BRITISH COLUMBIA
The Best Place on Earth

**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:** $ 9,664.10

**AUTHOR(S):** Laurence Sookochoff, PEng

**SIGNATURE(S):** Laurence Sookochoff

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

**YEAR OF WORK:** 2015

**STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):** 5544323 February 25, 2015

**PROPERTY NAME:** Toni

**CLAIM NAME(S) (on which the work was done):** 520757 591361

**COMMODITIES SOUGHT:** Copper Gold

**MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:** 092HNE002 092HNE058 092HNE059

**MINING DIVISION:** Nicola

**NTS/BCGS:** 092H.088 092H.089 092H.099

**LATITUDE:** 49 ° 59 ' 04 " **LONGITUDE:** 120 ° 21 ' 22 " **(at centre of work)**

**OWNER(S):**

1) Victory Resources Corporation

2)

**MAILING ADDRESS:**

13236 Cliffstone Court
Lake Country BC V4V 2R1

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

1) Victory Resources Corporation

2)

**MAILING ADDRESS:**

13236 Cliffstone Court
Lake Country BC V4V 2R1

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

Late Triassic to Early Jurassic, Pennask Batholith, Upper Triassic, Nicola Group, Eastern Volcanic Facies, Northerly Northeasterly Northwesterly Structures, Cross Structures, HN-WEN Prospect, Chalcopyrite, Quartz, Calcite

**REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:** 1586 9195 4230 29976 30728 31024 32160 35449

Next Page

| TYPE OF WORK IN THIS REPORT | EXTENT OF WORK (IN METRIC UNITS) | ON WHICH CLAIMS | PROJECT COSTS APPORTIONED (incl. support) |
|---|---|---|---|
| **GEOLOGICAL (scale, area)** | | | |
| **Ground, mapping** | | | |
| **Photo interpretation** | 1,018 hectares | 520757 591361 | $ 6,000.00 |
| **GEOPHYSICAL (line-kilometres)** | | | |
| **Ground** | | | |
| **Magnetic** | 1.2 | 520757 | 3,664.10 |
| **Electromagnetic** | | | |
| **Induced Polarization** | | | |
| **Radiometric** | | | |
| **Seismic** | | | |
| **Other** | | | |
| **Airborne** | | | |
| **GEOCHEMICAL (number of samples analysed for...)** | | | |
| **Soil** | | | |
| **Silt** | | | |
| **Rock** | | | |
| **Other** | | | |
| **DRILLING (total metres; number of holes, size)** | | | |
| **Core** | | | |
| **Non-core** | | | |
| **RELATED TECHNICAL** | | | |
| **Sampling/assaying** | | | |
| **Petrographic** | | | |
| **Mineralographic** | | | |
| **Metallurgic** | | | |
| **PROSPECTING (scale, area)** | | | |
| **PREPARATORY / PHYSICAL** | | | |
| **Line/grid (kilometres)** | | | |
| **Topographic/Photogrammetric (scale, area)** | | | |
| **Legal surveys (scale, area)** | | | |
| **Road, local access (kilometres)/trail** | | | |
| **Trench (metres)** | | | |
| **Underground dev. (metres)** | | | |
| **Other** | | | |
| | | **TOTAL COST:** | $ 9,664.10 |

# VICTORY RESOURCES CORPORATION

*(Owner & Operator)*



# GEOLOGICAL & GEOPHYSICAL ASSESSMENT REPORT

*(Event 5544323)*

*on*

**Tenures 591361 & 520757**

*of the 14 claim*

**Toni 591361 Claim Group**

**Nicola Mining Division**

**BCGS Map 092H.088/.098/.099**

*(Work dates: February 23, 2015 to December 13, 2015)*

*Centre of Work*

**5,540,254N 689,538E**

*(Zone 10U NAD 83)*

*Author & Consultant*

**Laurence Sookochoff, PEng**

**Sookochoff Consultants Inc.**

*Submitted*

**July 27, 2015**

*Amended*

**February 8, 2016**

# TABLE OF CONTENTS

***Table of Contents** (cont'd)*



**ILLUSTRATIONS**



**TABLES**



**APPENDICES**

## SUMMARY

The 6,637 hectare, 14 claim Toni 591361 Claim Group is located 32 kilometres southeast of Merritt and 33 kilometres west-northwest of the past productive Brenda mine.

The Brenda copper-molybdenum deposit was hosted by the "Brenda Stock", a composite quartz diorite/granodiorite body which forms part of the Early Jurassic Pennask batholith. The mineralization within the Brenda stock reportedly decreased outwardly from the most intensely fractured/mineralized rock and the centre of the main mineral zone.

As indicated by the BC government supported MapPlace geological maps, the northeastern portion of the Toni 591361 Claim Group is underlain by the Early Jurassic Pennask batholith (LTrJgd) in a general westerly and northerly contact with Upper Triassic Eastern Volcanic Facies of the Nicola volcanics (UTrNE) in the southwest and south which is infringed by a capping of Upper Triassic sedimentary rocks (uTrNsf).from the east.

In the structural analysis of Tenures 591361 & 520757, three cross-structures were delineated on Tenure 520757 on one northerly trending structure which was intersected by three northwesterly and one northeasterly trending structure. These cross-structures would be the most prospective locations to explore for surficial indications of a concealed mineral resource as the cross-structures may be depth intensive to provide a conduit for any migration from a deep-seated hydrothermal fluid source to surface.

The potential for a mineral resource indication at two of the cross-structural locations is heightened by the locations positioned adjacent to a volcanic/intrusive contact where the brecciation would be augmented in the volcanics by the pressure and movement of the intrusive. The finality of the Upper Triassic brecciation and mineral deposition within an intrusive is illustrated in the development of the Brenda mineral resource within the Brenda stock

Mineral resource development within predominantly Nicola volcanics adjacent to intrusives is exemplified at the Copper Mountain Sunset orebody which is hosted almost entirely in the Nicola Group volcanics

The localized magnetometer over the indicated cross-structure "B" within an area of sedimentary rocks revealed two relative anomalous magnetometer lows (mag LO) and one relative anomalous mag HI. The mag LO's may indicate a low degree of mafic and/or magnetic minerals within a sedimentary unit such as possibly a quartzite in a sedimentary formation whereas the mag HI may indicate an argillaceous unit or a mafic volcanic.

In relation to structure, the mag LO's may indicate structures with associated dynamic and/or hydrothermally alteration within the sedimentary package. The approximate location of cross-structure "B" may be actually located at the lowest mag value within the west-central anomalous mag LO trend. The eastern sub-anomalous/anomalous zone may indicate a comparable structure to the northeasterly structure trending to the HN-WEN mineral prospect as shown on Figure 5.

Thus, the three cross-structural locations on Tenure 520757 should be prospected for any geological indicator that may indicate a potential concealed mineral resource. These geological indicators may be revealed as minerals and/or alteration products and would be subject to interpretation as economic mineral indicators.

## INTRODUCTION

Between February 23, 2015 and December 13, 2015, a structural analysis and a localized magnetometer survey were completed on Tenures 591361 and 520757 of the 14 claim Toni 591361 claim group (Property). The purpose of the program was to delineate potential structures and correlative magnetic responses which may be integral in indicating near surface indications and/or geological controls to a potential mineral resource.

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

*Figure 1*. **Location Map**

(from MapPlace)


## TONI 591361 CLAIM GROUP LOCATION AND DESCRIPTION

### Location

The Toni 591361 Claim Group is located within BCGS Map 092H.088/.098/.099 of the Nicola Mining Division, 204 kilometres northeast of Vancouver, 32 kilometres southeast of Merritt, and 33 kilometres west-northwest of the past productive Brenda Mine.

