g/t gold in the measured and indicated category, plus another 195 200 tonnes grading 16.38 g/t gold in the inferred category.

In 2004 a diamond drill program consisting of 10,265 meters of NQ drilling in 44 holes was completed. As reported by Almaden in 2001, a possible extension to the B and WD vein systems was found roughly two kilometres along strike to the east, on the other side of an area of overburden cover and no outcrop, as part of a trenching program. Grab samples of the vein material taken at surface returned averaged analyses of 31.6 grams per tonne gold and 104.4 grams per tonne silver (News Release, Almaden Minerals Limited, March 4, 2005). This discovery added about two kilometres of prospective, unexplored strike length to the high-grade vein system.

**Mineralization: Property Area** (cont'd)

**MIN** showing (Plutonic rocks)  
MINFILE 092ISE197  
One kilometre west

*Locally, copper mineralization occurs along fractures and as disseminations in the granite.*

**KIT** showing (Alkalic porphyry Cu-Au; Porphyry Mo (Low F- type)  
MINFILE 092HNE270  
Nine kilometres west

*Some of the shears are graphitic and they locally contain quartz lenses 2.5 to 5 centimetres wide with minor disseminated molybdenite. The intrusive is also fractured to some extent, with one prominent set striking 055 to 070 degrees and dipping steeply southeast. Some of the fractures contain quartz with minor chalcopyrite, malachite and molybdenite.*

**WAVE 1** anomaly (Polymetallic veins Ag-Pb-Zn+/-Au)  
MINFILE 092HNE311  
Four kilometres east

*Locally, mineralized quartz vein float was found and contain disseminated pyrite and limonite with occasional specks of chalcopyrite, galena or sphalerite.*

*Between 1986 and 1995, Fairfield Minerals conducted exploration, including a program of wide-spaced grid soil sampling. In 1991, samples of mineralized vein float, up to 0.20 metre in diameter, returned up to 8230 parts per billion gold, 249.3 parts per million silver, 844 parts per million copper and 4091 parts per million lead (Assessment Report 22864). Recently, the area has been explored by Sookochoff Consultants as a part of the Toni property.*

**WAVE 2** anomaly (Polymetallic veins Ag-Pb-Zn+/-Au)  
MINFILE 092HNE312  
Six kilometres east

*Locally, mineralized quartz vein float was found and contain disseminated pyrite and limonite with occasional specks of chalcopyrite, galena or sphalerite. In 1991, samples of mineralized vein float, up to 0.20 metres in diameter, returned up to 25.7 parts per million silver, 1732 parts per million lead and 2107 parts per million zinc (Assessment Report 22864).*

**MINERALIZATION: PROPERTY**

**SNOW** showing (Porphyry Cu+/-Mo+/-; Polymetallic veins Ag-Pb-Zn+/-Au)  
MINFILE 092HNE292  
Two kilometres southeast

*The Pine showing is 500 metres south of Quilchena Creek and 4.8 kilometres north-northeast of the north end of Boot Lake. A drillhole intersected minor copper mineralization in weakly to moderately chloritized granite of the Early Jurassic Pennask batholith. A sample of drill core from 28.0 metres depth contained fine-grained magnetite accompanied by fine-grained chalcocite or bornite along the margins of a zeolite vein.*



## STRUCTURAL ANALYSIS

### a) Purpose

The purpose of the structural analysis was to delineate any area of major fault intersections which location could be the centre of maximum brecciation and be depth intensive to provide the most favourable feeder zone to any convective hydrothermal fluids sourced from a potentially mineral laden reservoir. The fluid constituents and/or the indications thereof could be etched in the surface material; where, by means of standard exploratory procedures, the source and location may be identified and a foundation on which to warrant any follow-up exploration.

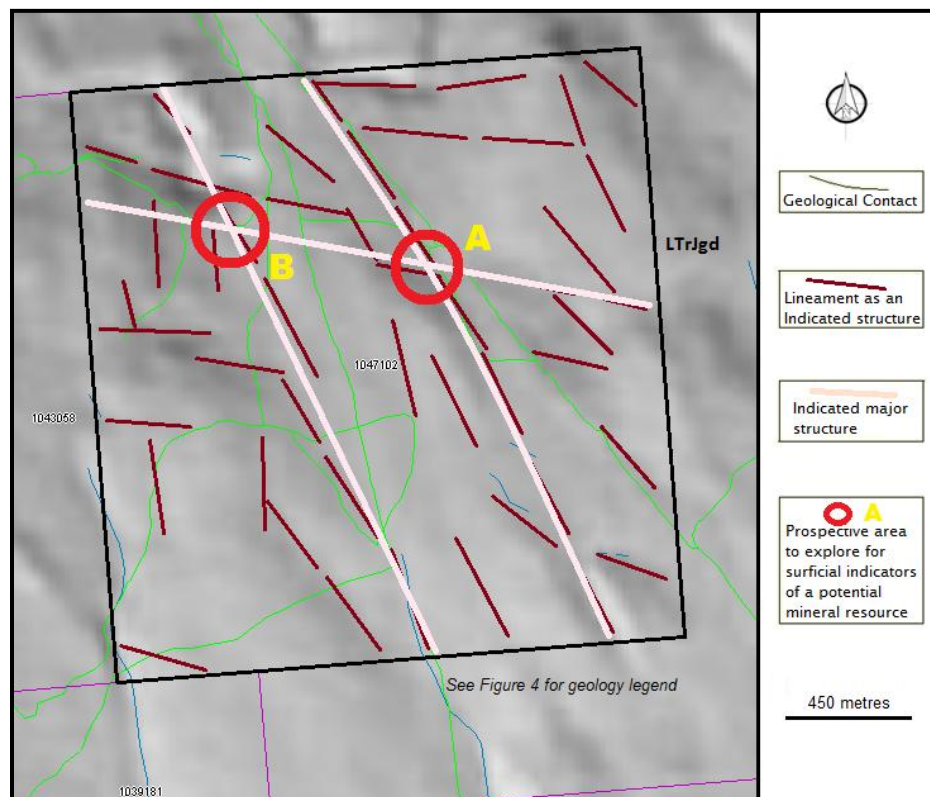
These surficial indications such as prime minerals, indicator minerals, or alteration patterns, may be an indication of a masked mineral resource. Thus, a cross-structural location would be the prime area to initially prospect for the surficial indicators which may be revealed as pathfinder minerals, minerals and/or alteration products that would be subject to interpretation as economic mineral indicators.

