

# Ministry of Energy, Mines & Petroleum Resources

Mining & Minerals Division BC Geological Survey

9195, 9590, 34460, 35142



**Title Page and Summary** TYPE OF REPORT [type of survey(s)]: Geological Geophysical **TOTAL COST:** \$ 9,585.80 SIGNATURE(S): Laurence Sookochoff AUTHOR(S): Laurence Sookochoff, PEng NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): YEAR OF WORK: 2015 STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5566344 August 14, 2015 PROPERTY NAME: Toni CLAIM NAME(S) (on which the work was done): 1037890 1037891 **COMMODITIES SOUGHT:** Gold Copper MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092HNE002 092HNE059 092HNE257 MINING DIVISION: Nicola NTS/BCGS: 092H.098 092H.099 LONGITUDE: 120 LATITUDE: 49 59 OWNER(S): 2) 1) Victory Resources Corporation **MAILING ADDRESS:** 132366 Cliffstone Court Lake Country BC V4V2R1 OPERATOR(S) [who paid for the work]: 1) Victory Resources Corporation **MAILING ADDRESS:** 132366 Cliffstone Court Lake Country BC V4V2R1 PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude): Triassic-Jurassic, Triassic, Granodiorite, Nicola Group, Eastern Volcanic Facies, Basalt, Mal Prospect, Skarn, Pyrite, Magnetite, Chalcopyrite, Chalcocite, 1.62 per cent copper over five metres, Cross-Structure

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 1586, 1718, 1953, 4230, 8453, 9194,

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	581 hectares	1037890 1037891	\$ 6,500.00
GEOPHYSICAL (line-kilometres) Ground			
Magnetic	2.1	1037890 1037891	3,085.80
Electromagnetic			
Induced Polarization			
B. W			
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			
Motallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/t			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	\$ 9,585.80

# VICTORY RESOURCES CORPORATION

(Owner & Operator)

# **GEOLOGICAL & GEOPHYSICAL**

# ASSESSMENT REPORT

(Event 5566344)

BC Geological Survey Assessment Report 35872

Work done on

Tenures 1037890 & 1037891

of the 11 claim

# Toni 1037890 Claim Group

(Work done from August 12, 2015 to August 14, 2015)

Nicola Mining Division

BCGS Map 092H.098/.099

Centre of Work

5,540,328N, 689,798E

(Zone 10 NAD 83)

Author & Consultant

Laurence Sookochoff, PEng Sookochoff Consultants Inc.

Submitted

**April 2, 2016** 

Sookochoff Consultants Inc.

March 24, 2016

page 1 of 32

# TABLE OF CONTENTS

Summary	
Introduction	
Property Description and Location	
Accessibility, Climate, Local Resources, Infrastructure & Physiography	<i>-</i>
Water and Power	
History: Property Area	
092HNE047 – BRENDA	
092HNE058 - HN-WEN	
092HNE060 - TOE	
092HNE073 -BIG SIOUX	
092HNE144 –AU-WEN	
092HNE146 - CONE	
092HNE197 – MIN	
092HNE270 – KIT	
092HNE292 - SNOW	
History: Property	
092HNE002 – MAL	
092HNE059 – ECHO	
092HNE257 – MALACHITE 7	
Geology: Regional	
Geology: Property Area	
092HNE047 – BRENDA	
092HNE058 - HN-WEN	
092HNE060 - TOE	
092HNE073 -BIG SIOUX	
092HNE144 -AU-WEN	
092HNE146 – CONE	
092HNE270 – KIT	
092HNE197 – MIN	
092HNE292 - SNOW	
Geology: Property	
092HNE002 – MAL	
092HNE059 – ECHO	
092HNE257 – MALACHITE 7	
Mineralization: Property Area	
092HNE047 – BRENDA	
092HNE058 - HN-WEN	
092HNE073 –BIG SIOUX	
092HNE144 –AU-WEN	
092HNE146 – CONE	
092HNE197 – MIN	
092HNE270 – KIT	
092HNE292 – SNOW	

Sookochoff Consultants Inc.

Event 5566344

### **SUMMARY**

The 11 claim, 4405 hectare Toni 1037890 Claim Group, is located in south-central British Columbia 208 kilometres east-southeast of Vancouver, 30 kilometres southeast of Merritt, and 26 kilometres westnorthwest of the past productive Brenda copper/molybdenum porphyry deposit.

