

**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:** \$ 9,885.40

**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):** 5584578 January 2, 2016

**PROPERTY NAME:** Toni

**CLAIM NAME(S) (on which the work was done):** 1040777

**COMMODITIES SOUGHT:** Copper Gold

**MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:** \_\_\_\_\_

**MINING DIVISION:** Nicola

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

**LATITUDE:** 50 ° 00 ' 05 " **LONGITUDE:** 120 ° 21 ' 56 " (at centre of work)

**OWNER(S):**

1) Victory Resources Corporation

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

**MAILING ADDRESS:**

132366 Cliffstone Court

Lake Country BC V4V 2R1

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

1) Victory Resources Corporation

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

**MAILING ADDRESS:**

132366 Cliffstone Court

Lake Country BC V4V 2R1

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

Triassic, Nicola Group, Eastern Volcanic Facies, Basaltic volcanics, Triassic-Jurassic, Granodiorites, Structural Analysis,

Cross-structures

**REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:** 00403, 00449, 05766, 07399, 08453, 09194, 09590, 16008, 22566, 23446, 24800, 27039, 28924, 29155, 31024, 31669, 31979, 33155, 35254, 35872

| TYPE OF WORK IN THIS REPORT                            | EXTENT OF WORK (IN METRIC UNITS) | ON WHICH CLAIMS | PROJECT COSTS APPORTIONED (incl. support) |
|--|----------------------------------|-----------------|---|
| <b>GEOLOGICAL (scale, area)</b>                        |                                  |                 |   |
| Ground, mapping  |                                  |                 |   |
| Photo interpretation                                   | 269 hectares                     | 1040777         | \$ 6,000.00                               |
| <b>GEOPHYSICAL (line-kilometres)</b>                   |                                  |                 |   |
| Ground   |                                  |                 |   |
| Magnetic   | 2.1                              | 1040777         | 3,885.40                                  |
| Electromagnetic  |                                  |                 |   |
| Induced Polarization                                   |                                  |                 |   |
| Radiometric  |                                  |                 |   |
| Seismic  |                                  |                 |   |
| Other  |                                  |                 |   |
| Airborne   |                                  |                 |   |
| <b>GEOCHEMICAL (number of samples analysed for...)</b> |                                  |                 |   |
| Soil   |                                  |                 |   |
| Silt   |                                  |                 |   |
| Rock   |                                  |                 |   |
| Other  |                                  |                 |   |
| <b>DRILLING (total metres; number of holes, size)</b>  |                                  |                 |   |
| Core   |                                  |                 |   |
| Non-core   |                                  |                 |   |
| <b>RELATED TECHNICAL</b>                               |                                  |                 |   |
| Sampling/assaying                                      |                                  |                 |   |
| Petrographic   |                                  |                 |   |
| Mineralographic  |                                  |                 |   |
| Metallurgic  |                                  |                 |   |
| <b>PROSPECTING (scale, area)</b>                       |                                  |                 |   |
| <b>PREPARATORY / PHYSICAL</b>                          |                                  |                 |   |
| Line/grid (kilometres)                                 |                                  |                 |   |
| Topographic/Photogrammetric (scale, area)              |                                  |                 |   |
| Legal surveys (scale, area)                            |                                  |                 |   |
| Road, local access (kilometres)/trail                  |                                  |                 |   |
| Trench (metres)  |                                  |                 |   |
| Underground dev. (metres)                              |                                  |                 |   |
| Other  |                                  |                 |   |
| <b>TOTAL COST:</b>                                     |                                  |                 | <b>\$ 9,885.40</b>                        |

# VICTORY RESOURCES CORPORATION

*(Owner & Operator)*

BC Geological Survey  
Assessment Report  
36019

## GEOLOGICAL & GEOPHYSICAL

### ASSESSMENT REPORT

*(Event 5584578)*

*Work done on*

**Tenure 1040777**

*of the nine Tenure*

**Toni 1040777 Claim Group**

*(Work done from December 30, 2015 to January 2, 2016)*

*Nicola Mining Division*

**BCGS Maps 092H.098/.099**

*Centre of work*

**5538838N, 683678E**

*(Zone 10U NAD 83)*

*Author & Consultant*

**Laurence Sookochoff, PEng**

**Sookochoff Consultants Inc.**

*Submitted*

**June 2, 2016**

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## SUMMARY

The nine claim 3324 hectare Toni 1040777 claim group is located 206 kilometres from Vancouver, 15 kilometres from the past productive Elk mine, and three kilometres from HN-WEN (WEN) prospect which was explored by adits and trenches around 1900, and by diamond drilling in 1996, 2004, and 2010.

At the WEN, a 1996 drill hole intersected a 6.55 metre quartz zone which reportedly returned assays of 16.578 gm/t Au, 0.75% Cu, and 12.901 gm/t Ag (Verley, 1997). This intersection was designated as the Main vein and was located 55 metres south-southeast of Adit #1, one of the three adits of the WEN prospect.

A 2010 Victory Resources diamond drill program resulted in the intersection of a 5.50 metre mineral zone assaying 2.62% Cu (Victory news release dated August 26, 2010).

The current structural analysis of Tenure 1040777 of the Toni 1040777 claim group, delineated two cross-structures would be would be the most prospective areas to explore for surficial geological indicators of a potential masked mineral resource as these locations would be the zones of maximum brecciation with depth extension to provide a conduit for hydrothermal fluids to surface and imprint its constituents or indicators such as, alteration, pathfinder minerals or any other geological indication.

This indicator situation has been illustrated at the ELK past producer (*MINFILE 092HNE096*) where surficial mineral indicators to an underlying mineral resource were determined at the structural intersection between northerly and north-northeasterly structures. The location of the cross-structures are obvious in the many associated mineral zones as shown on Figure 12.

To a lesser degree, this indicator situation is also revealed in some of the Minfile reported mineral properties included herein as Minfile properties the area of the Tenure 1040777 Claim Group and include the Brew (*Minfile 092HNE275*) and the Big Kidd (*Minfile 092HNE275*). At the Brenda past producer (*MINFILE 092HNE047*), where production began 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, a similar situation was apparent in that the mineralization decreased outwardly from the most intensely fractured/mineralized rock and the centre of the main mineral zone.

In the magnetometer survey, which covered granodiorites of the Pennask Batholith, the anomalous mag LO enveloped by a general mag LO, may indicate a hydrothermally altered breccia zone or breccia pipe. The configuration of the general mag LO, may indicate the structures with associated alteration which may have resulted from hydrothermal fluid activity created from the development of a porphyry system.

The hydrothermal fluid constituents and/or the indications thereof could be etched in the surface material; where, by means of standard exploratory procedures, the source and location may be identified and a foundation on which to warrant any follow-up exploration.

## INTRODUCTION

During December 2015 and January 2016 a structural analysis and a localized magnetic survey were completed on Tenure 1040777 of the nine claim Toni 1040777 claim group ("Property. The purpose of the program was to delineate potential structures and to determine correlative magnetic responses which may be integral in geological controls to potentially economic mineral zones that may occur on Tenure 1040777 or other claims of the Property.

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

## PROPERTY DESCRIPTION AND LOCATION

### Description

The Property is comprised of nine contiguous claims covering an area of 3324.3406 hectares. Particulars are as follows:

*Table I. Property Tenures*

| <u>Tenure Number</u>    | <u>Type</u> | <u>Claim Name</u> | <u>Good Until</u> | <u>Area (ha)</u> |
|-------------------------|-------------|-------------------|-------------------|------------------|
| <a href="#">898131</a>  | Mineral     | SNOW 3            | 20161010          | 415.6527         |
| <a href="#">898133</a>  | Mineral     | SNOW 5            | 20161010          | 311.6187         |
| <a href="#">1033548</a> | Mineral     |                   | 20161010          | 332.3785         |
| <a href="#">1033557</a> | Mineral     |                   | 20161010          | 581.8294         |
| <a href="#">1033558</a> | Mineral     |                   | 20161010          | 311.6187         |
| <a href="#">1033560</a> | Mineral     |                   | 20161010          | 311.6192         |
| <a href="#">1033563</a> | Mineral     |                   | 20161010          | 602.5859         |
| <a href="#">1033564</a> | Mineral     |                   | 20161010          | 187.0485         |
| <a href="#">1040777</a> | Mineral     |                   | 20161230          | 269.989          |

\*Upon the approval of the assessment work filing, Event 5584578.