### b) Method

The structural analysis was performed on a MapPlace DEM image hillshade map of Tenure 1047102, by viewing of the map and marking the lineaments, or indicated structures, thereon. A total of 49 lineaments were marked as shown on Figure 5. The lineaments were compiled into a 10 degree class interval and plotted as a rose diagram as shown on Figure 6. The indicated primary structural trend was then plotted on the lineament map with the general trend influenced by the predominant lineaments as shown on the Rose Diagram.

The centre of the work area is at 5544522N, 682868E (10) (NAD 83).

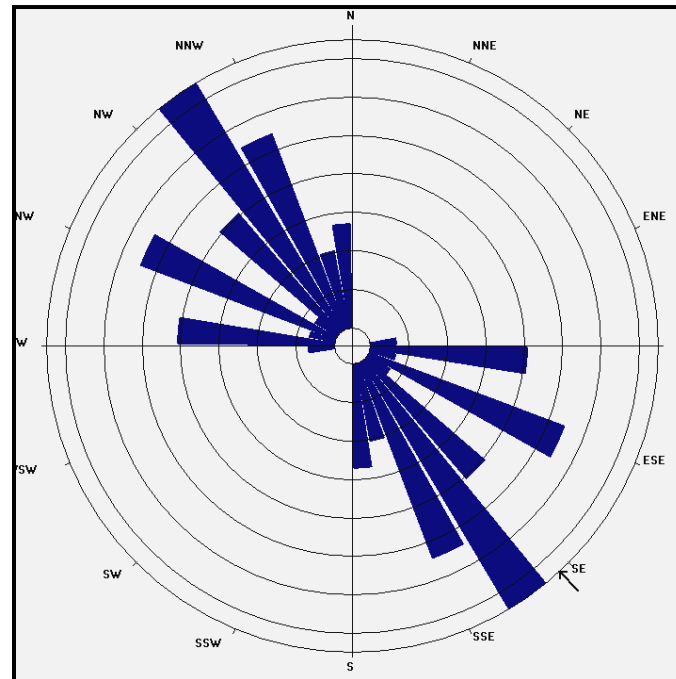
*Figure 5. Indicated Lineaments on Tenure 1047102*



**Structural Analysis (cont'd)****c) Results**

Two cross-structures designated as "A" and "B" were delineated from indicated general northerly and westerly major trending intersecting structures.

**Figure 6. Rose Diagram from lineaments of Tenure 1047102**



### STATISTICS

Axial (non-polar) data

No. of Data = 49

Sector angle =  $10^{\circ}$

Scale: tick interval = 3% [1.5 data]

Maximum = 22.4% [11 data]

Mean Resultant dir'n = 137-317

[Approx. 95% Confidence interval =  $\pm 14.9^{\circ}$ ]

(valid only for unimodal data)

Mean Resultant dir'n = 137.3 - 317.3

Circ.Median = 144.0 - 324.0

Circ.Mean Dev.about median =  $19.9^{\circ}$

Circ. Variance = 0.09

Circular Std.Dev. =  $25.13^{\circ}$

Circ. Dispersion = 0.85

Circ.Std Error = 0.1315

Circ.Skewness = 5.41

Circ.Kurtosis = -62.68

kappa = 1.89

(von Mises concentration param. estimate)

Resultant length = 33.35

Mean Resultant length = 0.6806

'Mean' Moments: Cbar = 0.0552; Sbar = -0.6784

'Full' trig. sums: SumCos = 2.7038; Sbar = -33.2394

Mean resultant of doubled angles = 0.2148

Mean direction of doubled angles = 117

(Usage references: Mardia & Jupp,

'Directional Statistics', 1999, Wiley;