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. The mineral zone, de was hosted by the "Brenda stock", a composite quartz diorite/granodiorite body which forms part of the Pennask batholith. The Brenda stock was intensely fractured during several stages of time and tapped a hydrothermal source. As each stage of fractures developed, hydrothermal fluids introduced vein material which healed the fractures. The grade of the orebody was a function of fracture (vein) density and of the thickness and mineralogy of the filling material. Mineralization 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 Toni 1037890 Claim Group is underlain in the east by the Pennask granodiorite which is in contact with upper Triassic Nicola Group of basaltic volcanic rocks (uTrNE) to the west. In the southwest corner, at the location of the KIT mineral showing, a relatively small granodiorite stock intrudes the Nicola basaltic rocks.

The structural analysis of Tenures 1037890 and 1037891, two claims of the Toni 1037890 Claim Group, was completed to determine any cross-structural location that could be the core or the centre of fracture intensified zone as at the Brenda main mineral zone. One cross-structural location, "A", was delineated from the intersection three indicated structures.

The cross-structural location could be a structural and/or hydrothermal breccia zone that provide the most favourable feeder zone to any hydrothermal fluids sourced from a potentially mineral laden reservoir. The fluid constituents and/or the indications thereof should be etched in the surface material where, by means of standard exploratory procedures, the source and location may be identified and a foundation on which to warrant any follow-up exploration.

The localized magnetometer survey, which covered a portion of the Pennask batholith indicated supporting evidence that the cross-structure may be a geological indication of a deep-seated porphyry resource in that the cross-structure "A" location is in a general correlation with the transitional zone of an anomalous/sub-anomalous mag LO. The open-ended mag LO could indicate an alteration zone within the granodiorite which could have resulted from hydrothermal fluids, possibly mineral bearing, surfacing via a structurally created conduit.

At the Ketchan copper-gold porphyry prospect some fourteen kilometres south-southwest of the Toni 1037890 Claim Group a reported porphyry system is reportedly hosted in diorite porphyry, and intrusive and hydrothermal breccia. A 265.5 metre thick zone of copper-gold mineralization was reported with the best grades of copper and gold generally associated with the margins of magnetic highs.

Thus, cross-structure "A" should be the focus of initial exploration for a potential mineral resource..

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### INTRODUCTION

During August, 2015 a structural analysis and a localized magnetometer survey were completed on Tenures 1037890 & 1037891 of the 11 claim Toni 1037890 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

### PROPERTY DESCRIPTION AND LOCATION

### **Description**

The Property is comprised of 11 claims covering an area of 4405.3534 hectares. Particulars are as follows:

Tenure Number **Type Claim Name Good Until** Area (ha) 567126 Mineral **AU-WEN EAST** 20160102 498.8479 898131 Mineral SNOW 3 20160102 415.6527 898133 SNOW 5 Mineral 20160102 311.6187 1032323 Mineral 20160102 602.8623 Mineral 1033557 20160102 581.8294 1033558 Mineral 20160102 311.6187 1033560 Mineral 20160102 311.6192 1033563 Mineral 20160102 602.5859 1033564 Mineral 20160102 187.0485 1037890 Mineral 20160811 83.0803 Mineral 1037891 20160116 498.5898

Table I: Tenures of Toni 1037890 Claim Group

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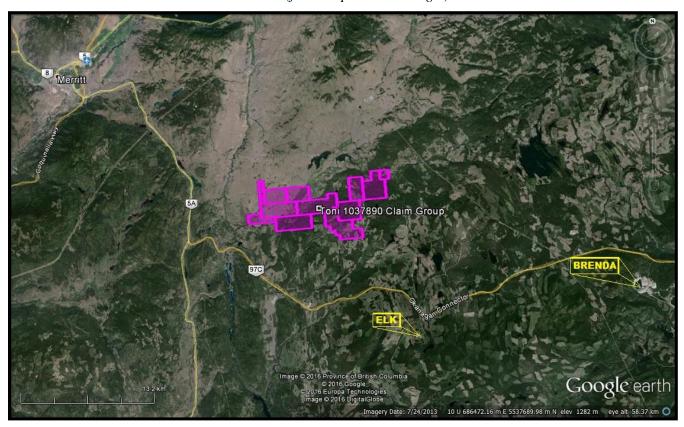
<sup>\*</sup>Upon the approval of the assessment report filing of Event Number 5566344.

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

### Location

The Property is located within BCGS Maps 092H.098/.099 of the Nicola Mining Division, 208 kilometres east-northeast of Vancouver, 30 kilometres southeast of Merritt, and 26 kilometres west-northwest of the past productive Brenda copper/molybdenum porphyry deposit.

