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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: $ 9,710.90

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): 5552712 April 27, 2015

PROPERTY NAME: Bertha

CLAIM NAME(S) (on which the work was done): 581002

COMMODITIES SOUGHT: Copper Gold

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092ISE154

MINING DIVISION: Kamloops **NTS/BCGS:** 092I.046

LATITUDE: 50 ° 30 ' 21 " **LONGITUDE:** 120 ° 49 ' 39 " **(at centre of work)**

OWNER(S):

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

Upper Triassic, Nicola Group, Western Volcanic Facies, Late Triassic to Early Jurassic, Guichon Creek Batholith, Gump Lake Phase, Border Phase, Highland Valley Phase, regional Guichon Creek Fault, major northerly, westerly, and northwesterly structures on Tenure 581002, on the Wendy mineral zone minor chalcopyrite and malachite occur as narrow veins or along joint planes and as fine disseminations in the intrusive rocks; alteration consists of sericitization and pink potassium feldspar.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 3185 32290 32980 3699 3727 6830

Next Page

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping	432 hectares	581002	$ 6,000.00
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic	1.1	581002	3,710.90
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	$ 9,710.90

Print Form

GUY & CHRISTOPHER DELORME

(Owners & Operators)

ASSESSMENT REPORT

on

GEOLOGICAL & GEOPHYSICAL SURVEYS

(Event 5552712)

work done from

April 20, 2015 to November 26, 2015

on

Tenure 581002

of the six claim

Bertha 581002 Claim Group

Kamloops Mining Divisions

BCGS Maps 092I.046

Centre of Work

5,592,113N 654,062E
(NAD 83 Zone 10U)

Author & Consultant

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Submitted

December 25, 2015

TABLE OF CONTENTS

Table of Contents (cont'd)

ILLUSTRATIONS

TABLES

APPENDICES

SUMMARY

The Bertha 581002 Claim Group is located 210 kilometres northeast of Vancouver in the Highland Valley of south central British Columbia. It is within 13 kilometres of the Highland Valley Copper mine, one of the largest copper mining and concentrating operations in the world.

The Highland Valley Copper deposit is one of a cluster of nine major porphyry copper deposits that lie within a 15 square kilometer zone in the center of the Late Jurassic Guichon Creek batholith. A central, steeply plunging root or feeder zone is inferred under Highland Valley, and the major deposits lie around the projection of the feeder zone to the surface. The most prominent structural features are the north trending Lornex fault and the west-northwesterly Highland Valley fault.

The Bertha 581002 Claim Group, as indicated by the BC government supported MapPlace geological map, is underlain primarily by rocks of the Guichon Batholith in the west which are in a northerly trending regional Guichon Creek fault contact with the Western Volcanic Facies of the upper Triassic Nicola Group.

In the west the Claim Group covers granodioritic rocks of the Gump Lake Phase (LTrJGG) at the Nicola contact which are in contact with a northerly band of quartz dioritic rocks of the Border Phase (LTrJBo) and westward with a contact of granodioritic rocks of the Highland Valley Phase (LTrJGH). A discontinuous sliver of Nicola volcanics occurs along the contact between the Gump Lake and the Border Phases. Tenure 581002 is underlain by Gump Lake granodioritic rocks and skirts a portion of the Guichon Creek Fault zone and Nicola volcanics in the east.

The three delineated cross-structures of Tenure 581002 are prime locations to explore for surficial geological indicators of a proximal potentially economic mineral resource. These locations would be the site of most intense brecciation/fracture formation to depth and peripherally and would be the most accommodating for the deposition of hydrothermal fluids; thus, a mineral controlling feature.

At the Bethlehem Copper-Spud Lake mineral showing (Minfile 092ISE008) intrusive contacts, north trending faults, and closely spaced fractures control the mineralization. At the Bethlehem past producer (Minfile 092ISW001) mineralization is concentrated in breccia bodies, faults and highly fractured areas. The Highland Valley Copper and the Lornex deposits were created from a favourable structural setting at the intersection of two regional faults.

On Tenure 581002 the three cross-structures are centred on a major north trending structure within the Gump Lake Phase of the Guichon Batholith. The structure is a probable en echelon structure developed from the regional Guichon Creek fault which for the most part is the fault contact between the Guichon Batholith and the Nicola volcanics which also skirts the eastern boundary of Tenure 581002.

The eastern limit of the magnetometer survey was at the Guichon Creek fault but did not provide any indication of the fault zone (Figure 11). However, the northerly trending Tenure 581002 structure may be the 250 metre wide mag LO which is open to the northwest and centralized by an anomalous 50 metre wide anomalous mag LO which may be the main structure. The mag LO may reflect hydrothermal or dynamically produced alteration or a combination of both with associated mineralization.

The northwesterly trending structure of cross-structure A is also indicated by the mag LO profile to the northwest and to the southeast. The approximate or general location of cross-structure A within the transitional mag HI/mag LO position presents another encouraging feature to a potential mineral resource.

INTRODUCTION

Between April 20, 2015 and November 26, 2015, a structural analysis and a localized magnetometer survey were completed on Tenure 581002 of the six claim Bertha 581002 claim group (Property). The purpose of the program was to delineate potential structures which may be integral in geological controls to potentially economic mineral zones that may occur on Tenure 581002 or other claims of the Bertha property and to determine the effectiveness of the magnetic survey in locating structures and/or lithologic contacts.

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

Figure 1. **Location Map**

(from MapPlace)

PROPERTY LOCATION & DESCRIPTION

Location

The Bertha 581002 Claim Group is located within BCGS Map 092I.046 of the Kamloops Mining Division, 210 kilometres northeast of Vancouver, 36 kilometres north of Merritt, 45 kilometres southwest of Kamloops, and within 13 kilometres east of the world-class producing Highland Valley Copper mine (*Minfile 092ISW012)*.

Description

The Property is comprised of six contiguous claims covering an area of 1975.563 hectares. Particulars are as follows:

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

Table I. **Tenures of Bertha 581002 Claim Group**

Tenure Number	Type	Claim Name	Good Until	Area (ha)
581002	Mineral		20151216	432.0029
581005	Mineral		20151216	514.5084
585384	Mineral		20151216	494.0089
596301	Mineral	PONYBOY NORTH	20151216	390.9753
605002	Mineral	PONYBOY WEST	20151216	123.4998
1011644	Mineral		20151216	20.5677

Total Area: 1975.563 ha

*Upon the approval of the assessment work filing, Event Number 5552712.

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE and PHYSIOGRAPHY

Access

From Logan Lake, the Bertha 581002 claim group can be accessed by traveling from Logan Lake west on Highway 97D for 1.3 kilometres to the junction with Highway 97C thence south for six kilometres to the northern boundary of Tenure 581005.

Climate

The local climate is typical of south central British Columbia. Annual temperatures range from 35^{o}C to -40^{o}C. Negative temperatures can be typically expected between late October and late March. Annual precipitation ranges around an average of 30 cm.

Local Resources & Infrastructure

Merritt, 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. Logan Lake, where many of the Highland Valley Copper Mine employees reside, has many facilities to accommodate any preliminary exploration crew.

Physiography

Tenure581002 covers gentle to moderate forested slopes with clear-cut areas. Elevations range between 981m in the southeast corner to 1,282m in the southwest corner.

Figure 2. **Claims Location**
(Base Map from MapPlace &Google Earth)

