GUY & CHRISTOPHER DELORME

(Owners & Operators)

GEOLOGICAL ASSESSMENT REPORT

(Event 5487999)

on a

STRUCTURAL ANALYSIS

work done from

January 5, 2014 to January 8, 2014

on

Tenure 580838 & 580839

of the seven claim

Bertha 580839 Claim Group

Kamloops Mining Divisions

BCGS Maps 092I.046 & 092I.056

Centre of Work
5,539,624N, 651,464E (NAD 83)

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SUMMARY

The Bertha 580839 Claim Group is located in the Highland Valley of south central British Columbia within 10 kilometres east of the Highland Valley Copper mine, one of the largest copper mining and concentrating operations in the world. The Highland Valley low-grade copper/molybdenum deposit lies within the Late Jurassic Guichon Creek batholith in Bethsaida phase porphyritic quartz monzonite and granodiorite. 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.

Highland Valley Copper operates two distinct mines, the Highland Valley Copper mine and the Lornex mine, which 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

The seven claim Bertha 580839 Claim Group covering 3,491 hectares is located 209 kilometres northeast of Vancouver, 47 kilometres north of Merritt, and within 11 kilometres of the producing Highland Valley Copper mine.

The structural analysis of Tenures 580838 & 580839 resulted in the delineation of dominant northerly and northwesterly trending structures which lead to the intersection of three cross-structures. The northerly structures parallel the structural Nicola volcanic/Guichon batholith contact and the major Lornex fault which is a controlling structure to the Highland Valley and the Valley Copper mineral deposits. The significance of the northwesterly structures is indicated in the west trending Highland Valley Fault, and the paralleling faults to the northwest trending Barnes Creek Fault (Figure 8).

As shown at the Highland Valley and the Lornex mineral deposits, the cross-structures presented a very favorable structural control setting to the porphyry mineral deposits in the creation of brecciated locations and open spaces or voids that would accommodate mineralized hydrothermal fluids. The recurring fault movement, additional brecciation, and subsequent filling of the open spaces would result in a porphyritic mineral deposit, the size primarily dependent on the degree and amount of breccia created and of course the content and amount of hydrothermal fluid introduced.

And as the central portion of the cross-structure would be the most preferred location for the introduction and migration of hydrothermal fluids to surface, this location would be the most prospective location for search for surficial geological indicators that may be revealed as minerals and/or alteration products that would be subject to interpretation as to indicators of a potential economic sub-surface mineral resource.

Thus, the three structural intersections on Tenures 580838 & 580839 would be the prime areas of exploration. The approximate UTM locations of the three structural intersections are shown in Table II.

INTRODUCTION

In January 2014 a structural analysis was completed on Tenures 580838 & 580839 of the seven claim Bertha 580839 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 Tenures 580838 & 580839 or other claims of the Bertha property.

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

Figure 1. **Location Map**
(from MapPlace)

PROPERTY LOCATION AND DESCRIPTION

Location

The Bertha 580839 Claim Group is located within BCGS Map 092I.046 & 092I.047 of the Kamloops Mining Division, 209 direct kilometres northeast of Vancouver, 47 direct kilometres north of Merritt, 42 kilometres west-southwest of Kamloops, and within eleven kilometres of the world-class producing Highland Valley Copper (*Minfile 092ISW012)* mine.

The centre of the work area on Tenure 580839 is at 5,596,146N, 652,845E (10) (NAD 83).

Property Location and Description *(cont'd)*

Figure 2. **Claim Location**
(Base Map from Google Earth)

