GUY & CHRISTOPHER DELORME

(Owners & Operators)

GEOLOGICAL ASSESSMENT REPORT

(Event 5457322)

on a

STRUCTURAL ANALYSIS

work done from

April 14, 2013 to April 18, 2013

on

Tenure 580989

of the seven claim

Bertha 580989 Claim Group

Kamloops Mining Divisions

BCGS Maps 092I.046 & 092I.056

Centre of Work
5,596,146N, 652,845E

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SUMMARY

The Bertha 580989 Claim Group is located in the Highland Valley of south central British Columbia within 11 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 580989 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 five cross-structural intersections depicted on the structural analysis map show five areas of potential increased fractured zones and/or localized breccia zones where any hydrothermal activity at depth may utilize the sites as a plumbing system to transport the potentially mineralized fluids to surface and possibly deposit minerals in the process. A mineralized porphyritic style of mineralization could result, as was the case at the Bethlehem East mineral deposition. This deposit was also partially controlled by faults as was the Highland Valley and the Lornex amongst others.

The five areas could disclose a mineral zone surficially by pathfinder minerals and/or alteration products which would be subject to interpretation to a potentially economic mineral resource.

Excluding other variable geological conditions, the structures are essential in the localization of potentially economic porphyry and/or quartz vein hosted mineralization within the Guichon Creek intrusive or the volcanics of the Nicola Group.

INTRODUCTION

In April 2013 a structural analysis was completed on Tenure 580989 of the seven claim Bertha 580989 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 580989 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 DESCRIPTION AND LOCATION

Property 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 580989 Claim Group**

Tenure Number	Type	Claim Name	Good Unti*l	Area (ha)
528848	Mineral	DANSEY	20140201	493.128
528849	Mineral	DAB	20140201	492.954
580837	Mineral		20140201	492.9393
580838	Mineral		20140201	513.4005
580839	Mineral		20140201	493.1568
580989	Mineral	LOGAN	20140201	493.339
585388	Mineral		20140201	513.0757

*Upon the approval of the assessment work filing, Event Number 5457322.

Property Description and Location *(cont'd)*

Location

The Bertha 580989 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 580989 is at 5,596,146N, 652,845E (10) (NAD 83).

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Access

From Logan Lake, the Bertha 580989 claim group can be accessed by traveling west on Highway 97D to the eastern boundary of Tenure 580989, the southeastern claim of the Bertha 580989 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 mild to moderate, with elevations ranging between 1,030m 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 high voltage power line traverses the northern portion of the Bertha 580989 Claim Group.

HISTORY: BERTHA 580989 CLAIM GROUP AREA

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580989 Claim Group is reported as follows. The distance to the Minfile locations is relative to the Bertha 580989 Claim Group.

BETHLEHEM (EAST JERSEY) past producer (Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE002
Eight kilometres west

The East Jersey pit was mined from 1962 until 1965, when the pit wall failed. See Bethlehem mine (092ISE001) for production statistics.

History: Bertha 580989 Claim Group Area (cont'd)

HIGHLAND VALLEY COPPER producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW012
Eleven 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).

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.

History: Bertha 580989 Claim Group Area (cont'd)

DEN 38 showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INW014
Ten kilometres west

In 1966, geological, geochemical and geophysical surveys were conducted by Adera Mining Ltd. In 1968, an induced polarization survey was carried out on behalf of Adera Mining Ltd. In 1972-73, geological mapping, geochemical, magnetic and induced polarization surveys, 1402 metres of drill access roads and percussion drilling of nine holes totalling 841 metres were conducted on behalf of Grandora Explorations Ltd. (formerly Adera Mining Ltd.).