Figure 2. Claims Location (from MapPlace & Google)



# ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE & PHYSIOGRAPHY

#### Access

Access to the Property is southward from Merritt via Highway 5A/97C or the Princeton/Kamloops Highway for 26 kilometres to the Aspen Grove junction thence eastward from via Highway 97C or the Coquihalla connector Highway for 45 kilometres to the Power Line road, thence northerly for 18 kilometres to the Pennask Lake road, thence westerly for four kilometres to the eastern border of Tenure 1037890, thence westerly for one kilometre to a junction with a poor secondary road which is taken for 1.2 kilometres southwesterly to grid line 5540750N.

#### 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° and average 25°C with the winter temperatures reaching a low of -10° and averaging 8°. On the Property snow cover on the ground could be from December to April and would not hamper a year-round exploration program.

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

### **Local Resources and Infrastructure**

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

# **Physiography**

Tenure 1037890 and 1037891 cover a relatively flat predominantly forested area. Relief is in the order of 229 metres from an elevation of 1,178 metres at Quilchena Creek in the northwest corner to 1,407 metres at the southeast boundary.

# WATER and POWER

Sufficient water for all phases of the exploration program should be available from lakes and creeks, which are located within the confines of, the Property.

A 500Kv power line trends southeasterly within four kilometres east of the northeast corner of the Property.

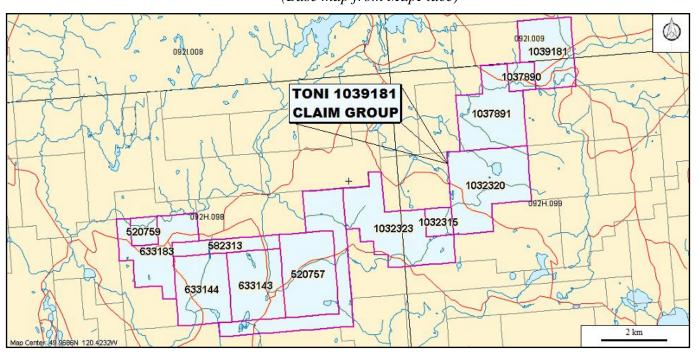


Figure 3. Claim Map (Base map from MapPlace)

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### **HISTORY: PROPERTY AREA**

The history on some of the more significant mineral MINFILE reported mineral anomalies, showings, prospects, and past producers in the Toni 1037890 Claim Group area are reported by Minfile as follows. The distance from the Toni 1037890 Claim Group is relative to the Toni 1037890 Claim Group.

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

MINFILE 092HNE047

Twenty six kilometres 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.

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 (George Resources) 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.

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

MINFILE 092HNE060

Two kilometres southeast

The Toe occurrence consists of minor copper mineralization located sporadically in the area between Paradise and Boot lakes, 21 kilometres northeast of the community of Missezula Lake. This area lies 18 kilometres east of the historical Aspen Grove copper camp, between Merritt and Princeton.

The Toe 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 coppergold mineralization.

The occurrence lies in the Eastern belt or facies of the Nicola Group, which is characterized by submarine volcaniclastic rocks and volcanic flows (Bulletin 69; Geological Survey of Canada Map 41-1989). Exposure is limited in the Paradise and Boot lakes area (mainly on the Toe 27-29, 51, 54, 55 claims), which is underlain by augite porphyritic volcanic flows of andesitic to basaltic composition, fragmental rocks including tuff and breccia, minor argillite and diorite (Assessment Reports 1049, 1586). he Nicola rocks in this area form a northeasterly-closing embayment largely surrounded by the Early Jurassic Pennask batholith, a large intrusion of medium-grained granodiorite to quartz diorite (Geological Survey of Canada Map 41-1989).

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

MINFILE 092HNE073

Five kilometres southwest

Sookochoff Consultants Inc. March 24, 2016 page 8 of 32

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

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.

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

Two kilometres south

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

**CONE** showing (Volcanic redbed Cu)

MINFILE 092HNE146

One kilometre west

The Cone 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 just northeast of the former Ski group of claims, 3 kilometres east of Quilchena Creek, 9.5 kilometres northeast of the community of Aspen Grove (Bulletin 69; Assessment Report 925).