### Description

The Property is comprised of 14 contiguous claims covering an area of 6637.6076 hectares. Particulars are as follows:

*Table I.* **Tenures of the Toni 591361 Claim Group**

| Tenure Number | Type | Claim Name | Good Until | Area (ha) |
|---|---|---|---|---|
| 520757 | Mineral | WEN | 20151015 | 499.041 |
| 567126 | Mineral | AU-WEN EAST | 20150814 | 498.8479 |
| 589849 | Mineral | TONI 1 | 20151015 | 520.1029 |
| 589852 | Mineral | TONI 3 | 20140315 | 520.307 |
| 589876 | Mineral | TONI 15 | 20140415 | 520.9397 |
| 589877 | Mineral | TONI 16 | 20140415 | 520.7974 |
| 591361 | Mineral | WIN 8 | 20151015 | 519.8243 |
| 855788 | Mineral | TONI 526 | 20140315 | 83.2594 |
| 898131 | Mineral | SNOW 3 | 20150814 | 415.6527 |
| 898133 | Mineral | SNOW 5 | 20150814 | 311.6187 |
| 899909 | Mineral | TONI 17 | 20140415 | 478.9036 |
| 1031586 | Mineral | | 20150927 | 583.0086 |
| 1031588 | Mineral | | 20151105 | 583.475 |
| 1033557 | Mineral | | 20150814 | 581.8294 |

*Upon the approval of the assessment work filing, Event Number 5544323.

*Figure 2*. **Claim Location**

*(Base Map from Google Earth)*

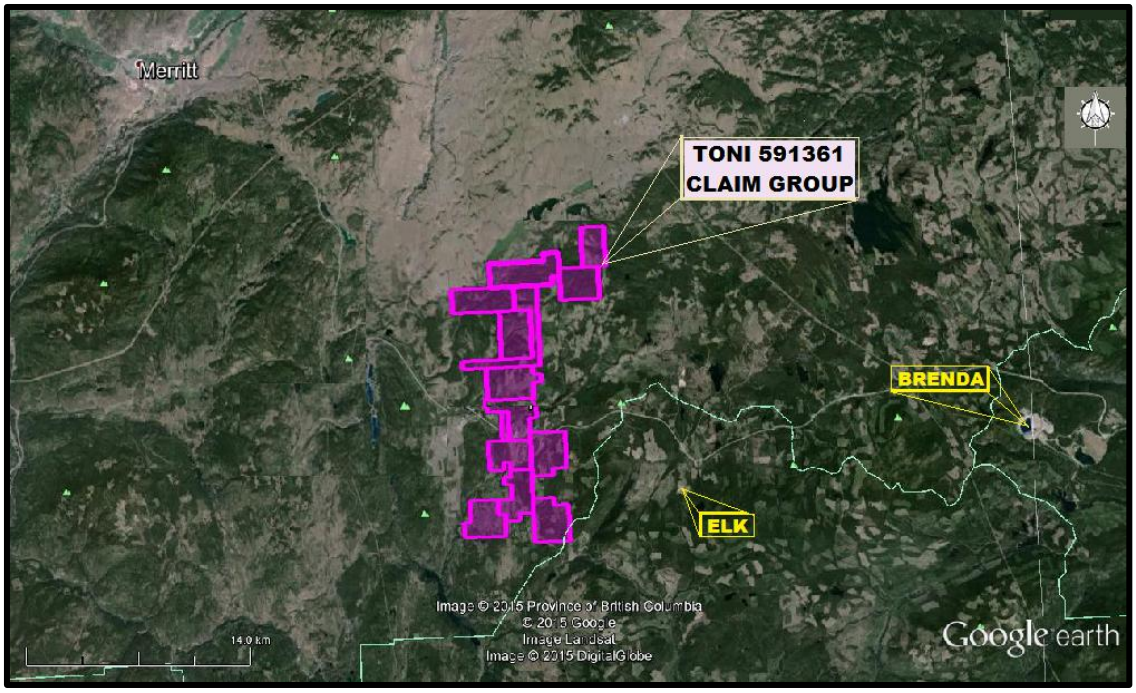
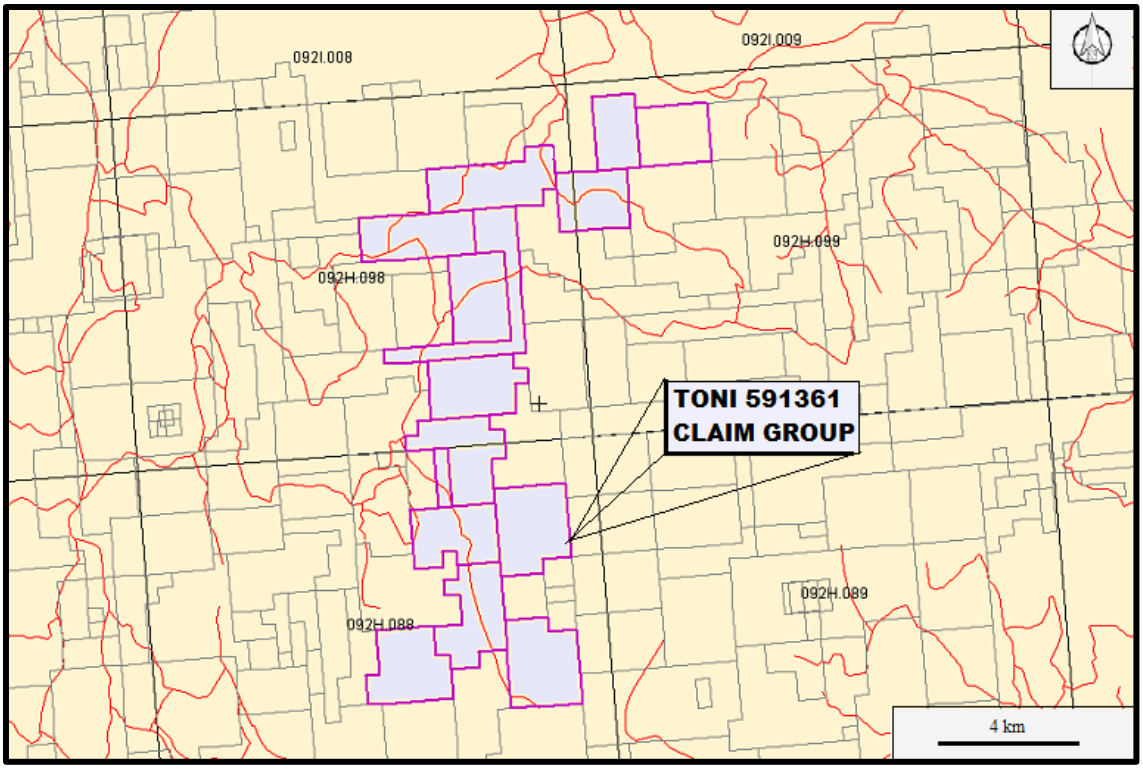



*Figure 3.* **Claim Map (Toni 591361 Claim Group**

*(from MapPlace)*




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

**Access**

Access from Merritt the Toni 591361 Claim Group is southward via Highway 5A/97C for 27 kilometres to the Aspen Grove junction; thence eastward on Highway 97A or the Coquihalla connector Highway for 15 kilometres to the Loon Lake junction; thence eastward and northward via a gravely road for six kilometres to the western boundary of Tenure 5898549.

**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 Toni 591361 Claim Group snow cover on the ground could be from December to April and would not hamper a year-round exploration program.

**Local Resources & 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 within Tenures 591361 and 520757 is of gentle to moderate forested slopes with occasional logged areas. Relief is in the order of 303 metres ranging from elevations of 1,192 metres within a valley near the southwest corner to 1,495 metres on a local hill near the southeast corner

**WATER and POWER**

Sufficient water for all phases of the exploration program could be available from the many watercourses within the confines of the Property. A 150 KV power line is located within nine kilometres east of the Property.

**HISTORY: PROPERTY AREA**

The history of the selected MINFILE mineral properties peripheral to the Toni 591361 Claim Group is reported as follows. The distance from the Toni 591361 Claim Group is relative to Tenures 591361and 520757, which are the subject of the structural analysis.

