

# VICTORY RESOURCES CORPORATION

(Owner & Operator)

## GEOLOGICAL ASSESSMENT REPORT

*(Event 5450495)*

*on a*

## STRUCTURAL ANALYSIS

*Work done on*

**Tenures 633163 & 633183**

*of the 9 Tenure*

**Toni 633183 Claim Group**

*of the*

**TONI PROPERTY**

**Nicola Mining Division**

**BCGS Map 092H.098**

**Centre of Work**

5,535,875N, 677,885E

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**BC Geological Survey  
Assessment Report  
34282**

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## SUMMARY

The nine claim Toni 633183 claim group covers an area of 3682.66 hectares located 203 kilometres northeast of Vancouver, 25 kilometres southeast of Merritt, 30 kilometres north-northwest of the BRENDA past producer, and 15 kilometres northwest of the past productive ELK (Siwash) which is under development to establish a productive operation by Gold Mountain Mining Corporation.

Production from the ELK property (092HNE096), located within a Middle Jurassic intrusive peripheral to the Nicola volcanic contact, is reported as 1,518,777 grams (48,830 ounces) of gold and 1,903,000 grams (61,183 ounces) of silver recovered between 1992 and 1995. In 2004, 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.

Mineralization at the ELK property is of gold-bearing pyrrhotite and polymetallic gold-silver mineralization hosted primarily by parallel to subparallel east-northeast trending pyritic quartz veins and stringers in altered pyritic granitic and less frequently, volcanic rocks. The dominant mineral controlling structure is indicated as the northerly trending Elk structure that can be traced for 20 kilometres from the southern portion of the Elk property to the Snow Minfile showing in the north where in historical exploration, a drill hole intersected minor copper mineralization in a weakly to moderately chloritized granite of the Pennask batholith.

The BRENDA (092HNE047) copper-molybdenum mineralization was hosted by the “Brenda Stock”, a composite quartz diorite/granodiorite body which forms part of the Pennask batholith. Faults in the Brenda pit are expressed as fracture zones in which the rock is intensely altered to clay minerals, sericite, epidote and chlorite. The grade of the orebody is a function of fracture (vein) density and of the thickness and mineralogy of the filling material.

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. The mineralization, which decreases outward from the well-fractured centre may be the location of a structural intersection.

At the Toni 633183 property, a Pennask granodiorite intrusive in the east is in contact with Nicola volcanics in the west which are intruded by a granodioritic stock at the northernmost portion of the structural analyzed area. Two of the four structural intersections and the KIT showing are located in the volcanics proximal to the granodiorite/volcanic contact.

The other two structural intersections are situated along an east-northeast structure intersected by prominent northerly structures, a similar structural setting as at the ELK vein zones (*Figure 8*).

The four structural intersections at the locations shown on *Figure 5 & 7* are thus prospective areas to explore for surficial indications of an underlying mineral resource where the depth extension of the structural intersection may have tapped a mineral source and provided an avenue for any geologically indicated mineral expression to surface.

## INTRODUCTION

In April 2013 a Structural Analysis was completed on Tenures 633183 and 633183 of the nine claim Toni 633183 claim group ("Property") of Victory's TONI property. The purpose of the program was to delineate potential structures which may be integral in geological controls to potentially economic mineral zones that may occur on Tenures 633183 and 633183 or other claims of the Toni 633183 property.

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

Figure 1. **Location Map**



## PROPERTY DESCRIPTION AND LOCATION

The Property is comprised of nine claims covering an area of 3885.8437. Particulars are as follows:

Table 1. **Toni 633183 Claim Group Tenures**  
(from MtOnline)

<u>Tenure Number</u>	<u>Type</u>	<u>Claim Name</u>	<u>Good Until</u>	<u>Area (ha)</u>
<a href="#">567126</a>	Mineral	AU-WEN EAST	20140120	498.8479
<a href="#">585153</a>	Mineral	NORTH 1	20140120	124.7025
<a href="#">589947</a>	Mineral	TONI 35	20140120	519.4985
<a href="#">589949</a>	Mineral	TONI 37	20140120	519.3189
<a href="#">589950</a>	Mineral	TONI 38	20140120	519.3196
<a href="#">589951</a>	Mineral	TONI 39	20140120	519.3206
<a href="#">589952</a>	Mineral	TONI 40	20140120	519.4972
<a href="#">633163</a>	Mineral	WENC	20140120	270.3451
<a href="#">633183</a>	Mineral	WEND	20140120	394.9934

\*Upon the approval of the assessment work filing, Event Number 5450495.

**Property Description and Location (cont'd)**

The Property is located within BCGS Map 092H.098 of the Nicola Mining Division, 203 direct kilometres northeast of Vancouver, 25 direct kilometres southeast of Merritt and 15 kilometres northwest of the past productive ELK (Siwash) deposit presently owned and under development by Gold Mountain Mining Corporation. The centre of the work area is at 5,535,875N, 677,885E (NAD 83)

**ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY****Access**

Access to the Property is southward and eastward from Merritt via Highway 5A/97C for 27 kilometres to the Aspen Grove junction thence eastward on Highway 5A or the Coquihalla Connector Highway for eight kilometres to the southeastern corner of Tenure 633163 and the Tony 633183 Claim Group.

**Climate**

The region 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.

Figure 2. Claim Location



## Accessibility, Climate, Local Resources, Infrastructure, and Physiography (cont'd)

### Local Resources and Infrastructure

Merritt and/or Kamloops, historic and a present centres for employees of the nearby Afton and Afton mining projects within 13 kilometres of Kamloops soon to be in production, in addition to employees of the producing Highland Valley mine 65 kilometres northwest, could be a source of experienced and reliable exploration and mining personnel.