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

MINFILE 092HNE270

200 metres south

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

**MIN** showing (Disseminated, Vein)

MINFILE 092ISE197

Three kilometres north

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

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

MINFILE 092HNE292

200 metres east

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

March 24, 2016

# **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 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.

MALACHITE 7 showing (Cu skarn; Volcanic redbed Cu)

MINFILE 092HNE269

Within Tenure 567126

The Malachite 7 showing is 1.0 kilometre southeast of Quilchena Creek and 10.5 kilometres west-northwest of the south end of Boot Lake.

# **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 the 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.

### **GEOLOGY: PROPERTY AREA**

The geology on some of the more significant mineral MINFILE reported mineral anomalies, showings, prospects, and past producers in the Toni 1037890 Claim Group area is reported by Minfile as follows. The distance from the Toni 1037890 Claim Group is relative to the Toni 1037890 Claim Group.

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

MINFILE 092HNE047

Twenty six kilometres 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 quartzsulphide veins. Dacite porphyry and felsite dikes are also cut by quartz-sulphide veins.

A trachyte porphyry dike up to 4.5 metres wide and 300 metres in strike length is exposed in the Brenda pit. A weakly mineralized vein was observed in the dike which suggested an intermineral age for the dike. Further evidence has clearly shown that the dikes cut all stages of mineralization, except some of the latest quartz veins (Canadian Institute of Mining and Metallurgy Special Volume 15). Several post-mineral hornblende lamprophyre dikes also occur within the Brenda orebody and are probably genetically related to the trachyte porphyry dikes.

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.

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

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).

# **TOE** prospect (Volcanic redbed Cu; Alkalic porphyry Cu-Au)

#### MINFILE 092HNE060

Two kilometres southeast

A major copper soil anomaly occurs within the Toe claim group, measuring 3500 by 900 metres; a mercury anomaly is associated (Assessment Reports 1049, 1586). The highest soil anomaly was 0.07 per cent copper (Assessment Report 1586)

In 2008, drilling returned up to 488.5 parts per million copper over 1.0 metre (Assessment Report 30340).

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

### MINFILE 092HNE073

Five kilometres southwest

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 comagnatic 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.

.....

Big Sioux past producer (cont'd)

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.

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

Two kilometres south

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).

**CONE** showing (Volcanic redbed Cu) MINFILE 092HNE146 One kilometre west

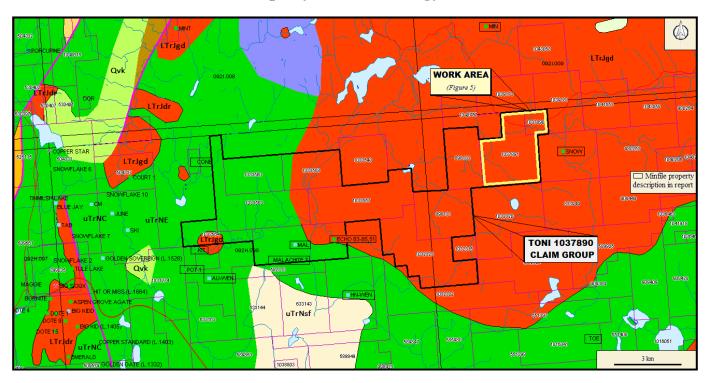
The Cone occurrence is located in the Upper Triassic Nicola Group, which regionally consists of alkalic and calcalkalic volcanics and intrusions of island arc origin, and which is the principal component of the Quesnel Terrane in southern British Columbia (Geological Survey of Canada Maps 41-1989, 1713A). 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 comagnatic diorite to monzonite of Late Triassic to Early Jurassic Porcupine. 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.

MIN showing (Disseminated, Vein)
MINFILE 092ISE197
Three kilometres north

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

Figure 4. Property, Index, Geology, & Minfile



# **GEOLOGY MAP LEGEND**

Pleistocene to Holocene

Qvk

Unnamed alkalic volcanic rocks

**Upper Triassic: Nicola Group** 

**Eastern Volcanic Facies** 

uTrNE

basaltic volcanic rocks

uTtNsf

mudstone, siltstone, shale, fine clastic sedimentary rocks

uTrNM1

lower amphibolite/kyanite grade metamorphic rocks

uTrJum

unnamed ultramafic rocks

**Central Volcanic Facies** 

uTrNc

andesitic volcanic rocks

**Late Triassic to Early Jurassic** 

LTrJgd

unnamed granodiorite intrusive

rocks

LTrJdr

dioritic to gabbroic intrusive

page 14 of 32

rocks

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

200 metres south

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.