**BRENDA** past producer (Porphyry Cu +/- Mo +/- Au)
MINFILE 092HNE047
Thirty-three 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 x % Mo)]. The mine officially closed June 8, 1990.*

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

**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 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. Christopher James Gold Corp. drilled the area, including the Big Kidd (092HNE074) in 1997.*

**PAYCINCI** prospect (Volcanic redbed Cu)
MINFILE 092HNE084
Six kilometres west-southwest

*The Cincinnatti deposit was first explored by the Bates brothers in the early 1900s. A number of trenches, and one adit 120 metres long, were excavated between 1899 and 1913. Payco Mines Ltd. and Alscope Consolidated Ltd. conducted geological and geophysical surveys, trenching and diamond and percussion drilling between 1963 and 1967. An additional 15 holes totalling 1000 metres were drilled by Gold River Mines and Enterprises Ltd. in 1973 and Sienna Developments Ltd. in 1979. The deposit was most recently sampled by Pacific Copperfields Ltd. in 1992.*

*In 1998, Christopher James Gold Corp. optioned the property. Reserves are estimated at 1.8 million tonnes grading 1 per cent copper (Tom Schroeter, 1998).*

**ELK** *past producer (Intrusion-related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn +/-Au; Au-quartz veins)*
*MINFILE 092HNE096*
Seven 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.*

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

*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.*

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

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

*The Pine showing is 500 metres south of Quilchena Creek and 4.8 kilometres north-northeast of the north end of Boot Lake.*

**WAVE 1** anomaly (Polymetallic veins Ag-Pb-Zn+/-Au)
MINFILE 092HNE311
Eighteen 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
Eight 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*

**HISTORY: PROPERTY**

The history of the MINFILE reported mineral properties within the Toni 591361 Claim Group (Figure 4) is reported as follows.

**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).*

**HN-WEN** prospect (Volcanic redbed Cu)
MINFILE 092HNE058
Within Tenure 520757

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

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

***History: Toni 591361 Claim Group (cont'd)***

***Echo** showing (cont'd)*

*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.*

**HN-WEN** prospect (Volcanic redbed Cu)
MINFILE 092HNE058
Within Tenure 520757

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

*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.*

*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 volcaniclastic 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*

Sookochoff (2011) reports that recent exploration work at the HN-WEN by Victory Resources resulted in the delineation of the Adit 1 east-west trending quartz vein within the 90 metre wide northwesterly striking shear zone. The significance of the Adit 1 vein is that it occurs within the Nicola volcanics 50 metres north of the W96-1 drill hole where a mineral hosting quartz vein was intersected from which assays averaging 16.578 gm/t Au, 18.185 gm/t Ag, and 0.75% Cu over 6.55 metres of core or 3.81 metres of 28.43 g/t Au and 0.98% Cu.

## 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.

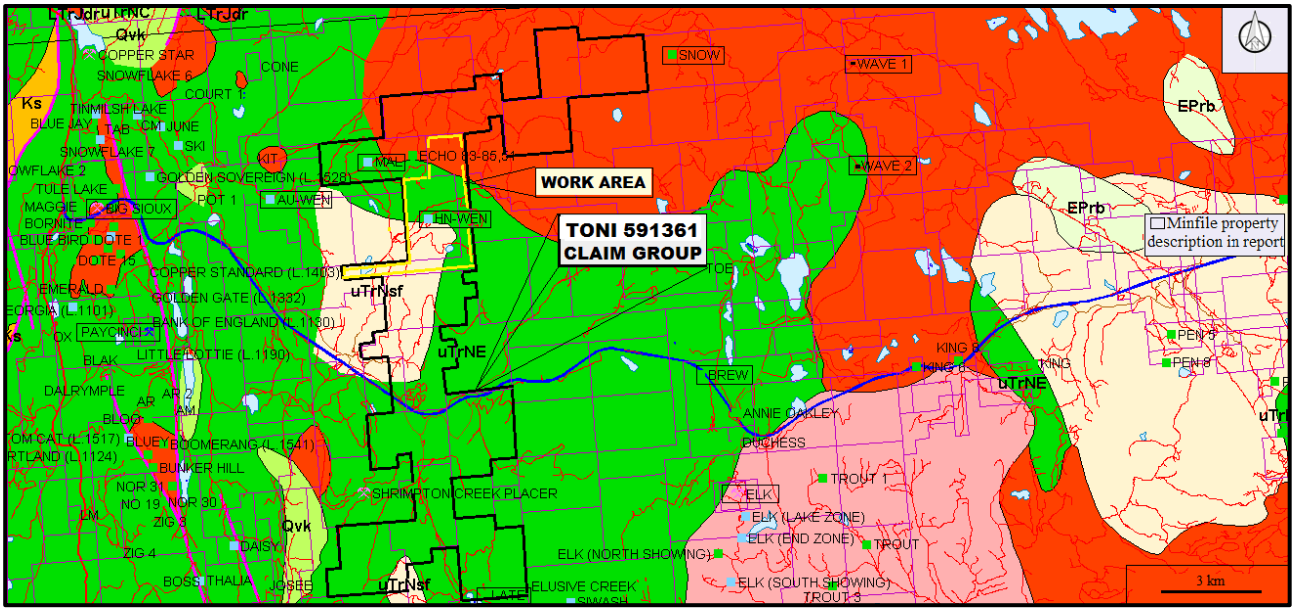
The Nicola Group has been divided into western, central, and eastern belts on the basis of lithology and lithogeochemistry and by major fault systems. Variation from calc-alkaline to shoshinitic compositions from west to east has been interpreted to reflect eastward dipping subduction in the Nicola arc. The Toni 591361 Claim Group 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 of the selected MINFILE reported mineral properties peripheral to the Toni 591361 Claim Group *(Figure 4)* is reported as follows. The distance from the Toni 591361 Claim Group is relative to Tenures 591361and 520757, which are the subject of the structural analysis.

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

*(Base Map: from MapPlace)*




## GEOLOGY MAP LEGEND

**Pleistocene to Recent**

**PlRal**
unnamed alluvial till

**PlRvk**
unnamed alkalic volcanic rocks

**Upper Triassic**

**Eastern Volcanic Facies**

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

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

**uTrNMl**
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

**Middle Jurassic**

**MJgr**
unnamed granitic, alkalitic feldspar intrusive rocks

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

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

MINFILE 092HNE047

Thirty-three kilometres east-southeast

*The Pennask Mountain area is mainly underlain by a roof pendant comprising westerly younging, Upper Triassic sedimentary and volcaniclastic 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).*

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

***Brenda*** *past producer (cont'd)*

*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.*

**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.*

**PAYCINCI** prospect (Volcanic redbed Cu)
MINFILE 092HNE084
Six kilometres west-southwest

*The deposit is located in the southern portion 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.*

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

***Paycinci*** *prospect (cont'd)*

*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.*

*Hypogene and supergene copper mineralization occurs in green laharic breccia, near the contact with red laharic breccia to the east. This mineralization consists primarily of disseminated and fracture controlled chalcocite and native copper, accompanied by lesser malachite and azurite, and minor chalcopyrite, bornite, cuprite and pyrite. Drilling indicates chalcopyrite becomes more abundant at depth at the expense of chalcocite. This mineralization is exposed along the crest and east flank of a small northerly trending ridge, over a north-south distance of 400 metres.*

**ELK** *past producer (Intrusion-related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn +/-Au; Au-quartz veins)*
*MINFILE 092HNE096*
Seven 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. 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.*

**AU-WEN** prospect (Intrusion related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn+/-Au)
MINFILE 092HNE144
Three kilometres west

*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 volcaniclastic rocks, ranging from tuffaceous volcanic siltstones characteristic of the lower part, to coarse volcanic conglomerate and laharic 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).*

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

***Au-Wen** prospect (cont'd)*

*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 volcaniclastic 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).*

**BREW** showing (Alkalic porphyry Cu-Au; Subvolcanic Cu-Ag-Au; As-Sb)
MINFILE 092HNE275
Five kilometres southeast

*This occurrence is hosted in volcanics and minor sediments of the Upper Triassic Nicola Group, 2.6 kilometres northwest of the Middle Jurassic Osprey Lake batholith. The volcanics consist primarily of andesite and fine-grained diorite. The contact between the two units is gradational, suggesting the diorite may be a subvolcanic equivalent of the andesite. Minor tuffs, lapilli tuffs, agglomerates, and feldspar porphyritic andesite are also present. The sediments consist of mudstone, siltstone, shale, and rare carbonate, intercalated with the pyroclastic units. A major fault zone, the Brew fault, striking 140 degrees and dipping steeply southwest, is exposed along the Coquihalla Highway for 600 metres. The zone is approximately 40 metres wide. It is somewhat gossanous and exhibits carbonate and clay alteration and sporadic silicification.*

*Some quartz +/- calcite stringers and blebs are present but not common. Pyrite is ubiquitous along the entire fault. Sections of the zone are strongly mineralised with massive veins, narrow stringers and occasional disseminations of marcasite, pyrite and pyrrhotite. Samples of pyritic clay-altered sections have yielded up to 0.280 gram per tonne gold and 0.445 per cent arsenic (Assessment Report, 18041, page 8, samples 128665, 44719) A sample from a zone of quartz stringers analysed 0.600 gram per tonne gold (sample 239716). This fault is traversed by several significant fault/shear zones striking 100 to 120 degrees. One major crossfault, the Mugwump fault, is exposed west of the Brew fault, striking 100 degrees and dipping 60 degrees south.*

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

*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.*

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

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

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

**GEOLOGY: PROPERTY**

As indicated by the BC government supported MapPlace geological maps, the northeastern portion of the Toni 591361 Claim Group is underlain by the Early Jurassic Pennask batholith (LTrJgd) in a general westerly and northerly contact with Upper Triassic Eastern Volcanic Facies of the Nicola volcanics (UTrNE) in the southwest and south which is infringed by a capping of Upper Triassic sedimentary rocks (uTrNsf).from the east.