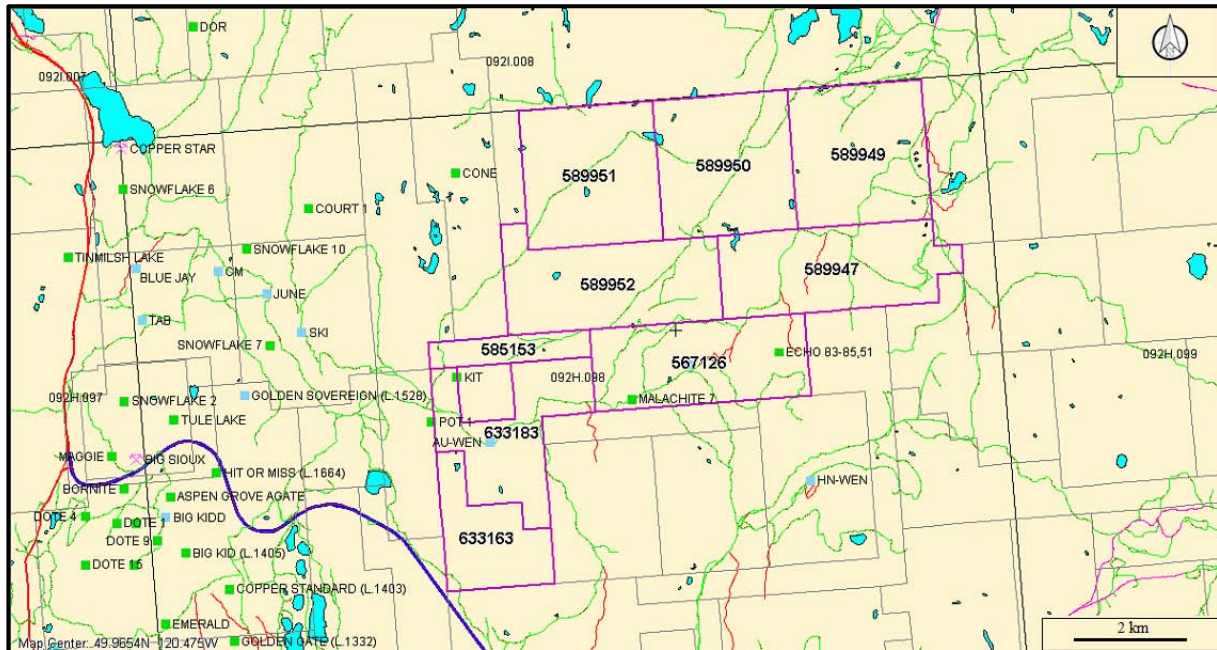
Kamloops is serviced daily by commercial airline and is a hub for road and rail transportation. Vancouver, a port city on the southwest corner of, and the largest city in, the Province of British Columbia is four hours distant by road and less than one hour by air from Kamloops.

Sufficient water for all phases of the exploration program could be available from the many lakes and creeks, which are located within the confines of the property. Water may be scarce during the summer months and any exploratory water requirements would be transported.

### Physiography

A creek traverses the Toni 633183 Claim group from the northeast corner to the southeast corner and divides the property into two distinct physiographic features. To the northwest are mostly relatively flat, gently rolling barren hills with elevations ranging from the creek valley in the south at 1,086 metres to 1,150 metres on a knoll in the mid northwest. To the southeast of the creek, are predominantly forested hills with elevations ranging from 1,100 metres in the creek valley in the mid-south on the southern boundary of Tenure 567126 to 1,300 metres three kilometres directly east on the southeastern corner of the same Tenure and the property.

Figure 3. Claim Map



### HISTORY: PROPERTY AREA

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers on and peripheral to the Toni 633183 Claim Group are reported as follows. The distance to the Minfile properties is relative to Tenures 633183 and 633163 of the Toni 633183 Claim Group which are the subjects of the Structural Analysis.

**History: Property Area (cont'd)****COPPER STAR** past producer (volcanic redbed Cu)

MINFILE 092HNE036

Eight kilometres west

*The Copper Star occurrence covers a small area of copper showings immediately south of Courtney Lake, in the historical Aspen Grove copper camp between Merritt and Princeton, where exploration dates back to the turn of the twentieth century. It is centred on one of a number of opencuts and adits, on a hill 200 metres south of Courtney Lake, 500 metres east of Highway 5A, 7 kilometres north-northeast of the community of Aspen Grove.*

*A small amount of production from the old workings is reported in 1915, when 41 tonnes of hand-sorted ore were shipped to a smelter. According to the returns, this shipment graded 8.7 per cent copper and 75.4 grams per tonne silver (Minister of Mines Annual Report 1915, page 227). Tanjo Mines Ltd. completed geological, geophysical and soil geochemical surveys over the showings between 1970 and 1972. Similar surveys were conducted by Redding Gold Corporation in 1988.*

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

MINFILE 092HNE047

Thirty kilometres east-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.*

**HN-WEN** prospect (Volcanic redbed Cu)

MINFILE 092HNE058

Two kilometres south

*Adits and trenches were initially cut around 1900; later work included diamond drilling and trenching in the 1960s and 1970s.*

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

MINFILE 092HNE073

Six 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 roadcut 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)****BIG KIDD** prospect (Alkalic porphyry Cu-Au; Volcanic redbed Cu)

MINFILE 092HNE074

Five kilometres west

*This occurrence was first explored by H.H. Schmidt, with the excavation of several trenches and one adit, 69 metres long, between 1900 and 1915. An additional three adits, 12 to 90 metres long, were excavated some time between 1916 and the 1950s. The deposit was trenched and drilled by Noranda Mines Ltd. in 1956 after completing geological and geophysical surveys. Additional geophysical and soil geochemical surveys were carried out by Norranco Mining and Refining in 1969 and Amax Exploration Inc. in 1971. Amax also mapped and drilled the deposit in 1972. David Minerals Ltd. conducted geological and self potential surveys, trenching and 112 metres of diamond drilling in three holes between 1975 and 1980. The deposit was sampled by Northair Mines Ltd. in 1991 and Placer Dome Inc. in 1992. Drilling by Placer intersected 71 metres averaging 0.75 gram per tonne gold and 0.2 per cent copper in the north zone of the Big Kidd breccia.*

*Christopher James Gold Corp. drilled 10 holes, totalling 2074 metres in 1997. A 116-metre intersection graded 0.801 grams per tonne gold and 0.124 per cent copper, including a higher grade section of 19.46 metres grading 3.09 grams per tonne gold and 0.113 per cent copper (Exploration in B.C. 1997, page 38). This intersection is from the North zone. The Southwest zone, 350 metres to the south, and the Northeast zone also contained mineralization.*

*The next program by Christopher James Gold was a 2 staged drilling program completed during the fall in 1999. This program drilled a fan of three holes to the southwest and one parallel hole along the Big Kidd Breccia north contact. All four 1999 holes intersected significant lengths of gold-copper mineralized intrusion breccia with late porphyritic monzonite dyke and potassic (K-feldspar) alteration zones.*

*In 2003, Christopher James Gold Corp. drilled 9 holes and dug three trenches to test alkalic porphyry hosted by the Big Kidd breccia. Broad intervals of low-grade mineralization were encountered.*

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

MINFILE 092HNE096

Fifteen kilometres southeast

*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.*

**COURT 1** showing (Volcanic redbed Cu)

MINFILE 092HNE147

Four kilometres west

*The Court 1 occurrence is a minor copper showing in part of the historical Aspen Grove copper camp, between Merritt and Princeton, where exploration dates back to the turn of the twentieth century. It is located on the former Ski group of claims (particularly Ski 13-16), on a tributary of Quilchena Creek, 3.5 kilometres east of Highway 5A, 7.5 kilometres northeast of the community of Aspen Grove (Assessment Report 925; Preliminary Map 15; Bulletin 69).*