Fisher, 'Statistical Analysis of Circular Data',

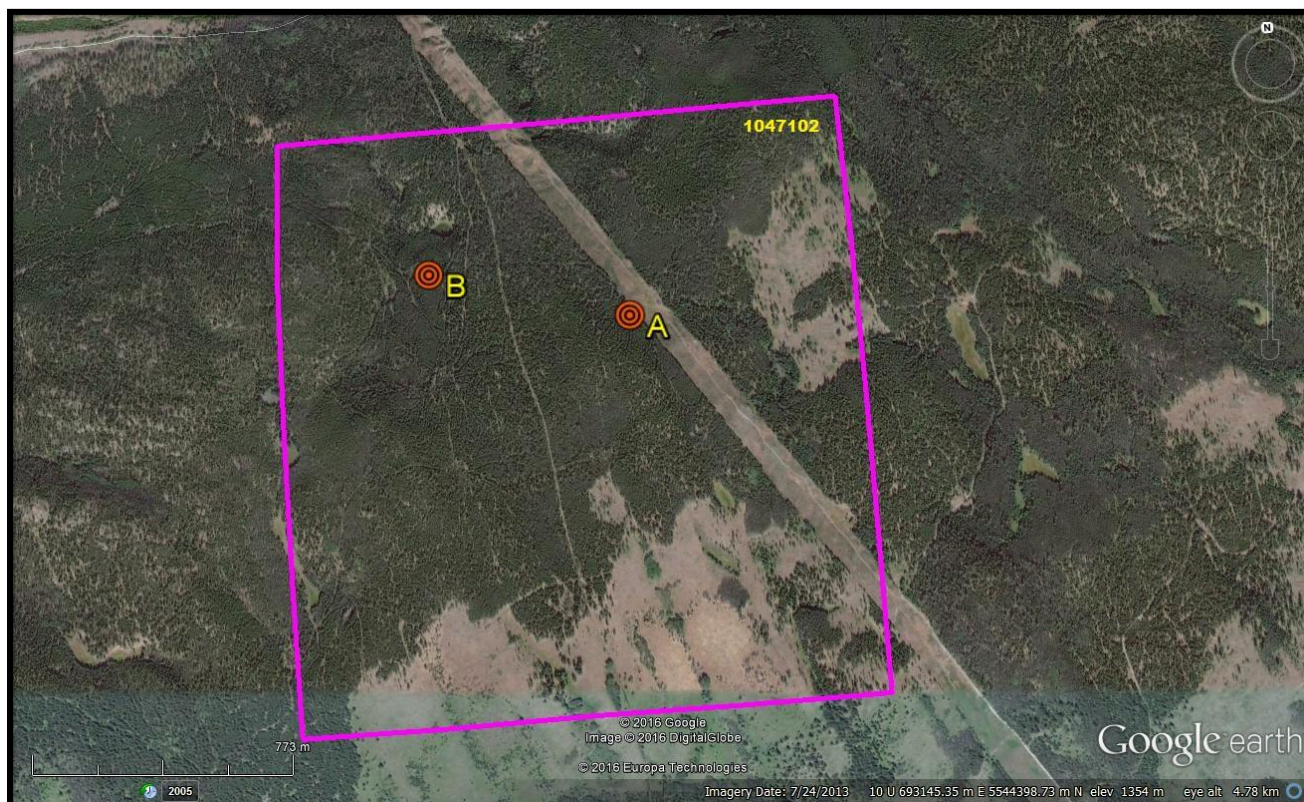
1993, Cambridge University Press)

Note: The 95% confidence calculation uses

Fisher's (1993) 'large-sample method'

**Structural Analysis (cont'd)**

**Figure 7. Cross-Structural locations on Google Earth**  
(Base map from MapPlace and Google Earth)



**Table II. Approximate location of cross-structures**  
(UTM-NAD 83)

Cross-Structures	UTM East	UTM North	Elevation (metres)
A	693,054	5,544,689	1,310
B	692,424	5,544,850	1,261

**Magnetometer Survey****a) Instrumentation**

A Scintrex MF 2 Model magnetometer was used for the magnetometer survey. Diurnal variations were corrected by taking repeated readings at a base point throughout the day. Magnetometer values are total intensity and relative.

**b) Theory**

Only two commonly occurring minerals are strongly magnetic, magnetite and pyrrhotite; magnetic surveys are therefore used to detect the presence of these minerals in varying concentrations. Magnetics is also useful as a reconnaissance tool for mapping geologic lithology and structure since different rock types have different background amounts of magnetite and/or pyrrhotite.