The geology of the MINFILE reported mineral properties within the Toni 591361 Claim Group (Figure 4) is reported as follows.

**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 volcaniclastic 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).*

***Geology: Property*** *(cont'd)*

***MAL*** *prospect (cont'd)*

*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).*

**HN-WEN** prospect (Volcanic redbed Cu)
MINFILE 092HNE058
Within Tenure 520757

*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 volcaniclastic 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.*

**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 .*

***Geology: Property*** *(cont'd)*

***Echo*** *showing (cont'd)*

*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 volcaniclastic 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.*

**MINERALIZATION: PROPERTY AREA**

The mineralization on the selected MINFILE reported mineral properties peripheral to the Toni 591361 Claim Group *(Figure 4)* is reported as follows. The distance from the Toni 591361 Claim Group is relative to Tenures 591361and 520757, which are the subject of the structural analysis.

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

MINFILE 092HNE047

Thirty-three 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.*

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

***Brenda** past producer (cont'd)*

*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. 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.*

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

***Brenda*** *past producer (cont'd)*

*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. 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).*

**BIG SIOUX** past producer (Volcanic redbed Cu; Alkalic porphyry Cu-Au
MINFILE 092HNE073
Six kilometres west

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

***Big Sioux** past producer (cont'd)*

*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).*

**PAYCINCI** prospect (Volcanic redbed Cu)
MINFILE 092HNE084
Six kilometres west-southwest

*Hypogene and supergene copper mineralization occurs in green laharic breccia, near the contact with red laharic breccia to the east. This mineralization consists primarily of disseminated and fracture controlled chalcocite and native copper, accompanied by lesser malachite and azurite, and minor chalcopyrite, bornite, cuprite and pyrite. Drilling indicates chalcopyrite becomes more abundant at depth at the expense of chalcocite. This mineralization is exposed along the crest and east flank of a small northerly trending ridge, over a north-south distance of 400 metres.*

*Drill indicated reserves are 54,000 tonnes grading 0.876 per cent copper (Assessment Report 7654, page 1). Precious metal values are generally low. Six rock samples analysed 1.1 to 2.4 per cent copper, 0.005 to 0.010 gram per tonne gold and 1.3 to 5.7 grams per tonne silver (Assessment Report 14108, Figure 5, samples 2051 to 2056). One chip sample taken along a trench yielded 0.89 per cent copper over 49 metres (George Cross News Letter No. 90 (May 8), 1992).*

**ELK** *past producer (Intrusion-related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn +/-Au; Au-quartz veins)*
*MINFILE 092HNE096*
Seven kilometres southeast

*Gold-silver mineralisation 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, mineralisation 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.*

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

***ELK past producer (**cont'd)*

*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 drill holes. 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.*

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

*The Siwash North structure has been tested to 335 metres down dip 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. Mineralisation 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, mineralisation 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.*

*Stronger alteration generally accompanies higher grade gold mineralisation. 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 mineralisation.*

*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 mineralisation. It is not recognized in volcanics.*

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

***ELK past producer (**cont'd)*

*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 mineralisation; 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 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):*

*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).*

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

***ELK past producer (**cont'd)*

*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 mineralised 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.*

*In 2004 a diamond drill program consisting of 10,265 meters of NQ drilling in 44 holes was completed.*

*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.*

*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.*

**AU-WEN** prospect (Intrusion related Au pyrrhotite veins; Polymetallic veins Ag-Pb-Zn+/-Au)
MINFILE 092HNE144
Three kilometres west

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

***Au Wen** prospect **(**cont'd)*

*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).*

**BREW** showing (Alkalic porphyry Cu-Au; Subvolcanic Cu-Ag-Au; As-Sb)
MINFILE 092HNE275
Five kilometres southeast

*The zone has been traced on surface for 400 metres and is 30 to 40 centimetres wide. It is comprised of strongly gossanous clay and fault gouge containing 1 to 2 per cent pyrite. Quartz and quartz-calcite stringers and quartz blebs occur sporadically throughout the zone. A sample of quartz vein material yielded 0.14 gram per tonne gold and 14.4 grams per tonne silver (Assessment Report, 18041, page 8, sample 239774).*

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

*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. Copper mineralization also occurs along fractures and as disseminations in the granite. Two assays of a grab sample taken in the vicinity of the drillhole yielded less than 0.3 gram per tonne gold, 3.1 grams per tonne silver and 0.54 per cent copper, and 0.45 gram per tonne gold, 3.1 grams per tonne silver and 0.30 per cent copper, respectively (Assessment Report 3415, assay certificates).*

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

**WAVE 1** anomaly (Polymetallic veins Ag-Pb-Zn+/-Au)
MINFILE 092HNE311
Eighteen 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
Eight 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**

The mineralization on the mineral MINFILE reported mineral properties within the Toni 591361 Claim Group *(Figure 4)* is reported as follows.

**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).*

*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** (cont'd)*

**HN-WEN** prospect (Volcanic redbed Cu)
MINFILE 092HNE058
Within Tenure 520757

*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).*

*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).*

*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.*

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

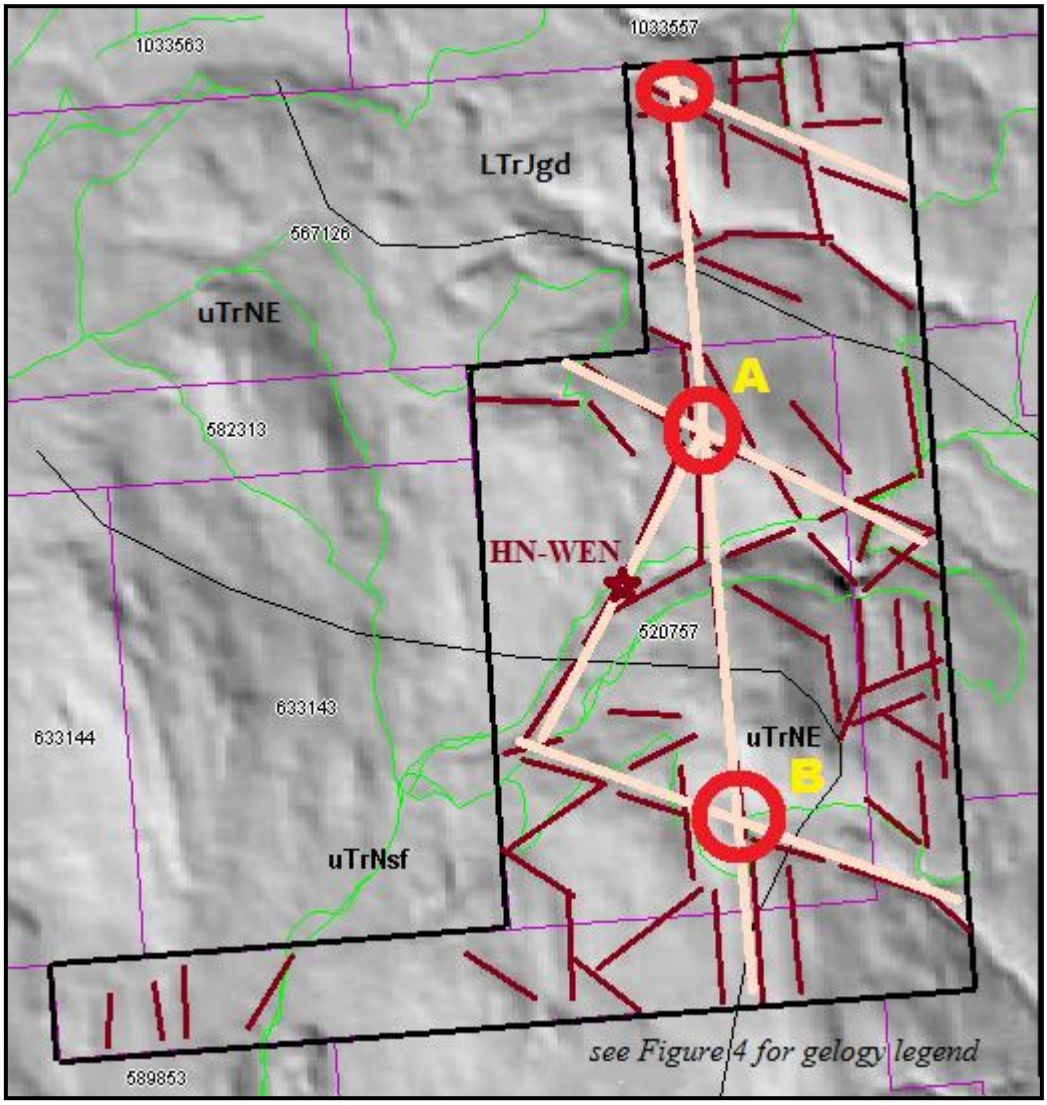
*Chalcopyrite and malachite are present in trenches and open cuts in volcanics over an area 1000 by 800 metres. Chalcopyrite is disseminated, or concentrated in quartz-calcite veins (Assessment Report 1586). The Echo occurrence lies directly along the strike of prominent fractures which host significant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