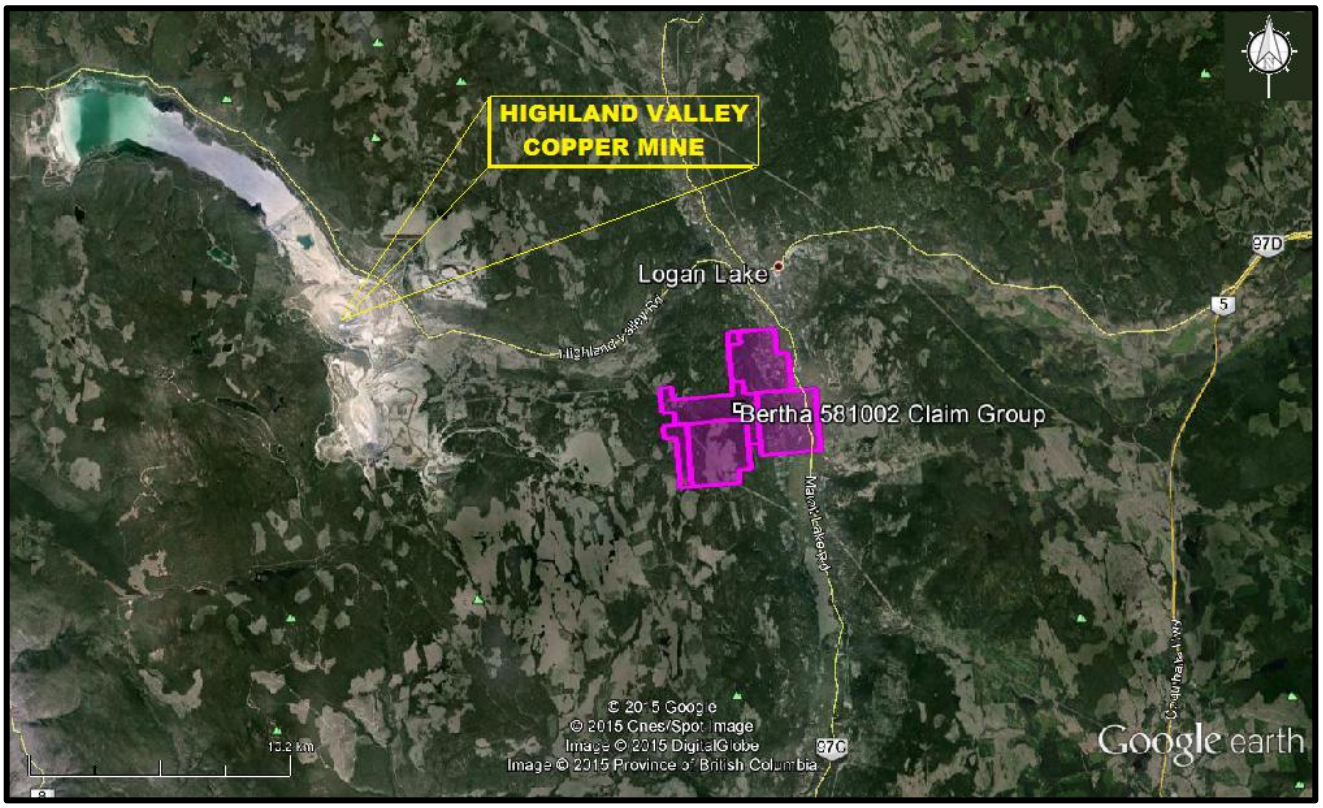
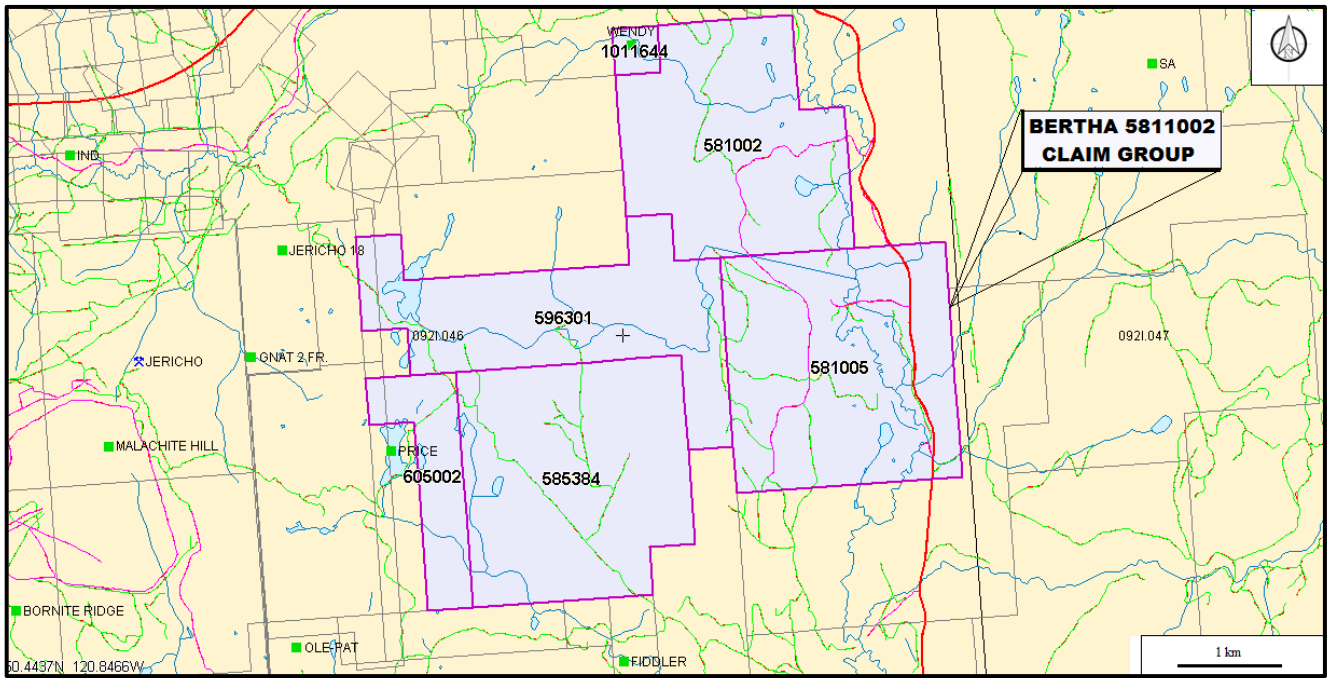


Figure 3. **Claim Map**
(from Google Earth)



WATER & POWER

There would be an ample water supply for the needs of any exploration program from the many lakes, rivers, or streams within the confines of the Property.

A 550 KV power line traverses the western portion of Tenures 585384 and 596301.

HISTORY: BERTHA 581002 CLAIM GROUP AREA

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 581002 Claim Group is reported as follows. The distance to the Minfile locations is relative to Tenure 581002 of the Bertha 581002 Claim Group.

BETHLEHEM past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW001
Fifteen kilometres west-northwest

Production from 1963 to 1982 totalled 96,324,510 tonnes, yielding 99,826,893 grams silver, 1,279,833 grams gold, 398,112,545 kilograms copper and 851,048 kilograms molybdenum.

The Bethlehem concentrator milled Valley ore (092ISW012) until its closure in June of 1989.

HIGHLAND VALLEY COPPER producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW012
Seventeen kilometres west

Highland Valley Copper was created in mid-1986 by bringing together the Highland Valley mining operations of Lornex Mining Corporation Ltd. and Cominco Ltd. into a new single entity, structured as a partnership.

On the south side of the valley was the Lornex mine which started mining in 1972. In 1981, the Lornex concentrator had been expanded to become one of the largest in the industry.

On the north side was Bethlehem Copper (092ISE001) which started mining in 1963. In 1981, this operation was absorbed by Cominco who already owned the Valley orebody (092ISW012) located west of the Lornex pit on the south side of the valley. Mining of the original Bethlehem Copper pits ceased in 1982.

Production from the Lornex mine (092ISW045) was combined with the Valley operations in 1987.

The Highmont mill on the south side of the valley was acquired in 1988 when Highmont Mining Company joined the partnership. This mill had been closed down in 1984 when the Highmont deposit (092ISE013) became uneconomical.

Lornex Mining Corporation Ltd. was wound up at the end of 1988 with the result that Rio Algom Limited, Teck Corporation and Highmont Mining Company obtained direct participation in the cash flow from the partnership.

In 1995, with Explore B.C. Program support, Highland Valley Copper carried out 197 line kilometres of high-powered induced polarization surveys for very deep penetration, and drilled 1701 metres in 4 holes. This work was done on the Lornex SW Extension, Roscoe Lake and JA zones. No anomalies of merit were detected in Lornex SW Extension, and Roscoe Lake gave only limited encouragement. IP work on the JA zone detected an anomaly extending to the south, well beyond the limits of known mineralization, and another anomaly 2000 by 1500 metres in size at the east end of the grid. Both anomalies warrant drill testing (Explore B.C. Program 95/96 - M80).

History: Bertha 581002 Claim Group Area *(cont'd)*

Highland Valley Copper *(cont'd)*

At the end of 1996, mine plans called for another 200 metres in depth in the Valley pit to the 2008. In addition, the partnership may consider mining the remaining 120 million tonnes grading 0.33 per cent copper estimated to exist in the Lornex pit (Information Circular 1997-1, page 8).

Highland Valley Copper suspended mining on May 15, 1999; they resumed August 30, 1999.

In September 2005, Highland Valley announced that mine life would be extended by five years to 2013. Very late in the year, Teck Cominco also announced that it is considering building a modern hydrometallurgical refinery on site.

Most ore comes from the Valley pit, augmented by a small amount from the Lornex pit. Following a successful 300,000 tonne bulk sample test, the Highmont East pit, closed since the mid-1980s, was re-opened in the fall of 2005 to take advantage of higher molybdenum prices. In addition, exploration drilling was conducted nearby in the Highmont South area and results are being evaluated.

BERTHA - MOLLY past producer (Stockwork)
MINFILE 092ISE012
Seven kilometres east

In 1942, George Campbell did some surface-stripping on a copper showing, about 457 metres west of an old shaft. Production from this occurrence, known as the Lost group, was 31 tonnes, yielding 218 grams of silver and 626 kilograms of copper.

HIGHMONT past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE013
Thirteen kilometres west-southwest

The West Pit (092ISW036) was mined first; East Pit production began concurrently.

Production from 1981 to 1984 totalled 37,247,399 tonnes, yielding 50,219 tonnes of copper and 6865.6 tonnes of molybdenite.

QUEN showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE190
Seven kilometres southeast

Showing located along the shore of a small, unnamed lake along Quenville Creek, about 11 kilometres south-southeast of the community of Logan Lake (Property File - Geology map).