### Location

The Property is located within BCGS Map 092H.098/.099 of the Nicola Mining Division, 206 kilometres northeast of Vancouver, and 27 kilometres southeast of Merritt in south-central British Columbia.

Figure 1. Location Map



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

### Access

Access to the Property is southward from Merritt via Highway 5A/97C for 27 kilometres to the Aspen Grove Junction thence eastward via the Okanagan Connector for 28 kilometres to the Elkhart junction, thence easterly and northerly via a forestry road for 17 kilometres to the southern boundary of Tenure 898133 of the Toni 1040777 Claim Group.

### Climate

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

### Local Resources and Infrastructure

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

### Physiography

The topography of Tenure 1040777 is of gentle to moderate sloped variably barren and forested hills. Relief is in the order of 150 metres ranging from elevations of 1,100 metres in a creek valley along the northwest boundary, to 1,250 metres near the southwestern corner.



Figure 2. Claim Location  
(from Google Earth)

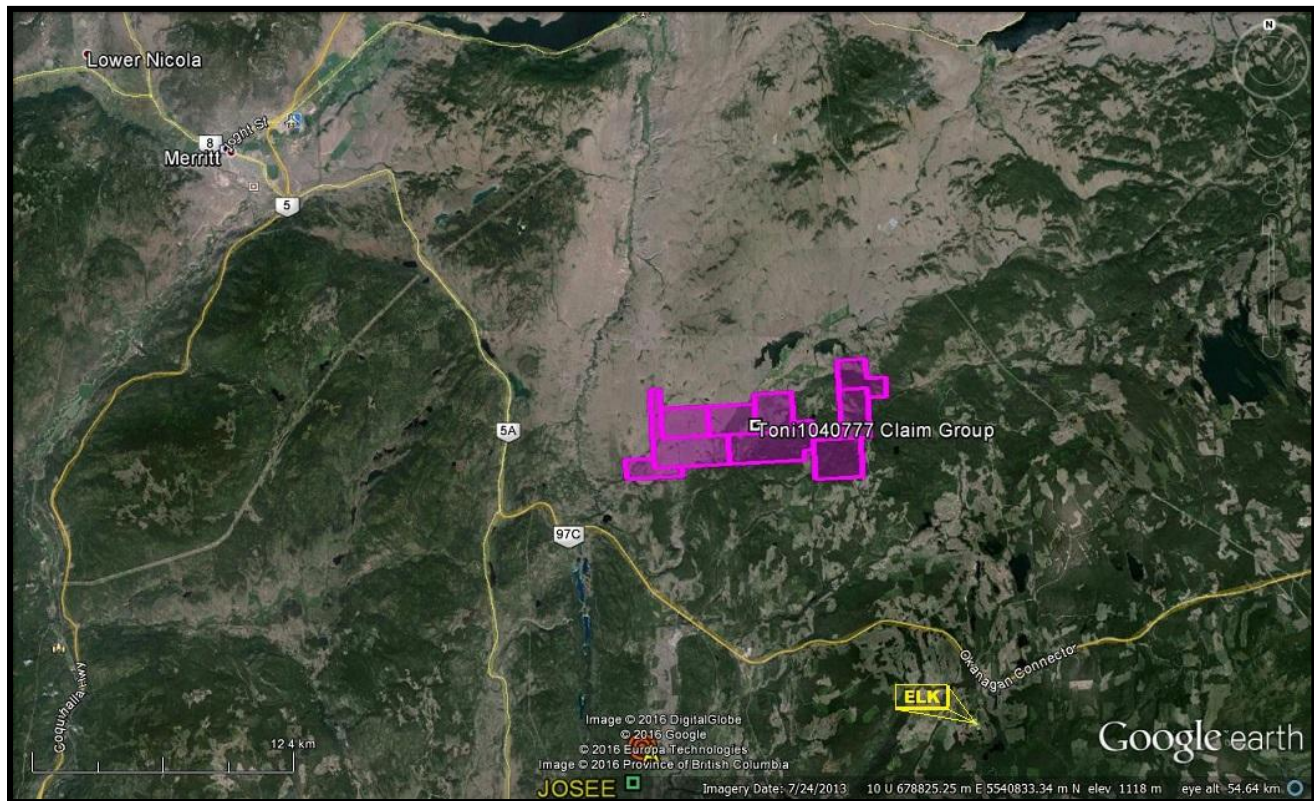
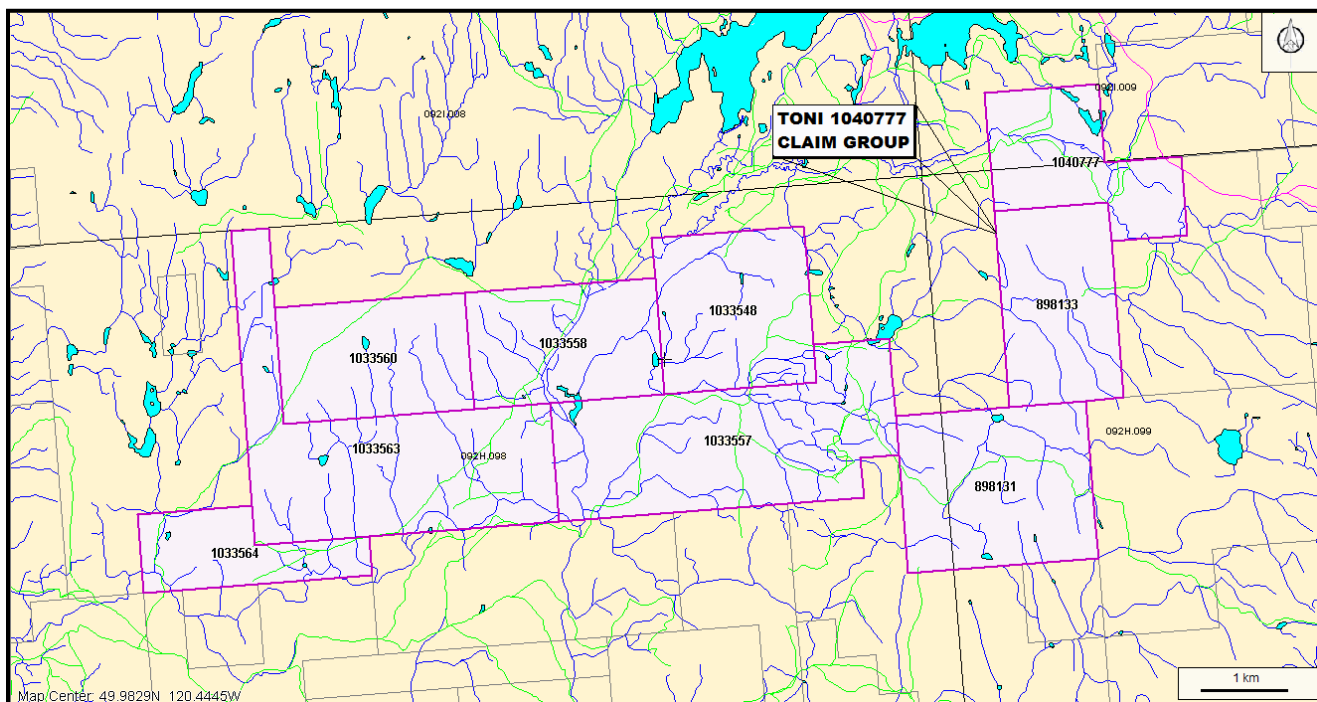


Figure 3. Claim Map



**HISTORY: PROPERTY AREA**

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Property is reported in the Minfile published records as follows. The distance is relative to the Toni 1040777 Claim Group.