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

**POT 1** showing (Volcanic redbed Cu)  
MINFILE 092HNE204  
100 metres west

*The Pot 1 occurrence is a showing of gold-silver-copper mineralization, just east of the historical Aspen Grove copper camp, between Merritt and Princeton. The occurrence is located 1.1 kilometres northeast of Pothole Lake, between Quilchena and Pothole creeks, 7 kilometres east-northeast of the community of Aspen Grove.*

**HISTORY: PROPERTY**

**MAL** prospect (Cu skarn; Fe skarn; Au skarn)  
MINFILE 092HNE002  
Within Tenure 567126

*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).*

**ECHO** showing (Volcanic redbed Cu)  
MINFILE 092HNE059  
Within Tenure 567126

*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 area of the occurrence is underlain by augite porphyritic volcanic flows of andesitic to basaltic composition, and volcanic tuff and breccia (Assessment Report 1586; Geological Survey of Canada Map 41-1989). 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.*

**AU-WEN** prospect (Intrusion related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn+/-Au)  
MINFILE 092HNE144  
Within Tenure 633183

*Work on this showing dates back to the 1930s when visible gold was discovered in soil.*

**History: Property (cont'd)****KIT** showing (Alkalic porphyry Cu-Au; Porphyry Mo (Low F type))

MINFILE 092HNE270

Within Tenure 633163

*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*

**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 lithochemistry 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 on and peripheral to the Toni 633183 Claim Group are reported as follows. The distance to the Minfile properties is relative to Tenures 633183 and 633163 of the Toni 633183 Claim Group which are the subjects of the Structural Analysis.

**COPPER STAR** past producer (volcanic redbed Cu)

MINFILE 092HNE036

Eight kilometres west

*The 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 Copper Star occurrence is one of many in the Aspen Grove area. It lies in the Central belt or facies of the Nicola Group (after Preto, Bulletin 69). This belt mainly consists of subaerial and submarine, red or purple to green augite plagioclase porphyritic andesitic and basaltic flows, volcanic breccia and tuff, and minor argillite and limestone. The volcanics are locally intruded by bodies of comagmatic diorite to monzonite of Late Triassic to Early Jurassic age.*

*The region is characterized by long-lived, primarily north-striking faults and related fracturing, which originally controlled intrusion emplacement. Two important fault systems in the Aspen Grove area, the Kentucky-Alleyne fault and a splay of the Allison fault converge in the Copper Star area, just south of Courtney Lake. Numerous shear zones which host mineralization, described below, are probably related to these structures.*

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

The Copper Star group of showings is hosted in red and green, augite and/or plagioclase porphyritic flows, breccias and tuffs of andesitic or basaltic composition (Assessment Report 17554). The volcanics contain magnetite. The strata strike northwest and dip southwest.

Epidote alteration of the volcanics is pervasive, and is commonly accompanied by disseminated jasper or hematite. Alteration is greater in shear fractures, which may also contain quartz and calcite veins as well as jasper and hematite. Epidote alteration, grain size in the volcanics, and copper mineralization all tend to increase from east to west (Assessment Report 17554).

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

MINFILE 092HNE047

Thirty kilometres east-southeast

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.

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

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.

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.

**HN-WEN prospect (Volcanic redbed Cu)**

MINFILE 092HNE058

Two kilometres south

The HN-WEN 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 area of the occurrence is underlain by augite porphyritic volcanic flows of andesitic to basaltic composition, fragmental rocks including tuff and breccia, and argillites (Assessment Reports 1586, 4230). The argillites are dark grey to black, well bedded, and locally limy. They are somewhat carbonaceous and pyritic. Minor rock types present include feldspar porphyry and locally lenses of diorite. About 2.5 kilometres to the northeast is the contact with the Early Jurassic Pennask batholith, a large intrusion of medium-grained granodiorite to quartz diorite.

The contact between the volcanic rocks and the argillites passes through the centre of the mineralized area.

**Geology: Property Area (cont'd)****BIG SIOUX** past producer (Volcanic redbed Cu; Alkalic porphyry Cu-Au)

MINFILE 092HNE073

Six 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). 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.*

**BIG KIDD** prospect (Alkalic porphyry Cu-Au; Volcanic redbed Cu)

MINFILE 092HNE074

Five kilometres west

The deposit is located along the northern margin of an area of hilly upland situated in the centre of the Aspen Grove copper camp, known as the Fairweather Hills. 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). The units generally strike north-northwest and dip east. This sequence is broken up into a series of tilted fault blocks trending north.

A vertical or subvertical breccia pipe, nearly circular in outline and about 300 metres wide, is developed in a body of fine-grained diorite, which may in part be recrystallized volcanics. The pipe consists of angular to subrounded clasts of volcanics, fine-grained diorite (microdiorite) and pinkish grey monzonite and syenomonzonite porphyry in a matrix of altered diorite intrusive material and finely comminuted rock. The fragments are 1 centimetre to several metres in diameter.

Parts of the breccia, especially on the north and east sides of the pipe, show extensive late magmatic and/or hydrothermal alteration and recrystallization. Breccia clasts in these areas have pronounced grey and pinkish grey alteration rims, and the matrix is extensively replaced by epidote, chlorite and calcite.

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

+/-Au; Au-quartz veins)

MINFILE 092HNE096

Fifteen kilometres southeast

*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.*

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

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. Early Tertiary feldspar porphyry and quartz feldspar porphyry stocks and dikes of the Otter intrusions cut both of the above.

**COURT 1** showing (Volcanic redbed Cu)

MINFILE 092HNE147

Four kilometres west

The Court 1 occurrence is located 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 is one of many in the Aspen Grove area. It lies in the Central belt or facies of the Nicola Group (after Preto, Bulletin 69). This belt of rocks mainly consists of subaerial and submarine, red or purple to green augite plagioclase porphyritic andesitic and basaltic flows, volcanic breccia and tuff, and minor argillites and limestone. The volcanics are intruded by bodies of comagmatic diorite to monzonite of Late Triassic to Early Jurassic age. The area is characterized by long-lived, primarily north-striking faults and related fracturing, which originally controlled intrusion emplacement. East-striking faults are subordinate, and commonly offset intrusive contacts.

The Court 1 occurrence is centred on an outcrop of andesitic to basaltic volcanic rocks in a creek draining into Quilchena Creek (Bulletin 69). This coincides with a copper soil anomaly (Assessment Report 925). These rocks are intruded by aplite dikes (Assessment Report 925). A short distance away there is an outcrop of skarn alteration (Assessment Report 925).