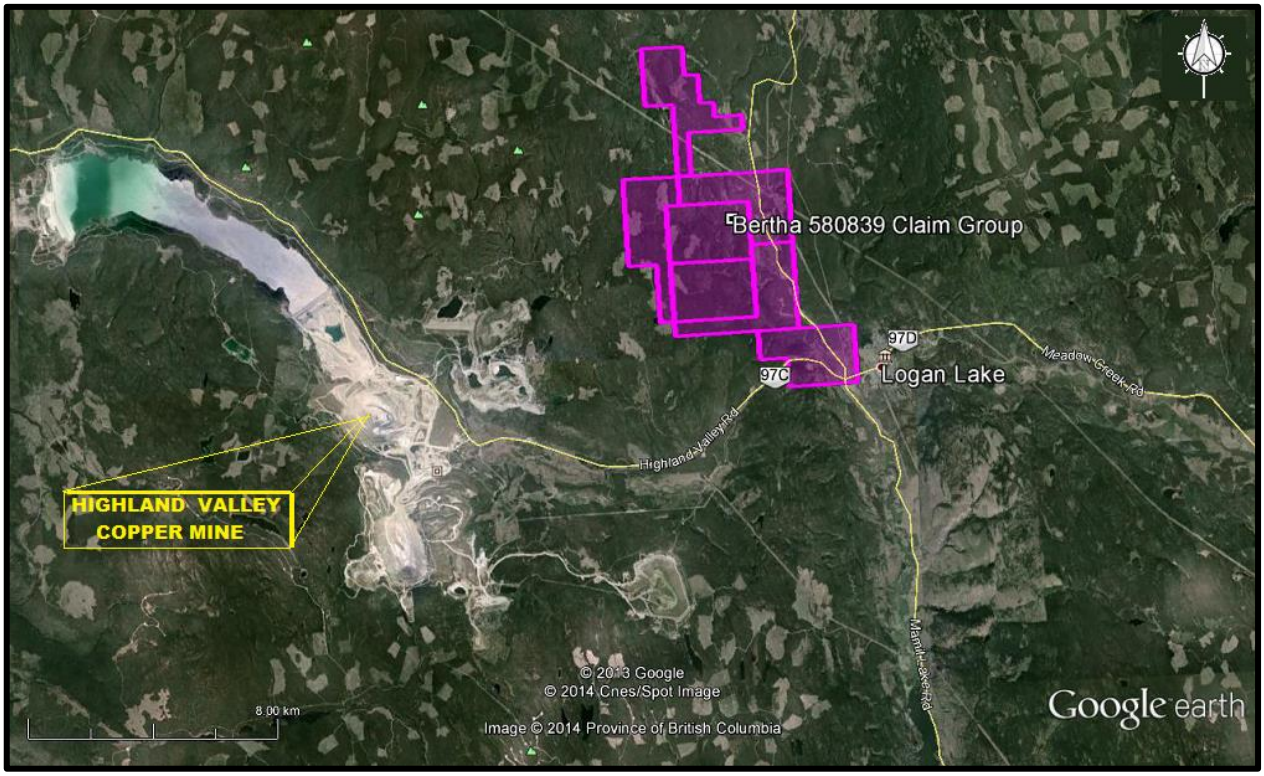
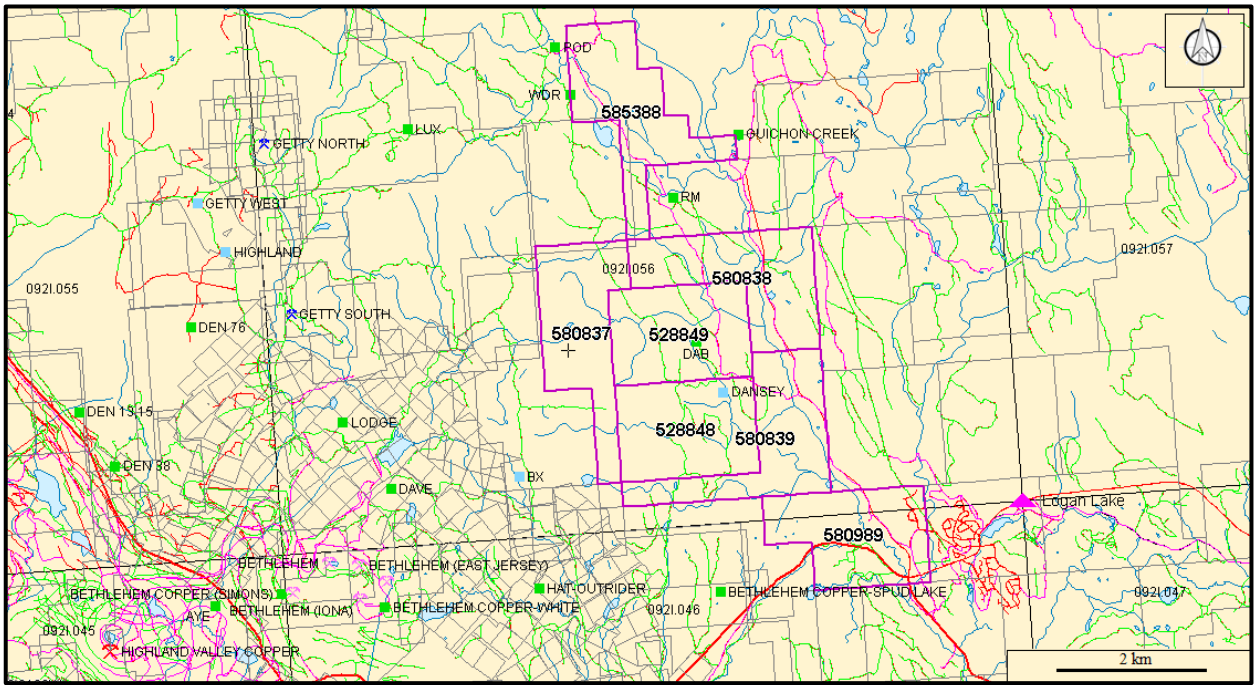


Figure 3. **Claim Map**
(from MapPlace)



Property Location and Description *(cont'd)*

Description

The Property is comprised of seven contiguous claims covering an area of 3491.9933 hectares. Particulars are as follows:

Table I. **Tenures of Bertha 580839 Claim Group**

Tenure Number	Type	Claim Name	Good Until*	Area (ha)
528848	Mineral	DANSEY	20140915	493.128
528849	Mineral	DAB	20140915	492.954
580837	Mineral		20140915	492.9393
580838	Mineral		20140915	513.4005
580839	Mineral		20140915	493.1568
580989	Mineral	LOGAN	20140915	493.339
585388	Mineral		20140915	513.0757

*Upon the approval of the Event Number 5487999assessment work filing,

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Access

From Logan Lake, the Bertha 580839 Claim Group can be accessed by traveling west on Highway 97D for one kilometre to the eastern boundary of Tenure 580839, the southeastern claim of the Bertha 580839 claim group.

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

The Property is located within the Thompson Plateau of Southern British Columbia. Topography is generally low to moderate, with elevations ranging from 1,032m in a river valley along the southeast border to 1,410m in the west central portion.

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 500 KV power line traverses the northern portion of the Bertha 580839 Claim Group.

HISTORY: BERTHA 580839 CLAIM GROUP AREA

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580839 Claim Group is reported as follows. The distance to the Minfile locations is relative to the Bertha 580839 Claim Group.

BETHLEHEM IONA Past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE006
Four kilometres west-southwest

The Iona pit was mined from 1976 to 1979.

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

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).

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.

History: Bertha 580839 Claim Group Area (cont'd)

Highland Valley Copper *producer (cont'd)*

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.

MER developed prospect *(*Intrusion-related Au pyrrhotite veins; (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INW028
Sixteen kilometres west

The property is located within the Late Triassic-Early Jurassic Guichon Creek batholith. The Mer showing occurs immediately to the north of a prominent northwesterly slough.

The Mer showing was apparently discovered by Henry Krause prior to 1965. In 1965, the Cleveland Mining & Smelting Co. Ltd. held 102 claims in the Mer, Jac, Raf and Tam groups. Work during the year included trenching, road building and percussion drilling sixteen holes totalling 609 metres. In 1966, work by Cleveland Mining & Smelting Co. Ltd. included an induced polarization survey, soil sampling, percussion drilling of eight holes totalling 762 metres, 457 metres of trenching and 13 kilometres of road building. Utah Construction & Mining Co. held an option on the various claim groups in 1967.