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

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

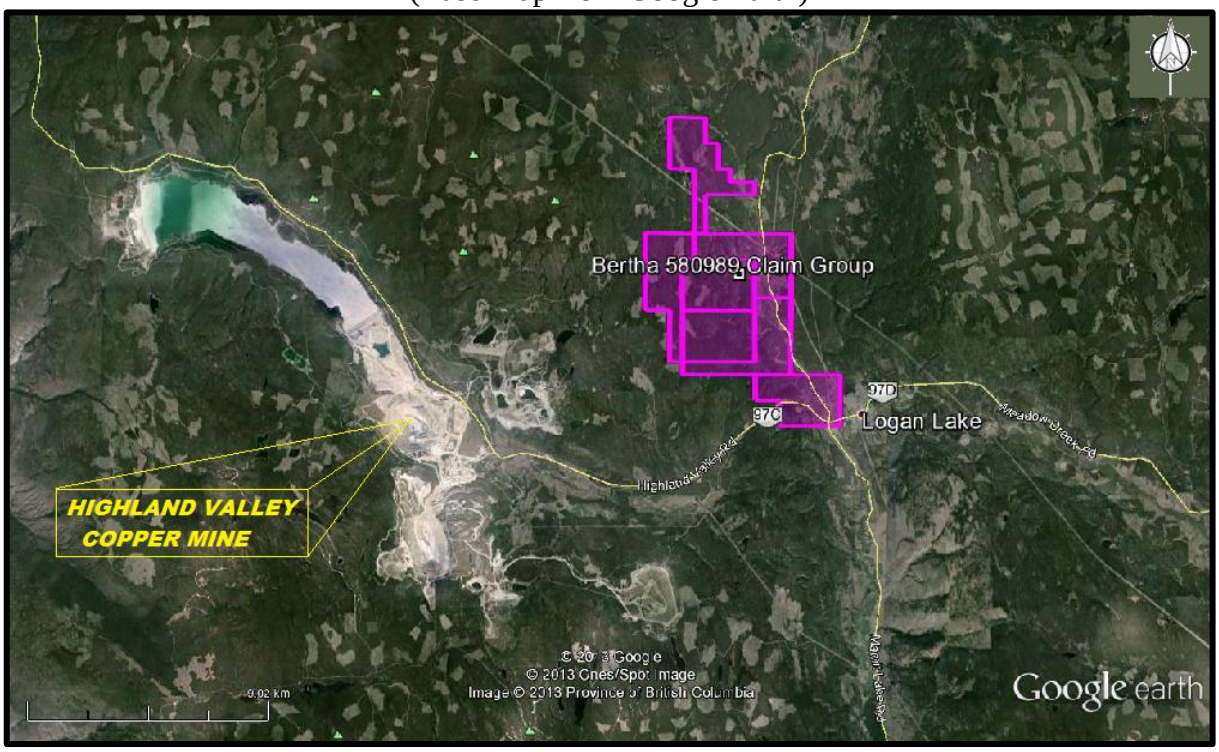
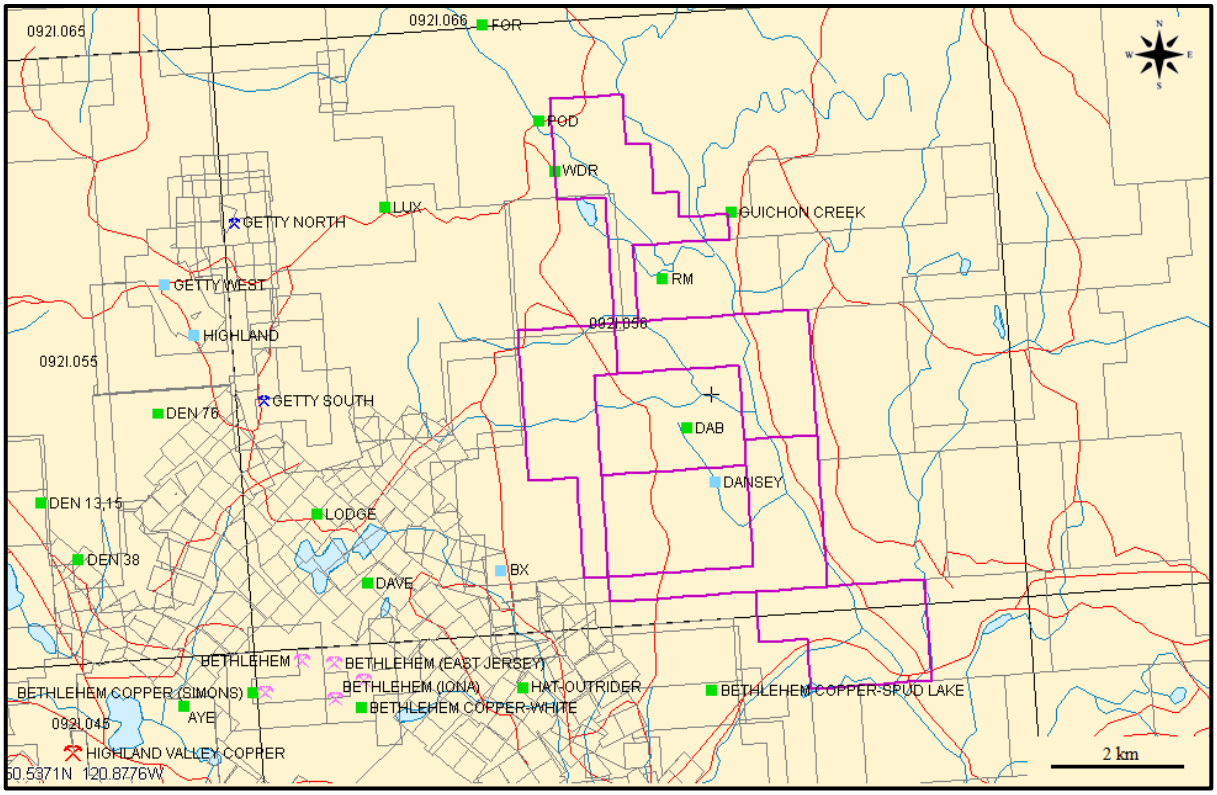