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

MINFILE 092HNE002

One kilometre south

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

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

MINFILE 092HNE047

Twenty-nine 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.*

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

MINFILE 092HNE058

Three kilometres south

*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 092HNE058

One kilometre south

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

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

MINFILE 092HNE074

Six kilometres southwest

*This occurrence was first explored by H.H. Schmidt, with the excavation of several trenches and one adit, 69 metres long, between 1900 and 1915. An additional three adits, 12 to 90 metres long, were excavated sometime between 1916 and the 1950s.*

**History: Property Area (cont'd)****Big Kidd prospect (cont'd)**

The deposit was trenched and drilled by Noranda Mines Ltd. in 1956 after completing geological and geophysical surveys. Additional geophysical and soil geochemical surveys were carried out by Norranco Mining and Refining in 1969 and Amax Exploration Inc. in 1971. Amax also mapped and drilled the deposit in 1972. David Minerals Ltd. conducted geological and self potential surveys, trenching and 112 metres of diamond drilling in three holes between 1975 and 1980.

The deposit was sampled by Northair Mines Ltd. in 1991 and Placer Dome Inc. in 1992. Drilling by Placer intersected 71 metres averaging 0.75 gram per tonne gold and 0.2 per cent copper in the north zone of the Big Kidd breccia. Christopher James Gold Corp. drilled 10 holes, totalling 2074 metres in 1997. A 116-metre intersection graded 0.801 grams per tonne gold and 0.124 per cent copper, including a higher grade section of 19.46 metres grading 3.09 grams per tonne gold and 0.113 per cent copper (Exploration in B.C. 1997, page 38). This intersection is from the North zone. The Southwest zone, 350 metres to the south, and the Northeast zone also contained mineralization.

The next program by Christopher James Gold was a 2 staged drilling program completed during the fall in 1999. This program drilled a fan of three holes to the southwest and one parallel hole along the Big Kidd Breccia north contact. All four 1999 holes intersected significant lengths of gold-copper mineralized intrusion breccia with late porphyritic monzonite dyke and potassic (K-feldspar) alteration zones. In 2003, Christopher James Gold Corp. drilled 9 holes and dug three trenches to test alkalic porphyry hosted by the Big Kidd breccia. Broad intervals of low-grade mineralization were encountered.

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

Ag-Pb-Zn +/-Au; Au-quartz veins)

MINFILE 092HNE096

Thirteen kilometres south-southeast

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

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

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

MINFILE 092HNE147

Three kilometres west

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

## **GEOLOGY: REGIONAL**

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

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

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

## **GEOLOGY: PROPERTY AREA**

The geology on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Property (Figure 4) is reported as follows. The distance is relative to the Toni 1040777 Claim Group

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

MINFILE 092HNE002

One kilometre south

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

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

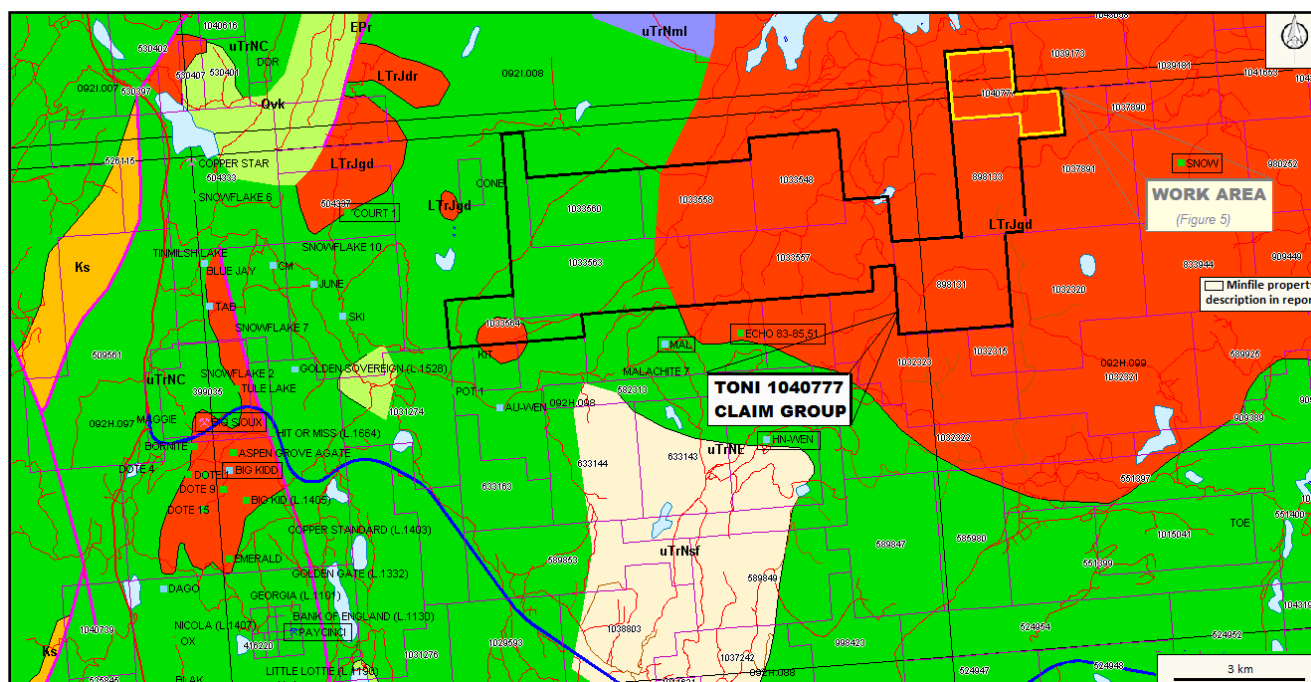
*Some volcanic flow breccia contains pink trachytic fragments (Assessment Report 9590). Stratified rocks strike north-northwest and dip moderately to steeply west (Geological Survey of Canada Map 41-1989).*

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

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

Geology: Property Area (cont'd)

Figure 4. Geology, Claim, Index & 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

- uTrNMI**  
lower amphibolite/kyanite  
grade metamorphic rocks
- uTrJum**  
unnamed ultramafic rocks

**Central Volcanic Facies**

- uTrNC**  
andesitic volcanic rocks

**Late Triassic to Early Jurassic**

- LTrJgd**  
unnamed granodiorite intrusive  
rocks
- LTrJdr**  
diioritic to gabbroic intrusive rocks

**BRENDA** past producer (Porphyry Cu +/- Mo +/- Au)  
MINFILE 092HNE047  
Twenty-nine kilometres east-southeast

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

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

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

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

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

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

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

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

Dikes of several ages and compositions cut the Brenda stock. At least four types, aplite-pegmatite, andesite, trachyte porphyry and basalt, have been identified in the Brenda orebody. Similar dikes, as well as felsite, dacite and quartz diorite have been mapped beyond the limits of economic mineralization. The aplite-pegmatite dikes are cut by all other dikes and by all mineralized fractures. The andesite dikes have been altered and mineralized during ore formation. Two types of quartz diorite dikes are found and both are cut by quartz-sulphide veins. Dacite porphyry and felsite dikes are also cut by quartz-sulphide veins.

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

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

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.