**Magnetometer Survey (cont'd)**

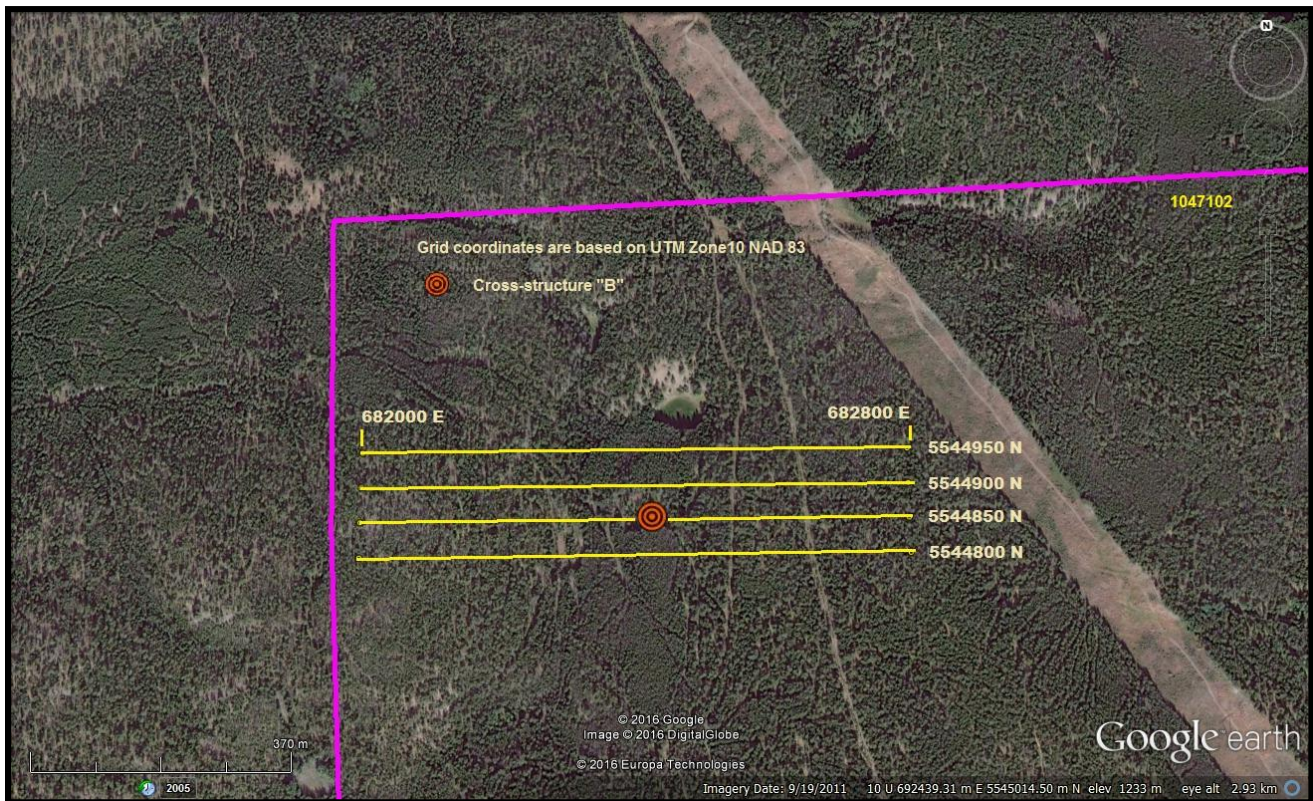
**c) Survey Procedure**

From station 5,544,950N 692,950E, a southerly base-line was established with three additional base-line stations at 50 metre station intervals to 5,544,800N. Magnetometer readings were taken at 25 metre intervals along each of the four grid lines to 692,000E. The grid line stations were established by the use of a GPS instrument. Line kilometres of magnetometer survey completed was 3.2. The field data is reported herein in Appendix I.

**d) Data Reduction**

The field results were initially input to an Exel spreadsheet whereupon a Surfer 31 program was utilized to create the maps exemplified herein as Figures 9, 10, & 11.

**Figure 8. Magnetometer Survey Grid**  
(Base from MapPlace)



Magnetometer Survey (cont'd)