Figure 3. **Claim Map**
(from Google Earth)



History: Bertha 580989 Claim Group Area *(cont'd)*

GETTY WEST prospect (Porphyry Cu +/- Mo +/- Au, I06: Cu+/-Ag quartz veins)
MINFILE 09INW040
Eight kilometres west

The Transvaal property was originally staked in 1899 and owned by J. Hosking, W. Knight and G. Novak. The claims were explored in 1901 and 1902, and extensive work was done in 1906 and 1907 when the property was under bond to the Consolidated Mining and Smelting Company of Canada, Limited. Further work was done by G. Novak in 1929-31. The workings consist of two shafts and an adit. Minister of Mines Annual Reports indicate that the main shaft was sunk for 61 metres. On the 30-metre level a drift was run to the west for 49 metres, and another drift run to the east for 55 metres. A 12-metre crosscut was run from the east drift. On the 60-metre level a drift was run to the east for 23 metres. About 274 metres northeast of the shaft a sinuous adit was run in for 106 metres. Lateral work in two main branch workings in the adit totalled about 86 metres. Numerous cuts and surface trenches are located between the adit and shaft and for 91 metres northward.

In 1955, Jackson Basin Mining Co. Ltd. (name changed to Jackson Mines Limited) rehabilitated the Transvaal shaft and conducted some cleanup in the 30 and 60-metre levels; a diamond drilling programme was also started. In 1956, Trojan Consolidated Mines Ltd. (merged as one company from the voluntary liquidation of Trojan Exploration Limited, Jackson Mines Limited and Tri-Side Mining Corporation Limited) cleaned out the 30 and 60-metre levels of the Transvaal shaft and erected a new headframe; underground work was discontinued after some sampling and diamond drilling had been done. In 1962, Highland Valley Mining Corporation Ltd. mapped and sampled the surface showings and the adit, and diamond drilled nine surface holes totalling 436 metres. In 1968, Taseko Mines Limited, on behalf of K.D. Houghton, conducted surface diamond drilling of five holes totalling 457 metres, eight trenches totalling 914 metres, blasting of four pits and an induced polarization survey. More recently, Cominco Ltd. conducted an induced polarization survey over the showings in 1989.