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

*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

Three kilometres south

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

*The occurrence lies in the northern assemblage of the Eastern belt of the Nicola Group (after Preto, Bulletin 69).*

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

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

*The contact between the volcanic rocks and the argillites passes through the centre of the mineralized area. The contact is parallel to bedding, striking 130 degrees and dipping 40 degrees southwest, with the volcanic rocks on the northeast side (Assessment Report 4230).*

**ECHO showing (Volcanic redbed Cu)**

MINFILE 092HNE058

One kilometre south

*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.*

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

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

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

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

MINFILE 092HNE074

Six kilometres southwest

The deposit is located along the northern margin of an area of hilly upland situated, known as the Fairweather Hills.

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

Locally, the area is underlain by red and green laharic breccias, augite andesite porphyry and minor sediments of the Nicola Group (Central belt, Bulletin 69). The units generally strike north-northwest and dip east. This sequence is broken up into a series of tilted fault blocks trending north.

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

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

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

+/-Au; Au-quartz veins)

MINFILE 092HNE096

Thirteen kilometres south-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.



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

*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.*

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

MINFILE 092HNE147

Three kilometres west

*The Court 1 occurrence is located in the Upper Triassic Nicola Group, which regionally consists of alkalic and calcalkalic volcanics and intrusions of island arc origin, and which is the principal component of the Quesnel Terrane in southern British Columbia (Geological Survey of Canada Maps 41-1989, 1713A). This belt has been of major economic interest because of its potential for porphyry copper-gold mineralization.*

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

*The area is characterized by long-lived, primarily north-striking faults and related fracturing, which originally controlled intrusion emplacement. East-striking faults are subordinate, and commonly offset intrusive contacts.*

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

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

MINFILE 092HNE292

Four kilometres 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.*

*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.*

**GEOLOGY: PROPERTY**

As indicated by the BC government supported MapPlace geological maps, the Property is underlain by granodioritic rocks of the Late Triassic to Early Jurassic Pennask batholith (uTrJgd) in the east in a northerly contact with basaltic volcanic rocks of the Nicola Group in the west. Within the southwest corner, the Property covers a portion of a granodioritic stock.

## MINERALIZATION: PROPERTY AREA

The mineralization on some of the more significant mineral MINFILE reported showings, prospects, and past producers peripheral to the Property is reported as follows. The distance is relative to the Toni 1040777 Claim Group

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

MINFILE 092HNE002

One kilometre south

*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).*

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

MINFILE 092HNE047

Twenty-nine 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.*

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

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

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

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

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

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

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

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

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, ferrimolybdate, powellite and cupriferous manganese oxides. Cuprite, covellite, chalcopyrite, native copper, tenorite and ilsemanite are rare constituents. Copper-molybdenum mineralization in the Brenda deposit was developed during several sequential stages, all of which constitute one mineralizing episode.

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

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

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

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

MINFILE 092HNE058

Three 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).*

**ECHO** showing (Volcanic redbed Cu)

MINFILE 092HNE059

One kilometre south

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

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

MINFILE 092HNE074

Six kilometres southwest

**Mineralization: Property Area (cont'd)****Big Kidd prospect**

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

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

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

Copper content is quite variable, and precious metal values are low but anomalous. Channel sampling of an adit yielded 0.901 per cent copper, 0.141 gram per tonne gold and 13.66 grams per tonne silver over 14 metres (Assessment Report 7100, page 8, adit no. 1) Channel sampling of a trench, 90 to 190 metres west of the adit, yielded 0.237 per cent copper, 0.095 gram per tonne gold and 3.37 gram per tonne silver over 35 metres (Assessment Report 7100, page 9, trench no. 12). Trenching and sampling of the northern margin of the breccia pipe yielded gold values of up to 1.97 grams per tonne over 6 metres (Assessment Report 8743, Figure 3, samples 3413, 3414).

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

Ag-Pb-Zn +/-Au; Au-quartz veins)

MINFILE 092HNE096

Thirteen kilometres south-southeast

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sericitic alteration is typically pale green with a micaceous sheen, with plagioclase altered to sericite; trace disseminated pyrite may be present. This type of alteration is often associated with quartz veins and appears to be the lowest grade alteration associated with gold mineralization. It is not recognized in volcanics.

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

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

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 down dip. All veining intercepts have been adjusted for true width and assays diluted to 2-metre mining widths (George Cross News Letter No. 223 (November), 1991).

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

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

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

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

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

Reserves estimated by the company at January 1, 1996 were 121,350 tonnes grading 25.4 grams per tonne gold and 35.3 grams per tonne silver.

These include a diluted, probable open-pit resource of 11,340 tonnes grading 58.97 grams per tonne gold, an underground probable resource below the open pit of 20,225 tonnes grading 26.74 grams per tonne gold, and a further possible underground resource of 89,790 tonnes grading 23.66 grams per tonne gold (Information Circular 1997-1, page 21).

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

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

In 2002, Almaden undertook a 26 hole surface diamond drill program for a total of 4995.67 metres testing the B, WD, GCW and Bullion Creek zones.



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

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

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

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

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

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

MINFILE 092HNE147

Three kilometres west

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

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

MINFILE 092HNE292

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

## STRUCTURAL ANALYSIS

### a) Purpose

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

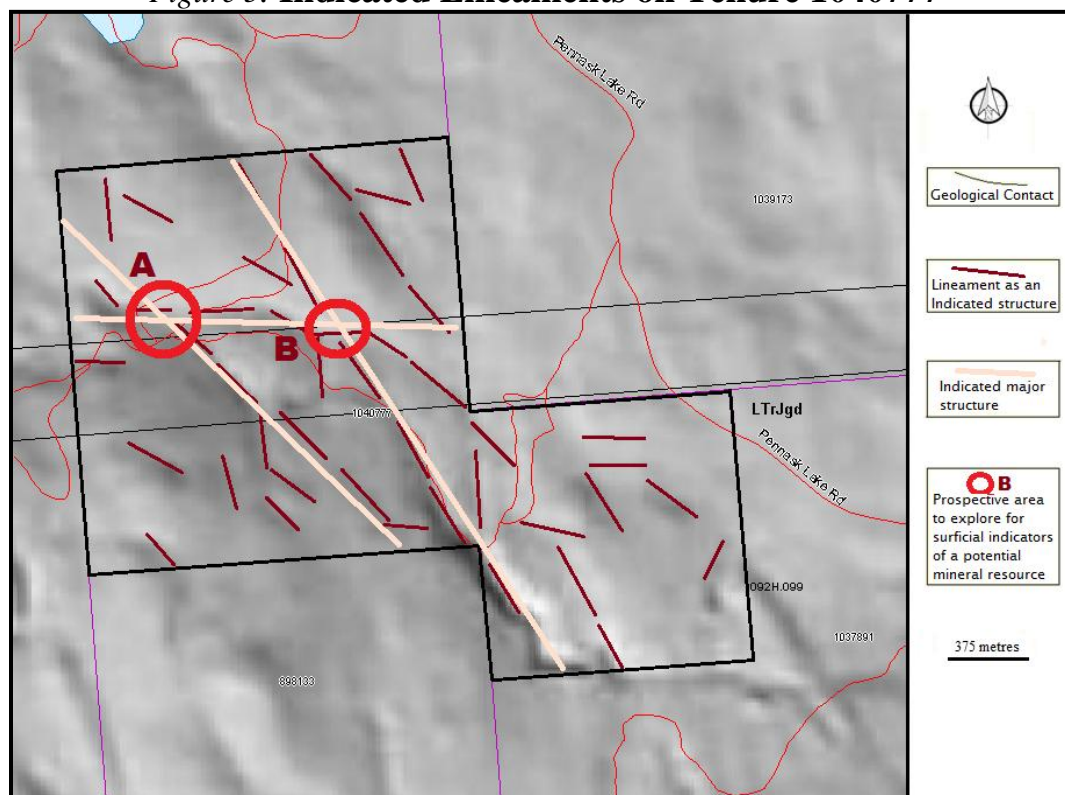
These surficial indications such as prime minerals, indicator minerals, or alteration patterns, may be an indication of a masked mineral resource. Thus, a cross-structural location would be the prime area to initially prospect for the surficial indicators which may be revealed as pathfinder minerals,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

### b) Method

The structural analysis was performed on a MapPlace DEM image hillshade map of Tenure 1031276, by viewing of the map and marking the lineaments, or indicated structures, thereon. A total of 43 lineaments were marked as shown on Figure 5. The lineaments were compiled into a 10 degree class interval and plotted as a rose diagram as shown on Figure 6. The indicated primary structural trend was then plotted on the lineament map with the general trend influenced by the predominant lineaments as shown on the Rose Diagram.