Figure 9 .Magnetometer Survey Data

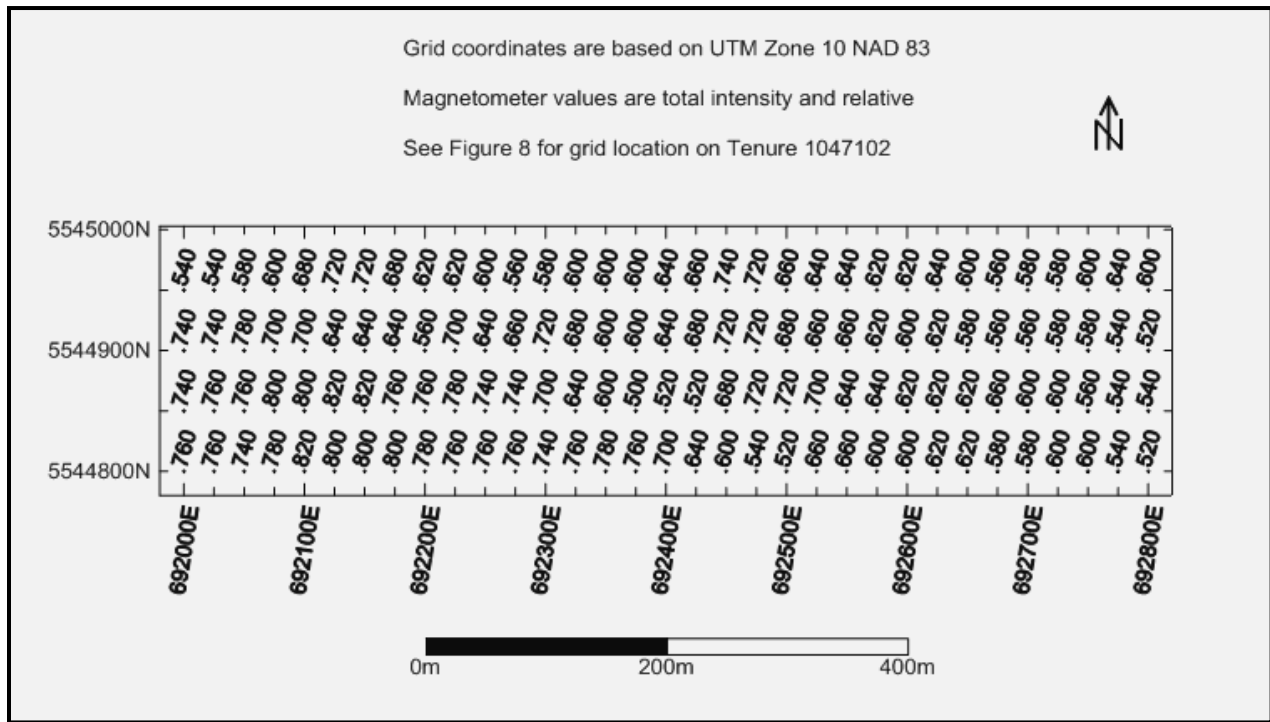
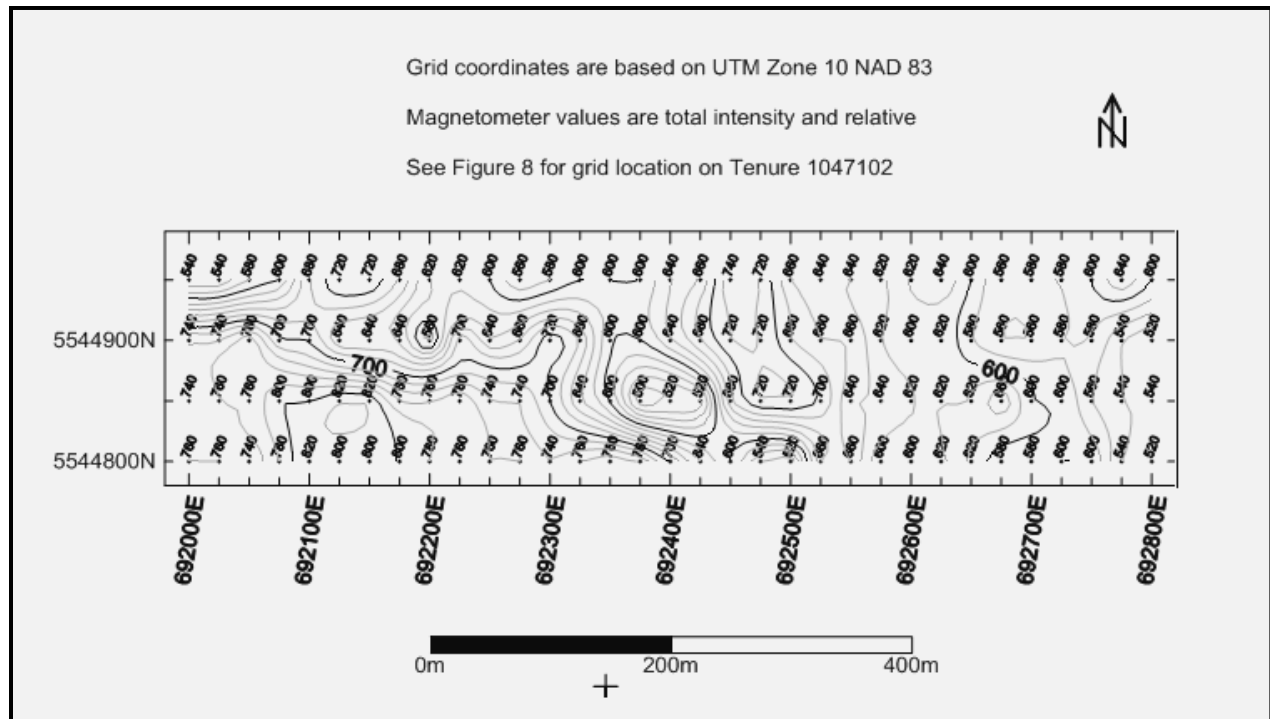
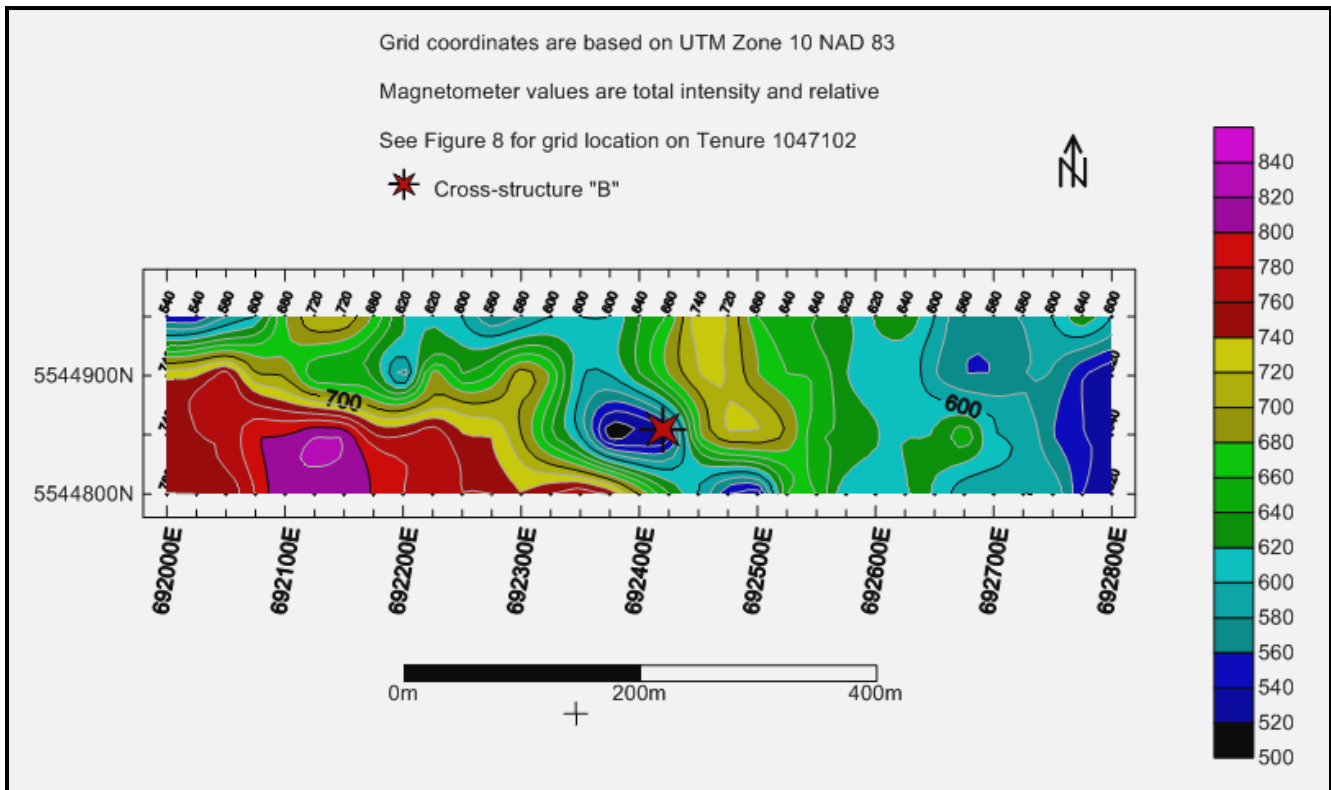