In 1995-96, Getty Copper Corp. conducted a large scale exploration program on the Getty property which consists of Getty North, 092INE038 (historically known as the Krain deposit), Getty South, 092INE043 (historically known as the Trojan/South Seas deposit) and Getty West (historically known as the Transvaal). As part of this program a soil and stream sediment survey covered the Transvaal showings, eight holes were diamond drilled totalling 2330 metres and an induced polarization and ground magnetic survey was conducted.

LODGE showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE041
Five kilometres west

In 1956, a soil geochemical and ground magnetometer (42 kilometres) survey was performed on some of the Lodge claims on behalf of Northlodge Copper Mines Limited. In 1957, the Lodge group of claims was optioned by American Smelting and Refining Company Ltd. which drilled 10 rotary-drill holes totalling 438 metres and constructed 2.4 kilometres of road. Three short rotary test holes were drilled in 1958 by American Smelting and work by Northlodge consisted of geochemical and geophysical prospecting.

History: Bertha 580989 Claim Group Area *(cont'd)*

Lodge *anomaly (cont'd)*

In 1960, 11 kilometres of induced polarization was run on the Lodge and KB claims groups on behalf of Northlodge Copper Mines Ltd. and Beaver Lodge Mines Ltd. In 1960, the Lodge group of claims was optioned for a time by Rio Tinto Canadian Exploration Limited which did geophysical and geochemical surveying and drilled one hole 172 metres in length. In 1963, an induced polarization survey (13 kilometres), geological mapping and bulldozer trenching was carried out over the Lodge, SD and Dave claims on behalf of Huestis Mining Corporation Limited. In 1973, Valley Copper Mines Limited conducted 29 kilometres of induced polarization survey on the Outrider, Lodge, SD, KB and Bay claims. In 1974, on behalf of Valley Copper Mines Limited, Bethlehem Copper Corporation put down two percussion-drill holes totalling 213 metres on the SD 5 and Lodge 13 claims and Cominco Ltd. completed 3.6 kilometres of induced polarization survey on the SD 5, 6 and Lodge 13, 14 claims.

RM showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE111
500 metres east

In 1968, Alwin Mining Company Ltd. completed line cutting and conducted a soil sampling survey (189 samples) and in 1972 completed a ground magnetometer survey.

POD showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE117
200 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 580989 CLAIM GROUP

The history of the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580989 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.

History: Bertha 580989 Claim Group Area *(cont'd)*

Dansey *prospect (cont'd)*

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 580989 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. 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 580989 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.

Geology: Regional *(cont'd)*

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 580989 CLAIM GROUP AREA

The geology of some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580989 Claim Group is reported as follows. The distance to the Minfile locations is relative to the Bertha 580989 Claim Group.

BETHLEHEM (EAST JERSEY) past producer (Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE002
Eight kilometres west

The property lies within the Early Jurassic-Late Triassic Guichon Creek batholith and straddles an intrusive contact where younger Bethlehem phase quartz diorite to 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 swarms of dacite porphyry dykes which dip steeply and are up to 60 metres wide.