## STRUCTURAL ANALYSIS

The structural analysis was performed on a MapPlace hillside shade map of Tenures 520757 & 591361 by viewing of the map and marking the lineaments, or indicated structures, thereon. A total of 60 lineaments were marked (*Figure 5*), compiled into a 10 degree class interval, and plotted as a rose diagram as indicated on Figure 6.

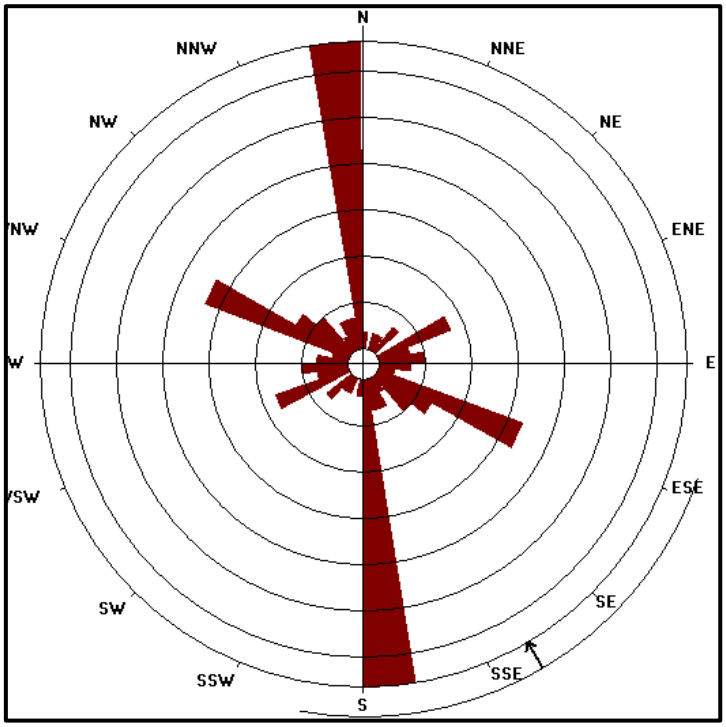
The centre of the work area is at 5,540,254N, 659538E (NAD 83).

*Figure 5.* **Indicated Lineaments on Tenure 520757**



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

*Figure 6.* **Rose Diagram from lineaments** *(Figure 5)* **of Tenure 591361.**




**STATISTICS**

Axial (non-polar) data
No. of Data = 60
Sector angle = 10°
Scale: tick interval = 5% [3.0 data]
Maximum = 33.3% [20 data]
Mean Resultant dir'n = 149-329
[Approx. 95% Confidence interval = ±40.8°]
(valid only for unimodal data)

---

Mean Resultant dir'n = 149.5 - 329.5
Circ.Median = 141.5 - 321.5
Circ.Mean Dev.about median = 37.9°
Circ. Variance = 0.30
Circular Std.Dev. = 48.53°
Circ. Dispersion = 6.65
Circ.Std Error = 0.333
Circ.Skewness = 1.38
Circ.Kurtosis = -3.60
kappa = 0.49
(von Mises concentration param. estimate)
Resultant length = 14.29
Mean Resultant length = 0.2382
'Mean' Moments: Cbar = 0.1155; Sbar = -0.2084
'Full' trig. sums: SumCos = 6.9279; Sbar = -12.5018
Mean resultant of doubled angles = 0.2449
Mean direction of doubled angles = 175
(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**

*(Base map from MapPlace & Google Earth)*

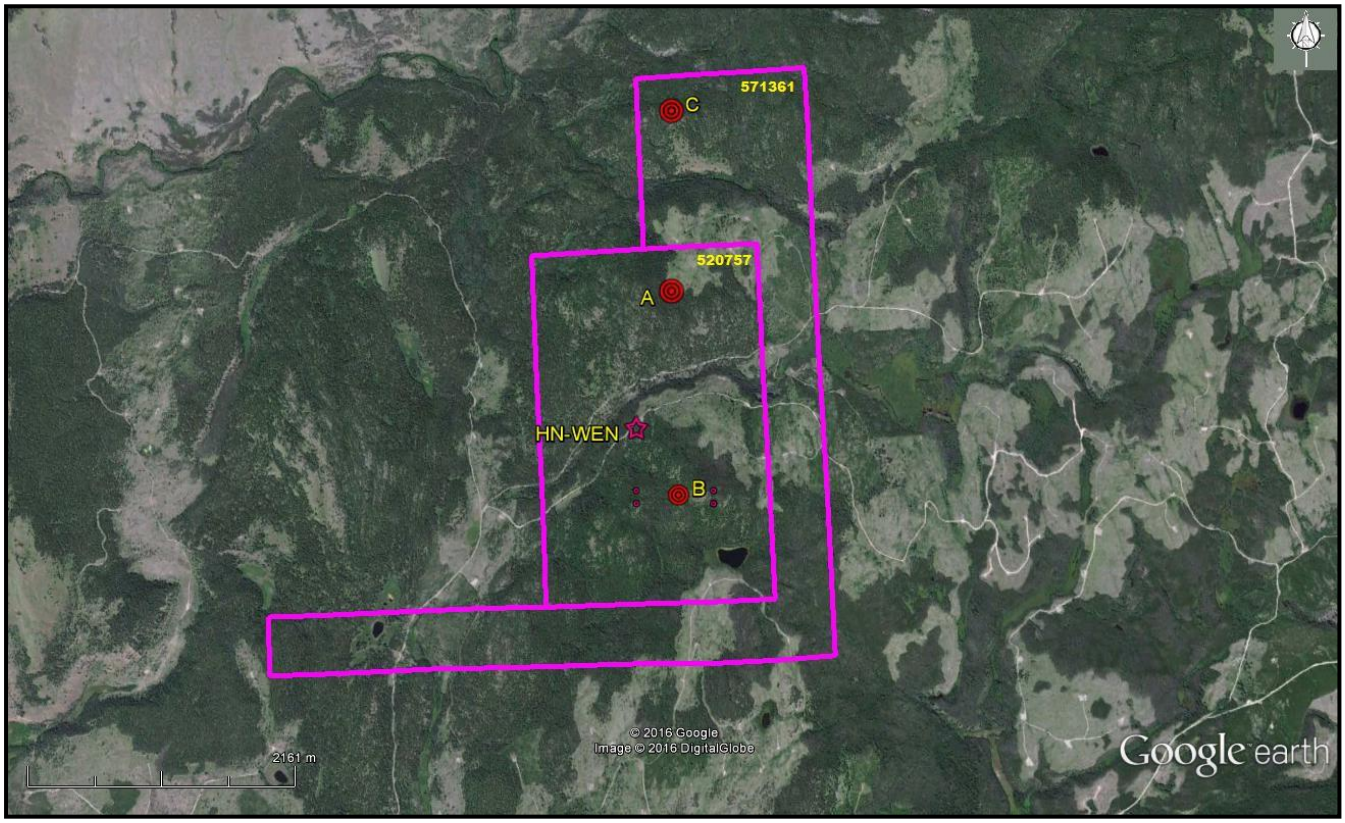



*Table II.* **Approximate UTM locations of Figures 5 & 7 cross-structures on Tenure 520757**

| Cross-Structures | UTM East | UTM North | Elevation *(metres)* |
|---|---|---|---|
| **A** | 683,495 | 5,536,304 | 1,357 |
| **B** | 683,528 | 5,534,710 | 1,381 |
| **C** | 683,512 | 5,537,742 | 1,257 |
| **HN-WEN** | 683,202 | 5,535,239 | |