Figure 10. Magnetometer Survey Data Contoured



**Magnetometer Survey (cont'd)****Figure 11. Magnetometer Survey Data Colour Contoured****e) Results**

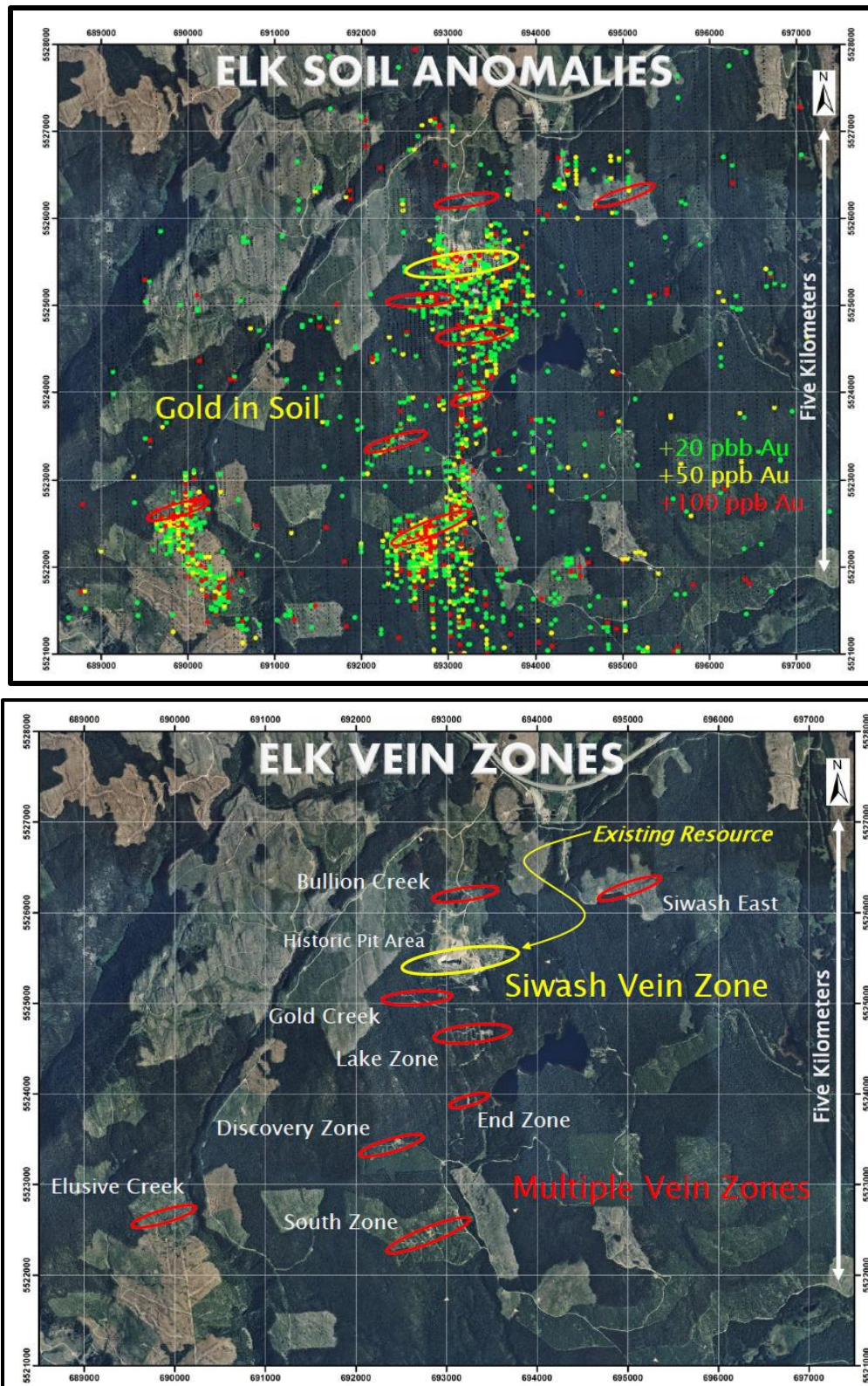
The magnetometer survey which covered granodiorites of the Pennask Batholith indicated two anomalous mag LO's and one anomalous mag HI. The main anomalous LO is centrally located within the 660 metre by 150 metre survey area. It is an oblong feature up to 125 metres wide and 200 metres long enveloped by a discontinuous west-northwesterly, trending open-ended mag LO. The second anomalous mag LO is a localized 75 x 50 metre open-ended to the north anomaly in the east which is enveloped within an hour-glass shaped, up to 150 wide, north trending mag LO anomaly.