**POT 1** showing (Volcanic redbed Cu)

MINFILE 092HNE204

100 metres west

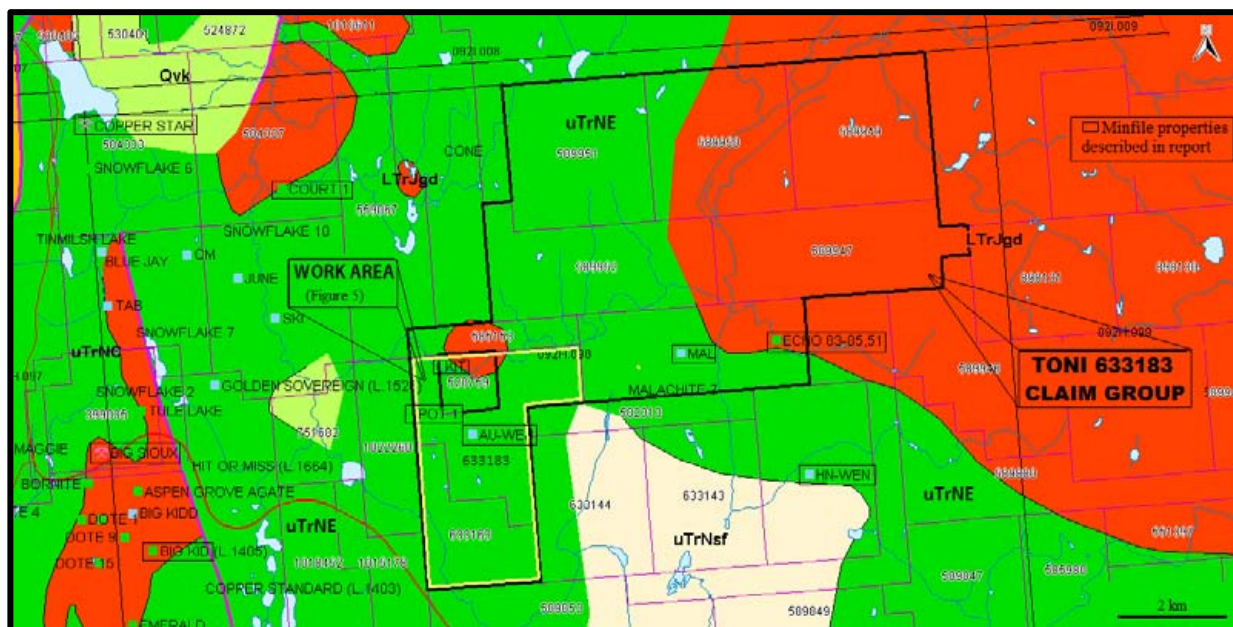
The Pot 1 occurrence is hosted in the Upper Triassic Nicola Group, which regionally consists of alkalic and calcalkalic volcanics and intrusions of island arc origin, and which is the principal component of the Quesnel Terrane in southern British Columbia (Geological Survey of Canada Maps 41-1989, 1713A). 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 or facies of the Nicola Group (after Preto, Bulletin 69). This assemblage mainly consists of alkalic volcanic flows and well bedded submarine volcanoclastic rocks, ranging from tuffaceous volcanic siltstones characteristic of the lower part, to coarse volcanic conglomerate and laharic breccias in the upper part. The assemblage is characterized by a paucity of intrusive rocks in comparison to the main Aspen Grove copper camp in the Central belt a few kilometres to the west, separated by the Kentucky-Alleyne fault system (Bulletin 69).

**Geology: Property Area (cont'd)****POT 1 showing**

The area of the Pot 1 occurrence is underlain by purple to grey-green augite plagioclase porphyritic andesite to basalt (or trachyandesite and trachybasalt) (Bulletin 69; Preliminary Map 15). Minor volcanic siltstone, wacke and tuff may be present (Assessment Report 13714). These rocks are intruded by northwest-striking dikes of granodiorite to quartz monzonite. The volcanic rocks at the showing are highly fractured and altered with epidote, quartz-carbonate veins, and minor hematite (Assessment Report 13714).

Figure 4. **Geology, Claim, Index, & Minfile**



## GEOLOGY MAP LEGEND

### Pleistocene to Recent

#### PIRal

Unnamed alluvial till

#### PIRvk

Unnamed alkalic volcanic rocks

### Upper Triassic

#### Eastern Volcanic Facies

#### uTrNE

lower amphibolite/kyanite grade metamorphic rocks

#### uTtNsf

mudstone, siltstone, shale, fine clastic sedimentary rocks

#### uTrNMI

basaltic volcanic 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**

As indicated by the BC government supported MapPlace geological maps, the Property is predominantly underlain by the upper Triassic Nicola Group of basaltic volcanic rocks (uTrNE) in the west. A Pennask granodiorite intrusive underlies most of the western portion of the Property. A granodiorite stock is located within the Nicola rock and is partly within the northern portion of Tenure 633183 and Tenure 520759 which is also a claim on which the Structural Analysis was completed and is owned by Victory Resources. The MAL Minfile mineral prospect is located on the Pennask intrusive/Nicola contact.

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

MINFILE 092HNE002

Within Tenure 567126

*The Malachite 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 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).*

**ECHO** showing (Volcanic redbed Cu)

MINFILE 092HNE059

Within Tenure 567126

*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.*

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**Geology Property (cont'd)****ECHO** showing (cont'd)

*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 area of the occurrence is underlain by augite porphyritic volcanic flows of andesitic to basaltic composition, and volcanic tuff and breccia (Assessment Report 1586; Geological Survey of Canada Map 41-1989). 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.*

**AU-WEN** prospect (Intrusion related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn+/-Au)  
MINFILE 092HNE144  
Within Tenure 633163

*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, ranging from tuffaceous volcanic siltstones characteristic of the lower part, to coarse volcanic conglomerate and laharc breccias in the upper part.*

*The AU occurrence is centred on the main gold showing, a small stripped, drilled and trenched area just off a gravel road south of Quilchena Creek (Assessment Reports 5766, 16008). This and most of the surrounding area is underlain by andesitic to dacitic tuff, cherty tuff, black argillite, and volcanic sandstone and siltstone. The rocks are strongly fractured in a variety of orientations. Bedding in the tuff has been measured to strike 060 degrees and dip 54 degrees northwest, but it varies.*

*About 1 kilometre to the north of the main showing is biotite hornblende granodiorite and quartz monzonite of the Early Jurassic Pennask batholith, and about 500 metres to the west are porphyritic andesitic and basaltic volcanic rocks (Bulletin 69; Assessment Report 16008). Small bodies of diorite and micromonzonite, possibly subvolcanic, are quite common in the area, on the surface and in drill core (Assessment Report 16008). Some of the volcanics have sustained carbonate and epidote alteration, and locally they have pervasive hematite (Assessment Report 16008).*

**KIT** showing (Alkalic porphyry Cu-Au; Porphyry Mo (Low F type))  
MINFILE 092HNE270  
Within Tenure 633163

*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.*

**MINERALIZATION: PROPERTY AREA**

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers on and peripheral to the Toni 633183 Claim Group are reported as follows. The distance to the Minfile properties is relative to Tenures 633183 and 633163 of the Toni 633183 Claim Group which are the subjects of the Structural Analysis.