## MAGNETOMETER SURVEY

### a) Instrumentation

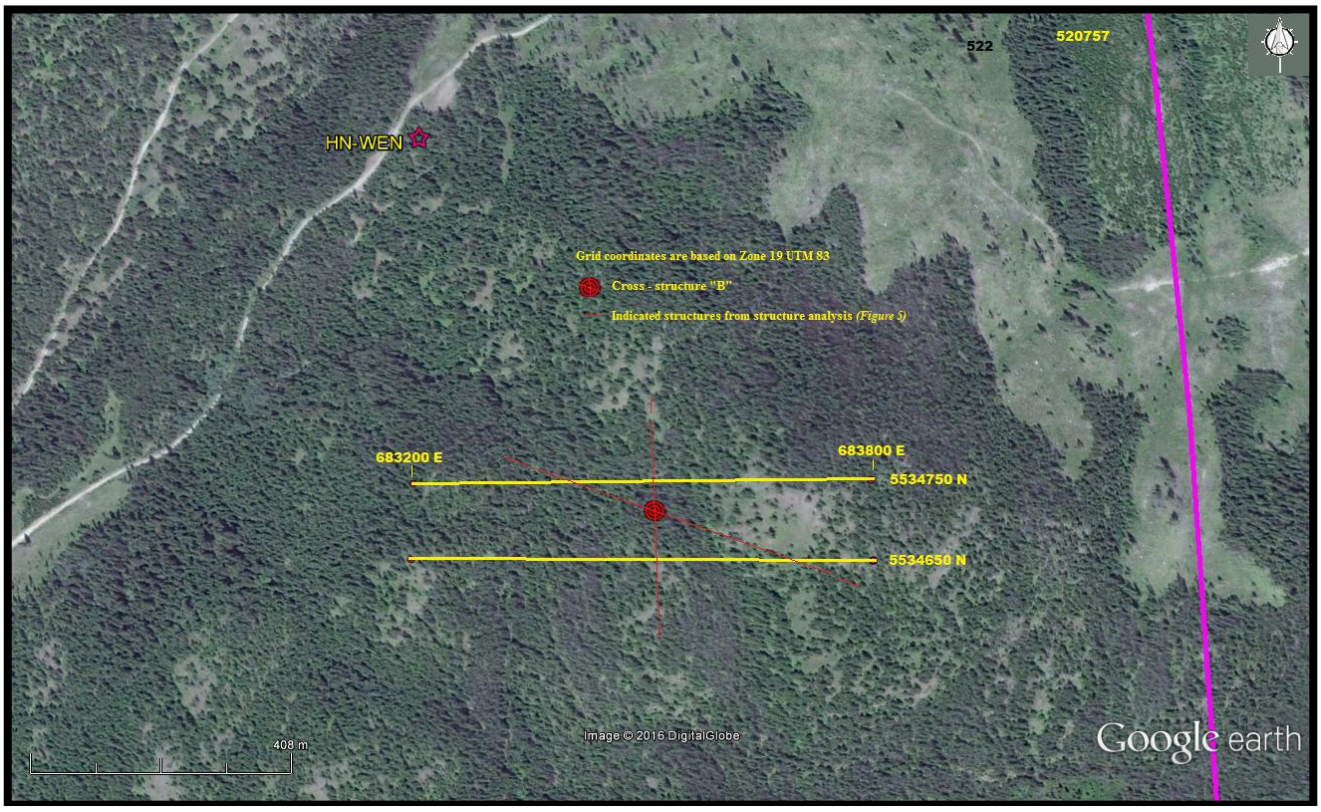
A Scintrex MF 2 Model magnetometer was used for the magnetometer survey. Diurnal variations were corrected by taking repeated readings at a base point throughout the day. Magnetometer values are total intensity and relative.

### 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 is a reconnaissance tool for mapping geologic lithology and structure since different rock types have different background amounts of magnetite and/or pyrrhotite.

Figure 8. **Magnetometer Grid Index Map**

*(Base map from MapPlace)*



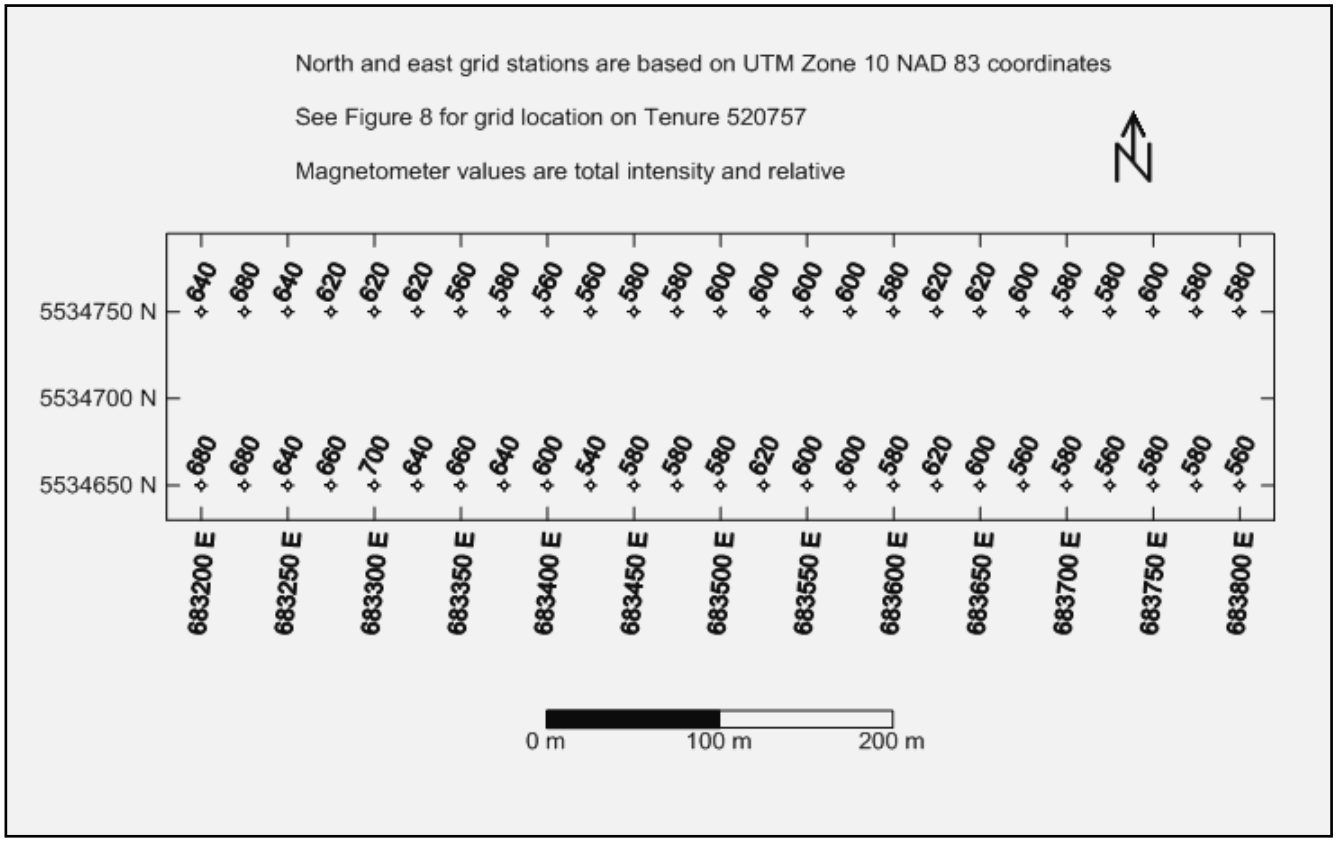
**Magnetometer Survey** (cont'd)

**c) Survey Procedure**

A 100 metre base line was established from 5534750N 683200E southward to 5534650N 683200E with base line stations at every 50 metres. From each of the three line stations magnetometer readings were taken at 25 metre intervals easterly to 683800E. The grid line stations were established with a GPS instrument. Line kilometres of magnetometer survey completed was 1.2. The field results are reported herein in Appendix I.