Work comprised seven bulldozer trenches totalling 274 metres, induced polarization and electromagnetic surveys, and geological mapping of the Tam claims. Two AX diamond-drill holes totalling 305 metres were drilled on induced polarization conductors at locations 800 metres apart near an east-flowing creek on either the Raf or Tam claims about 1600 metres west of Indian Reserve 12; it is not known what work was done on the Mer group. In 1968, work by Cleveland Mining & Smelting Co. Ltd. comprised nine bulldozer trenches totalling 484 metres, a chain and compass survey, an induced polarization survey and mapping of surface workings. Consolidated Gem Explorations Ltd. held an option on the property in 1969 and carried out an induced polarization survey and three diamond-drill holes totalling 457 metres.

Twenty Raf and Tam claims were sold to Lornex for tailings disposal on October 31, 1969. Further work by Cleveland Mining & Smelting Co. Ltd. in 1970 included diamond drilling in four holes totalling 278 metres, an induced polarization survey and 30 metres of trenching. By an agreement of October 1971 Cleveland Mining optioned the Mer 1-40 and other claim groups to Kalco Valley Mines Ltd. In 1971, Kalco conducted percussion drilling of four holes totalling 122 metres. During 1972 the company spent $13,000 on exploration work before terminating the option agreement. The company name (Cleveland Mining) was changed in March 1972 to Consolidated Cleveland Resources Ltd.

GETTY SOUTH developed prospect (Porphyry Cu +/- Mo +/- Au)
MINFILE 09INW043
Five kilometres west

The showings were staked prior to 1903 as the Albatross group and were developed by trenches and two short adits. The claims were restaked in 1915 as the Canopus group but no exploration work was reported.

History: Bertha 580839 Claim Group Area *(cont'd)*

Getty South *developed prospect (cont'd)*

Trojan Exploration acquired the property in 1955 and became Trojan Consolidated Mines Ltd. in 1956. Work from 1955 to 1958 included geophysical surveys, a shaft to 49 metres with 268.5 metres of crosscutting and surface diamond drilling of 8934 metres in 44 holes. The property was under option to Newmont Mining Corporation in 1959 and 3 holes totalling 458 metres were completed. By August 1959, Rio Tinto Canadian Exploration Limited optioned the property and conducted an IP survey and diamond drilled one hole for 103.6 metres. Trojan resumed operation in 1960 and from 1961 to 1962, diamond drilling was done underground in 14 holes totalling 598.3 metres and on surface 6 holes were completed totalling 580 metres. South Seas Mining Limited purchased 57 claims from Trojan in 1962 and excavated 408.4 metres of crosscuts and drifts in 1963. The Mitsui Mining and Smelting Company, Limited optioned the property in 1964 and 4033.8 metres of diamond drilling was done in 23 holes. South Seas extended the underground workings during 1966-67 by 787.9 metres. Phelps Dodge Corporation optioned the property in 1968 and carried out 358.7 metres of underground development, 1242.9 metres of surface diamond drilling, 291.4 metres of underground diamond drilling and an IP survey. The option was dropped later in 1968. Pechiney Development Limited optioned the property and from 1969 to 1970 drilled 2945.4 metres in 18 diamond-drill holes and 588.2 metres in 8 percussion-drill holes. Leemac Mines Ltd. optioned a 70 per cent interest from South Seas in 1972 and drilled 50 percussion-drill holes totalling 1708.3 metres. The option expired in 1974. The property changed hands several more times in the 1970s and 1980s with the only work reported being a 1982 magnetometer survey conducted by TRV Minerals Corporation covering this zone and the Krain (Getty North) deposit (092INE038).

Getty Copper Corporation aquired the claims at some point prior to 1995 and resumed exploration on the Getty South in 1996. In 1996, Getty drilled 13 diamond-drill holes totalling 3236 metres. During 1997, the company conducted a 1500 metre bedrock trenching program which was reported to have encountered extensive oxidized mineralization of excellent grade, along with smaller exposures of fresh, high grade, copper sulphide mineralization.

More than 15,000 metres of diamond drilling and 1775 metres of underground development by previous operators has determined an initial deposit of 36 million tonnes of open-pittable oxide and sulphide mineralization grading 0.47 per cent copper. Included in this deposit is 719,500 tonnes grading 1.41 per cent copper in three zones previously defined within the underground workings. The reserves were estimated by Gower, Thompson and Associates in 1992, and later confirmed by independent consultants Watts, Griffis and McOuat in 1996 (Northern Miner - March 10, 1997 (insert) and Getty Copper Corp. website, http://www.gettycopper.com/projects.html).

Please refer also to the Getty North deposit (092INE038), located 3 kilometres north, for further details and related bibliographic references.

POD showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE117
300 metres west

In 1971-1973 surface geological mapping, line cutting, induced polarization (7.8 kilometres survey), and ground magnetometer (26.7 kilometres) survey was conducted by Dusty Mac Mines Ltd.

HISTORY: BERTHA 580839 CLAIM GROUP

The history of the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580839 Claim Group is reported as follows

DANSEY prospect (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE034
Within Tenure 528848

Deerhorn Mines Ltd. held the Witches Brook group of 24 claims in the vicinity of the JB showing in 1956. Noranda Exploration Company Limited held the PG group of 99 claims along and mainly west of Guichon Creek to the north of Witches Brook in 1962. This property was partly a relocation of the claims held by Deerhorn Mines Ltd. Geological, geochemical and geophysical surveys were carried out during 1963. The CL group, apparently staked by C.W. Dansey in 1964, was located partially on ground formerly part of the PG group. North Pacific Mines Limited carried out a program of trenching, soil sampling, magnetometer and geological surveying on the property during 1964. In 1965, North Pacific Mines Ltd. carried out an induced polarization survey which outlined an anomaly about 914 metres long over a width of 244 metres. Other work consisted of trenching, road building and 8 diamond-drill holes totalling 1280 metres.