**Mineralization: Property Area** (cont'd)**COPPER STAR** past producer (volcanic redbed Cu)

MINFILE 092HNE036

Eight kilometres west

*Mineralization is most commonly hosted in the shear zones or in brecciated fracture zones. Here, alteration minerals are accompanied by malachite and pyrite, and smaller amounts of chalcopyrite, bornite, chalcocite, and locally minor native copper (Annual Report 1915; Assessment Report 17554; Geological Survey of Canada Memoir 243). Outside the shear zones, there are local concentrations of disseminated chalcopyrite, and up to 10 per cent pyrite in volcanic tuff and breccia.*

*A number of old trenches, adits and opencuts exist in the area, and are most commonly located on the altered and mineralized shear zones or fractures in augite porphyry volcanics. The various old workings are scattered about an area, 200 metres wide, trending northeast for 290 metres. Copper values from these areas are generally not high; however, one sample was analysed at 0.29 per cent copper, and another grab sample assayed 0.7 per cent copper (Assessment Reports 4779, 17554). Silver values are also low, the maximum being 2 grams per tonne (Assessment Report 17554).*

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

MINFILE 092HNE047

Thirty kilometres east-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.*

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

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. 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. Potassium feldspar also occurs as a minor constituent of stage 1 veins.

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.

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

Secondary minerals developed during weathering, all highly subordinate in quantity to limonite, include malachite, azurite, hematite, ferrimolybdate, powellite and cupriferous manganese oxides. Cuprite, covellite, chalcopyrite, native copper, tenorite and ilsemanite 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. 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).

**HN-WEN** prospect (Volcanic redbed Cu)

MINFILE 092HNE058

Two kilometres south

The mineralization is restricted to the volcanics. It is exposed in 3 adits and at least 8 trenches, and is marked by alteration, mainly epidotization, silicification, carbonatization, moderate chloritization and local pyritization. Chalcopyrite is the only copper mineral: it is disseminated, or concentrated in quartz and calcite veins and veinlets between 0.3 and 30 centimetres thick, usually about 8 centimetres thick. Pyrite, pyrrhotite and rare specular hematite are also present in the veins. Locally oxidation has produced abundant malachite, azurite and limonite.

The mineralized zone measures 760 by 90 metres and has a depth of about 75 metres. Diamond drilling indicates that it strikes 160 degrees and dips vertically or steeply east, so it is not parallel to the volcanic-sedimentary contact, indicating that the contact is not the controlling factor. Rather, the veins hosting the mineralization are structurally controlled by numerous faults and fractures which consistently strike 160 degrees and dip 85 degrees east (Assessment Report 4230). Incidentally, the Echo occurrence (092HNE059) lies on this trend, 2 kilometres to the north-northwest, and the mineralization may also extend south-southeast of the HN-WEN occurrence (Assessment Report 4230).

Some significant copper and silver values have been obtained from the workings and diamond drill core. A 1.5-metre chip sample from Adit Number 1 was assayed at 4.39 per cent copper, 92.6 grams per tonne silver, and 0.7 gram per tonne gold (Assessment Report 4230).

**Mineralization: Property Area (cont'd)****HN-WEN** prospect

A grab sample from here was assayed at 4.84 per cent copper, 46.6 grams per tonne silver and 0.7 gram per tonne gold (Assessment Report 4230). Both samples were from oxidized material and may not be representative of grade throughout the deposit (Assessment Report 4230). A drill core sample (hole HNS 72-1) assayed 1.12 per cent copper and 3.4 grams per tonne silver (Assessment Report 4230).

The average grade of the whole deposit has been estimated at 0.08 per cent copper, with a generally low gold and silver content (Assessment Report 4230).

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

MINFILE 092HNE073

Six 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).

**BIG KIDD** prospect (Alkalic porphyry Cu-Au; Volcanic redbed Cu)

MINFILE 092HNE074

Five kilometres west

Mineralization is erratic and consists of abundant magnetite, and pyrite, lesser chalcopyrite, and traces of bornite and chalcocite, as disseminations, lenses, scattered blebs and veinlets. Cuprite and native copper are also reported. This mineralization tends to favour the zones of alteration, but is not proportional to the intensity of alteration.

The sulphides are in part controlled by zones of shearing and fracturing in the northeastern portion of the deposit. Limonite, malachite and azurite are present at or near surface.

Pyrite occurs primarily as disseminations up to 5 millimetres in diameter. The mineral also occurs along fractures in association with chalcopyrite, orthoclase, quartz and/or carbonate. Chalcopyrite tends to be finely disseminated and is usually associated with magnetite, intimately associated with pyrite, and forms pseudomorphs after pyrite. Pyrite-chalcopyrite intergrowths are prevalent along fractures. Bornite is often found in magnetite-chalcopyrite blebs and veinlets, which often display epidote halos.

Copper content is quite variable, and precious metal values are low but anomalous. Channel sampling of an adit yielded 0.901 per cent copper, 0.141 gram per tonne gold and 13.66 grams per tonne silver over 14 metres (Assessment Report 7100, page 8, adit no. 1).

**Mineralization: Property Area (cont'd)****BIG KIDD** prospect (cont'd)

Channel sampling of a trench, 90 to 190 metres west of the adit, yielded 0.237 per cent copper, 0.095 gram per tonne gold and 3.37 gram per tonne silver over 35 metres (Assessment Report 7100, page 9, trench no. 12). Trenching and sampling of the northern margin of the breccia pipe yielded gold values of up to 1.97 grams per tonne over 6 metres (Assessment Report 8743, Figure 3, samples 3413, 3414).

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

MINFILE 092HNE096

Fifteen kilometres southeast

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).

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.

Reverse circulation drilling, underground diamond drilling, reclamation, road construction, water sampling and aerial photography were also undertaken during this period.



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

Surface and underground diamond drill programs were carried out in the Siwash Mine area from 1994 to 1996 to define the resource. Exploration surface drilling was also carried out during the 1995 and 1996 field seasons to test trench targets between the Siwash mine site and the South Showing area 2.5 kilometres to the south. Limited prospecting and environmental monitoring was undertaken from 1997 to 1999.

In 1995, Fairfield Minerals with the support from the Explore B.C. Program carried out an extensive program including geochemistry, 13,972 metres of surface and underground diamond drilling in 315 holes and reserve calculations. 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):

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

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

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 downdip 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.

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

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.

**COURT 1** showing (Volcanic redbed Cu)

MINFILE 092HNE147

Four kilometres west

Mineralization at the showing is exposed by stripping, and consists of chalcopyrite, pyrite, malachite and azurite. Chalcopyrite and molybdenite are present at the skarn-altered outcrop. The nature of the mineralization is not specified but in showings in the area minerals are characteristically disseminated or hosted in quartz veinlets.