GEOLOGY: REGIONAL

The Bertha 581002 Claim Group is located on the southern Intermontane Belt of British Columbia on the southern extent of the Quesnel Trench. The central geological features of this region are the Late Triassic island-arc volcanic rocks of the Nicola Group, and Late Triassic mudstone, siltstone and shale clastic sedimentary rocks located to the east, and intrusive granodioritic rocks of the Late Triassic to early Jurassic. The Nicola Group is a succession of Late Triassic island-arc volcanic rocks. The Nicola Group volcanic rocks form part of a 30km to 60km wide northwest-trending belt extending from southern B.C. into the southern Yukon. This belt is enclosed by older rocks and intruded by batholiths and smaller intrusive rocks.

Geology: Regional *(cont'd)*

Major batholiths in the area of the Logan Copper Property include the Guichon Creek Batholith to the west, the Wild Horse Batholith to the east, and the Iron Mask Batholith to the north northeast (see Figure 6 for regional geology).

The Guichon Creek batholith is a large, composite intrusion with a surface area of about 1,000 square kilometers. A cluster of nine major porphyry copper deposits lie within a 15 square kilometer zone in the center of the batholith.

The batholith is a semi-concordant composite intrusive that is elliptical and elongated slightly west of north. A central, steeply plunging root or feeder zone is inferred under Highland Valley, and the major deposits lie around the projection of the feeder zone to the surface. The batholith has intruded and metamorphosed island-arc volcanic and associated sedimentary rocks of the Nicola Group, and a metamorphic halo up to 500 meters wide is developed adjacent to the contact. Rocks along the edge of the batholith are older and more mafic, and successive phases moving inward toward the core are younger and more felsic.

Although contacts can be sharp, they are generally gradational and chilled contacts are not common. Variations in the batholiths geochemistry indicate local areas of assimilated country rock in the border zone and roof pendants in the intrusion. Outcrop areas have inclusions of amphibolite and "granitized" metamorphic rocks and compositional variations.

Two younger volcanic-dominated successions are important in the area. First, a northwest trending belt of Cretaceous continental volcanic and sedimentary rocks of the Spences Bridge Group unconformably overlie both the Nicola Group country rock and intrusive rocks along the southwest flank of the batholith. Distribution of the Spences Bridge Group rocks was locally controlled by reactivation of older faults that were important mineralization conduits in the batholith, such as the Lornex fault. Second, continental volcanic and sedimentary rocks of the Tertiary Kamloops Group cover extensive areas of the batholith and also overlie Triassic and Jurassic rocks from north of Highland Valley to the Thompson River. These also form isolated outliers and local intrusive centers south of the Highland Valley

GEOLOGY: BERTHA 581002 CLAIM GROUP AREA

The geology of some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 581002 Claim Group is reported as follows. The distance to the Minfile locations is relative to Tenure 581002 of the Bertha 581002 Claim Group.

BETHLEHEM past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW001
Fifteen kilometres west-northwest

The Bethlehem property lies within the Early Jurassic-Late Triassic Guichon Creek batholith and straddles an intrusive contact where younger Bethlehem phase rocks form an irregular embayment in older Guichon variety rocks. The Bethlehem phase is medium-grained granodiorite to quartz diorite which ranges from equigranular to hornblende-biotite porphyry. The Guichon variety is medium-grained granodiorite. Igneous breccias are postulated to have been forcefully emplaced. Clasts up to 20 centimetres in diameter are subrounded and sit in a generally compact, but sometimes vuggy matrix. The granodiorites and breccias are intruded by north trending, steeply dipping dykes which are compositionally similar to the enclosing rocks; contacts are chilled.

Geology: Bertha 581002 Claim Group Area *(cont'd)*

Bethlehem *(cont'd)*

Most of the dykes are dacite porphyry and range in width from less than 1 metre to 60 metres.

The Bethlehem ore deposits (East Jersey (092ISE002), Huestis (092ISE004), Iona (092ISE006), and Snowstorm (092ISE005) are controlled by north trending faults and are localized in zones of closely-spaced fractures. Mineralization is concentrated in breccia bodies, faults and highly fractured areas. The Jersey fault cuts through the centre of the Jersey pit.

Hydrothermal alteration is restricted to the immediate area of the ore zones. The distribution of secondary biotite defines an inner potassic zone, sericite with kaolinite and montmorillonite define an intermediate phyllic zone, and epidote defines a peripheral propylitic zone. There is an outer halo of chloritized mafic minerals. Calcite, zeolite and quartz veining and vug-filling is common.

Metallic mineral zoning is very similar to alteration patterns. Bornite and chalcopyrite occur in the hydrothermal biotite zone, specularite in the epidote zone and minor pyrite in the outer halo. Molybdenite, chalcocite and magnetite occur in minor amounts. Malachite, azurite, chrysocolla, cuprite, native copper, hematite, goethite and manganese oxides occur to shallow depths.

BETHLEHEM COPPER-SPUD LAKE showing (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE008
Four kilometres northwest

The property lies in the Lower Jurassic Guichon Creek batholith. The Spud Lake area is underlain primarily by medium-grained Guichon variety quartz diorite and granodiorite. This unit is cut by north trending dacite porphyry dykes up to 60 metres wide. To the west, at the Bethlehem mine (092ISE001), Guichon rocks have been intruded by Bethlehem phase granodiorite. Mineralization is controlled by intrusive contacts, north trending faults and closely spaced fractures.

Alteration is generally weak and consists of chlorite, epidote and sericite. Minor fault zones have sericite-kaolinite gouges. Quartz, calcite and zeolite (laumontite, heulandite) veining occurs sporadically. Oxidation consists of malachite and limonite.

HIGHLAND VALLEY COPPER producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW012
Seventeen kilometres west

The Valley deposit lies within the Late Triassic to Early Jurassic Guichon Creek batholith and is hosted by Bethsaida phase porphyritic quartz monzonite and granodiorite. Feldspar porphyry and quartz feldspar porphyry dykes 0.6 to 35 metres wide dip steeply eastward in the western and central areas, and northward in the southern area of the deposit.

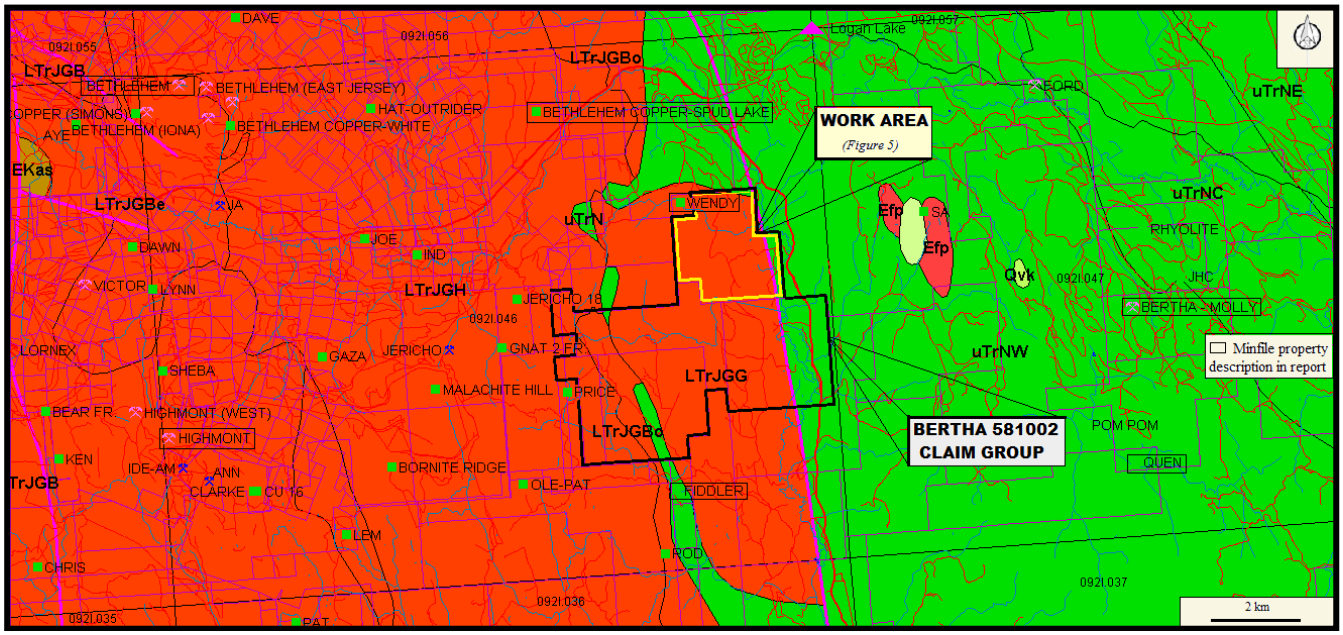
These dykes are cut by mineralized fractures and quartz veinlets, and have been dated at 204 Ma +/- 4 Ma.

The Bethsaida granodiorite is also intruded by aplite dykes up to 30 centimetres wide, tan-coloured felsite dykes up to 4.5 metres wide, and three types of lamprophyre dykes (spessartite, hornblende vogesite, vogesite).

The most prominent structural features are the north trending, west dipping Lornex fault and the east trending Highland Valley fault. Faults and fractures in the deposit comprise four main sets. Quartz veinlets are subparallel to two of the earlier formed fault and fracture sets.