The centre of the work area is at 5542100N, 688800E (10) (NAD 83).

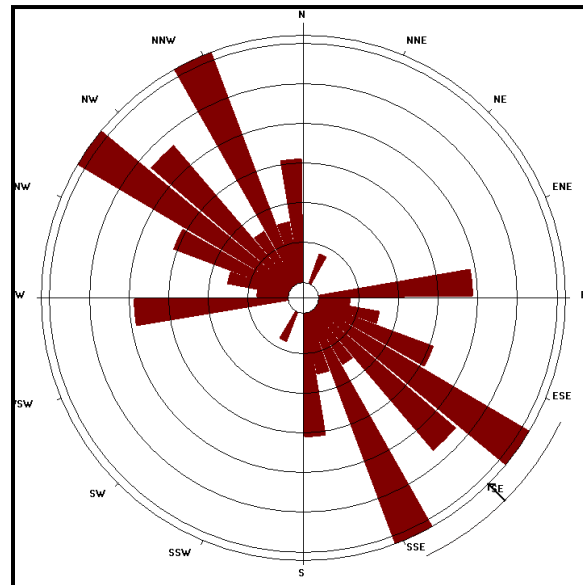
**Figure 5. Indicated Lineaments on Tenure 1040777**



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

Two cross-structures were delineated from a major indicated east-west trending structure intersected by two indicated northwesterly trending structures.

**Figure 6. Rose Diagram from lineaments of Tenure 1040777**

**STATISTICS**

Axial (non-polar) data

No. of Data = 43

Sector angle = 10°

Scale: tick interval = 3% [1.3 data]

Maximum = 18.6% [8 data]

Mean Resultant dir'n = 135-315

[Approx. 95% Confidence interval = ±19.3°]  
(valid only for unimodal data)

Mean Resultant dir'n = 135.1 - 315.1

Circ.Median = 136.0 - 316.0

Circ.Mean Dev.about median = 23.0°

Circ. Variance = 0.12

Circular Std.Dev. = 29.21°

Circ. Dispersion = 1.23

Circ.Std Error = 0.1689

Circ.Skewness = 1.72

Circ.Kurtosis = -32.60

kappa = 1.49

(von Mises concentration param. estimate)

Resultant length = 25.57

Mean Resultant length = 0.5946

'Mean' Moments: Cbar = 0.0016; Sbar = -0.5946

'Full' trig. sums: SumCos = 0.0678; Sbar = -25.5692

Mean resultant of doubled angles = 0.1326

Mean direction of doubled angles = 107

(Usage references: Mardia & Jupp,

'Directional Statistics', 1999, Wiley;

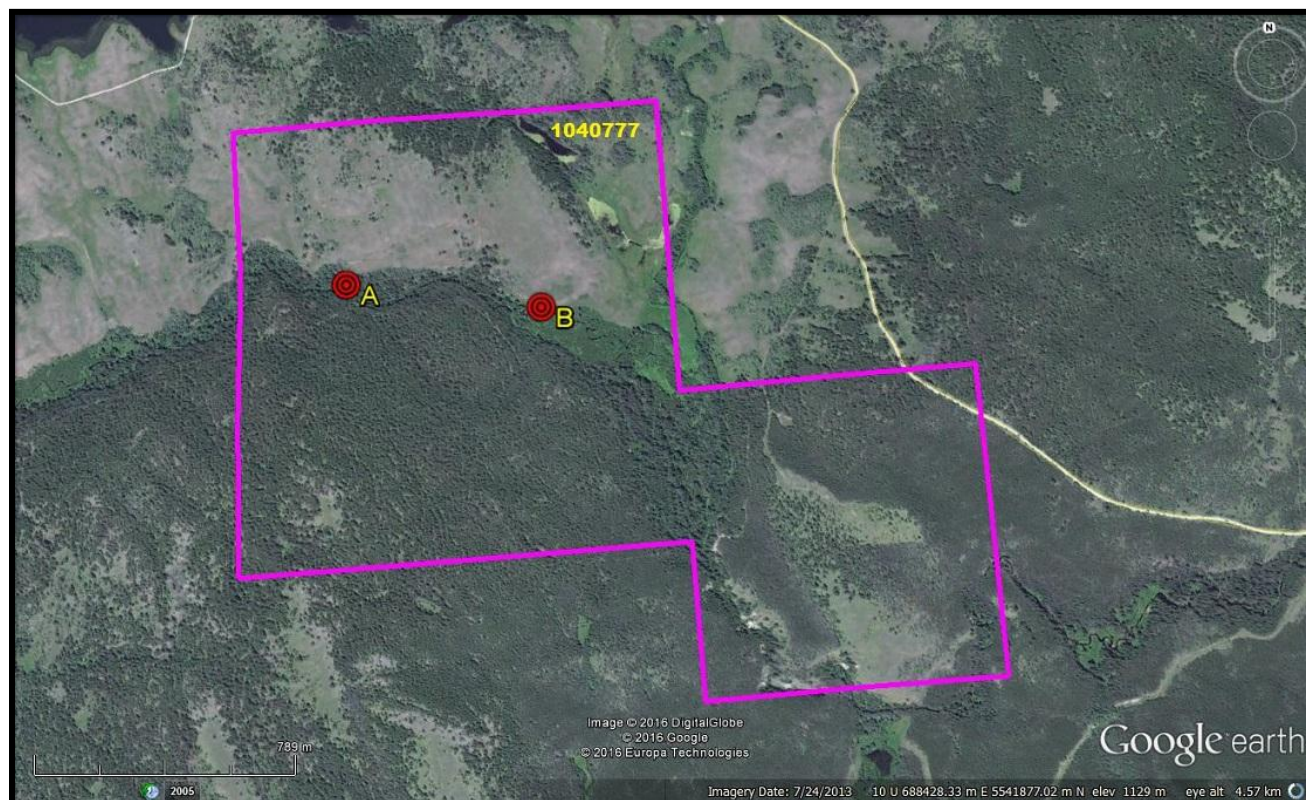
Fisher, 'Statistical Analysis of Circular Data',  
1993, Cambridge University Press)

Note: The 95% confidence calculation uses

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

**Structural Analysis (cont'd)**

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



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

| Area | UTM East | UTM North | Elevation (metres) |
|------|----------|-----------|--------------------|
| A    | 687,466  | 5,542,303 | 1,108              |
| B    | 688,056  | 5,542,203 | 1,109              |