In 1968, an airborne magnetometer survey (202 kilometres) was flown on behalf of North Pacific Mines Ltd. and Comet-Krain Mines Ltd. In 1969, Noranda Exploration Company Limited conducted a soil geochemical survey and induced polarization surveys over the Mike, Bill, Tom and JB claims. In 1974, North Pacific Mines Ltd. conducted percussion drilling in 5 holes totalling 384 metres on the Tom claims.

DAB showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE040
Within Tenure 528849

In 1967, an aeromagnetic survey was conducted over some of the Dab claims on behalf of Alwin Mining Company Limited and in 1968-69 a soil geochemical survey (969 samples) was run over 28 kilometres of grid.

WDR showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE135
Within Tenure 585338

In 1963, work by Valley Copper Mines included geological mapping, road building and bulldozer trenching at a number of localities scattered at intervals throughout a distance of nearly 6 kilometres in a north-northwesterly direction

GEOLOGY: REGIONAL

The Bertha 580839 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.

Geology: Regional *(cont'd)*

This belt is enclosed by older rocks and intruded by batholiths and smaller intrusive rocks. 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 Bertha 580839 Claim Group is situated on the eastern contact of the Guichon Creek Batholith and the Nicola volcanics within 11 kilometres of the Highland Valley Copper Mine.

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 580839 CLAIM GROUP AREA

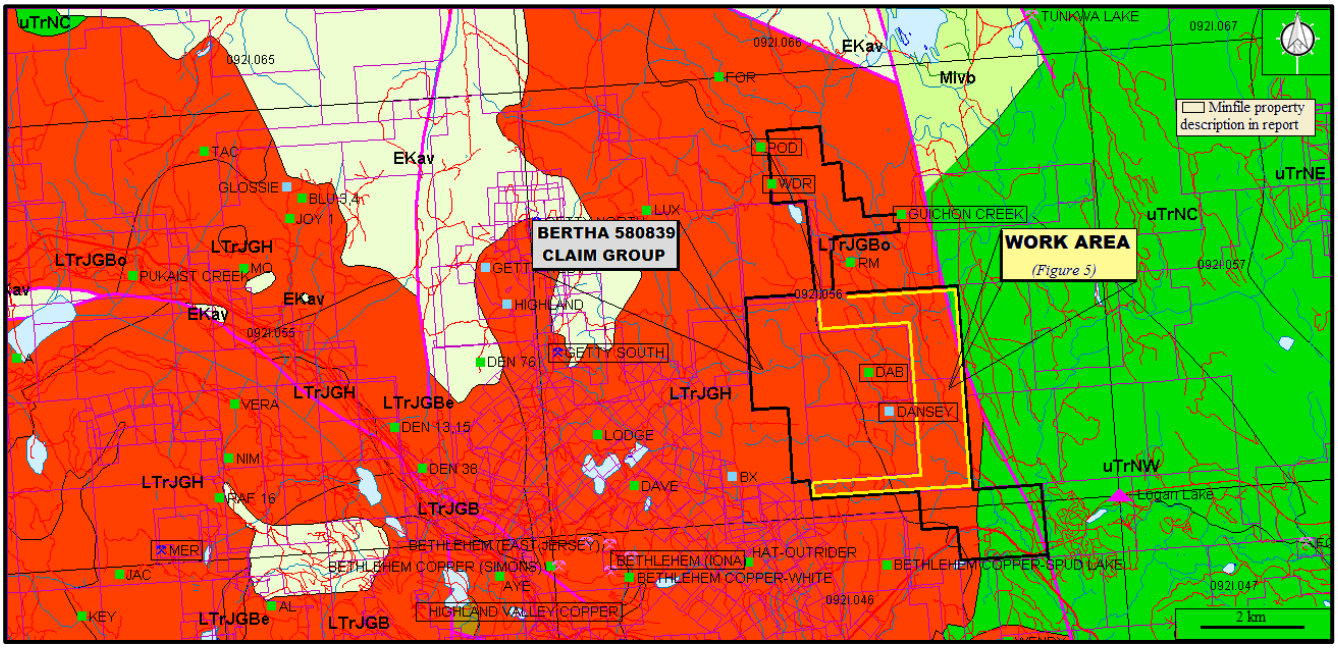
The geology of some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580839 Claim Group is reported as follows. The distance to the Minfile locations is relative to the Bertha 580839 Claim Group.

BETHLEHEM IONA past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE006
Four kilometres west-southwest

The Bethlehem (Iona) property lies within the Early Jurassic- Late Triassic Guichon Creek batholith and straddles an intrusive contact where younger Bethlehem phase quartz diorite and granodiorite forms an irregular embayment in older Guichon variety granodiorite. Igneous breccias are believed to have been forcefully emplaced. The granodiorites and breccias are intruded by north trending, steeply dipping dacite porphyry and porphyritic quartz latite dykes up to 60 metres in width.

***Geology: Bertha 580839 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 580839 Claim Group Area *(cont'd)*

Bethlehem Iona *past producer (cont'd)*

The ore deposits are controlled by intrusive contacts, faulting and fracturing. The Iona deposit is cut by several northwest to northeast trending faults and is highly fractured.

The deposit is mostly confined to a north trending pear-shaped breccia zone. The breccia pipe contains vugs, mushrooms near the surface, narrows with depth, and contains fragments of most major rock types found on the property. The mineralization consists mainly of bornite and chalcopyrite in varying ratios, along with minor amounts of molybdenite and chalcocite. The deposit contains an extensive oxide zone which reaches a depth of 60 metres. Malachite is the most common oxidation product. Hydrothermal alteration, similar to the other Bethlehem deposits, consists of sericite, kaolinite, quartz and epidote. An age date from a sample of a mixture of magmatic and hydrothermal biotite returned 199 Ma +/- 8 Ma (Canadian Institute of Mining and Metallurgy Special Volume 15).