***Geology: Bertha 581002 Claim Group Area** (cont'd)*

Figure 4. **Geology, Claim, Index & Minfile**
(Base Map from MapPlace)



GEOLOGY MAP LEGEND

Mivb
Miocene-unnamed
Basaltic volcanic rocks

EKav
Eocene-Kamloops Group
Undivided volcanic rocks

EPrb
Eocene-Penticton Group
Andesitic volcanic rocks

Upper Triassic-Nicola Group

uTrNc
Central Volcanic Facies
undivided volcanic rocks

uTrN
undivided volcanic rocks

Late Triassic to Early Jurassic

LTrJGB
GUICHON CREEK BATHOLITH

LTrJGBe – Bethlehem Phase
granodioritic intrusive rocks

LTrJGB – Bethsaida Phase
quartz monzonitic intrusive rocks

LTrJGH – Highland Valley Phase
granodioritic intrusive rocks

LTrJGG – Gump Lake Phase
granodioritic intrusive rocks

LTrJGBo – Border Phase
quartz dioritic intrusive rocks

Geology: Bertha 581002 Claim Group Area *(cont'd)*
Highland Valley Copper *(cont'd)*

These veinlets are moderately abundant within the 0.3 per cent copper isopleth. An area of well-developed barren quartz veinlets, generally 0.5 to 1.3 millimetres wide, without alteration envelopes, occurs in the southeastern part of the deposit.

In the west-central part of the deposit, potassium feldspar is associated with vein sericite in some replacement zones, as veinlet envelopes along fractures, and disseminated in quartz veinlets. Hydrothermal biotite occurs in small amounts. Flaky sericite and quartz, both as replacement zones and as envelopes around quartz veinlets, constitute the most common type of alteration associated with copper mineralization.

Strong phyllic alteration coincides with the 0.5 per cent copper isopleth. Phyllic alteration is closely associated with pervasive argillization, which is strongest where fractures are most closely-spaced. Feldspars are altered to sericite, kaolinite, quartz and calcite. The phyllic-argillic zone grades outward to a peripheral zone of weak to moderate propylitization, characterized by clay, sericite, epidote, clinozoisite and calcite replacing plagioclase, and chlorite and epidote replacing biotite. The age of hydrothermal alteration is approximately 191 Ma.

At the Valley deposit, gypsum is interpreted to be secondary and post-ore. It is commonly fibrous and white to orange but locally it forms large platy crystals or may be massive. Anhydrite, which is also present, provides indirect evidence for the secondary nature of the gypsum. It is apparently the same age as and associated with sericitic and potassic alteration. Quartz-gypsum veins and quartz-potash feldspar veins in which gypsum fills interstices provide more direct evidence for its secondary nature. Gypsum is believed to have formed at the expense of anhydrite which was deposited from the ore-forming fluids. Gypsum veins are common in the lower portion of the orebody (Open File 1991-15).

BERTHA - MOLLY past producer (Stockwork)
MINFILE 092ISE012
Seven kilometres east

The Dupont Lake area is underlain mainly by Upper Triassic Nicola Group intermediate volcanics and derivatives. Approximately 8 kilometres to the west, Nicola Group rocks are in contact with the Lower Jurassic Guichon Creek batholith. Quartz diorite outcrops southwest of Dupont Lake.

The Bertha-Molly showing is hosted by purplish amygdaloidal andesites with intercalated reddish tuffs. These rocks are strongly fractured and chloritized. The original shaft was sunk at a point where patches of cuprite occur in fractures. Small shipments were made.

HIGHMONT past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE013
Thirteen kilometres west-southwest

The Highmont mine is situated in the central core of the Early Jurassic-Late Triassic Guichon Creek batholith and is underlain primarily by Skeena variety quartz diorite. Skeena rocks are intruded by the composite Gnawed Mountain porphyry dyke which trends west-northwest and dips vertically in the central part of the property and 75 degrees north in the eastern part. This dyke consists of biotite-quartz-feldspar porphyry derived from Bethsaida phase leucocratic quartz porphyry and breccia.

***Geology: Bertha 581002 Claim Group Area** (cont'd)*

***Highmont** (cont'd)*

The two major ore zones roughly parallel the Gnawed Mountain dyke, which itself is partly mineralized. Near the southeast corner of the East pit there is a breccia consisting of granitoid fragments in a tourmaline-hematite matrix, which appears to be gradational into crackle breccia. Smaller plagioclase-quartz porphyry dykes and narrow aplite dykes are scattered throughout the property. Tertiary lamprophyre and andesite porphyry dykes also occur.

The property is cut by several north-northeast trending post-mineral faults. The Waterhole fault strikes 025 degrees, dips westward at 60 degrees and has clay and gouge sections up to 7.5 metres wide bounded by hematitic shattered zones. Apparent left-lateral offset of up to 30 metres is evident. The fracture pattern in the East pit is well-defined and involves four main attitudes: 140 to 150 degree strike and 80 degree northeast dips; 040 to 050 degree strike and 45 degree northwest dips; 075 degree strike and vertical dip; and 095 degree strike and vertical dip. Fractures are concentrated in parallel swarms up to 60 metres in width which coincide with higher grade mineralization.

The Highmont deposits exhibit the lowest overall intensity of alteration of any producing Highland Valley deposits. Potassic alteration is weak although minor potassium feldspar occurs as veins and alteration envelopes. Secondary biotite is widespread. Quartz-sulphide veinlets with sericitic envelopes comprise phyllic alteration which coincides with the 0.28 copper isopleth in the East pit. Argillic and propylitic alteration are entirely fracture-related. Alteration grades outward from a central vein, fracture or shear, through a zone of kaolinite and montmorillonite, into chlorite-epidote-sericite-albite alteration and then into unaltered rock. The widths of these zones vary from several centimetres to 50 metres. Late-stage calcite and zeolite veins are also present.

FIDDLER showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE072
Four kilometres south

The Fiddler showing is situated immediately east of the eastern border of the Lower Jurassic Guichon Creek batholith. To the east are rocks of the Upper Triassic Gump Lake quartz monzonite stock. The area to the west is underlain by leucocratic hornblende-biotite quartz diorite to granodiorite of the Highland Valley phase of the batholith. Pegmatitic granite lenses within this unit have quartz- epidote knots, some containing magnetite and chalcopyrite.

The main showing is underlain by fine to coarse-grained biotite granodiorite with gneissic foliations striking north and dipping steeply. About 125 metres to the southeast in the South zone, layers of foliated and gneissic or schistose granodiorite alternate. Pyritic aplite is present as stringers and lenses lying within the metamorphic foliation and as larger crosscutting bodies with biotite- rich and leucocratic layers.

QUEN showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE190
Seven kilometres southeast

The Quen occurrence is underlain by augite and plagioclase porphyritic andesitic flows and red volcanic conglomerate of the Upper Triassic Nicola Group. Chalcopyrite, bornite, pyrite, native copper, molybdenite, chalcocite, malachite and azurite occur in the andesitic flows.

GEOLOGY: BERTHA 581002 CLAIM GROUP

As indicated by the BC government supported MapPlace geological maps, the Claim Group is underlain by rocks of the Guichon Batholith in the west which are in a northerly trending regional fault contact with the Western Volcanic Facies of the upper Triassic Nicola Group (uTrNW).

In the west the Claim Group covers granodioritic rocks of the Gump Lake Phase (LTrJGG) at the Nicola contact which are in a phased contact with a northerly band of quartz dioritic rocks of the Border Phase (LTrJBo) and westward with the phased contact of granodioritic rocks of the Highland Valley Phase. A discontinuous sliver of Nicola volcanics occurs along the contact between the Gump Lake and the Border Phases.

Tenure 581002, the subject of the structural analysis, is underlain by all three Phases with a predominance of Gump Lake granodioritic rocks.

The geology of the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580837 Claim Group is reported as follows.

WENDY past producer *(*Volcanogenic)
MINFILE 092ISE154
Within Tenure 1011644

The Wendy showing is situated along the eastern edge of the Guichon Creek batholith where Lower Jurassic quartz diorites and granodiorites have intruded Upper Triassic Nicola Group intermediate volcanics and sediments. These rocks were subsequently intruded by Gump Lake phase granodiorite to quartz monzonite.

The eastern portion of the property is underlain by hornfels, hornfelsed schists and granitic gneisses which have a rough north trending foliation of variable dip. The metamorphosed rocks are intruded by leucocratic, fine to medium-grained granitic dykes which increase in abundance to the west until the hornfelsic units grade into granitic units. The southwestern part of the property is underlain by fine to medium-grained diorite or granodiorite and coarse grey granite.

MINERALIZATION: BERTHA 581002 CLAIM GROUP AREA

The mineralization on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 581002 Claim Group is reported as follows. The distance to the Minfile locations is relative to Tenure 581002 of the Bertha 581002 Claim Group.

BETHLEHEM past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW001
Fifteen kilometres west-northwest

The Jersey orebody hosts disseminated mineralization and occurs in an area of relatively evenly distributed and variously oriented pervasive fracturing. Irregular, discontinuous quartz veins also hosts mineralization. Production from the Jersey pit began in 1964 and from the Jersey pit extension in 1977

Reserves for the Jersey deposit are 22.9 million tonnes of 0.40 per cent copper. Total reserves for the Bethlehem deposits (Jersey, East Jersey and Iona) are 43.5 million tonnes (plus 6 million tonnes oxide) grading 0.40 per cent copper, minor molybdenum and 0.013 grams per tonne gold (CIM Special Volume 46, page 175).