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

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

**b) Theory**

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

## Magnetometer Survey (cont'd)

### c) Survey Procedure

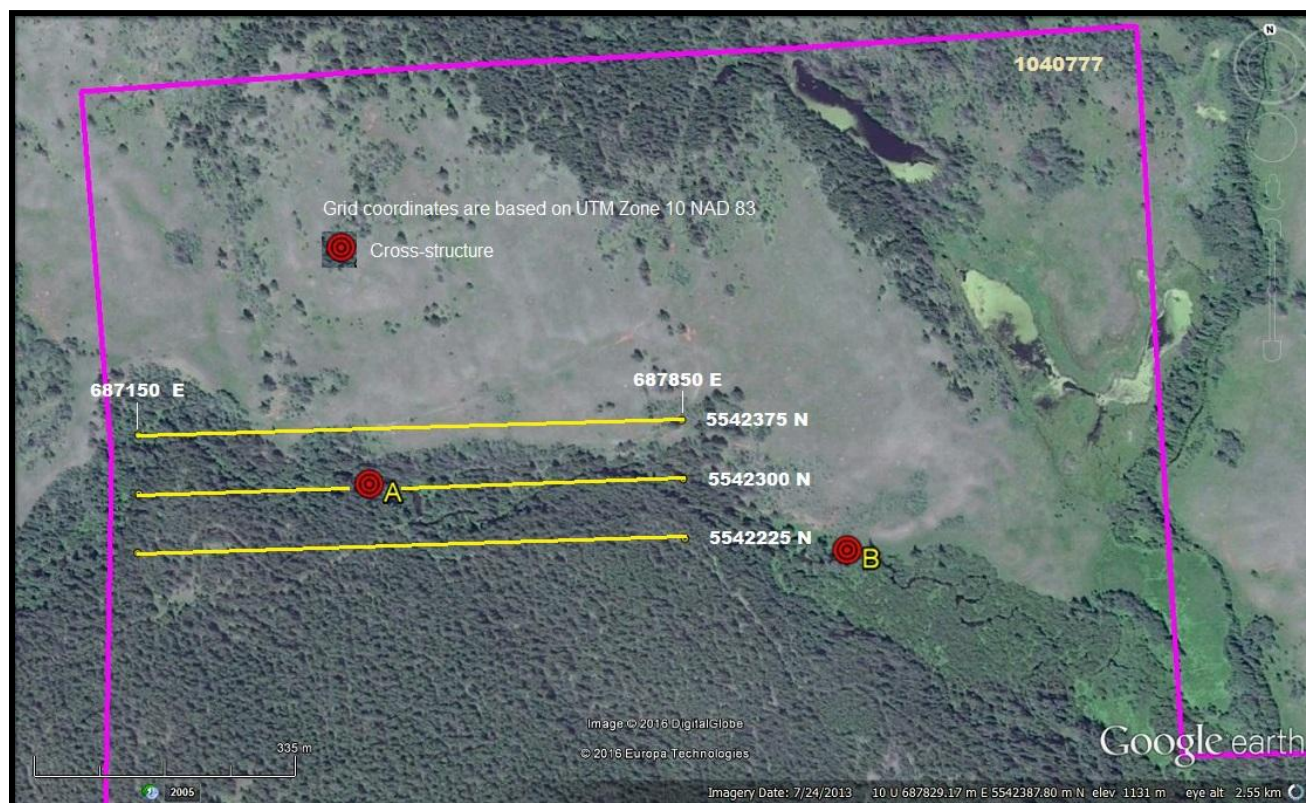
From station 5,542,375N 687,850E, a southerly 150 metre base-line was established with two additional base-line stations at 75 metre station intervals to 5,542,2250N. Magnetometer readings were taken at 25 metre intervals along each of the three grid lines to 687,150E. The grid line stations were established by the use of a GPS instrument. Line kilometres of magnetometer survey completed was 2.1. The field data is reported herein in Appendix I.

### d) Data Reduction

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

### Figure 8. Magnetometer Grid Index Map

(Base from MapPlace)



Magnetometer Survey (cont'd)