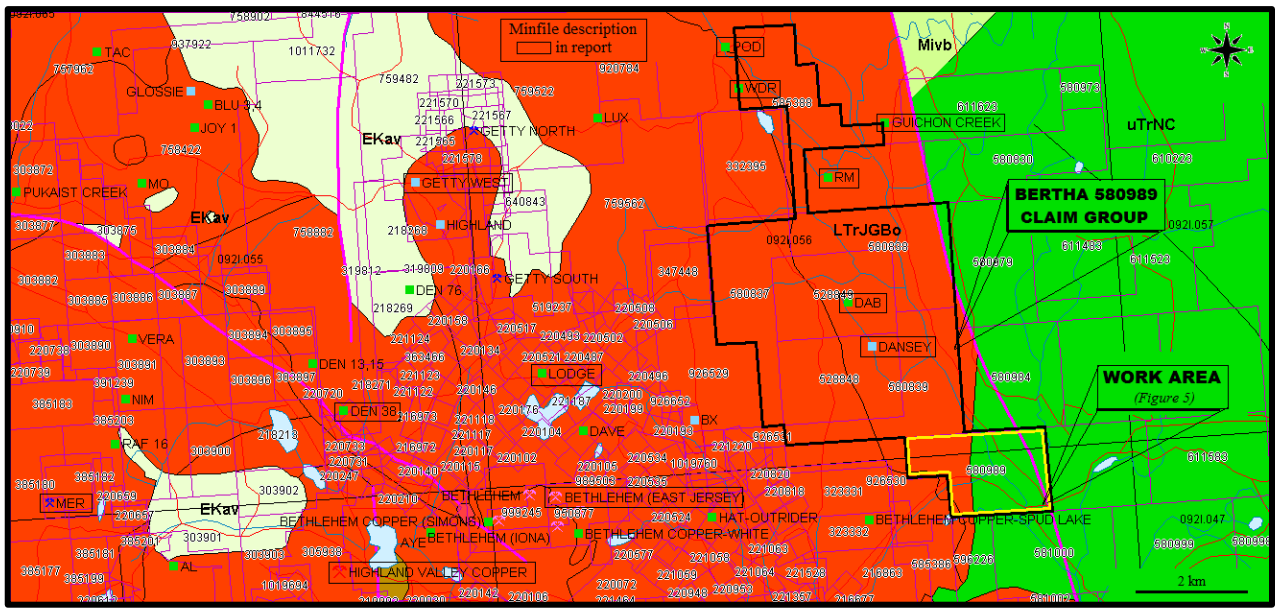
The Bethlehem (East Jersey) deposit is partly controlled by faults and is localized in breccia bodies and intensely fractured zones. Potassic, phyllic and propylitic alteration are confined to areas of ore concentration. Alteration minerals include biotite, sericite, kaolinite, epidote and chlorite and are typically zoned. Quartz, calcite and zeolite (laumontite) veining and vug-filling is common. The principal ore minerals are molybdenite, bornite and chalcopyrite and occur with numerous supergene copper minerals and copper oxides. An age date from a sample of a mixture of magmatic and hydrothermal biotite from the Iona ore zone (092ISE006) returned 199 Ma +/- 8 Ma (Canadian

HIGHLAND VALLEY COPPER producer (Porphyry Cu+/-Mo+-Au)
MINFILE 092ISW012
Eleven 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.

Geology: Bertha 580989 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 580989 Claim Group Area** (cont'd)*

***Highland Valley Copper** producer (cont'd)*

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. 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(?).

Geology: Bertha 580989 Claim Group Area *(cont'd)*

DEN 38 showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INW014
Ten kilometres west

The Den property is located within Bethlehem phase and Guichon variety (Highland Valley phase) quartz diorite of the Late Triassic-Early Jurassic Guichon Creek batholith. The intrusive rocks are locally faulted and sheared and contain small aplite and/or quartz porphyry dikes.

MER developed prospect *(*Porphyry Cu +/- Mo +/- Au)
MINFILE 092INW028
Nineteen 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 WEST prospect (Porphyry Cu +/- Mo +/- Au, I06: Cu+/-Ag quartz veins)
MINFILE 09INW040
Eight kilometres west

The Transvaal area is located within the Late Triassic-Early Jurassic Guichon Creek batholith and is underlain by Guichon variety (Highland Valley phase) quartz diorite which has been intruded by Bethlehem phase quartz diorite porphyry dikes and stocks. Numerous intensely altered, well mineralized granitic crush zones are exposed at surface. West and northwest of this area these rocks have been intruded by what appears to be a Tertiary? biotite quartz latite plug and associated dikes.