Mineralization: Bertha 581002 Claim Group Area *(cont'd)*

BETHLEHEM COPPER-SPUD LAKE showing (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE008
Seventeen kilometres west

Mineralization is spotty and consists of disseminations and veinlets of chalcopyrite, bornite and pyrite. Specularite and magnetite are also present in small amounts.

HIGHLAND VALLEY COPPER producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW012
Twelve kilometres west

Sulphides occur chiefly as disseminations in quartz veinlets, and in phyllic (bornite) and potassic (chalcopyrite) alteration zones. Mineralization includes bornite and chalcopyrite, with minor digenite, covellite, pyrite, pyrrhotite, molybdenite, sphalerite and galena. The oxide zone averages 4.5 metres in thickness, and contains limonite, malachite, pyrolusite, digenite, native copper, and tenorite(?).

Highland Valley Copper operates two distinct mines, the Valley mine and the Lornex mine, and between the two has measured and indicated ore reserves of 761 million tonnes of 0.408 per cent copper and 0.0072 molybdenum.

The ore reserves of each mine are: Valley mine - 627 million tonnes at 0.418 per cent copper and 0.0056 per cent molybdenum; Lornex mine - 135 million tonnes at 0.364 per cent copper and 0.0144 per cent molybdenum.

BERTHA - MOLLY past producer (Stockwork)
MINFILE 092ISE012
Seven kilometres east

Recent development has exposed malachite, azurite, chalcopyrite, cuprite and pyrite hosted by shears and fracture-fillings in vesicular volcanics and red tuffs. Mineralization is structurally controlled with an apparent north trend. A common alteration is calcite and epidote with silicification becoming stronger at depth.

HIGHMONT past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE013
Thirteen kilometres west-southwest

The principal economic minerals are chalcopyrite, bornite and molybdenite occurring predominantly in four types of veins and fracture-fillings. In the East pit, quartz veins are generally 1 to 25 millimetres wide with a vuggy texture. Chalcopyrite and bornite occur in the centre of the veins with scattered flaky molybdenite. Alteration envelopes 2.5 to 5.0 centimetres wide are characterized by coarse white sericite flakes, tourmaline clusters, minor potassium feldspar and limonite. Chalcocite is present in small amounts. Pyrite and specular hematite are gangue minerals.

Unclassified reserves in Zone 1 are 87.6 million tonnes grading 0.26 per cent copper and 0.021 per cent molybdenum (Cominco Limited Annual Report 1988).

Mineralization: Bertha 581002 Claim Group Area *(cont'd)*

FIDDLER showing *(*Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE072
Four kilometres south

Mineralization is not obviously related to the sericitic and limonitic alteration of the aplite and the granodiorite. Chalcopyrite occurs as disseminations in relatively fresh quartzose or biotite- rich zones in the granodiorite, as disseminations in biotite aplite, and in veins or pockets with quartz, alone or with pyrite, potassium feldspar or epidote.

Some veins parallel foliation, others dip gently. A chip sample across a 75 centimetre veined, rusty mineralized zone assayed 0.35 per cent copper with traces of gold and silver (Geology, Exploration and Mining in British Columbia 1974). Some molybdenite was reported when the showing was first discovered (1915). Post-mineralization shears cut both the aplite and country rock. The most prominent fault zones are 2.7 metres wide, strike north and dip steeply subparallel to foliation. Lesser shears strike southeast and dip moderately to the southwest. Malachite or copper oxides are usually present.

QUEN showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE190
Seven kilometres southeast

Chalcopyrite, bornite, pyrite, native copper, molybdenite, chalcocite, malachite and azurite occur in the andesitic flows.

MINERALIZATION: BERTHA 581002 CLAIM GROUP

The mineralization on the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 581002 Claim Group is reported as follows

WENDY past producer *(*Volcanogenic)
MINFILE 092ISE154
Within Tenure 1011644

Minor chalcopyrite and malachite occur as narrow veins or along joint planes and as fine disseminations in the intrusive rocks.

STRUCTURAL ANALYSIS

The structural analysis was performed on a DEM image hillshade map of Tenure 581002 by viewing of the map and marking the lineaments as indicated structures thereon. A total of 56 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 on Tenure 581002 is at 5,592,113N 654,062E (10) (NAD 83).

Structural Analysis *(cont'd)*

Figure 5. **Indicated Lineaments on Tenure 581002**

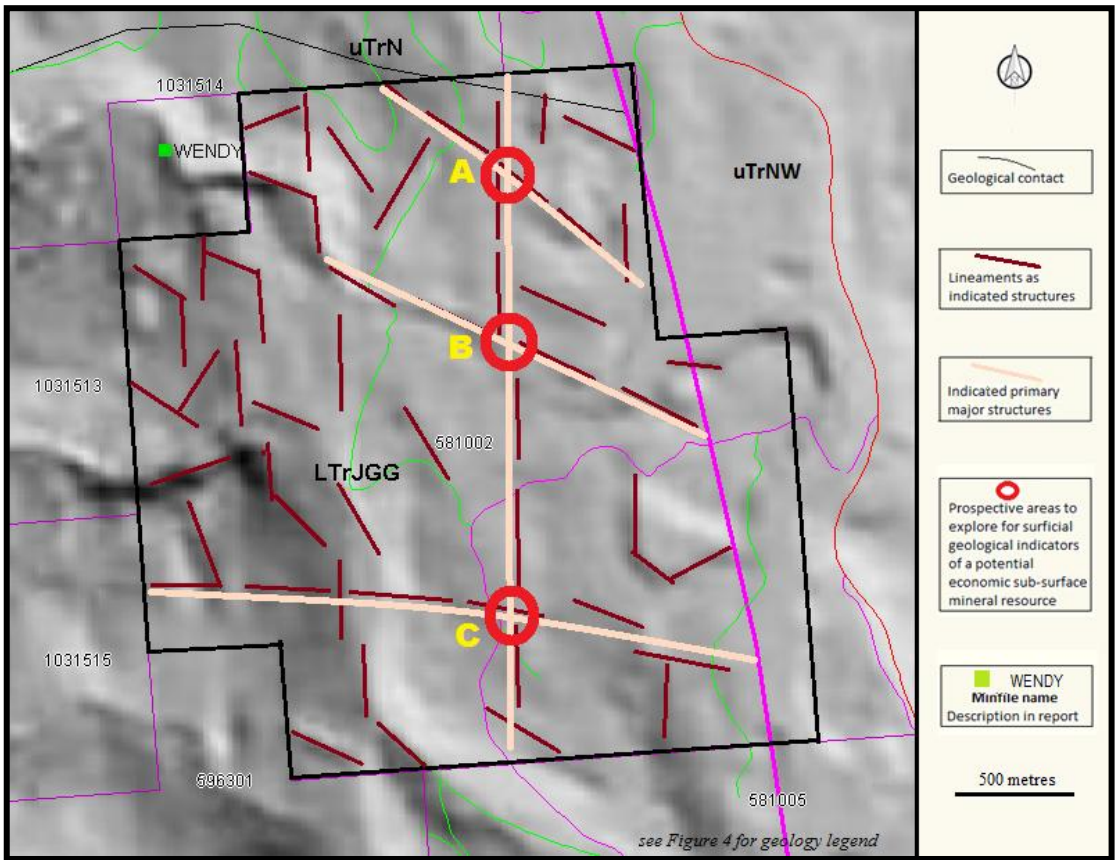
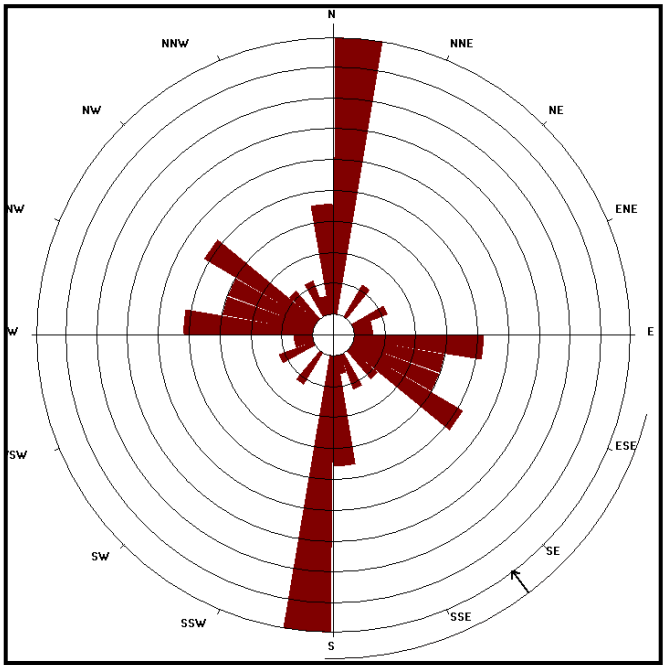


Figure 6. **Rose Diagram from lineaments** *(Figure 5)* **of Tenure 581002**



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

STATISTICS

Axial (non-polar) data
No. of Data = 56
Sector angle = 10°
Scale: tick interval = 3% [1.7 data]
Maximum = 26.8% [15 data]
Mean Resultant dir'n = 143-323
[Approx. 95% Confidence interval = ±38.6°]
(valid only for unimodal data)