Figure 9 .Magnetometer Survey Data

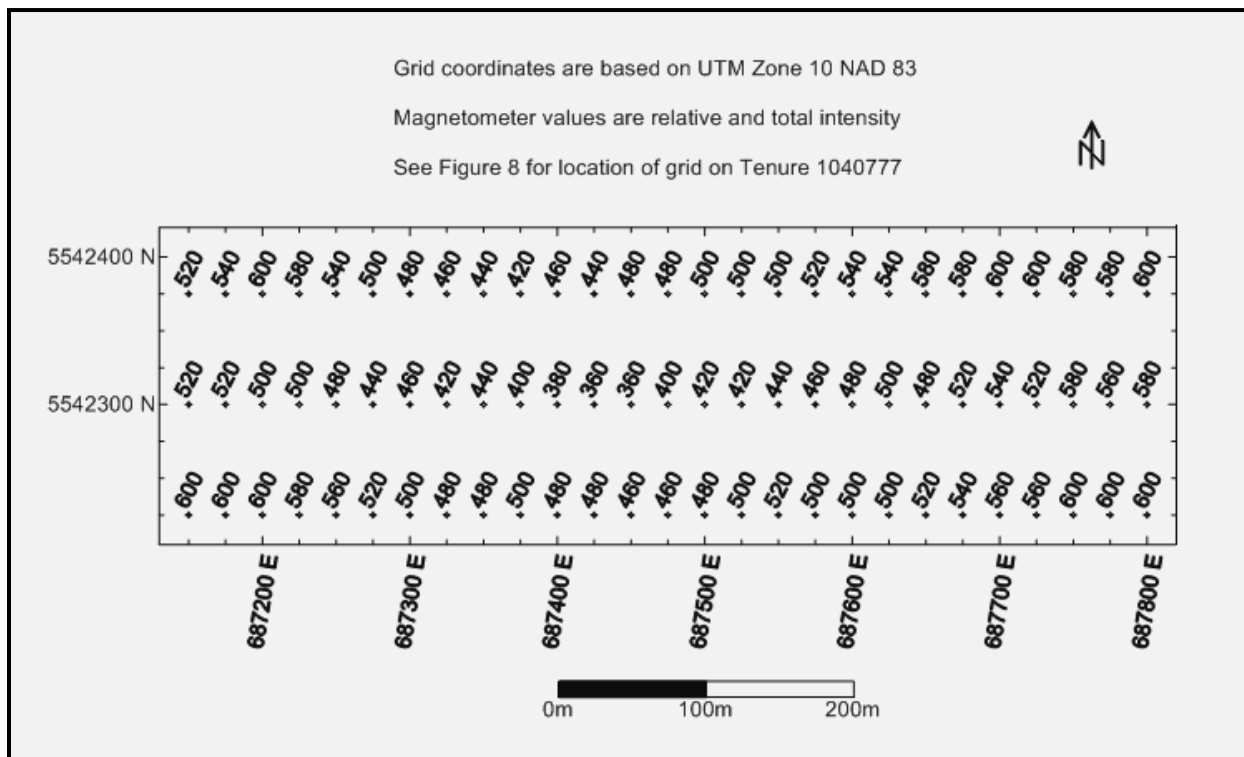
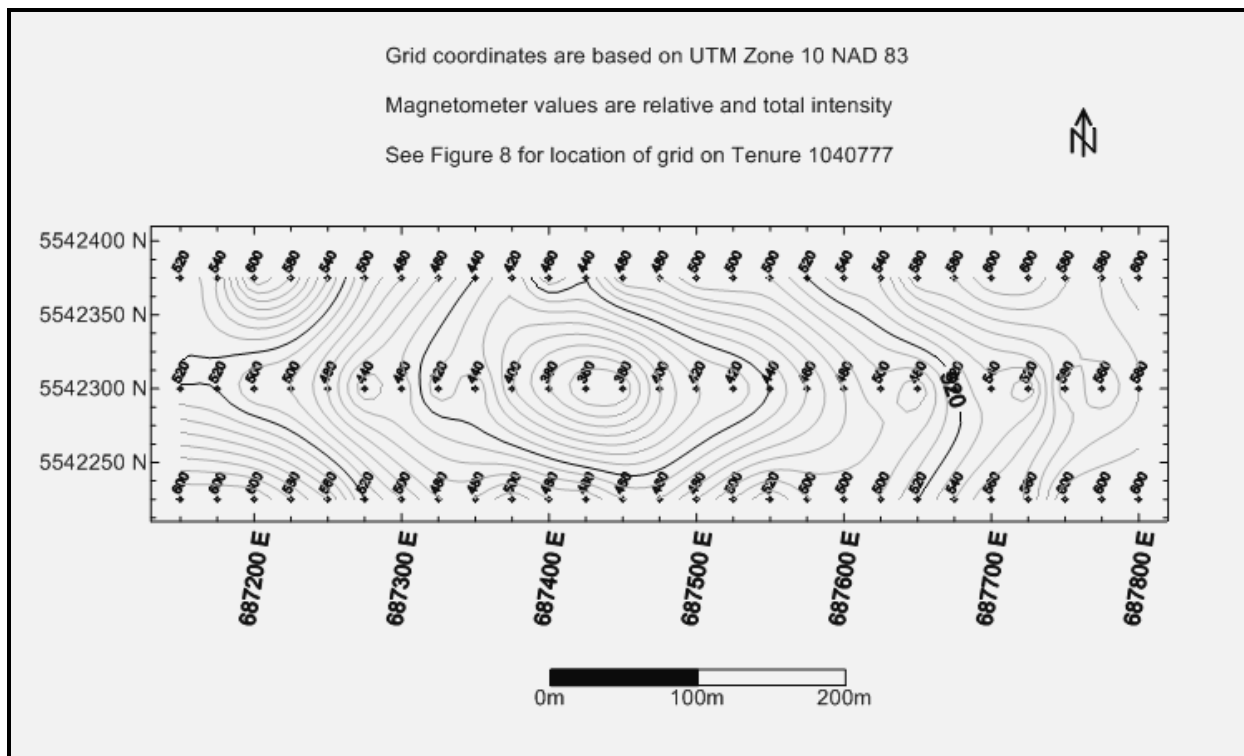
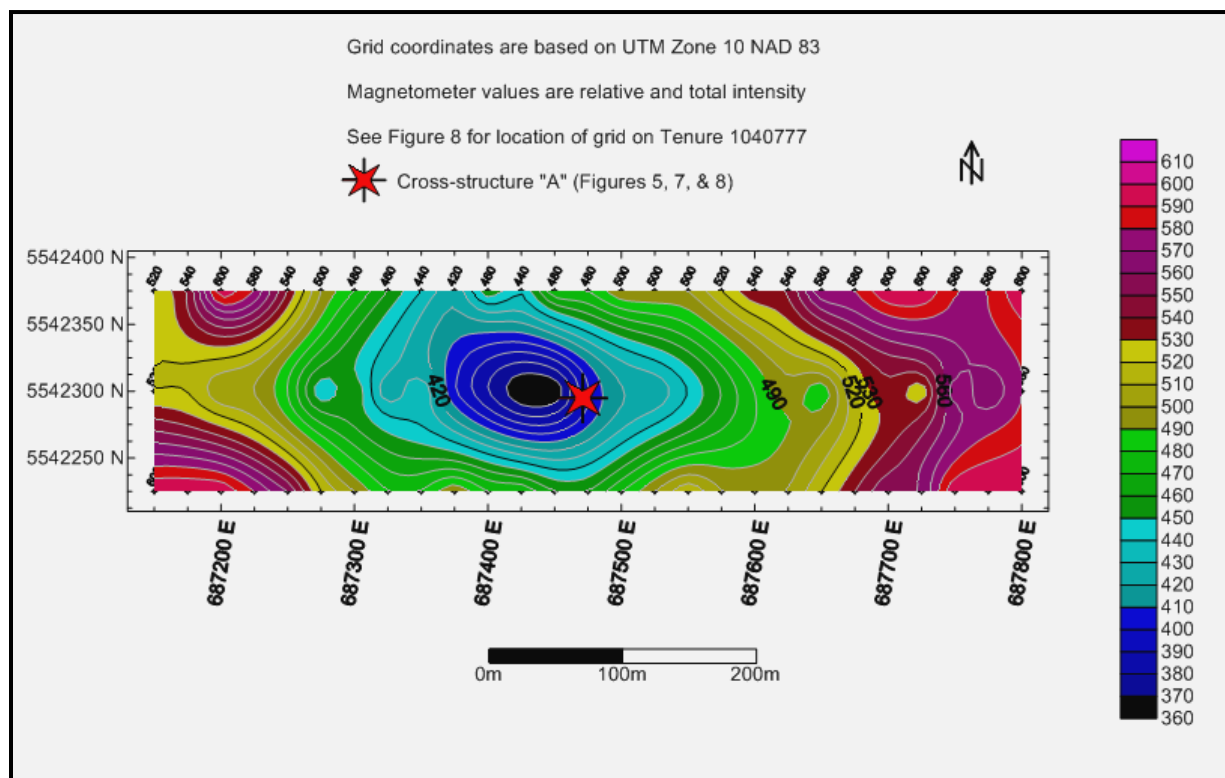