Figure 9 .**Magnetometer Survey Grid & Raw Data**

*(Base from MapPlace)*

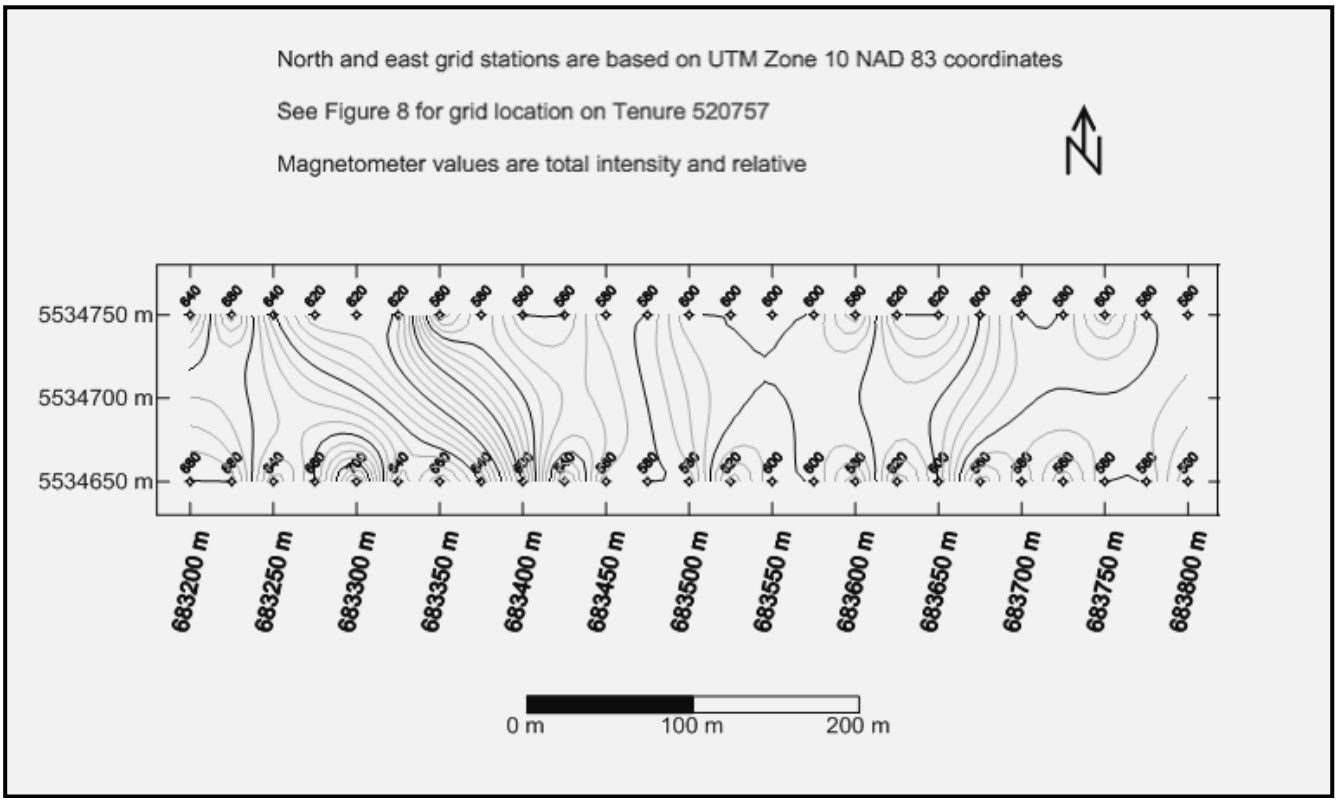


***Magnetometer Survey** (cont'd)*

***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 10. **Magnetometer Survey Contour Map**



***Magnetometer Survey** (cont'd)*

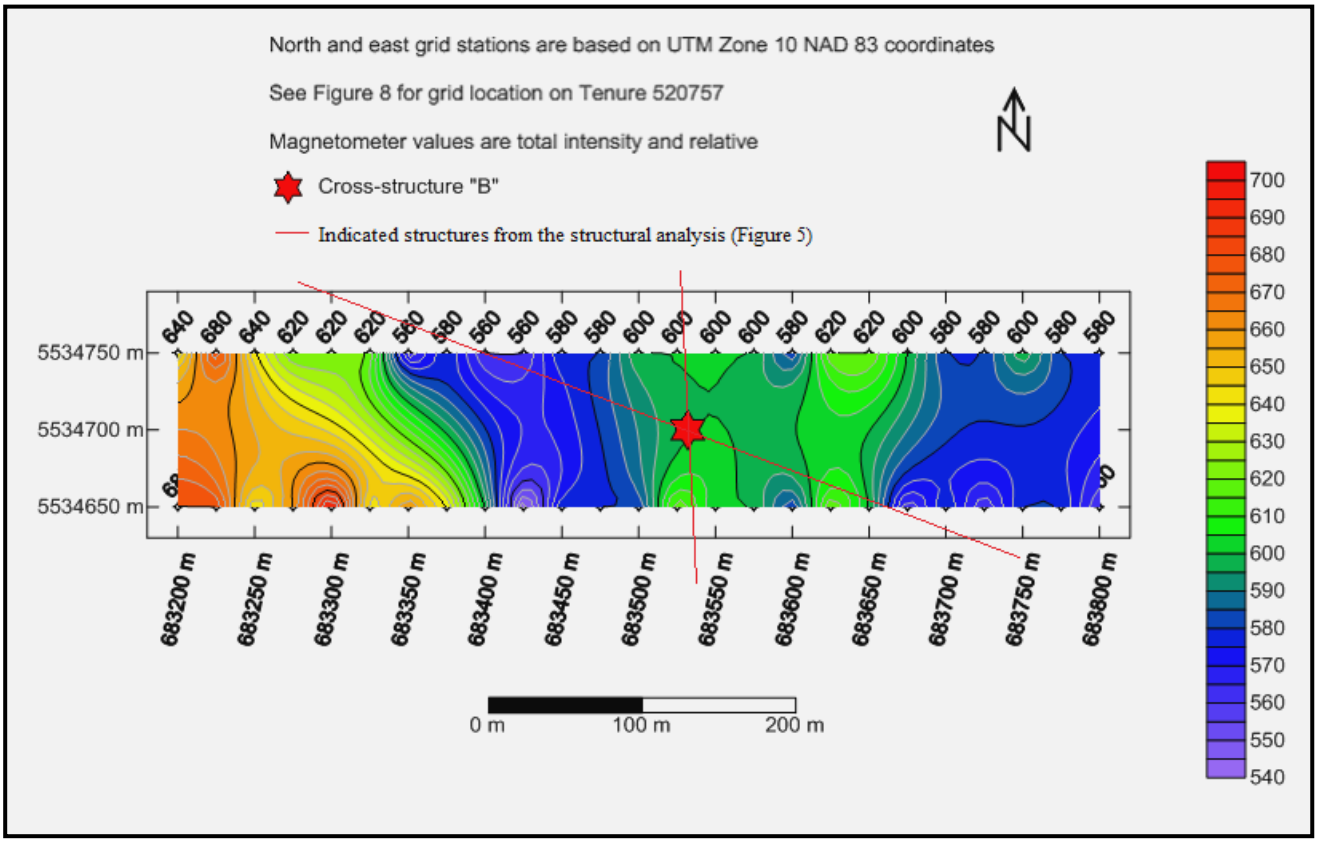
**e) Results**

The magnetometer survey, which was over sedimentary rocks of the Nicola Group, indicated:

*(the metres stated below are at the southern grid line)*

- at the western portion of the survey area, a 50 metre, northerly sub-anomalous to anomalous mag HI is open to the southwest;
- two northerly trending anomalous mag LO's separated by background mag readings;
- the west anomalous central mag LO is north trending, 25 metres wide, and open to south;
- the eastern anomalous mag LO, is northeasterly trending, 75 metres wide, and open to the south.