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

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.

Silicic, potassic, phyllic, argillic and propylitic alteration are intimately associated. Stockworks of quartz veinlets 1 to 2 centimetres in width are common. Vuggy veinlets have envelopes of medium-grained sericite and/or potassic feldspar, and contain minor amounts of sericite, plagioclase, potassium feldspar, calcite, hematite, bornite, chalcopyrite, molybdenite, digenite and covellite. 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.

Geology: Bertha 580839 Claim Group Area *(cont'd)*

Highland Valley Copper *producer (cont'd)*

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).

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(?).

MER developed prospect *(*Porphyry Cu +/- Mo +/- Au)

MINFILE 092INW028

Sixteen kilometres west

Stripping exposed Guichon variety quartz diorite that is cut by a west-northwesterly narrow porphyritic quartz diorite dike of the Bethlehem phase. Both rock types exhibit argillic bleaching, partial chloritization of hornblende crystals, some sericitization, and the local introduction of irregular quartz veins that are up to 7 centimetres wide.

GETTY SOUTH developed prospect (Porphyry Cu +/- Mo +/- Au)

MINFILE 09INW043

Five kilometres west

The Getty South deposit lies on the southern boundary of an extensive area of post-mineral cover consisting of continental volcanic and interbedded sedimentary rocks of the Eocene Kamloops Group which overlie plutonic rocks of the Late Triassic-Early Jurassic Guichon Creek batholith.

The deposit occurs within a broad northwest trending zone which is host to a number of mineralized porphyry systems including the Getty North deposit (092INE038), 3 kilometres to the north, and the Bethlehem mine (092ISE001, approximately 5 kilometres south). Typically, mineralization occurs within quartz diorites of the Highland Valley phase (Guichon variety) of the Guichon Creek batholith, and within younger anastomosing dikes and small stocks. The dikes and stocks resemble quartz diorites of the Bethlehem phase of the batholith. The Kamloops Group rocks cover the northern half of the mineralized zone, and have protected an older oxidized cap as much as 100 metres thick.

Geology: Bertha 580839 Claim Group Area *(cont'd)*

POD showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE117
300 metres west

The Pod showing area straddles the transitional contact zone between quartz diorite of the Hybrid phase to the east from granodiorite of the Guichon variety to the west. Intrusive rocks belong to the Late Triassic-Middle Jurassic Guichon Creek batholith.

GEOLOGY: BERTHA 580839 CLAIM GROUP

As indicated by the BC government supported MapPlace geological maps, the Claim Group is predominantly underlain by the Early Jurassic Pennask batholith (LTrJgd) with coverage of a portion of volcanics of the Penticton Group capping a portion of the Kamloops Groups in the south. The southwestern limit of the Jurassic Okanagan Batholith, host to the Elk mineral zones, is within eight kilometres southeast.

The geology of the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580839 Claim Group is reported as follows

DANSEY prospect (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE034
Within Tenure 528848

The Dansey property is located at the eastern edge of the Late Triassic-Middle Jurassic Guichon Creek batholith and overlies the contact between Hybrid phase and Guichon variety rocks. Three main rock types are evident and comprise diorite, quartz diorite and granodiorite. Fracturing and shearing are abundant in the diorite and quartz diorite but markedly less in the granodiorite.

DAB showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE040
Within Tenure 528849

The Dab property lies close to the northwest trending contact between Upper Triassic Nicola Group volcanics to the east from intrusive rocks of the Late Triassic-Middle Jurassic Guichon Creek batholith to the west. In this area Guichon rocks appear to be quartz diorite of the Hybrid phase.

WDR showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE135
Within Tenure 585338

The WDR property covers the northwesterly contact between Upper Triassic Nicola Group volcanics in the east from the Late Triassic-Middle Jurassic Guichon Creek batholith in the west. The contact is gradational showing a change from unaltered Nicola volcanics on the east through baked, hornfelsic Nicola into medium-grained diorite which becomes progressively lighter coloured and coarser grained to the west. The width of the transitional hybrid zone varies from 304 to 1219 metres.

MINERALIZATION: BERTHA 580839 CLAIM GROUP AREA

The mineralization on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580839 Claim Group is reported as follows. The distance to the Minfile locations is relative to the Bertha 580839 Claim Group.

BETHLEHEM IONA Past producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISE006
Four kilometres west-southwest

The mineralization consists mainly of bornite and chalcopyrite in varying ratios, along with minor amounts of molybdenite and chalcocite.

Oxide reserves for Iona are 6,000,000 tonnes of 0.40 per cent copper (CIM Special Volume 46, page 175).

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

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. The individual mine reserves are calculated at an equivalent cutoff grade of 0.25 per cent copper using a molybdenum multiplying factor of 3.5 (CIM Bulletin July/August 1992, pages 73,74).

MER developed prospect *(*Porphyry Cu +/- Mo +/- Au)
MINFILE 092INW028
Sixteen kilometres west

Mineralization consists of bornite and chalcopyrite that is locally disseminated in chloritized patches and is partly concentrated near quartz veins and fractures. The showing is apparently limited on the southeast by a northeasterly fault which dips west at about 60 degrees.

About 30 metres north of the main showing, malachite occurs weakly on north-dipping joints that contain quartz and epidote veins.

Percussion drilling in 1965 indicated a copper-bearing zone trending northeasterly and measuring 122 metres long by 73 metres wide and 24 metres deep, containing 580,544 tonnes averaging 0.327 per cent copper (Chisholm, E.O. (1971): Report on the CM, KAM, MER, JAC, RAF and Cleve Fr's. claim groups - in Kalco Valley Mines Ltd., Statement of Material Facts, May 5, 1972).