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

MINFILE 092HNE292

One kilometre east

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**

As indicated by the BC government supported MapPlace geological maps, the Property is predominantly underlain in the northeast by the Pennask granodiorite which is in contact with upper Triassic Nicola Group of basaltic volcanic rocks (uTrNE) to the west. In the southwest corner, at the location of the KIT mineral showing, a relatively small granodiorite stock intrudes the Nicola basaltic rocks.

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 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).

**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 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.

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MALACHITE 7 showing (Cu skarn; Volcanic redbed Cu)

MINFILE 092HNE269 Within Tenure 567126

Chalcopyrite occurs in a small zone of skarn alteration in dioritized volcanics of the Upper Triassic Nicola Group, near the contact with the Early Jurassic Pennask batholith to the northeast.

### MINERALIZATION: PROPERTY AREA

The mineralization on some of the more significant mineral MINFILE mineral anomalies, showings, prospects, and past producers in the Toni 1037890 Claim Group area is reported by Minfile as follows. The distance from the Toni 1037890 Claim Group is relative to the Toni 1037890 Claim Group

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

MINFILE 092HNE047

Twenty six kilometres southeast

The Brenda orebody is part of a belt of copper-molybdenum mineralization that extends north-northeast from the Nicola Group-Brenda stock contact.

Mineralization of economic grade (0.3 per cent copper equivalent) is confined to a somewhat irregular zone approximately 720 metres long and 360 metres wide. Ore-grade mineralization extends more than 300 metres below the original surface. Lateral boundaries of ore-grade mineralization are gradational and appear to be nearly vertical.

Primary mineralization is confined almost entirely to veins, except in altered dike rocks and in local areas of intense hydrothermal alteration which may contain minor disseminations. The grade of the orebody is a function of fracture (vein) density and of the thickness and mineralogy of the filling material. The average total sulphide content within the orebody is 1 per cent or less. Chalcopyrite and molybdenite, the principal sulphides, generally are accompanied by minor, but variable, quantities of pyrite and magnetite.

Bornite, specular hematite, sphalerite and galena are rare constituents of the ore. Johnson (1973), in a study of 17 samples from the deposit, reported minor pyrrhotite, mackinawite, carrollite, cubanite, ilmenite, rutile and native gold (?), as well as several secondary sulphides (Canadian Institute of Mining and Metallurgy Special Volume 15). Pyrite is most abundant in altered andesite dikes and in quartz-molybdenite veins. The ratio of pyrite to chalcopyrite in the orebody is about 1:10, with the chalcopyrite content diminishing beyond the ore boundaries. Because mineralization is confined almost entirely to veins in relatively fresh homogeneous rock, the veins are divided into separate stages, based on crosscutting relations and their mineralogy and alteration effects on the hostrock. The vein density within the orebody is not uniform.

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

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

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

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

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. 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.

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

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). 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).

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.

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

Five kilometres southwest

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).

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

Two kilometres south

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).

**CONE** showing (Volcanic redbed Cu) MINFILE 092HNE146

One kilometre west

Little information is available on the Cone occurrence itself. It is centred on an outcrop of augite plagioclase porphyritic volcanic rocks of andesitic to basaltic composition (Bulletin 69; Preliminary Map 15). Mineralization at the showing consists of chalcopyrite, pyrite and malachite (Preliminary Map 15; Assessment Report 925). The nature of the mineralization is not specified but in other showings in the area minerals are characteristically disseminated or hosted in quartz veinlets.

**MIN** showing (Disseminated, Vein) MINFILE 092ISE197 Three kilometres north

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

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

200 metres south

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.

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

One kilometre east

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**

The mineralization of the MINFILE reported showings and prospects within the Toni 589880 Claim Group 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).

**ECHO** showing (Volcanic redbed Cu)

MINFILE 092HNE059

200 metres west

Chalcopyrite and malachite are present in trenches and open cuts in volcanics over an area 1000 by 800 metres.

**Echo** showing (cont'd)

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).

# **MALACHITE 7** showing (Cu skarn; Volcanic redbed Cu)

MINFILE 092HNE269

Within Tenure 567126

Chalcopyrite occurs in a small zone of skarn alteration in dioritized volcanics of the Upper Triassic Nicola Group, near the contact with the Early Jurassic Pennask batholith to the northeast.

### STRUCTURAL ANALYSIS

### a) Purpose

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

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

#### b) Method

The Structural Analysis was performed on a MapPlace DEM image hillshade map of Tenure 1037890 by viewing of the map and marking the lineaments, or indicated structures, thereon. A total of 68 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 5,540,328N, 689,798 (10 NAD 83).