Figure 11. **Magnetometer Survey Coloured Contour Map**



## INTERPRETATION & CONCLUSIONS

From the structural analysis, three cross-structures delineated on Tenure 520757 were the result of one northerly trending structure was intersected by three northwesterly and one northeasterly trending structures. These cross-structures would be the most prospective locations to explore for surficial indications of a concealed mineral resource as the cross-structures are depth intensive to provide a conduit for any migration from a hydrothermal fluid source and would create the most intensive open-space provision for the deposition of the potentially mineralized fluids.

The potential for a mineral resource indication at two of the cross-structural locations is heightened by the locations positioned adjacent to a volcanic/intrusive contact where the brecciation would be augmented in the volcanics by the pressure and movement of the intrusive. The finality of the brecciation and mineral deposition within an intrusive is illustrated in the development of the Brenda mineral resource within the Brenda stock where:

> **"***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." and "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." and "The grade of the orebody is a function of fracture (vein) density and of the thickness and mineralogy of the filling material. (Minfile 092HNE047).*

Mineral resource development within predominantly Nicola volcanics adjacent to intrusives is exemplified at the Copper Mountain mineral resource where:

> *"The narrow belt of Nicola rocks between Ingerbelle and Copper Mountain, confined between the Copper Mountain stock and the Lost Horse complex is highly faulted and fractured." and "The (Sunset) orebody is 120 to 250 metres wide over most of its length, and is hosted almost entirely in the Nicola Group volcanics" and the fine-grained bedded tuffs " ... being more brittle than the adjacent flows, tuffs and agglomerates, shattered readily and yielded more "ore fractures*". (*Minfile 092HSE001*).

The localized magnetometer over the indicated cross-structure "B" within an area of indicated sedimentary rocks leads to difficulty in interpretation as the sedimentary rocks may inconsistent and erratic in the containment of magnetic minerals. In any event, the cross-structural location and the structural zones should be revealed as anomalous zones within the sediments; more distinctly if these locations are subject to hydrothermal alteration. Geological contacts may also be indicated between volcanics, sediments, and intrusives as at the HN-WEN mineral prospect (*Minfile 092HNE058*).

***Interpretation & Conclusions** (cont'd)*

Accordingly, the interpretation could be:

- Excluding the structural affect to the magnetometer readings and assuming that the magnetometer variations were due to rock types with a variable content of magnetic minerals, the anomalous mag LO's may indicate sedimentary units with a low degree of mafic minerals such as possibly siltstone or quartzite, the anomalous mag HI's may indicate a high content of magnetic minerals which could be argillic units such as shale or argillite, or possibly moderate to high mafic intrusives or volcanics such as diorites, gabbros or basalts;
- If the anomalies were related to structure, the central anomalous mag LO may indicate a northerly trending structure with associated dynamic and/or hydrothermal alteration;
- As the location of cross-structure "B" is approximate (Table II), the actual location may correlate with the southern portion of the central anomalous mag LO with the west-northwesterly structure generally indicated by the mag contours;
- The eastern anomalous mag LO appears to indicate a northeasterly structural orientation trending to the HN-WEN mineral prospect as indicated by Figure 5.

Thus, the three cross- structural locations should be prospected for any surficial geological indicator that may indicate a concealed mineral resource. These geological indicators may be revealed as minerals and/or alteration products and would be subject to interpretation as economic mineral indicators for additional exploration.

Excluding other variable geological conditions, the structures are essential in the localization of potentially economic mineralization. For mineral deposit types that may occur within the Toni 591361 Claim Group reference is made in the report to the Minfile properties described herein. The locations of these Minfile descriptions, copied from the BC Government Minfile records, are shown on Figure 4 and are included herein as potential geological indicators to a mineral resource in variable geological environments.

Respectfully submitted

Sookochoff Consultants Inc.


Laurence Sookochoff, PEng

## SELECTED REFERENCES

**Holcombe, R.** – 2009: GEOrient, ver 9.4.4. Stereographic Projections and Rose Diagram Plots

**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.

**Minfile downloads**

092HNE002 – MAL
092HNE047 – BRENDA
092HNE058 – HN-WEN
092HNE059 – ECHO
092HNE073 – BIG SIOUX
092HNE084 – PAYCINCI
092HNE292 – SNOW.
092HNE096 – ELK
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.

**Sookochoff, L.** Geophysical Assessment Report on an Induced Potential Survey on Tenures 633143 & 633144 of the Toni 633144 Claim Group for Victory Resources Corporation. July 1, 2015. AR 35,449.

**Sookochoff, L.** - Geological Assessment Report on a Lineament Array Analysis of Tenures 689947 & 567126 of the WEN Claim Group for Victory Resources Corporation. August 11, 2009. AR 31,024.

## STATEMENT OF COSTS

Work was done from February 23, 2015 to December 13, 2015 to the value as follows:

**Structural Analysis**

| | |
|---|---|
| Laurence Sookochoff, P Eng. 3 days @ $ 1,000.00/day ---------- | $ 3,000.00 |
| **Magnetometer Survey** | |
| Christopher Delorme & Guy Delorme | |
| December 12-13, 2015 | |
| Four man days @ $300.00 per day ---------- | 1,200.00 |
| Truck rental, kilometre charge, fuel, room & board, | |
| mag rental ---------- | 1,214.10 |
| | $ 5,414.10 |
| Maps ---------- | 750.00 |
| Report ---------- | 3,500.00 |
| | $ 9,664.10 |
| | ====== |

## 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-nine 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 the structural analysis of Tenure 591361, the 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 Toni 591361 Claim Group as described herein.

6) I am a director of Victory Resources Corporation.


Laurence Sookochoff, P. Eng.

*Appendix I*

**Magnetometer Data**

| | | **E5544323 T520757** | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| East | North | Mag | | East | North | Mag |
| 683800 | 5535750 | 580 | | 683800 | 5535650 | 560 |
| 683775 | 5535750 | 580 | | 683775 | 5535650 | 580 |
| 683750 | 5535750 | 600 | | 683750 | 5535650 | 580 |
| 683725 | 5535750 | 580 | | 683725 | 5535650 | 560 |
| 683700 | 5535750 | 580 | | 683700 | 5535650 | 580 |
| 683675 | 5535750 | 600 | | 683675 | 5535650 | 560 |
| 683650 | 5535750 | 620 | | 683650 | 5535650 | 600 |
| 683625 | 5535750 | 620 | | 683625 | 5535650 | 620 |
| 683600 | 5535750 | 580 | | 683600 | 5535650 | 580 |
| 683575 | 5535750 | 600 | | 683575 | 5535650 | 600 |
| 683550 | 5535750 | 600 | | 683550 | 5535650 | 600 |
| 683525 | 5535750 | 600 | | 683525 | 5535650 | 620 |
| 683500 | 5535750 | 600 | | 683500 | 5535650 | 580 |
| 683475 | 5535750 | 580 | | 683475 | 5535650 | 580 |
| 683450 | 5535750 | 580 | | 683450 | 5535650 | 580 |
| 683425 | 5535750 | 560 | | 683425 | 5535650 | 540 |
| 683400 | 5535750 | 560 | | 683400 | 5535650 | 600 |
| 683375 | 5535750 | 580 | | 683375 | 5535650 | 640 |
| 683350 | 5535750 | 560 | | 683350 | 5535650 | 660 |
| 683325 | 5535750 | 620 | | 683325 | 5535650 | 640 |
| 683300 | 5535750 | 620 | | 683300 | 5535650 | 700 |
| 683275 | 5535750 | 620 | | 683275 | 5535650 | 660 |
| 683250 | 5535750 | 640 | | 683250 | 5535650 | 640 |
| 683225 | 5535750 | 680 | | 683225 | 5535650 | 680 |
| 683200 | 5535750 | 640 | | 683200 | 5535650 | 680 |