GETTY SOUTH developed prospect (Porphyry Cu +/- Mo +/- Au)
MINFILE 09INW043
Five kilometres west

This mineralized zone is characterized by numerous subparallel northwest trending porphyry dikes, as well as by prominent fracture-related, but non-pervasive, chlorite-epidote-chalcopyrite +/- pyrite +/- bornite hydrothermal vein and fracture selvage assemblages. Smaller zones of pervasive chlorite-clay alteration, some containing strong chalcopyrite mineralization, occur frequently at the margins of porphyry dikes.

Mineralization: Bertha 580839 Claim Group Area *(cont'd)*

Getty South *developed prospect (cont'd)*

The Getty South deposit, previously known as the Trojan or South Seas deposit, occurs within a breccia zone just east of a major, north striking regional fault. The breccia-hosted deposit is elliptical in shape and measures 575 by 550 metres. The deposit is hosted in Guichon variety quartz diorite, intruded by dacite and quartz diorite porphyritic dikes, and is cut by widespread faulting. The breccia consists of fragments of quartz diorite and feldspar porphyry set in a matrix of finely broken rock, specular hematite, tourmaline, brown biotite, quartz and calcite. Chalcopyrite occurs as stringers and coarse blebs in the breccia matrix. Bornite, native copper, malachite, chrysocolla, azurite and tenorite have also been reported.

POD showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE117
300 metres west

A small prospect pit in quartz diorite exposes two parallel quartz veinlets, 2.5 to 5 centimetres wide, mineralized with chalcopyrite, tetrahedrite and chrysocolla. Weak disseminated pyrite is present locally.

MINERALIZATION: BERTHA 580839 CLAIM GROUP

The mineralization on the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580839 Claim Group is reported as follows

DANSEY prospect (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE034
Within Tenure 528848

Mineralization on the Dansey property is associated with diorite and quartz diorite. Most of the mineralization occurs along fractures but the majority of it is associated with a second group of fractures that strike from 040 to 080 degrees. The main minerals include chalcopyrite and pyrite, with minor amounts of molybdenite, specularite, chalcocite and bornite. Malachite, azurite and chrysocolla occur as secondary minerals. Areas of moderate copper-molybdenum mineralization (>0.1 per cent copper) occur near the contact between diorite and quartz diorite with weak zones of copper-molybdenum mineralization scattered throughout the diorite.

Trenching has exposed disseminations and blebs of chalcopyrite, pyrite, bornite, hematite, magnetite and molybdenite mineralization in and adjacent to several northeast faults and shear zones in quartz diorite. The faults and shears mostly dip northwest at moderate to high angles. The shears are characterized by intensely chloritized and sericitized quartz diorite and vary from 1.5 to 9 metres wide. Near the shears are random fractured zones with pyrite and minor chalcopyrite on fracture planes.

DAB showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE040
Within Tenure 528849

Very low grade copper mineralization (inferred to be disseminated chalcopyrite) occurs in mafic intrusive rocks (Nicola?). The mineralization was found by drilling but is not reported in assessment reports (W.J. McMillan, 1970).

Mineralization: Bertha 580839 Claim Group *(cont'd)*

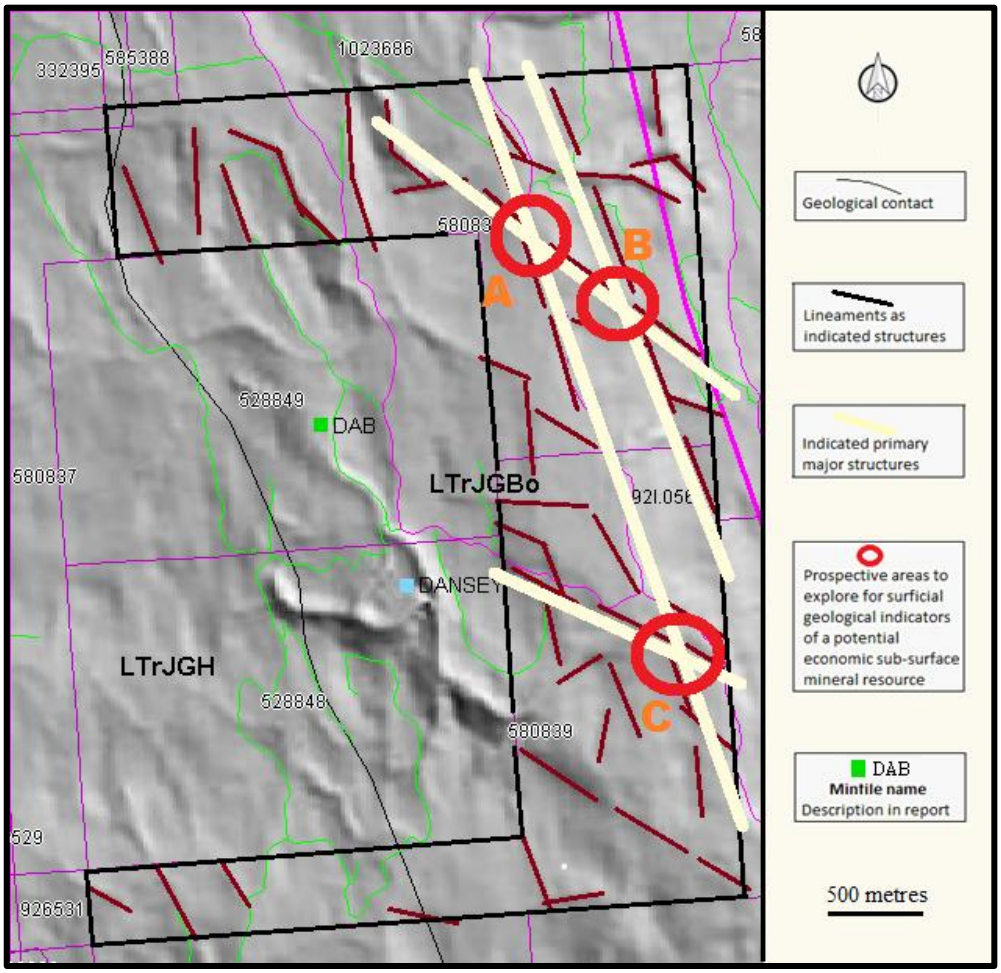
WDR showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE135
Within Tenure 585338