**POT 1** showing (Volcanic redbed Cu)

MINFILE 092HNE204

100 metres west

Mineralization comprises erratically disseminated chalcopyrite, malachite, azurite and pyrite (Preliminary Map 15; Assessment Report 13714). The copper minerals occur in narrow zones striking southwest, transverse to the regional strike but parallel to a fault 1 kilometre to the northwest (Bulletin 69).

Individual rock samples from the showing were analysed at up to 0.95 gram per tonne gold and 4.8 grams per tonne silver (Assessment Report 13714). A composite chip sample across the showing was analysed at 2.55 grams per tonne gold and 1.9 grams per tonne silver over 130 metres (Assessment Report 13714, Drawing No. 2, sample W301). Gold and silver values appear to be proportional to the degree of alteration and copper mineralization (Assessment Report 13714).

**MINERALIZATION: PROPERTY****MAL** prospect (Cu skarn; Fe skarn; Au skarn)

MINFILE 092HNE002

Within Tenure 567126

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).

**Mineralization: Property** (cont'd)**MAL** prospect (cont'd)

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).

**ECHO** showing (Volcanic redbed Cu)

MINFILE 092HNE059

Within Tenure 567126

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).

**AU-WEN** prospect (Intrusion related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn+/-Au)

MINFILE 092HNE144

Within Tenure 633163

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).

Grab and select samples assayed between 14.4 and 91 grams per tonne gold (Assessment Reports 5766, 16008). The best drill core intersection assayed 4.97 grams per tonne gold over 1.5 metres (Assessment Report 16008).

Copper is associated with the gold mineralization; one rock sample from the main trench yielded 0.29 per cent copper (Assessment Report 7293). Another sample yielded 26 grams per tonne silver and 0.14 per cent lead (Assessment Report 7293). Silver in diamond drill core is generally under 1 gram per tonne (Assessment Report 11241).

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

MINFILE 092HNE270

Within Tenure 633163

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.

### STRUCTURAL ANALYSIS

A Hillside Shade map downloaded from MapPlace was utilized as the base map for the Structural analysis on Tenures 633163 & 633183. A total of 91 lineaments were marked (Figure 5), compiled into a 10 degree class interval, and plotted as a Rose Diagram as indicated on Figure 6.

Figure 5. Indicated Lineaments on Tenure 589584

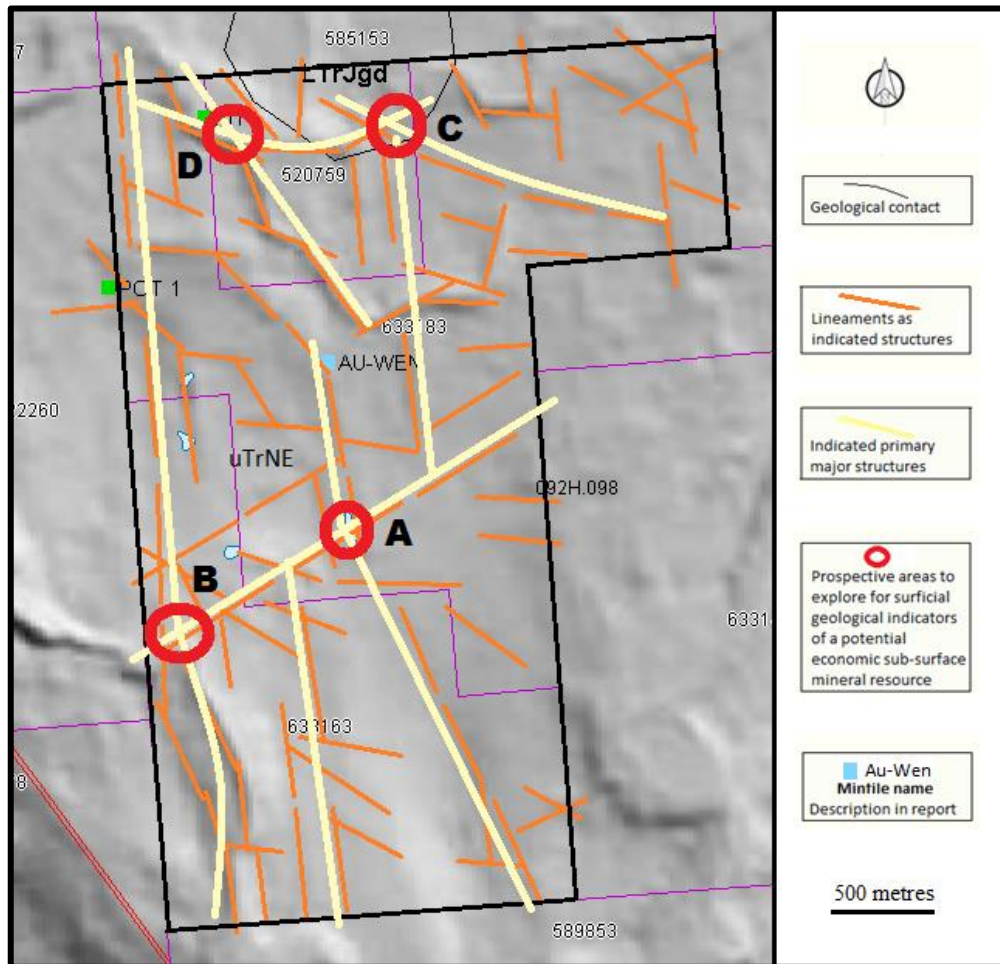
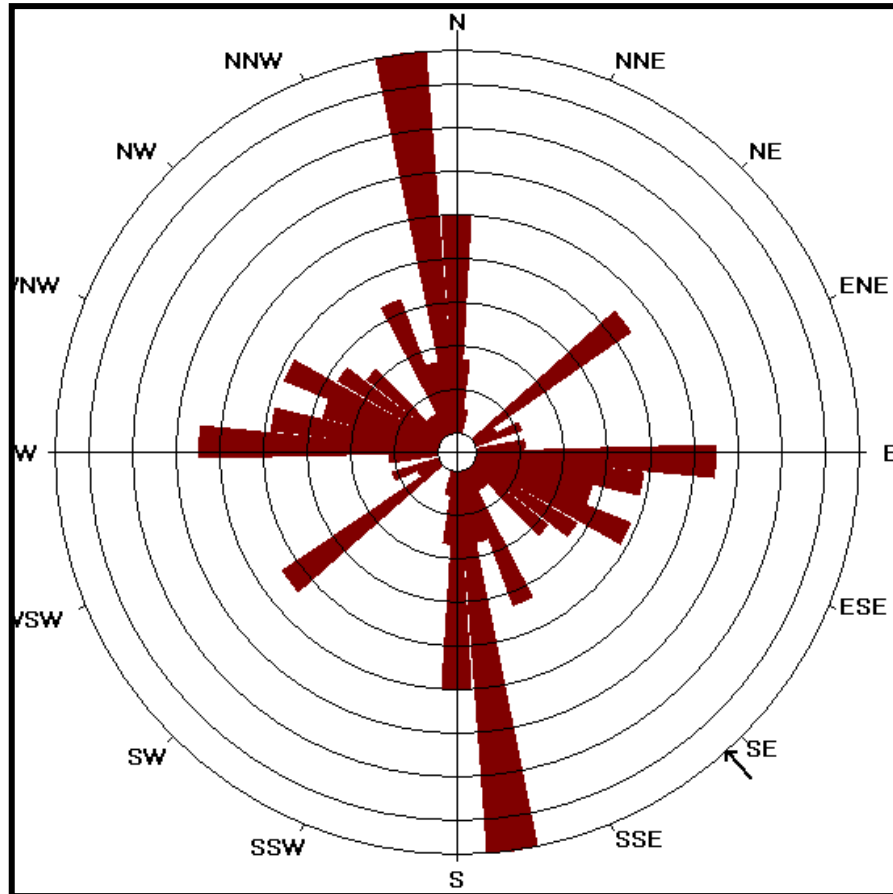