# c) Results

One cross-structural location, "A", was delineated from the intersection of northerly and northwesterly indicated structures and is significant as it is the location of three indicated structures.

Structural Analysis (cont'd)

Figure 5. Indicated Structures on Tenures 1037890 & 1037891

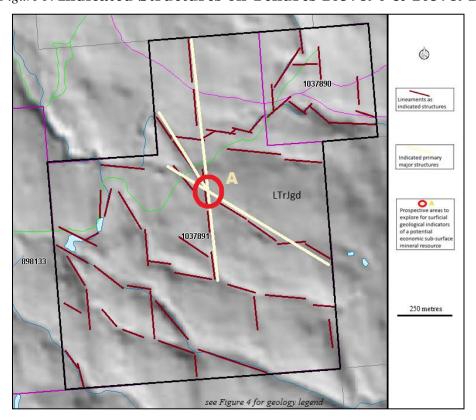
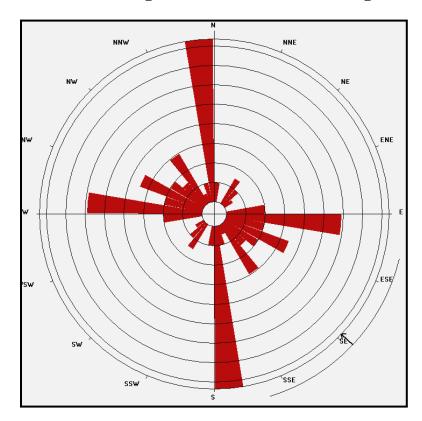


Figure 6. Rose Diagram from lineaments of Figure 5



Structural Analysis (cont'd)

# **STATISTICS**

Axial (non-polar) data No. of Data = 68

Sector angle = 10°

Scale: tick interval = 3% [2.0 data]

Maximum = 25% [17 data] Mean Resultant dir'n = 133-313

[Approx. 95% Confidence interval = ±29.6°]

(valid only for unimodal data)

Mean Resultant dir'n = 133.3 - 313.3

Circ.Median = 131.0 - 311.0

Circ.Mean Dev.about median = 35.3°

Circ. Variance = 0.27 Circular Std.Dev. = 45.22°

Circ. Dispersion = 4.33

Circ.Std Error = 0.2522

Circ.Skewness = -0.73

Circ.Kurtosis = -7.72 kappa = 0.60 (von Mises concentration param. estimate)

Resultant length = 19.57 Mean Resultant length = 0.2878

'Mean' Moments: Cbar = -0.0169; Sbar = -0.2873
'Full' trig. sums: SumCos = -1.1522; Sbar = -19.5341
Mean resultant of doubled angles = 0.2834
Mean direction of doubled angles = 007

(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 location on Google Earth

(Base map from Google Earth)



Table II. Approximate location of cross-structure

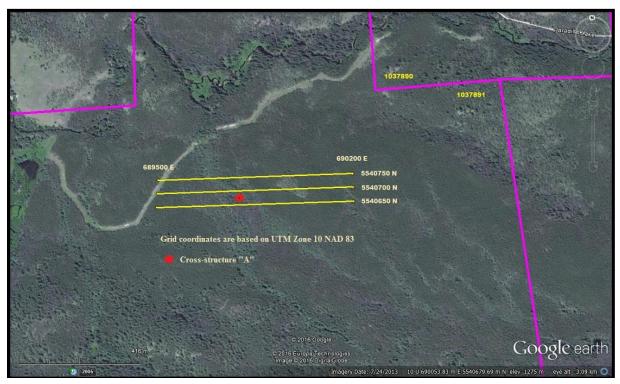
(Zone 10 NAD 83)

Area		UTM East	UTM North	Elevation (metres)		
	Α	689,802	5,540,675	1,237		

Structural Analysis (cont'd)

Figure 8. Magnetometer Grid Index Map

(Base map from Google Earth)



# **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.

# c) Survey Procedure

From an initial grid station 5540750N 689500 E a base line two additional base line stations were established southerly at 50 metre intervals to 5540650N. Magnetometer readings were taken at 25 metre intervals along each of the three grid lines to 690200E. The grid line stations were located with a GPS instrument. Line kilometres of magnetometer survey completed was 2.1. The magnetometer data is reported herein in Appendix I.