Veins occur in fractures and joint planes in the batholithic hostrocks and a zone of fracturing has been traced in a north-south direction for 91 metres. Veins consist of black, sooty tourmaline, quartz and fractured wallrock mineralized with minor amounts of azurite, malachite, chrysocolla, chalcopyrite, chalcocite, hematite and magnetite. The veins range in width from 0.5 centimetre to 1 metre, but are generally less than 30 centimetres wide. The length of any one continuous section of a vein is not more than 6 metres.

LODGE showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE041
Five kilometres west

The Lodge showing area is underlain by Guichon variety quartz diorite of the Late Triassic-Middle Jurassic Guichon Creek batholith which has been cut by dikes and irregular bodies of younger quartz diorite. Low grade copper mineralization has been found at several places on the property in or closely associated with north-south faults. In 1974, Bethlehem Copper Corporation drilled 2 percussion holes which intersected granodiorite of the Guichon Creek batholith.

Geology: Bertha 580989 Claim Group Area *(cont'd)*

RM showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE111
500 metres east

The RM property lies near the northwesterly trending contact between Upper Triassic Nicola Group volcanic rocks in the east from Late Triassic-Middle Jurassic Guichon Creek batholith intrusive rocks to the west.

POD showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE117
200 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 580989 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 580989 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.

***Geology: Bertha 580989 Claim Group** (cont'd)*

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 580989 CLAIM GROUP AREA

The mineralization on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580989 Claim Group is reported as follows. The distance to the Minfile locations is relative to the Bertha 580989 Claim Group.

BETHLEHEM (EAST JERSEY) past producer (Porphyry Cu +/- Mo +/- Au)
MINFILE 092ISE002
Eight kilometres west

Reserves for the East Jersey are 20.6 million tonnes of 0.40 per cent copper (CIM Special Volume 46, page 175).

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

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).

DEN 38 showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INW014
Ten kilometres west

Weakly disseminated chalcopyrite and bornite with malachite occurs near northeast joints in quartz diorite.

MER developed prospect (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INW028
Nineteen 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.

Mineralization: Bertha 580989 Claim Group Area *(cont'd)*

Mer *developed prospect (cont'd)*

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 WEST prospect (Porphyry Cu +/- Mo +/- Au, I06: Cu+/-Ag quartz veins)
MINFILE 09INW040
Eight kilometres west

In 1996-97, Getty Copper Corp. completed eleven diamond-drill holes totalling 3374 metres in the Transvaal showing area. The drillholes intersected significant oxide and sulphide copper mineralization, indicating that both types of mineralization are more widespread than previously indicated by surface and underground showings. One 42-metre intersection analysed 0.26 per cent copper and 0.02 per cent molybdenum (George Cross News Letter No.101, 1997).

LODGE showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE041
Five kilometres west

Low grade copper mineralization has been found at several places on the property in or closely associated with north-south faults.

Mineralization is rare and consists of occasional specks of pyrite, chalcopyrite and molybdenite.

RM showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE111
500 metres east

Disseminated copper mineralization (inferred to be chalcopyrite) occurs in altered quartz diorite of the Hybrid phase of the Guichon Creek batholith.

POD showing (Porphyry Cu +/- Mo +/- Au)
MINFILE 092INE117
200 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 580989 CLAIM GROUP

The mineralization on the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580989 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).

