

Ministry of Energy, Mines & Petroleum Resources
Mining & Minerals Division
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Geological

TOTAL COST: \$ 7,550.00

AUTHOR(S): Laurence Sookochoff, PEng

SIGNATURE(S): *Laurence Sookochoff*

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): _____ YEAR OF WORK: 2014

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5505470 May 22, 2015

PROPERTY NAME: Bertha

CLAIM NAME(S) (on which the work was done): 580837

COMMODITIES SOUGHT: Copper Gold

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092INE034 092INE040 092INE042 092INE135

MINING DIVISION: Kamloops

NTS/BCGS: 092I.046 092I.056

LATITUDE: 50 ° 32 ' 13.96 " LONGITUDE: 120 ° 54 ' 59.83 " (at centre of work)

OWNER(S):

1) Christopher Delorme

2) Guy Delorme

MAILING ADDRESS:

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818-470 Granville Street

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Vancouver BC Canada V6C 1V5

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

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

Granodiorite of the Upper Triassic to Early Jurassic Highland Valley Phase and the Border Phase of the Guichon Batholith.

Upper Triassic undivided volcanics of the Nicola Group Western Volcanic Facies. Two major easterly and one northerly trending indicated structure resulting in two cross-structures on Tenure 580837. On the Dansey mineral zone, mineralization is associated with diorite and quartz diorite with the majority associated with fractures that strike 040 to 080 degrees.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 2281, 2282, 4984, 29164, 33784

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation	492 hectares	580837	\$ 7,550.00
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	\$ 7,550.00

GUY & CHRISTOPHER DELORME

(Owners & Operators)

GEOLOGICAL ASSESSMENT REPORT

(Event 5505470)

of a

STRUCTURAL ANALYSIS

on

Tenure 580837

of the ten claim

Bertha 580837 Claim Group

Kamloops Mining Divisions

BCGS Maps 092I.046/.056

work done from

April 26, 2014 to April 30, 2014

Centre of Work

5,600,436N 647,633E (Zone 10) (NAD 83).

Author & Consultant

**Laurence Sookchoff, PEng
Sookchoff Consultants Inc.**

Report Submitted
September 10, 2014

Amended Report Submitted
August 4, 2015

**BC Geological Survey
Assessment Report
34975**

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SUMMARY

The Bertha 580837 Claim Group is located in the Highland Valley of south central British Columbia within 10 kilometres of the world-class Highland Valley Copper mine; one of the largest copper mining and concentrating operations in the world which, with the Lornex Mine, has measured and indicated ore reserves of 761 million tonnes of 0.408 per cent copper and 0.0072 molybdenum.

The Highland Valley copper/molybdenum deposit lies within the Guichon Creek batholith in the Bethsaida Phase of 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. At the Lornex deposit, mineralization is controlled by the distribution and density of fracture sets.

The Bertha 580837 Claim Group is predominantly underlain by rocks of the Guichon Batholith with a predominance of granodioritic rocks of the Highland Valley Phase (LTrJGH) in the west and quartz dioritic rocks of the Gump Lake Phase (LTrJGBo) in the east. The quartz dioritic rocks are in a north-northwesterly trending regional fault contact with the Western Volcanic Facies of the upper Triassic Nicola Group (uTrNW) in the north and in an intrusive contact in the south.

Tenure 580837 is totally underlain by the Highland Valley Phase fringed on the east by the Border Phase with the Guichon/Nicola contact some four kilometres east.

In the structural analysis of Tenure 580837, two cross-structures between a primary central northerly trending structure and two east-west primary (?) structures were indicated. The cross-structures are located within the granodioritic rocks of the Highland Valley Phase of the Guichon Batholith.

As fracture density may be the most important single factor in influencing ore grades of the Highland Valley mineral deposits, the most significant mineral deposit, the Highland Valley Copper deposit, located at the intersection of the Highland Valley and the Lornex Faults, might be attributed to the increased fracture density over a larger area and thus the significant mineral resource developed at the Highland Valley/Lornex mineral deposit.