Mean Resultant dir'n = 142.8 - 322.8
Circ.Median = 130.0 - 310.0
Circ.Mean Dev.about median = 37.3°
Circ. Variance = 0.31
Circular Std.Dev. = 49.70°
Circ. Dispersion = 5.67
Circ.Std Error = 0.3181
Circ.Skewness = -0.21
Circ.Kurtosis = -6.73

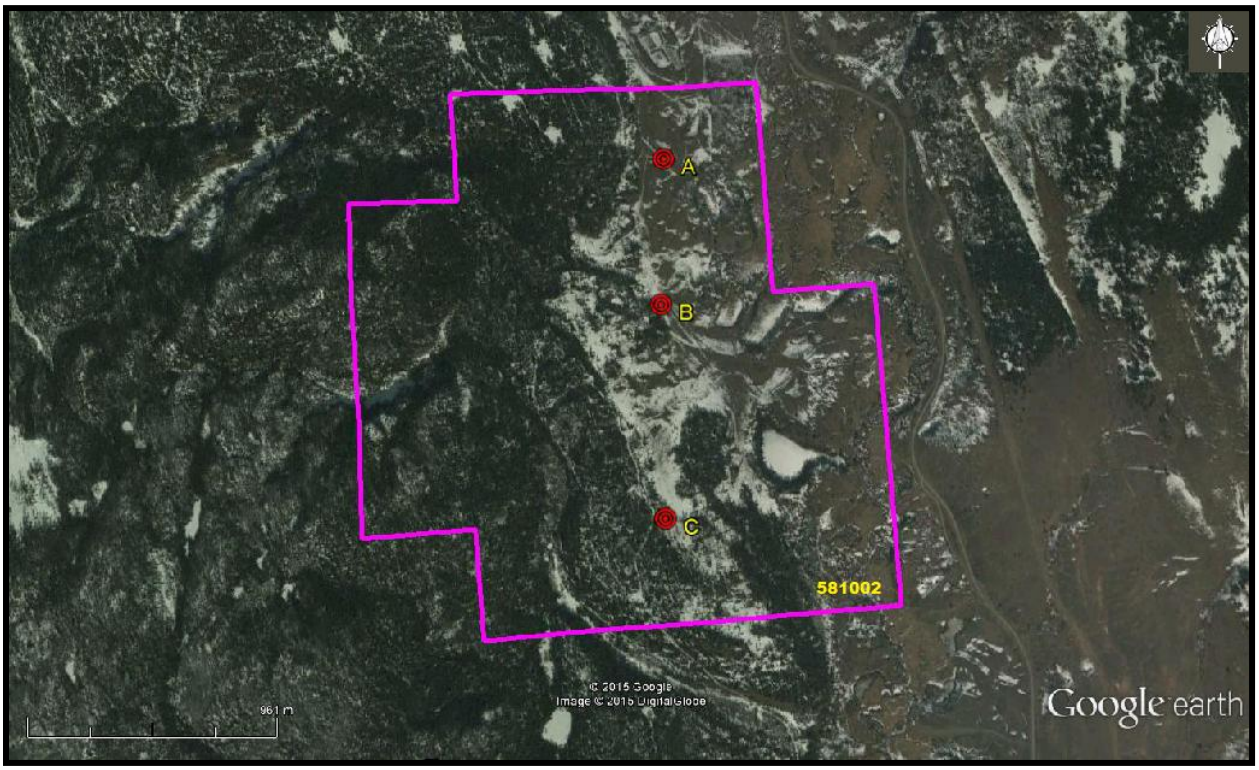
kappa = 0.46
(von Mises concentration param. estimate)

Resultant length = 12.44
Mean Resultant length = 0.2221

'Mean' Moments: Cbar = 0.0597; Sbar = -0.2139
'Full' trig. sums: SumCos = 3.3415; Sbar = -11.9778
Mean resultant of doubled angles = 0.4411
Mean direction of doubled angles = 018

(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 locations** *(Figure 5)* **on Google Earth**
(Base Map: Google Earth)



Structural Analysis *(cont'd)*

Table II. **Approximate UTM locations of Figure 5 *&* *7* cross-structures**
(UTM-10NAD 83)

Location	UTM East	UTM North	Elevation
A	654,272	5,592,905	1,025
B	654,233	5,592,265	1,027
C	654,211	5,591,345	1,037

Magnetometer Survey

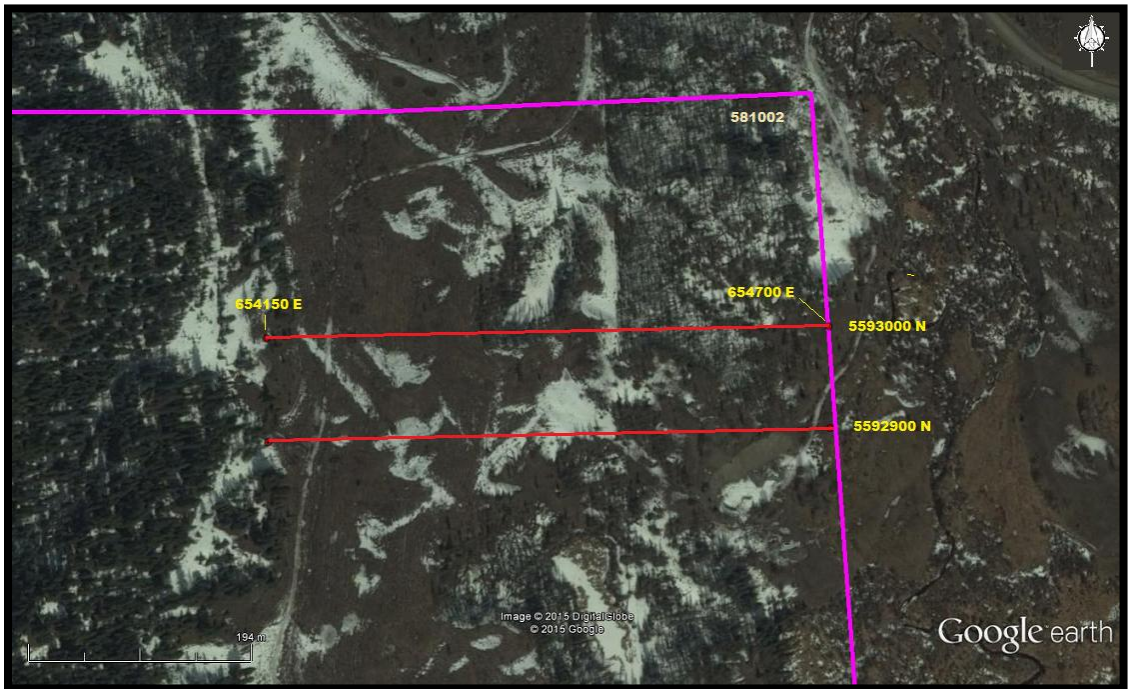
a) Instrumentation

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

b) Theory

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

Figure 8. **Magnetometer Grid Index Map**
(Base from MapPlace)



Magnetometer Survey *(cont'd)*

c) Survey Procedure

From a northerly base line station at 5592900N 654150E, one additional station was established at 5593000N 654150E. Magnetometer readings were taken at 25 metre intervals easterly along the two grid lines from 654150 to 654700E. The grid line stations were established with a GPS instrument. Line kilometres of magnetometer survey completed was 1.1. The field data is reported herein in Appendix I.