### d) Data Reduction

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

# Magnetometer Survey (cont'd)

Figure 9 . Magnetometer Survey Data

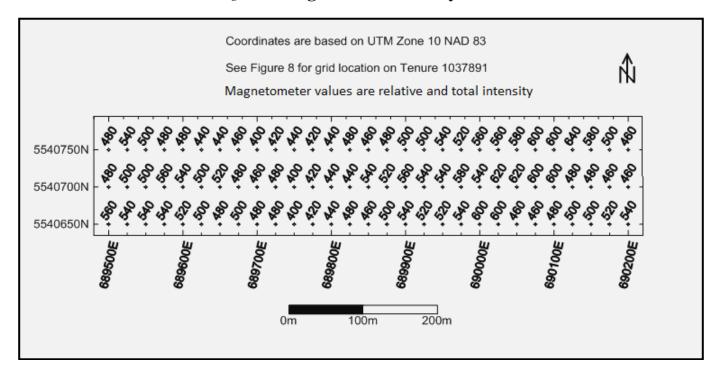
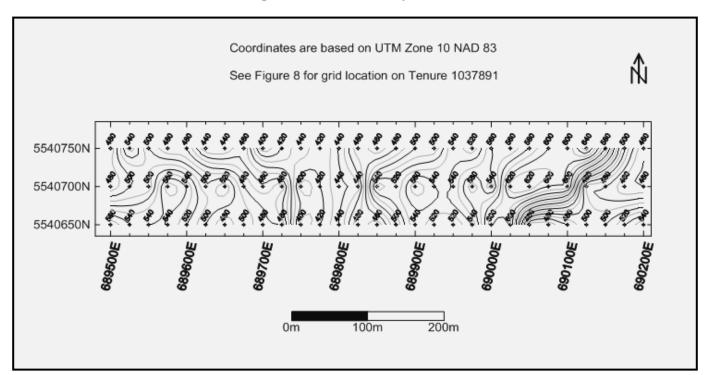
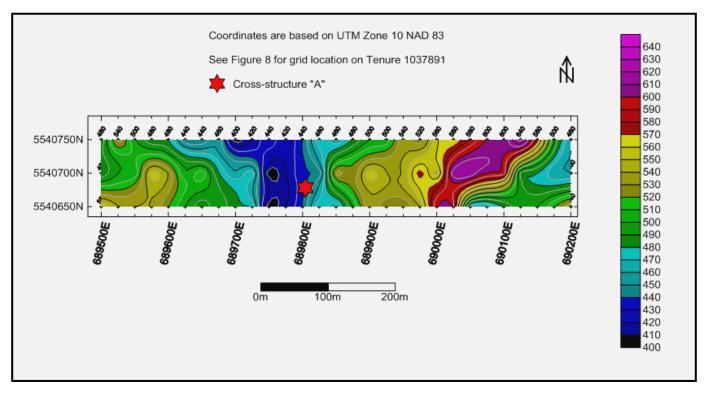


Figure 10. Magnetometer Survey Data Contoured



# Magnetometer Survey (cont'd)

Figure 11. Magnetometer Survey Data Contoured & Coloured



# e) Results

The localized magnetometer survey which covered granodiorites of the Pennask Batholith indicated a centralized open-ended north to northwesterly trending magnetometer low (mag LO) zone. The zone is 125 metres wide in the south expanding to 250 metres wide in the north and incorporates an anomalous mag LO. A 100 metre wide sub-anomalous to background northeast trending, open mag LO zone is indicated at the eastern limits of the survey.

The approximate location of cross-structure, "A" which was covered by the magnetometer survey, is indicated within the anomalous/sub-anomalous transitional zone.

### **INTERPRETATION & CONCLUSIONS**

The cross-structure location is a prime area to explore for surficial geological indicators of a potentially concealed mineral resource as the cross-structure may indicate or reveal:

- a centre of maximum brecciation and depth intensive to provide a feeder zone to any convective hydrothermal fluids sourced from a potentially mineral laden reservoir at depth;
- a Brenda type structural/mineral relationship as at the Brenda copper-molybdenum deposit (MINFILE 092HNE047) where the Brenda stock was intensely fractured during several stages of time and tapped a hydrothermal source which provided the minerals and associated materials to fill the open-space fillings. The grade of the orebody was a function of fracture (vein) density and of the thickness and mineralogy of the filling material;
- an intensely fractured zone which could be the centre of an orebody where mineralization could decrease outwardly from the most intensely fractured/mineralized rock and the centre of the main mineral zone as was the case at the Brenda mineral zone;
- major mineral controlling structures for major mineral zones such as at the Highland Valley Mine and the Copper Mountain Mine, 70 kilometers northwest and south respectively;
- surficial exposures of mineralization and/or other geological features such as at the Mal, Malachite, or the Echo Minfile mineral occurrences within the Property, that may be the mineral resource indicators

The magnetometer survey may have confirmed the general location of cross-structure "A" in that the anomalous mag LO could indicate an alteration zone within the granodiorite which could have resulted from hydrothermal fluids, possibly mineral bearing, surfacing via a structurally created conduit.