A trench exposes a steep mineralized fault which strikes 050 degrees and is parallel to joints in the adjacent quartz diorite of the Hybrid phase of the Guichon Creek batholith. Chalcopyrite and lesser amounts of bornite are present as fracture fillings and are partly oxidized to malachite, which is accompanied by limonite, possibly representing former specularite. The rock near the fault is bleached, probably by kaolinization of plagioclase, and contains pink orthoclase veinlets and others of calcite

STRUCTURAL ANALYSIS

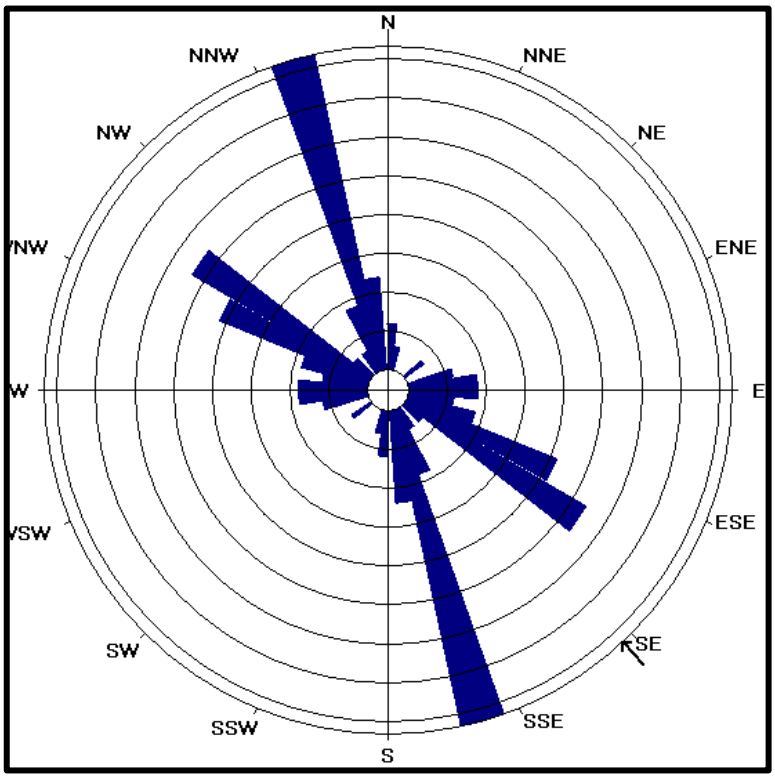
The structural analysis was performed on a MapPlace DEM image hillshade map of Tenures 580838 & 580839 by viewing of the map and marking the lineaments as indicated structures thereon. A total of 56 lineaments were marked (*Figure 5*), compiled into a 10 degree class interval, and plotted as a rose diagram as indicated on *Figure 6.*
The centre of the work area is 5,539,624N, 651,464E (NAD 83)

Figure 5. **Indicated Lineaments as Structures on Tenures 580838 & 580839**



Structural Analysis *(cont'd)*

Figure 6. **Rose Diagram from lineaments *(Figure 5)* of Tenure 580839**



STATISTICS

Axial (non-polar) data
No. of Data = 56
Sector angle = 8°
Scale: tick interval = 3% [1.7 data]
Maximum = 25% [14 data]
Mean Resultant dir'n = 137-317
[Approx. 95% Confidence interval = ±21.4°]
(valid only for unimodal data)

Mean Resultant dir'n = 137.1 - 317.1
Circ.Median = 126.0 - 306.0
Circ.Mean Dev.about median = 28.9°
Circ. Variance = 0.18
Circular Std.Dev. = 35.74°
Circ. Dispersion = 1.94
Circ.Std Error = 0.1859
Circ.Skewness = 0.47
Circ.Kurtosis = -20.46

kappa = 1.03
(von Mises concentration param. estimate)

Resultant length = 25.71
Mean Resultant length = 0.4592

'Mean' Moments: Cbar = 0.033; Sbar = -0.458
'Full' trig. sums: SumCos = 1.8478; Sbar = -25.6475
Mean resultant of doubled angles = 0.184
Mean direction of doubled angles = 179