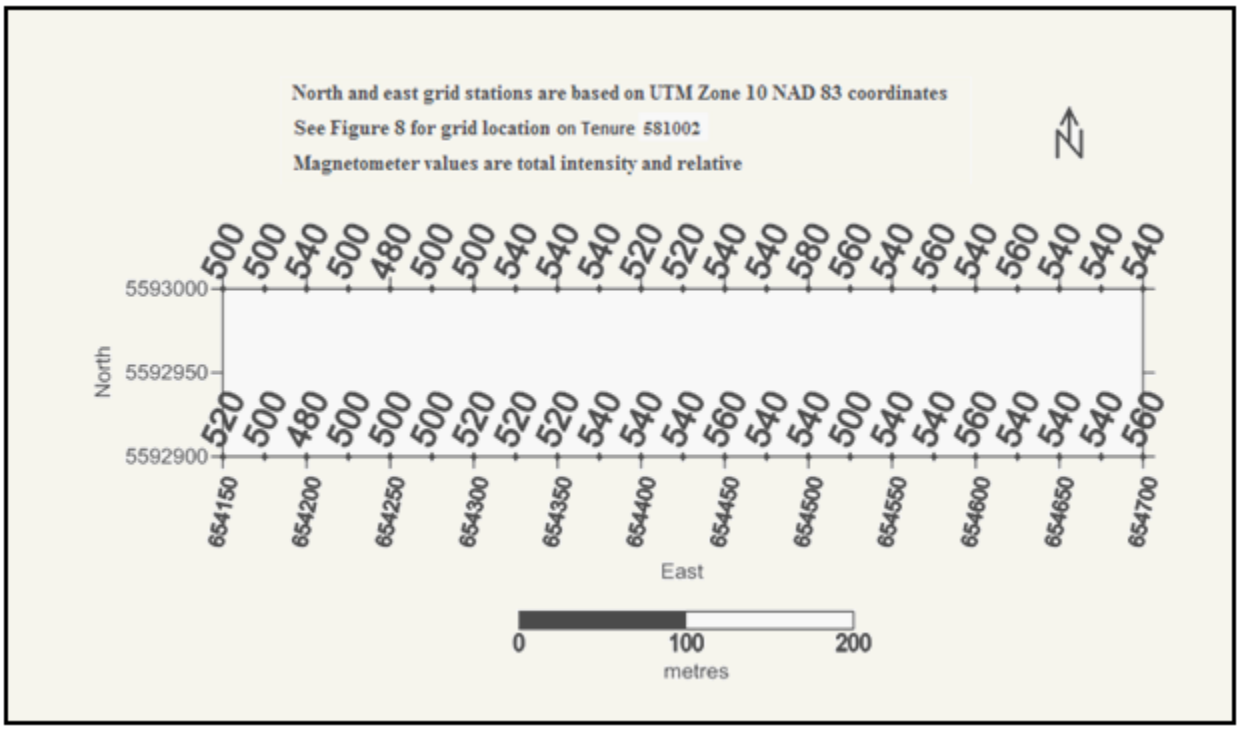
d) Data Reduction

The field results were initially input to an Exel spreadsheet whereupon a Surfer 31 program was utilized to create maps from the data results. The field results are included herein as Appendix I.

e) Results

The results indicated 250 metre wide mag LO in the west which is open to the northwest and centralized by an anomalous 50 metre wide mag LO. A 750 metre magnetometer high (HI) area in the east. Cross-structure A is located within the mag HI/mag LO transitional zone.

Figure 9 .**Magnetometer Survey Grid & Raw Data**
(Base from MapPlace)



Magnetometer Survey *(cont'd)*

Figure 10. **Magnetometer Survey Contour Map**

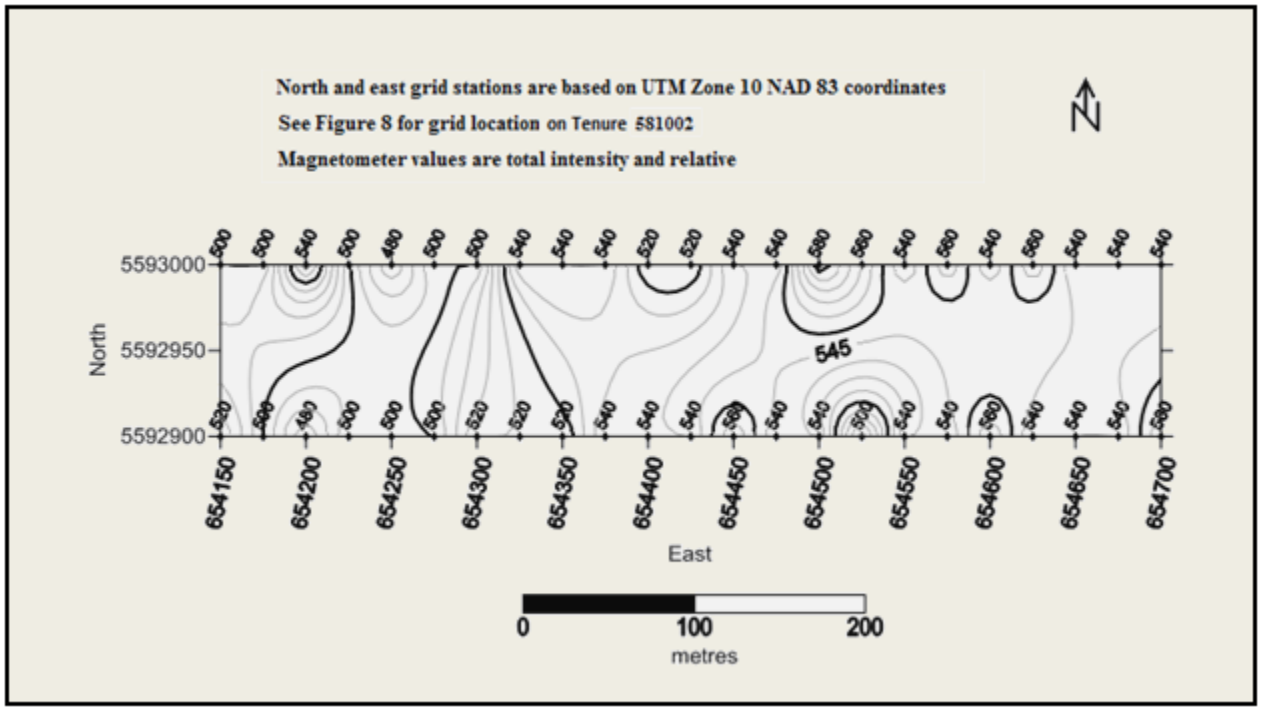


Figure 11. **Magnetometer Survey Coloured Contour Map**

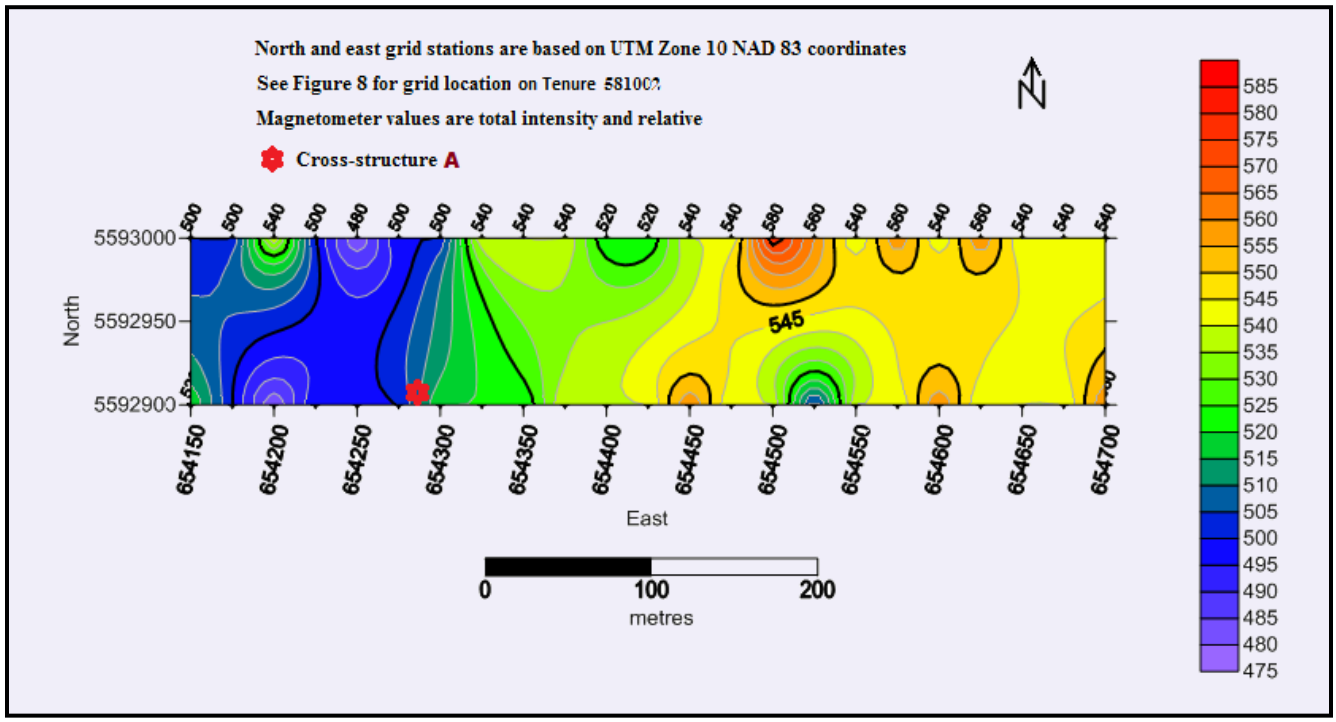
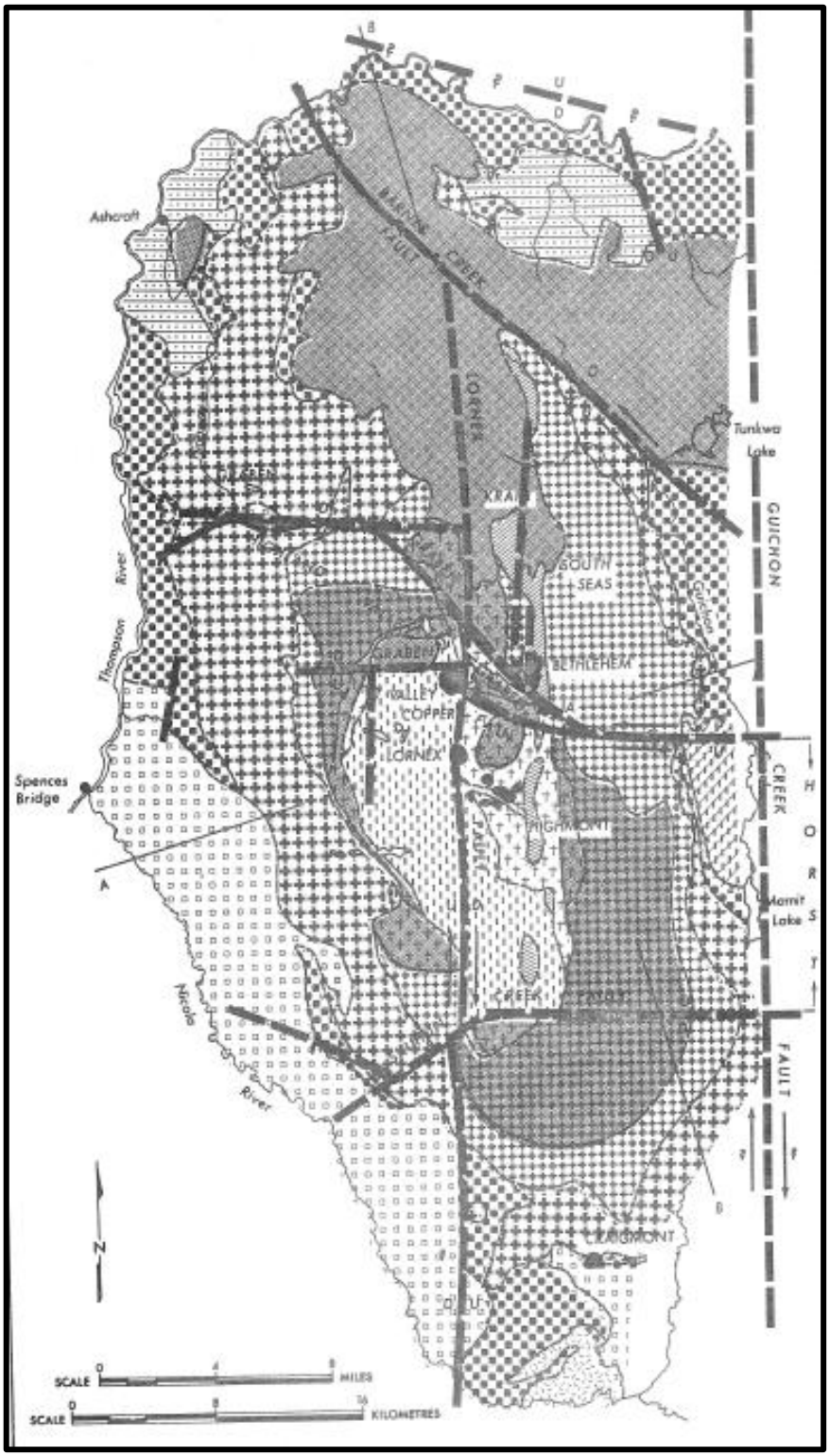