The anomalous 50x50 metre open-ended to the west mag HI is located within a general west-northwest trending open-ended to the west and the south mag HI.

The general location of cross-structure "B" is located at the waning border of the central anomalous mag LO.

Figure 12. Elk Mineral Zones showing the indicated localized association to structural intersections of the major north trending Elk or Siwash fault with a subsidiary set of east northeasterly trending structures.

(Map from Gold Mountain Mining Corporation January 2012 Corporate Presentation)



## INTERPRETATION and CONCLUSIONS

The two cross-structures delineated on Tenure 1047102 are the result of indicated major ( $S_1$ ) northerly and westerly structures; structural trends that are in part mineral controls to the former productive ELK (*Figure 12*) and the Brenda mineral zones (see Minfiles in report) and which are for the most part a mineral controlling cross-structures which was the central portion of the mineral resource (*Sookochoff, 2016*).

Accordingly, cross-structural locations would be a prime initial area to explore for surficial geological indicators to a potential sub-surface mineral resource.

The two cross-structures, being within the Pennask Batholith, should be focused on the exploration for a Brenda style porphyry deposit where another "Brenda stock" with associate mineralization, may be located. Indicated potential mineral resources in the immediate area of the two cross-structures are reported in the Minfiles of the SNOW showing (*092HNE292*) and the WAVE 1 anomaly (*092HNE311*).

The localized magnetometer survey results over cross-structure "B", indicated a general correlation between the mag LO trend and the trend of the two structure that comprise the cross-structure, There is a high probability that this correlation indicates an alteration association. With the approximate location of the cross-structure with the anomalous mag LO within the mag LO trend, the indication is that the anomalous mag LO indicates a highly altered zone within the intrusive which could substantiate a hydrothermally altered zone at the cross-structure in association with a possible breccia pipe.

The eastern open sub anomalous mag LO may indicate the partial portrayal of another cross-structure.

The mag HI zone in the southwest may indicate the unaltered intrusive with the inclusive mag HI anomaly an increased content of magnetic material.

Thus, the localized area of the anomalous mag LO zone should be explored for geological signatures to a potential concealed porphyritic mineral resource. Some of this geological information can be found in the included Minfile reports and more specifically in the Brenda Minfile (*092HNE047*).

Respectfully submitted

Sookochoff Consultants Inc.



Laurence Sookochoff, PEng



## SELECTED REFERENCES

**Gold Mountain Mining Corporation** – Corporate Presentation January 2012.  
News Release. October 31, 2013

**Guilbert, J.M., Park Jr., C.F.** - The Geology of Ore Deposits. Waveland Press, Inc. 2007.

**John, D.A.** - Porphyry Copper Deposit Model. Scientific Investigations Report 2010-5070-B.U.S. Department of the Interior. U.S. Geological Survey, Reston, Virginia: 2010.

**MapPlace** – Map Data downloads

**Marshak, S., Mitra, G.** – Basic Methods of Structural Geology. pp 258-259, 264\*.Prentice-Hall Inc. 1988

**Mohebi, A. et al** - Controls on porphyry Cu mineralization around Hanza Mountain, south-east of Iran: An analysis of structural evolution from remote sensing, geophysical, geochemical and geological data. Ore Geology Reviews. Volume 69. September 2015, Pages 187-198.

**MtOnline** - MINFILE downloads.

092HNE002 - MAL  
092HNE047 – BRENDA  
092HNE059 – ECHO  
092HNE073 - BIG SIOUX  
092HNE096 – ELK  
092HNE197 – MIN  
092HNE270 – KIT  
092HNE292 – SNOW  
092HNE311 – WAVE 1  
092HNE312 – WAVE 2 -----.

**Pareta, K., Pareta, U.** – Geomorphological Interpretation Through Satellite Imagery & DEM Data. American Journal of Geophysics, Geochemistry and Geosystems. Vol 1, No. 2 , pp19-36.