Figure 6. Rose Diagram from lineaments of Figure 4.



**STATISTICS** (for Figure 5)

Axial (non-polar) data  
 No. of Data = 91  
 Sector angle = 8°  
 Scale: tick interval = 2% [1.8 data]  
 Maximum = 17.6% [16 data]  
 Mean Resultant dir'n = 138-318  
 [Approx. 95% Confidence interval = ±30.5°]  
 (valid only for unimodal data)  
 Mean Resultant dir'n = 137.9 – 317.9  
 Circ.Median = 126.0 – 306.0  
 Circ.Mean Dev.about median = 36.8°  
 Circ. Variance = 0.30  
 Circular Std.Dev. = 48.51°  
 Circ. Dispersion = 6.11  
 Circ.Std Error = 0.2591  
 Circ.Skewness = 0.47

Circ.Kurtosis = -5.88  
 kappa = 0.49  
 (von Mises concentration param. Estimate)  
 Resultant length = 21.70  
 Mean Resultant length = 0.2385  
 'Mean' Moments: Cbar = 0.0243; Sbar = -0.2372  
 'Full' trig. Sums: SumCos = 2.2139; Sbar = -21.5894  
 Mean resultant of doubled angles = 0.3052  
 Mean direction of doubled angles = 178  
 (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'

Figure 7. Cross-structural and Minfile locations on Google Earth

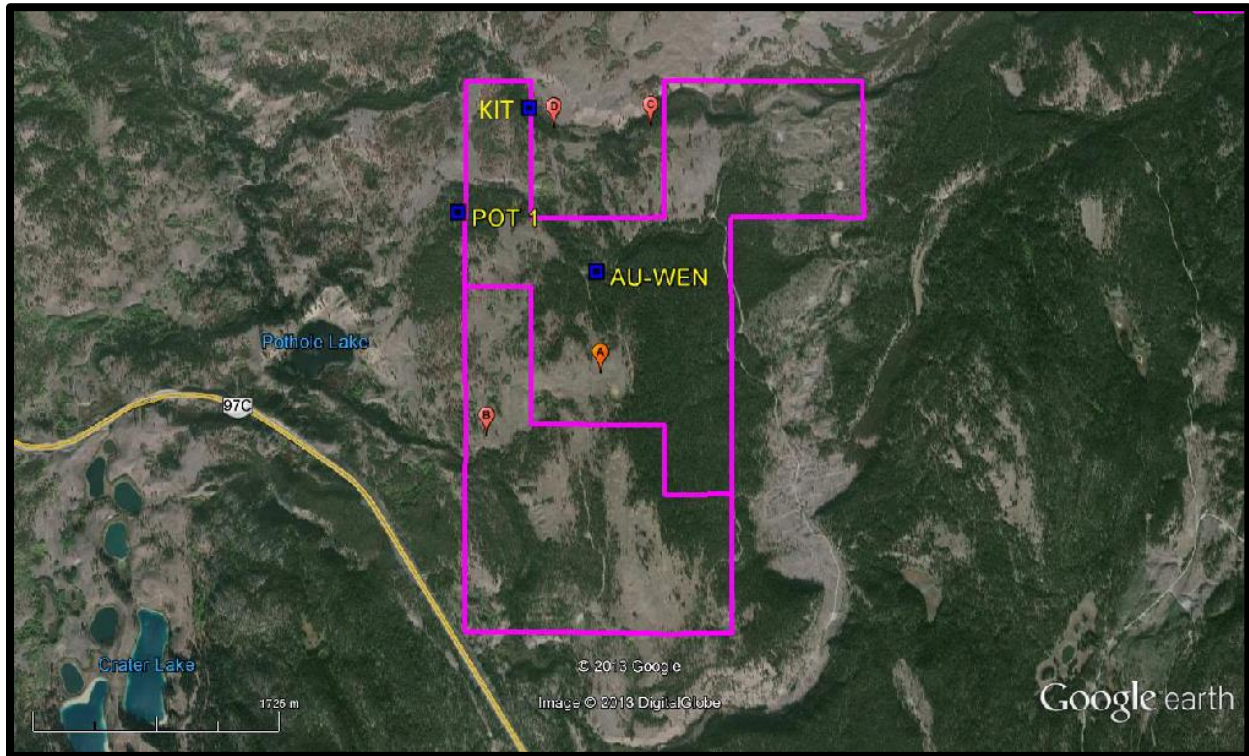
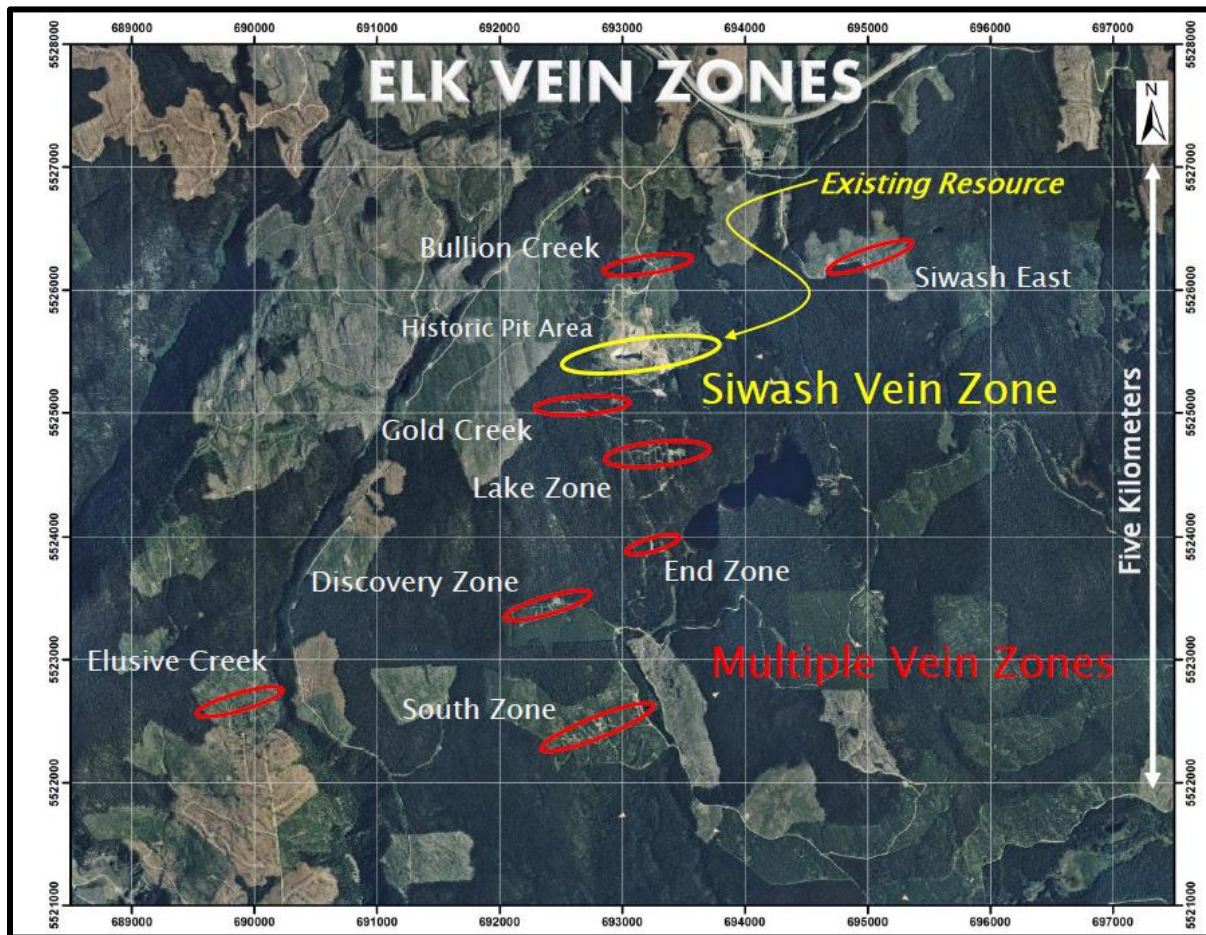