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

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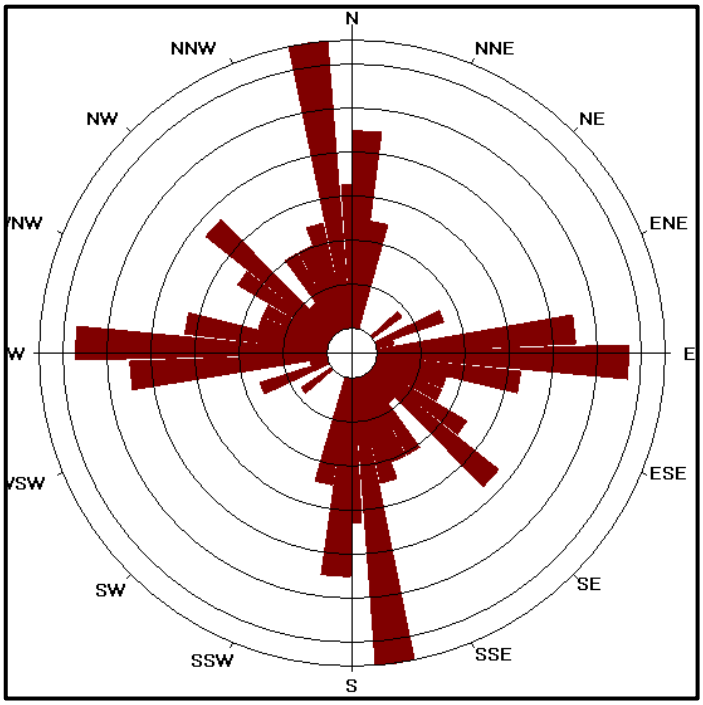
STRUCTURAL ANALYSIS

The structural analysis was performed on a MapPlace hillside shade map of Tenure 580989 by viewing of the map and marking the lineaments as indicated structures thereon. A total of 122 lineaments were marked (*Figure 5*), compiled into a 10 degree class interval, and plotted as a rose diagram as indicated on *Figure 6.*

Figure 5. **Indicated Lineaments on Tenure 580989**

Figure 6. **Rose Diagram from lineaments *(Figure 5)* of Tenure 580989**



STATISTICS

Axial (non-polar) data
No. of Data = 122
Sector angle = 8°
Scale: tick interval = 3% [3.7 data]
Maximum = 13.1% [16 data]
Mean Resultant dir'n = 141-321
[Approx. 95% Confidence interval = ±22.8°]
(valid only for unimodal data)

Mean Resultant dir'n = 140.9 - 320.9
Circ.Median = 135.5 - 315.5
Circ.Mean Dev.about median = 36.0°
Circ. Variance = 0.29
Circular Std.Dev. = 47.65°
Circ. Dispersion = 4.76
Circ.Std Error = 0.1975
Circ.Skewness = 1.20
Circ.Kurtosis = -7.07
kappa = 0.52

(von Mises concentration param. estimate)

Resultant length = 30.59
Mean Resultant length = 0.2507

'Mean' Moments: Cbar = 0.051; Sbar = -0.2455
'Full' trig. sums: SumCos = 6.2244; Sbar = -29.9481
Mean resultant of doubled angles = 0.4015
Mean direction of doubled angles = 178

(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)