Figure 12. **Tectonic Fabric of the Guichon Batholith**

(Figure 6 - CIM Special Volume No. 15)



INTERPRETATION and CONCLUSIONS

The three cross-structures that were delineated from the structural analysis of Tenure 581002 of the six claim Bertha 581002 Claim Group are prime locations to explore for surficial geological indicators of a proximal potentially economic mineral resource. These locations would be the site of most intense brecciation/fracture formation to depth and peripherally and would be the most accommodating for the deposition of hydrothermal fluids; thus, a mineral controlling feature which, more often than not, structures are.

Excluding other geological factors (such as the most favourable Phase of the Guichon Batholith) structures are a distinguishing mineral control for mineralization in the Guichon Batholith as at the Bethlehem Copper-Spud Lake mineral showing (Minfile 092ISE008) where intrusive contacts, north trending faults, and closely spaced fractures control the mineralization, or at the Bethlehem past producer (Minfile 092ISW001) where mineralization is concentrated in breccia bodies, faults and highly fractured areas.

As for cross-structural mineralization controls, perhaps the most classic example is at the Highland Valley Copper (Minfile 092ISW012) and the Lornex mineral deposits where the intersection of the major northerly trending Lornex fault and west-northwesterly trending Highland Valley fault created a central intensive and expansive breccia zone which hosted a mineral deposit that was divided and offset by the north trending Lornex Fault.

On Tenure 581002 the three cross-structures are centred on a major north trending structure within the Gump Lake Phase of the Guichon Batholith. The structure is a probable en echelon structure developed from the regional Guichon Creek fault which for the most part is the fault contact between the Guichon Batholith and the Nicola volcanics which also skirts the eastern boundary of Tenure 581002.

The eastern limit of the magnetometer survey was at the Guichon Creek fault but did not provide any indication of the fault zone (Figure 11). However, the northerly trending Tenure 581002 structure may be the 250 metre wide mag LO which is open to the northwest and centralized by an anomalous 50 metre wide anomalous mag LO which may be the main structure with the adjacent mag LO the diminishing degree of fractures. The mag LO may reflect hydrothermal or dynamically produced alteration or a combination of both with associated mineralization.

The northwesterly trending structure of cross-structure A is also indicated by the mag LO profile to the northwest and to the southeast. The approximate or general location of cross-structure A within the transitional mag HI/mag LO position presents another encouraging feature to a potential mineral resource.

Accordingly, the three structural intersections on Tenure 581002 should be explored for surficial geological indicators of a proximal potentially economic mineral resource with the priority in the area of, and including the cross-structural A location. The approximate UTM locations of the intersections are shown in Table II.

Respectfully submitted
Sookochoff Consultants Inc.

Laurence Sookochoff, PEng

SELECTED REFERENCES

Garrow, T. – 2010 Diamond Drilling Assessment Report on the Dansey Project for Logan Copper Inc. May 31, 2011. AR 32,290

Garrow, T. – 2010 Diamond Drilling Assessment Report on the Dansey Project for Highland North Inc. January 20, 2012. AR 32,980.

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

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MapPlace – Map Data downloads

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

McMillan, W.J. – Geology and Genesis of the Highland Valley Ore Deposits and the Guichon Creek Batholith. British Columbia Ministry of Mines and Petroleum Resources, Victoria, B.C. Geological Association of Canada Society of Economic Geologists. Joint Annual Meeting, 1977 Vancouver, B.C. Field Trip No.3: Guidebook. Guichon Creek Batholith and Mineral Deposits. April 27-29, 1977

McMillan, W.J., Osatenko, M.J. – Guichon Creek Batholith and Mineral Deposits. Geological Association of Canada. Society of Economic Geologists. Joint Annual Meeting, 1977. British Columbia Ministry of Mines and Petroleum Resources.

MtOnline - MINFILE downloads.

092ISW001 – BETHLEHEM
092ISE008 – BETHLEHEM COPPER-SPUD LAKE
092ISW012 – HIGHLAND VALLEY COPPER
092ISE012 – BERTHA – MOLLY
092ISE013 – HIGHMONT
092ISE072 – FIDDLER
092ISE154 – WENDY
092ISE190 – QUEN

Sookochoff, L., Zhonghua, P. – Dansey Project Technical Report for Logan Copper Inc. January 16, 2010.

Sookochoff, L. – Geological Assessment Report on Tenure 585384 of the Bertha 585384 Claim Group for Guy and Christopher Delorme. November 20, 2013.

Sookochoff, L. – Assessment Report on Geological & Geophysical Surveys on Tenure 581012 for Guy & Christopher Delorme. December 2, 2015.

STATEMENT OF COSTS

Work on Tenure 581002 was done from April 20, 2015 to November 26, 2015 to the value as follows:

Structural Analysis	
Laurence Sookochoff, P Eng. 3 days @ $ 1,000.00/day -----	$ 3,000.00
Magnetometer Survey	
Christopher Delorme & Guy Delorme	
November 25-26, 2015	
Four man days @ $300.00 per day ----------	1,200.00
Truck rental, kilometre charge, fuel, room & board,	
mag rental ----------	1,260.90
	$ 5,460.90
Maps ----------	750.00
Report ----------	3,500.00
	$ 9,710.90
	======

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 in the Bertha Property area.

5) I have no interest in the Bertha 581002 Claim Group as described herein.

Laurence Sookochoff, P. Eng.

Appendix I

Magnetometer Data

E5552712 T581002

East	North	Mag	East	North	Mag
654700	5592900	560	654700	5593000	540
654675	5592900	540	654675	5593000	540
654650	5592900	540	654650	5593000	540
654625	5592900	540	654625	5593000	560
654600	5592900	560	654600	5593000	540
654575	5592900	540	654575	5593000	560
654550	5592900	540	654550	5593000	540
654525	5592900	500	654525	5593000	560
654500	5592900	540	654500	5593000	580
654475	5592900	540	654475	5593000	540
654450	5592900	560	654450	5593000	540
654425	5592900	540	654425	5593000	520
654400	5592900	540	654400	5593000	520
654375	5592900	540	654375	5593000	540
654350	5592900	520	654350	5593000	540
654325	5592900	520	654325	5593000	540
654300	5592900	520	654300	5593000	500
654275	5592900	500	654275	5593000	500
654250	5592900	500	654250	5593000	480
654225	5592900	500	654225	5593000	500
654200	5592900	480	654200	5593000	540
654175	5592900	500	654175	5593000	500
654150	5592900	520	654150	5593000	500