Table II. Approximate location of Figure 5 & 7 cross-structures & Minfile locations (from MapPlace) (UTM-NAD 83)

Area	UTM East	UTM North	Elevation (metres)
<b>Cross-structure</b>			
<b>A</b>	677,950	5,535,425	1,135
<b>B</b>	677,190	5,534,976	1,060
<b>C</b>	768,230	5,537,105	1,066
<b>D</b>	677,575	5,537,075	1,054
<b>Minfile</b>			
<b>KIT</b>	677,411	5,537,209	1,042
<b>POT 1</b>	676,956	5,536,483	1,078
<b>AU-WEN</b>	677,906	5,536,112	1,094

**Figure 8. 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

The Structural analysis on Tenures 633162 and 633183 of the Toni 633183 Claim resulted in the delineation of four cross structural locations between major S1 northerly, northeasterly, and northwesterly structures. These three directions are primary structural trends in the area and may locally vary directionally caused by a shifting major horizontal force or from pressures developing from rising intrusives, amongst other factors.

These primary directions are evident in the drainage pattern or the intrusive boundaries such as in the boundaries of the Pennask batholith. Lingering post intrusive forces are manifest in the extensive major continuous developing structures in adjacent vari-aged rock types such as the structures of the major north trending Kentucky-Alleyne fault system to the west which is obvious in the displacement pattern, or the subliminal Elk (Siwash) fault to the east which is evident in the drainage pattern.

Both these major faults have a role in mineral structural controls. The Kentucky-Alleyne fault system is the divisional structure between the Central Volcanic Belt (uTrNC) and the Eastern Volcanic Belt (uTrNE) of the Nicola volcanics. The Central Belt contains numerous mineral indicators as prospects, showings, developed prospects, and/or past producers whereas the Eastern Belt shows few mineral indicators even though both having comparable geology. The reason for the difference is not a study for this report, but generally, could be structurally related.

**INTERPRETATION** (cont'd)

The most effective mineral structural control may relate to fracture density or cross structures where the intersection should develop a greater degree of fractures which would prepare the rock for accepting mineralization. This is shown in two former producing mines in the vicinity of the Toni 633183 Claim Group. At the BRENDA past producer (*Minfile 092HNE047*), the grade of the orebody is a function of fracture (vein) density and of the thickness and mineralogy of the filling material. Mineralization decreases outwardly from the most intensely fractured/mineralized rock and the centre of the main mineral zone. The centre well fractured zone could very well be the intersection of two major structures which would not only fracture the rock but also generate an avenue to greater depths in tapping and providing a conduit for the mineralizing fluids to surface.

The Elk structure is indicated topographically over a distance of at least 20 kilometres from south of the Elk mineral zones to the SNOW (*Minfile 092HNE292*) mineral showing to the north where a drill hole intersected minor copper mineralization in weakly to moderately chloritized granite of the Pennask batholith. It appears to be the controlling structure to the many mineral zones of the Gold Mountain Elk property where one gold zone was previously mined.

The main structure is the north trending Elk Fault which is intersected by numerous east-northeasterly trending faults. The cross-structural mineral controlling feature is obvious as the mineral zones are mostly adjacent to the Elk Fault and related to the cross fault intersection. Figure 8 shows this structural/mineral pattern

Thus the four cross-structure locations determined in the structural analysis and indicated on Figures 5 & 7 would be prime locations to explore for surficial geological indicators of a potential economic deep-seated mineralized porphyry system. These geological indicators may be revealed as pathfinder minerals, minerals and/or alteration products that would be subject to interpretation as economic mineral indicators to follow-up exploration.

Excluding other variable geological conditions, the structures are essential in the localization of potentially economic mineralization within the Pennask granodioritic intrusive or the Nicola volcanics and/or sediments or a combination of both as at the Elk and the Brenda deposits. For mineral deposit types that may occur within the Toni 633183 Claim Group reference is made in the report to 12 Minfile properties. These Minfile descriptions, copied from the BC Government Minfile records, are shown on Figure 4 and are included herein as potential types of mineralization that should be sought following the exploration of the four prime exploration areas within Tenures 520759, 633163, and 633183.

Respectfully submitted  
Sookochoff Consultants Inc.



Laurence Sookochoff, P.Eng



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***STATEMENT OF COSTS***

Structural Analysis -----	\$ 2,000.00
Maps -----	1,500.00
Report -----	<u>4,000.00</u>
	\$ 7,500.00

**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 forty-seven 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.
- 6) I am a director of Victory Resources Corporation.

Laurence Sookochoff, P. Eng.