Thus, the area of cross-structure "A" should be a prime exploration area. The general mag LO at the easternmost survey area, although weaker and sporadic, could be a mineralized structure with geological indicators interpreted leading to a significant mineral zone.

Respectfully submitted Sookochoff Consultants Inc.



Laurence Sookochoff, PEng

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MtOnline - MINFILE downloads.

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092HNE047 – BRENDA

092HNE058 - HN-WEN

092HNE059 – ECHO

092HNE060 - TOE

092HNE073 -BIG SIOUX

092HNE144 -AU-WEN

092HNE146 - CONE

092HNE197 – MIN

092HNE257 - MALACHITE 7

092HNE270 - KIT

092HNE292 - SNOW

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**Sookochoff, L.** –Geological Assessment Report on a Structural Analysis on Tenure 898130 of the Toni 898130 Claim Group for Victory Resources Corporation. January 9, 2014. AR 34,460

**Sookochoff, L.** –Geological Assessment Report on a Structural Analysis on Tenure 898133 of the Toni 898133 Claim Group for Victory Resources Corporation. December 5, 2014. AR 35,154.

# **STATEMENT OF COSTS**

Work on Tenure 1037890 was completed from August 12, 2015 to August 14, 2015 to the value as follows:

Structural Analysis Laurence Sookochoff, P Eng. 3 days @ \$ 1,000.00/day	\$ 3,000.00
Magnetometer Survey	
Rick Pearson & Ross Heyer	
August 13 14, 2015	
Four man days @ \$300.00 per day	1,200.00
Truck rental, kilometre charge, fuel, room & board,	
mag rental	1,035.80
	\$ 5,335.80
Maps	750.00
Report	3,500.00
	\$ 9,585.80

### **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 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.

 $Appendix \ I$ 

**Magnetometer Data** 

	VR E 5566344 T 1037890							
East	North	Mag	East	North	Mag	East	North	Mag
690200	5540650	540	690200	5540700	460	690200	5540750	460
690175	5540650	520	690175	5540700	460	690175	5540750	500
690150	5540650	500	690150	5540700	480	690150	5540750	580
690125	5540650	500	690125	5540700	480	690125	5540750	640
690100	5540650	480	690100	5540700	600	690100	5540750	600
690075	5540650	460	690075	5540700	600	690075	5540750	600
690050	5540650	460	690050	5540700	620	690050	5540750	580
690025	5540650	600	690025	5540700	620	690025	5540750	560
690000	5540650	600	690000	5540700	540	690000	5540750	560
689975	5540650	540	689975	5540700	580	689975	5540750	520
689950	5540650	520	689950	5540700	540	689950	5540750	540
689925	5540650	520	689925	5540700	540	689925	5540750	500
689900	5540650	540	689900	5540700	560	689900	5540750	500
689875	5540650	500	689875	5540700	520	689875	5540750	480
689850	5540650	460	689850	5540700	540	689850	5540750	460
689825	5540650	480	689825	5540700	440	689825	5540750	480
689800	5540650	440	689800	5540700	440	689800	5540750	440
689775	5540650	420	689775	5540700	420	689775	5540750	420
689750	5540650	400	689750	5540700	400	689750	5540750	440
689725	5540650	480	689725	5540700	480	689725	5540750	420
689700	5540650	480	689700	5540700	460	689700	5540750	400
689675	5540650	500	689675	5540700	480	689675	5540750	460
689650	5540650	480	689650	5540700	520	689650	5540750	440
689625	5540650	500	689625	5540700	500	689625	5540750	440
689600	5540650	520	689600	5540700	540	689600	5540750	480
689575	5540650	540	689575	5540700	560	689575	5540750	480
689550	5540650	540	689550	5540700	500	689550	5540750	500
689525	5540650	540	689525	5540700	500	689525	5540750	540
689500	5540650	560	689500	5540700	480	689500	5540750	480