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 by mineralized hydrothermal solutions would result in a porphyritic mineral deposit, the size primarily dependent on the degree and amount of breccia created and invariably the content and amount of mineral bearing hydrothermal fluid introduced.

As a result, the three structural intersections should be explored for surficial geological indicators of a potential economic sub-surface mineral resource. The approximate UTM locations of the intersections are shown in Table III.

The eight Minfile descriptions copied herein from a BC Government supported Minfile directory, provide information as to the geological indicators for a productive mineral deposit or for surficial geological indicators of a potential underlying 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 within the volcanics of the Nicola Group.

INTRODUCTION

In April, 2014 a structural analysis was completed on Tenure 580837 of the ten claim Bertha 580837 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 580837 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 580837 Claim Group is located within BCGS Maps 092I.046/.056 of the Kamloops Mining Division, 214 kilometres northeast of Vancouver, 48 kilometres north of Merritt, 42 kilometres southwest of Kamloops, and within ten kilometres east-northeast of the world-class producing Highland Valley Copper mine.

The centre of the work area on Tenure 580837 is at 5,598,267N, 657,885E (10) (NAD 83).

Description

The Property is comprised of ten contiguous claims covering an area of 4005.649 hectares. Particulars are as follows:

Property Description and Location (cont'd)**Table 1. Tenures of Bertha 580837 Claim Group**

Tenure Number	Type	Claim Name	Good Until	Area (ha)
528848	Mineral	DANSEY	20150425	493.128
528849	Mineral	DAB	20150425	492.954
580837	Mineral		20150425	492.9393
580838	Mineral		20150425	513.4005
580839	Mineral		20150425	493.1568
580989	Mineral	LOGAN	20150425	493.339
585388	Mineral		20150425	513.0757
926529	Mineral	HIGHLAND VALLEY EAST	20221029	472.5509
930152	Mineral		20150425	20.5515
1019760	Mineral	BETHLEHEM EAST	20150425	20.5533

*Upon the approval of Event 5505470.

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**Access**

From Logan Lake, the Bertha 580837 claim group can be accessed by traveling two kilometres west from Logan Lake on Highway 97D to the eastern boundary of Tenure 580989, the southeastern claim of the Bertha 580837 claim group. Numerous secondary roads would provide access to most areas of the Property.

Climate

The local climate is typical of south central British Columbia. Annual temperatures range from 35°C to -40°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 topography on Tenure 580837 is of gentle forested slopes with localized clear-cut logged areas. Elevations range from 1,216 m at the northeastern corner to 1,397 m at the mid-west corner.

WATER & POWER

There would be an ample water supply from the many lakes, rivers, or streams within the confines of the Property for the requirements of any exploration program. A 500KV power line trends southeasterly through the northern portion of the Bertha 580837 Claim Group.

HISTORY: BERTHA 580837 CLAIM GROUP AREA

The history on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580837 Claim Group is reported as follows. The distance to the Minfile locations is relative to Tenure 580837 of the Bertha 580837 Claim Group.

BETHLEHEM (EAST JERSEY) – past producer (Porphyry Cu +/- Mo +/- Au)

MINFILE 092ISE002

Five kilometres west-southwest

The East Jersey pit was mined from 1962 until 1965, when the pit wall failed.

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).