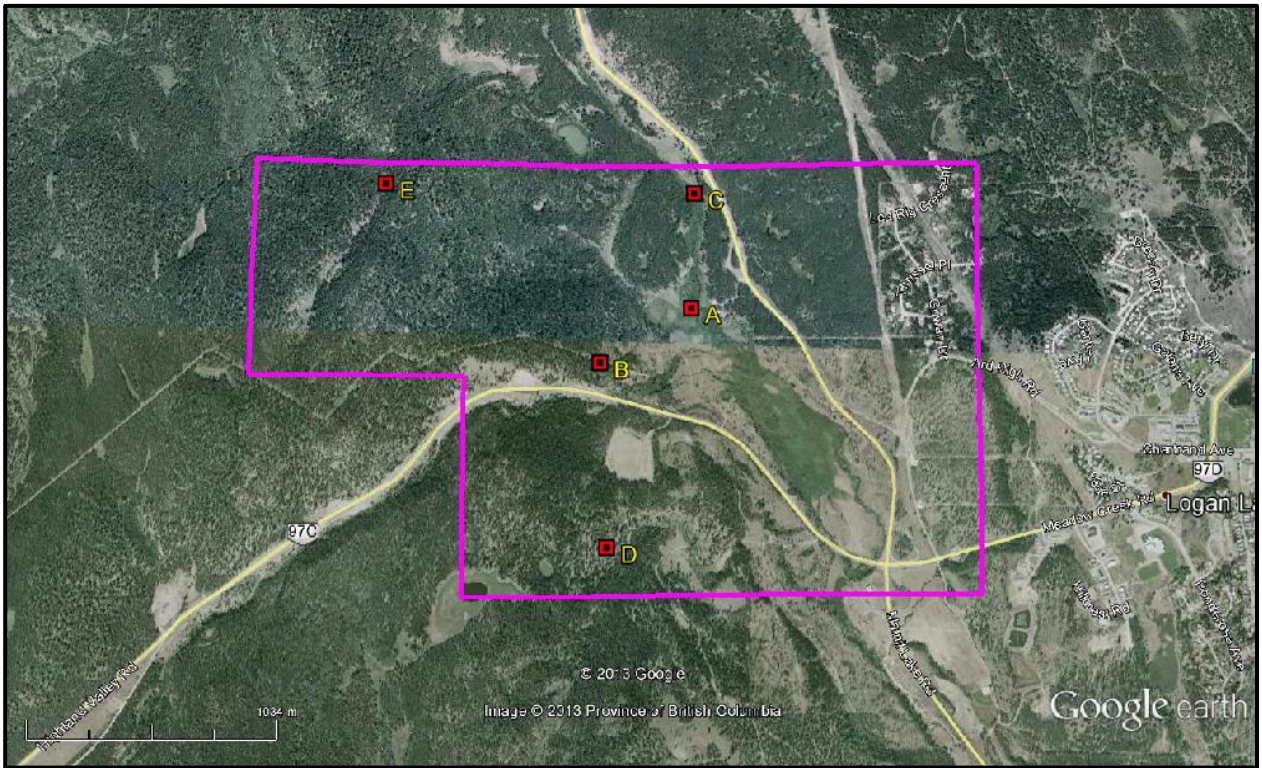


Table II. **Approximate UTM locations of Figure 5 cross-structures**
(UTM-NAD 83)

Location	UTM East	UTM North	Elevation
A	652,925	5,596,273	1,036
B	652,535	5,596,020	1,077
C	652,925	5,596,778	1,037
D	652,588	5,595,235	1,097
E	651,585	5,596,766	1,108

INTERPRETATION and CONCLUSIONS

Northerly and easterly trending structures appear dominant from the Rose Diagram pertaining to the count of the directional structures from the Structural Analysis Map (SAM). The high count of east-west structures was attributed to a number of scattered structures with no indicated connection; however, it does reflect a resulting structural imposition from a northwest-southwest force.

The five cross-structural intersections depicted on the SAM indicate areas of potential increased fractured zones and/or localized breccia zones where any hydrothermal activity at depth may utilize the sites as a plumbing system to surface and possibly deposit minerals as a porphyritic style of mineralization as was the case at the Bethlehem East mineral deposit. This deposit was also partially controlled by faults as was the Highland Valley and the Lornex amongst others.

Excluding other variable geological conditions, structures are essential in the localization of potentially economic porphyry mineralization within the Guichon Batholith.

The five structural intersections located on Tenure 580989 should be explored for any geological indicators which may be revealed as minerals and/or alteration and would be subject to interpretation as economic mineral indicators.

For mineral deposit types that may occur within the Bertha 580989 Claim Group reference is made in the report to 14 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 five prime exploration areas within Tenure 580989.

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.

092ISE002– BETHLEHEM (EAST JERSEY)
092ISW012 – HIGHLAND VALLEY COPPER
092INW028 – MER
092INE034– DANSEY
092INE040 – DAB
092INW040 – GETTY WEST
092INE041 – LODGE
092HNE111 – RM
092INE117 – POD
092INE135 – WDR

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

STATEMENT OF COSTS

Work on Tenure 580989 was done from April 14, 2013 to April 28, 2013 to the value as follows:

Structural Analysis	
Laurence Sookochoff, P Eng. 2.5 days @ $ 1,000.00/day ---	$ 2,500.00
Maps ----------	600.00
Report ----------	4,500.00
	$ 7,100.00
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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-seven 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 580989 Claim Group as described herein.

Laurence Sookochoff, P. Eng.