**Sookchoff, L.** – Geological & Geophysical Assessment Report on Tenure 1039181 of the 13 Claim 1039181 Claim Group for Victory Resources Corporation. February 16, 2016. AR 35869

**Sookchoff, L.** – Geological & Geophysical Assessment Report on Tenure 1037890 & 1037891 of the 11 Claim 1037890 Claim Group for Victory Resources Corporation. March 24, 2016. AR 35872

**Sookchoff, L.** – Geological & Geophysical Assessment Report on Tenure 1043058 of the 11 Claim 1043058 Claim Group for Victory Resources Corporation. June 25, 2016. AR 36138

**Verley, C.G.** 1997:Diamond Drilling Report on the WEN Claim Group for George Resources Company Ltd. AR 24800.

## STATEMENT OF COSTS

Work on Tenure 1047102 of the Toni 1047102 Claim Group was done from October 5, 2016 to October 8, 2016 to the value as follows:

### Structural Analysis

Laurence Sookochoff, P Eng. 3 days @ \$ 1,000.00/day ----- \$ 3,000.00

### Magnetometer Survey

Rick Pearson & Ross Heyer

October 6-7, 2016

Four man days @ \$300.00 per day ----- 1,200.00

Truck rental, kilometre charge, fuel, room & board,

mag rental ----- 1,158.90

\$ 5,358.90

Maps ----- 750.00

Report ----- 3,000.00

\$ 9,108.90

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## **CERTIFICATE**

I, Laurence Sookochoff, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geologist and principal of Sookochoff Consultants Inc. with an address at 120 125A-1030 Denman Street, Vancouver, BC V6G 2M6.

I, Laurence Sookochoff, further certify that:

- 1) I am a graduate of the University of British Columbia (1966) and hold a B.Sc. degree in Geology.
- 2) I have been practicing my profession for the past fifty years.
- 3) I am registered and in good standing with the Association of Professional Engineers and Geoscientists of British Columbia.
- 4) The information for this report is based on information as itemized in the Selected Reference section of this report and from work the author has performed on the Toni Property since 2006.
- 5) I have no interest in the Property as described herein.



Laurence Sookochoff, P. Eng.

*Appendix I*

**Magnetometer Survey Data**

			<b>E5621359 T1047102</b>								
<b>East</b>	<b>North</b>	<b>Mag</b>	<b>East</b>	<b>North</b>	<b>Mag</b>	<b>East</b>	<b>North</b>	<b>Mag</b>	<b>East</b>	<b>North</b>	<b>Mag</b>
692000	5544800	760	692000	5544850	740	692000	5544900	740	692000	5544950	540
692025	5544800	760	692025	5544850	760	692025	5544900	740	692025	5544950	540
692050	5544800	740	692050	5544850	760	692050	5544900	780	692050	5544950	580
692075	5544800	780	692075	5544850	800	692075	5544900	700	692075	5544950	600
692100	5544800	820	692100	5544850	800	692100	5544900	700	692100	5544950	680
692125	5544800	800	692125	5544850	820	692125	5544900	640	692125	5544950	720
692150	5544800	800	692150	5544850	820	692150	5544900	640	692150	5544950	720
692175	5544800	800	692175	5544850	760	692175	5544900	640	692175	5544950	680
692200	5544800	780	692200	5544850	760	692200	5544900	560	692200	5544950	620
692225	5544800	760	692225	5544850	780	692225	5544900	700	692225	5544950	620
692250	5544800	760	692250	5544850	740	692250	5544900	640	692250	5544950	600
692275	5544800	760	692275	5544850	740	692275	5544900	660	692275	5544950	560
692300	5544800	740	692300	5544850	700	692300	5544900	720	692300	5544950	580
692325	5544800	760	692325	5544850	640	692325	5544900	680	692325	5544950	600
692350	5544800	780	692350	5544850	600	692350	5544900	600	692350	5544950	600
692375	5544800	760	692375	5544850	500	692375	5544900	600	692375	5544950	600
692400	5544800	700	692400	5544850	520	692400	5544900	640	692400	5544950	640
692425	5544800	640	692425	5544850	520	692425	5544900	680	692425	5544950	660
692450	5544800	600	692450	5544850	680	692450	5544900	720	692450	5544950	740
692475	5544800	540	692475	5544850	720	692475	5544900	720	692475	5544950	720
692500	5544800	520	692500	5544850	720	692500	5544900	680	692500	5544950	660
692525	5544800	660	692525	5544850	700	692525	5544900	660	692525	5544950	640
692550	5544800	660	692550	5544850	640	692550	5544900	660	692550	5544950	640
692575	5544800	600	692575	5544850	640	692575	5544900	620	692575	5544950	620
692600	5544800	600	692600	5544850	620	692600	5544900	600	692600	5544950	620
692625	5544800	620	692625	5544850	620	692625	5544900	620	692625	5544950	640
692650	5544800	620	692650	5544850	620	692650	5544900	580	692650	5544950	600
692675	5544800	580	692675	5544850	660	692675	5544900	560	692675	5544950	560
692700	5544800	580	692700	5544850	600	692700	5544900	560	692700	5544950	580
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692750	5544800	600	692750	5544850	560	692750	5544900	580	692750	5544950	600
692775	5544800	540	692775	5544850	540	692775	5544900	540	692775	5544950	640
692800	5544800	520	692800	5544850	540	692800	5544900	520	692800	5544950	600