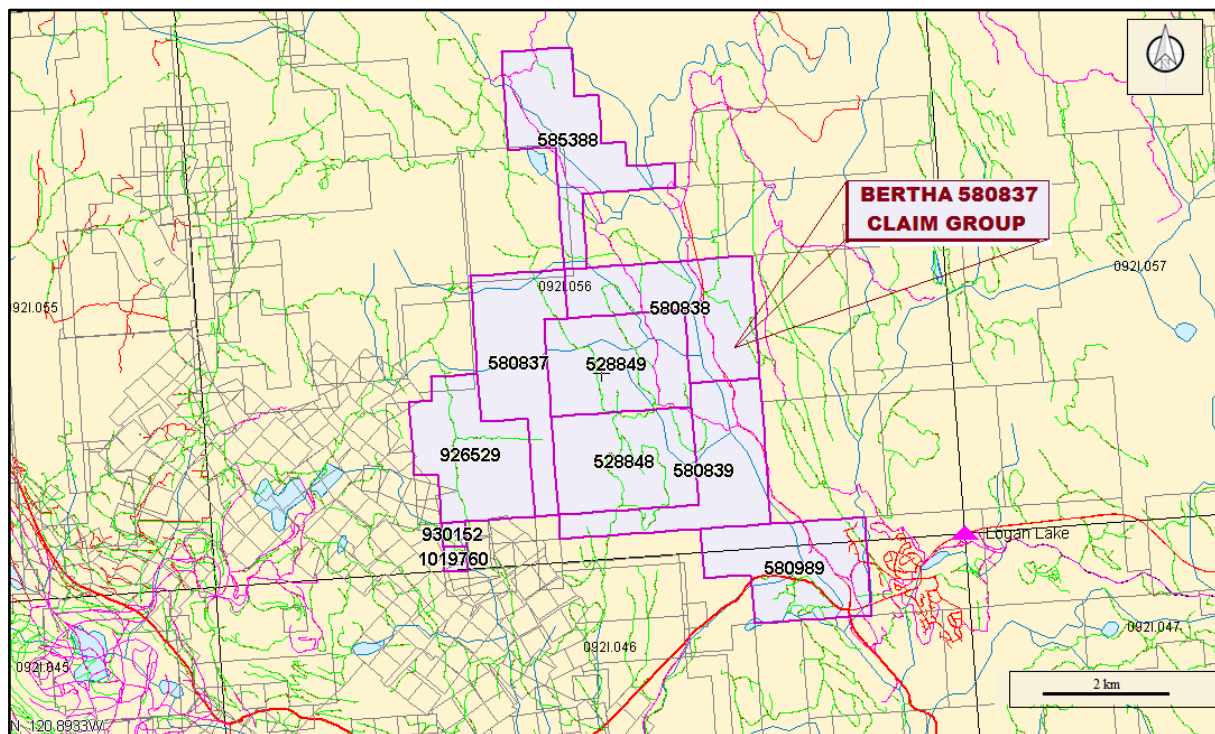
Highland Valley Copper suspended mining on May 15, 1999; they resumed August 30, 1999.

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.

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



Figure 3. Claim Map
(Base map from MapPlace)



History: Bertha 580837 Claim Group Area (cont'd)**Highland Valley Copper (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.

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.

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 acquired 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.

History: Bertha 580839 Claim Group Area (cont'd)**Getty South developed prospect (cont'd)**

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 McQuat 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.

HISTORY: BERTHA 580837 CLAIM GROUP**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.

BX prospect (Porphyry Cu+/-Mo+-Au)

MINFILE 092INE042

Within Tenure 926529

Previous to 1958, the showing was trenched by B.X. Mining Company. In 1958, the Bob, Star, B.X. and Cow groups of claims were optioned by Noranda Exploration Company Limited and work consisted of a ground electromagnetic survey and geological mapping. Some bulldozer trenching was done on the showing on the B.X. claims and 8 kilometres of road was constructed; the options were dropped at the end of the summer.

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

In 1965, an induced polarization survey (15 kilometres) was completed on the Cow claims on behalf of The Consolidated Mining and Smelting Company of Canada Limited. In 1969, work done on behalf of Laura Mines Limited on the WJ claims, which covered the BX showing, consisted of 93 kilometres of line cutting, 1567 soil samples, 93 kilometres of ground magnetometer survey, 43 kilometres of induced polarization survey, geological mapping, 4 trenches totalling 152 metres were bulldozed and 9 diamond-drill holes totalling 853 metres were put down.