Figure 10. Magnetometer Survey Data Contour Map

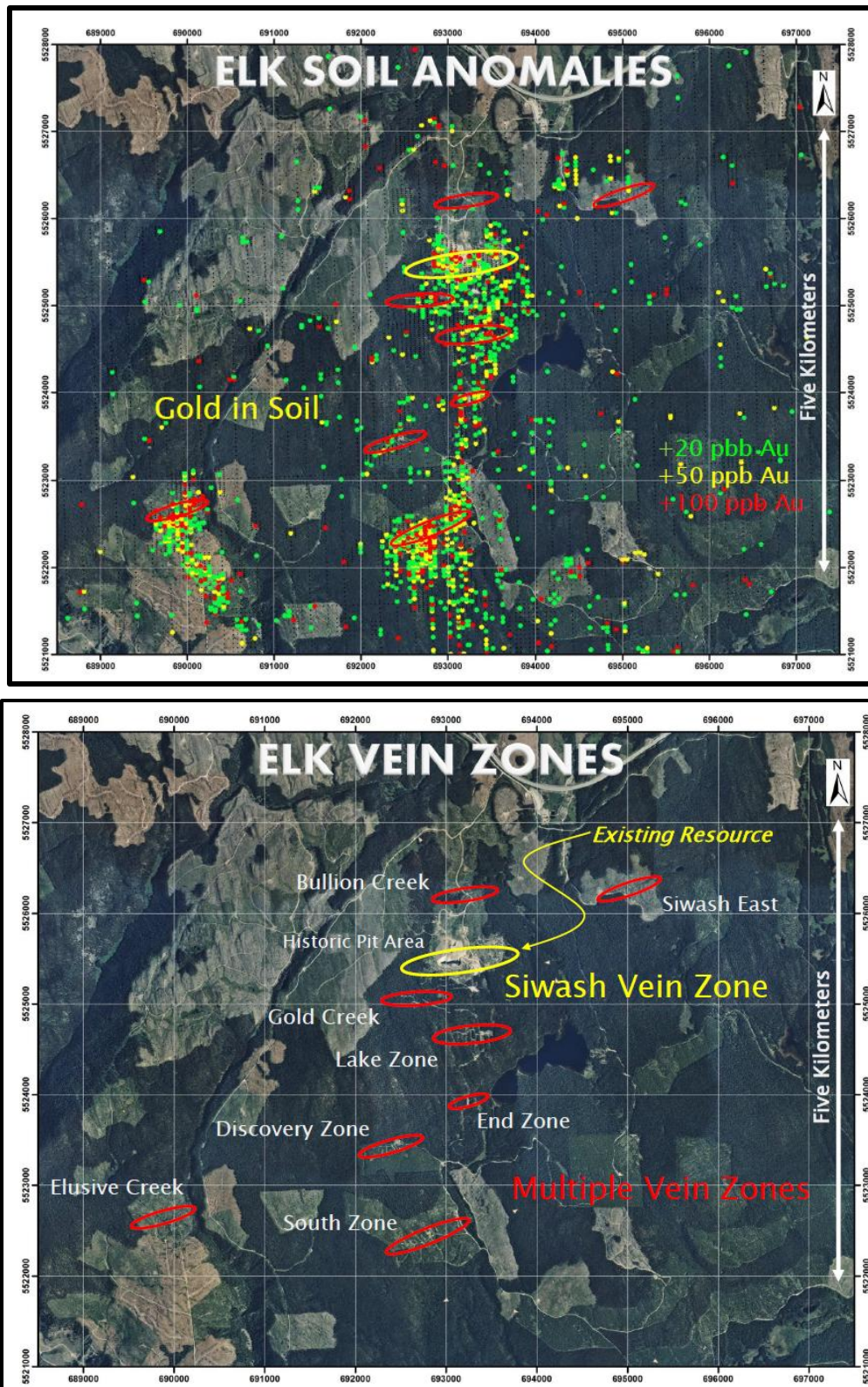


**Magnetometer Survey (cont'd)****Figure 11. Magnetometer Survey Data Colour Contour Map****e) Results**

The magnetometer survey which covered granodiorites of the Pennask Batholith indicated a central 200 metre magnetometer low (mag LO) with an oblong east-west configuration, open to the north-northwest. The general mag LO envelops an anomalous mag LO within which approximate location (Table II) of cross-structure "A" is along its periphery.

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

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





## INTERPRETATION and CONCLUSIONS

The two delineated cross-structures on Tenure 1040777 would be the most prospective areas to explore for surficial geological indicators of a potential masked mineral resource as these locations would be the zones of maximum brecciation with depth extension to provide a conduit for hydrothermal fluids to surface and imprint its constituents or indicators such as, alteration, pathfinder minerals or any other geological indication.

This indicator situation has been illustrated at the ELK past producer (*MINFILE 092HNE096*) where surficial mineral indicators to an underlying mineral resource were determined at the structural intersection between northerly and north-northeasterly structures. The location of the cross-structures are obvious in the many associated mineral zones as shown on Figure 12.

To a lesser degree, this indicator situation is also revealed in some of the Minfile reported mineral properties included herein as Minfile properties the area of the Tenure 1040777 Claim Group and include the Brew (*Minfile 092HNE275*) and the Big Kidd (*Minfile 092HNE275*). At the Brenda past producer (*MINFILE 092HNE047*), where production began 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 mineralization decreased outwardly from the most intensely fractured/mineralized rock and the centre of the main mineral zone.

In the magnetometer survey, which covered granodiorites of the Pennask Batholith, the anomalous mag LO enveloped by a general mag LO, may indicate a hydrothermally altered breccia zone or breccia pipe. The configuration of the general mag LO, may indicate the structures with associated alteration which may have resulted from hydrothermal fluid activity created from the development of a porphyry system.

Thus, cross-structure "A", one of the two the two structural intersections on Tenure 1040777, should be the prime area to explore for surficial geological indicators to a potential sub-surface mineral resource within the Pennask batholith.

Respectfully submitted

Sookochoff Consultants Inc.



Laurence Sookochoff, PEng

## SELECTED REFERENCES

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092HNE002 - MAL

092HNE047 – BRENDA

092HNE058 – HN-WEN

092HNE059 – ECHO

092HNE074 - BIG KIDD

092HNE096 – ELK

092HNE141 – COURT 1

092HNE292 – SNOW

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**Sookchoff, L.** – Geological Assessment Report on a Structural Analysis on Tenure 898133 of the 10 Claim 898133 Claim Group for Victory Resources Corporation. December 5, 2014. AR 35154

**Sookchoff, L.** – Geological & Geophysical Assessment Report on Tenures 1037890 and 1037891 of the 11 claim Toni 1037890 Claim Group for Victory Resources Corporation. April 2, 2016. AR 35872.

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

## STATEMENT OF COSTS

Work on Tenure 1040777 of the Toni 1040777 Claim Group was done from December 30, 2015 to January 2, 2016 to the value as follows:

### Structural Analysis

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

### Magnetometer Survey

Rick Pearson & Ross Heyer

January 1-2, 2016

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

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

mag rental ----- 1,485.40

\$ 5,685.40

Maps ----- 700.00

Report ----- 3,500.00

\$ 9,885.40

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## **CERTIFICATE**

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

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

I, Laurence Sookochoff, further certify that:

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



Laurence Sookochoff, P. Eng.

*Appendix I*

**Magnetometer Survey Data**

|        |         |     | E5584578 T1040777 |         |     |        |         |     |
|--------|---------|-----|-------------------|---------|-----|--------|---------|-----|
| East   | North   | Mag | East              | North   | Mag | East   | North   | Mag |
|        |         |     |                   |         |     |        |         |     |
| 687150 | 5542225 | 600 | 687150            | 5542300 | 520 | 687150 | 5542375 | 520 |
| 687175 | 5542225 | 600 | 687175            | 5542300 | 520 | 687175 | 5542375 | 540 |
| 687200 | 5542225 | 600 | 687200            | 5542300 | 500 | 687200 | 5542375 | 600 |
| 687225 | 5542225 | 580 | 687225            | 5542300 | 500 | 687225 | 5542375 | 580 |
| 687250 | 5542225 | 560 | 687250            | 5542300 | 480 | 687250 | 5542375 | 540 |
| 687275 | 5542225 | 520 | 687275            | 5542300 | 440 | 687275 | 5542375 | 500 |
| 687300 | 5542225 | 500 | 687300            | 5542300 | 460 | 687300 | 5542375 | 480 |
| 687325 | 5542225 | 480 | 687325            | 5542300 | 420 | 687325 | 5542375 | 460 |
| 687350 | 5542225 | 480 | 687350            | 5542300 | 440 | 687350 | 5542375 | 440 |
| 687375 | 5542225 | 500 | 687375            | 5542300 | 400 | 687375 | 5542375 | 420 |
| 687400 | 5542225 | 480 | 687400            | 5542300 | 380 | 687400 | 5542375 | 460 |
| 687425 | 5542225 | 480 | 687425            | 5542300 | 360 | 687425 | 5542375 | 440 |
| 687450 | 5542225 | 460 | 687450            | 5542300 | 360 | 687450 | 5542375 | 480 |
| 687475 | 5542225 | 460 | 687475            | 5542300 | 400 | 687475 | 5542375 | 480 |
| 687500 | 5542225 | 480 | 687500            | 5542300 | 420 | 687500 | 5542375 | 500 |
| 687525 | 5542225 | 500 | 687525            | 5542300 | 420 | 687525 | 5542375 | 500 |
| 687550 | 5542225 | 520 | 687550            | 5542300 | 440 | 687550 | 5542375 | 500 |
| 687575 | 5542225 | 500 | 687575            | 5542300 | 460 | 687575 | 5542375 | 520 |
| 687600 | 5542225 | 500 | 687600            | 5542300 | 480 | 687600 | 5542375 | 540 |
| 687625 | 5542225 | 500 | 687625            | 5542300 | 500 | 687625 | 5542375 | 540 |
| 687650 | 5542225 | 520 | 687650            | 5542300 | 480 | 687650 | 5542375 | 580 |
| 687675 | 5542225 | 540 | 687675            | 5542300 | 520 | 687675 | 5542375 | 580 |
| 687700 | 5542225 | 560 | 687700            | 5542300 | 540 | 687700 | 5542375 | 600 |
| 687725 | 5542225 | 560 | 687725            | 5542300 | 520 | 687725 | 5542375 | 600 |
| 687750 | 5542225 | 600 | 687750            | 5542300 | 580 | 687750 | 5542375 | 580 |
| 687775 | 5542225 | 600 | 687775            | 5542300 | 560 | 687775 | 5542375 | 580 |
| 687800 | 5542225 | 600 | 687800            | 5542300 | 580 | 687800 | 5542375 | 600 |