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

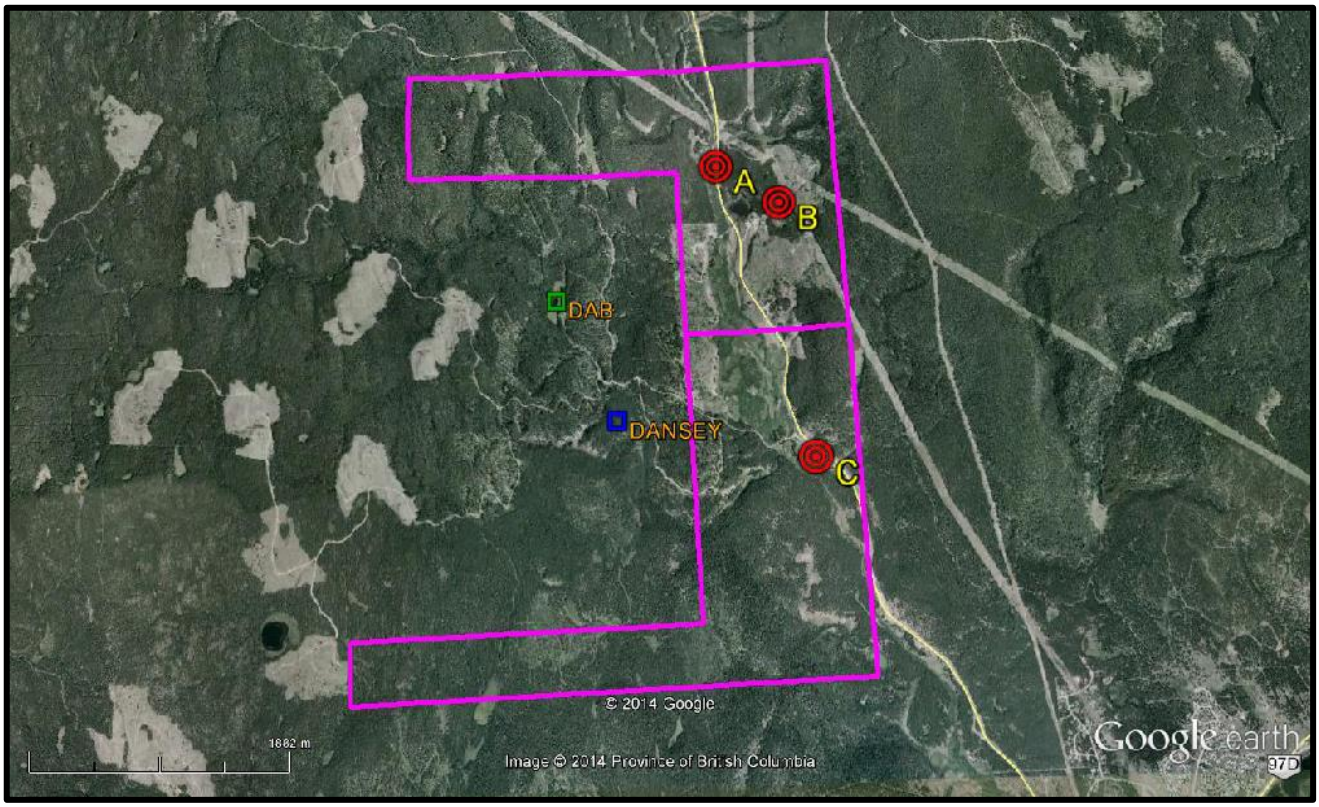


Table II. **Approximate UTM locations of Figure 5 cross-structures**
(UTM-NAD 83)

Location	UTM East	UTM North	Elevation
Cross-Structures			
A	651,259	5,601,026	1,078
B	651,774	5,600,689	1,092
C	651,977	5,599,549	1,061
Minfiles			
DAB	649,911	5,599,883	1,158
DANSEY	650,303	5,598,877	1,128

INTERPRETATION and CONCLUSIONS

The structural analysis on the Skyline Claim Group resulted in the delineation of three cross structural locations between two primary northerly and two northwesterly trending structures.

The structural analysis of Tenures 580838 & 580839 resulted in the delineation of dominant northerly and northwesterly trending structures which lead to the intersection of three cross-structures. The northerly structures parallel the structural Nicola volcanic/Guichon batholith contact and the major Lornex fault which is a controlling structure to the Highland Valley and the Valley Copper mineral deposits. The significance of the northwesterly structures is indicated in the west trending Highland Valley Fault, and the paralleling faults to the northwest trending Barnes Creek Fault (Figure 8).

As shown at the Highland Valley and the Lornex mineral deposits, the cross-structures presented a very favorable structural control setting to the porphyry mineral deposits in the creation of brecciated locations and open spaces or voids that would accommodate mineralized hydrothermal fluids. The recurring fault movement, additional brecciation, and subsequent filling of the open spaces would result in a porphyritic mineral deposit, the size primarily dependent on the degree and amount of breccia created and of course the content and amount of hydrothermal fluid introduced.

And as the central portion of the cross-structure would be the most preferred location for the introduction and migration of hydrothermal fluids to surface, this location would be the most prospective location for search for surficial geological indicators that may be revealed as minerals and/or alteration products that would be subject to interpretation as to indicators of a potential economic sub-surface mineral resource.

Thus, the three structural intersections on Tenures 580838 & 580839 would be the prime areas of exploration. The approximate UTM locations of the three structural intersections are shown in Table II.

For mineral deposit types that may occur within the Bertha 580839 Claim Group reference is made in the report to the eight Minfile properties. These Minfile descriptions, copied from the BC Government Minfile records, are shown on Figure 4 and are included herein as potential types of mineralization that should be sought following the exploration of the three prime exploration areas within Tenures 580838 & 580839.

Respectfully submitted
Sookochoff Consultants Inc.

Laurence Sookochoff, PEng

SELECTED REFERENCES

Aho, A.E. - Report on Geologic, Magnetometer, and Geochemical Surveys on the Raha Mineral Claims for Torwest Resources Ltd. October 22, 1958. AR 241.

Baird, J.G. - Report on Induced Polarization Survey on some Ezra Claims for New Indian Mines Ltd. July 28, 1969 AR 1,976.

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

Hemsworth, F.J. - Report on the Geochemical Survey of the Ezra Claims for New Indian Mines Ltd. December, 1964. AR 606.

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

Kierans, M.D. -1972: Mineral Exploration Report on the Hill Group, Wart Mountain Area for Nitracell Canada Ltd. ***AR 4,230.***

MapPlace – Map Data downloads

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

MtOnline - MINFILE downloads.

092ISE006– BETHLEHEM IONA
092ISW012 – HIGHLAND VALLEY COPPER
092INW028 – MER
092INE034– DANSEY
092INE040 – DAB
092INW043 – GETTY SOUTH
092INE117 – POD
092INE135 – WDR.

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

STATEMENT OF COSTS

Work on Tenures 580838 & 580839 was done from January 5, 2014 to January 8, 2014 to the value as follows:

Structural Analysis	
Laurence Sookochoff, P Eng. 3 days @ $ 1,000.00/day -----	$ 3,000.00
Maps ----------	600.00
Report ----------	4,000.00
	$ 7,600.00
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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 forty-eight 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 580839 Claim Group as described herein.

Laurence Sookochoff, P. Eng.