WDR showing (Porphyry Cu +/- Mo +/- Au)

MINFILE 092INE135

Within Tenure 585388

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 580837 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.

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 580837 Claim Group is situated partly on the eastern contact of the Guichon Creek Batholith and predominantly on the Nicola volcanics within 14 kilometres east 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.

Geology: Regional (cont'd)**GEOLOGY: BERTHA 580837 CLAIM GROUP AREA**

The geology of some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580837 Claim Group is reported as follows. The distance to the Minfile locations is relative to Tenure 580837 of the Bertha 580837 Claim Group.

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

Five kilometres west-southwest

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 Institute of Mining and Metallurgy Special Volume 15).

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

Ten kilometres west-southwest

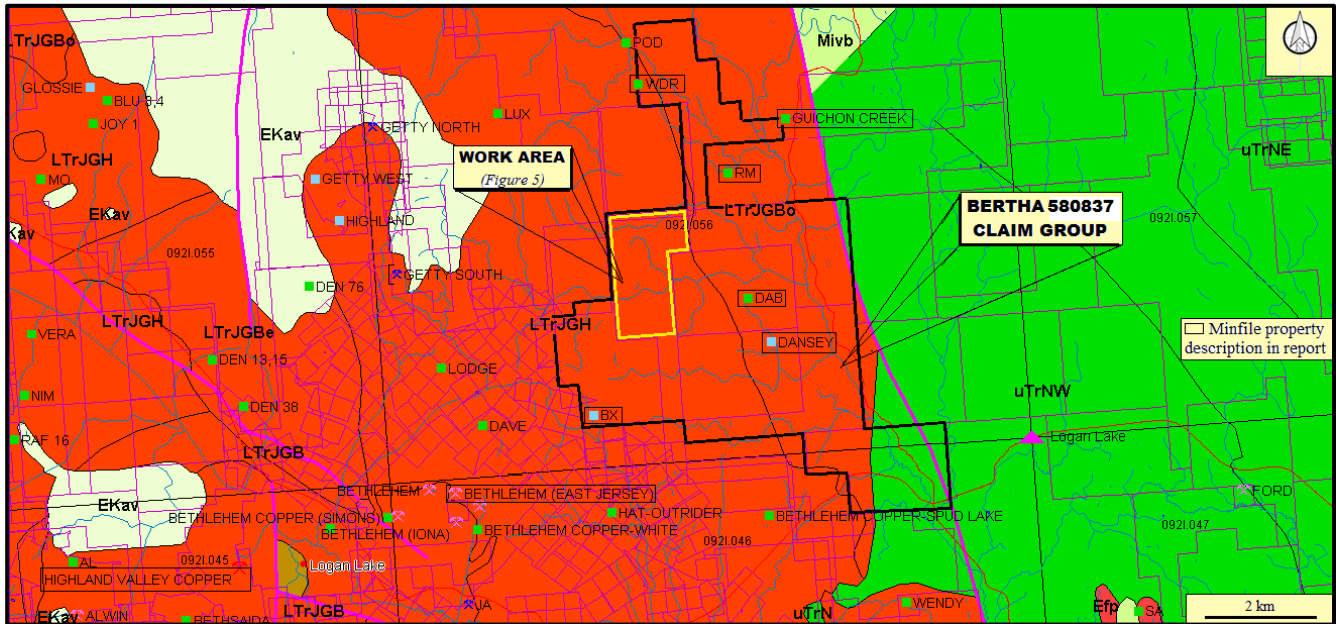
The Valley deposit lies within the Late Triassic to Early Jurassic Guichon Creek batholith and is hosted by Bethsaida phase porphyritic quartz monzonite and granodiorite. Feldspar porphyry and quartz feldspar porphyry dykes 0.6 to 35 metres wide dip steeply eastward in the western and central areas,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

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.

Geology: Bertha 580837 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

uTrNW

Western Volcanic Facies
undivided volcanic rocks

uTrNc

Central Volcanic Facies
undivided volcanic rocks

uTrNE

Eastern Volcanic Facies
basaltic 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 580837 Claim Group Area (cont'd)**Highland Valley Copper (cont'd)**

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(?).

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.

Geology: Bertha 580837 Claim Group Area (cont'd)**Getty South developed prospect (cont'd)**

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.

RM showing (Porphyry Cu +/- Mo +/- Au)

MINFILE 09INE111

One kilometre northeast

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.

GEOLOGY: BERTHA 580837 CLAIM GROUP

As indicated by the BC government supported MapPlace geological maps, the Claim Group is predominantly underlain by rocks of the Guichon Batholith with a predominance of granodioritic rocks of the Highland Valley Phase (LTrJGH} in the west and quartz dioritic rocks of the Gump Lake Phase (LTrJGBo) in the east. The quartz dioritic rocks are in a north- northwesterly trending regional fault contact with the Western Volcanic Facies of the upper Triassic Nicola Group (uTrNW) in the north and in an intrusive contact in the south.

Tenure 580837 is totally underlain by the Highland Valley Phase fringed on the east by the Border Phase with the Guichon/Nicola contact some four kilometres east.

The geology of the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580837 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 580837 Claim Group (cont'd)**BX** prospect (Porphyry Cu+/-Mo+-Au)

MINFILE 092INE042

Eight kilometres south-southeast

The BX showing area is underlain by quartz diorite (Guichon variety) of the Late Triassic-Middle Jurassic Guichon Creek batholith which in places are cut by finer dike rocks correlated with the Witches Brook phase of the batholith.

A long, north trending, altered shear zone has been exposed by trenching on the original BX claims. The shear zone is at least 762 metres long and 122 metres wide. The altered rock is chlorite rich and the shear zone is surrounded by partially brecciated, sheared, weathered or decomposed quartz diorite. Calcite veinlets, rich in iron, run through the area giving rise to considerable rust staining. Hematite, quartz and epidote veinlets (up to 7 centimetres wide) are also present.

WDR showing (Porphyry Cu +/- Mo +/- Au)

MINFILE 092INE135

Within Tenure 585388

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 580837 CLAIM GROUP AREA

The mineralization on some of the more significant mineral MINFILE reported occurrences, prospects, and past producers peripheral to the Bertha 580837 Claim Group is reported as follows. The distance to the Minfile locations is relative to the Bertha 580837 Claim Group.

BETHLEHEM (EAST JERSEY) – past producer (Porphyry Cu +/- Mo +/- Au)

MINFILE 092ISE002

Five kilometres west-southwest

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

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.

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

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.

RM showing (Porphyry Cu +/- Mo +/- Au)

MINFILE 09INE111

One kilometre northeast

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

MINERALIZATION: BERTHA 580837 CLAIM GROUP

The mineralization on the mineral MINFILE reported occurrences, prospects, and past producers within the Bertha 580837 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.

Mineralization: Bertha 611523 Claim Group (cont'd)**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).

BX showing (Porphyry Cu +/- Mo +/- Au)

MINFILE 092ISE072

Within Tenure 926529

Mineralization is not obviously related to the sericitic and limonitic alteration of the aplite and the granodiorite. Chalcopyrite occurs as disseminations in relatively fresh quartzose or biotite- rich zones in the granodiorite, as disseminations in biotite aplite, and in veins or pockets with quartz, alone or with pyrite, potassium feldspar or epidote. Some veins parallel foliation, others dip gently. A chip sample across a 75 centimetre veined, rusty mineralized zone assayed 0.35 per cent copper with traces of gold and silver (Geology, Exploration and Mining in British Columbia 1974). Some molybdenite was reported when the showing was first discovered (1915).

WDR showing (Porphyry Cu +/- Mo +/- Au)

MINFILE 092INE135

Within Tenure 585388

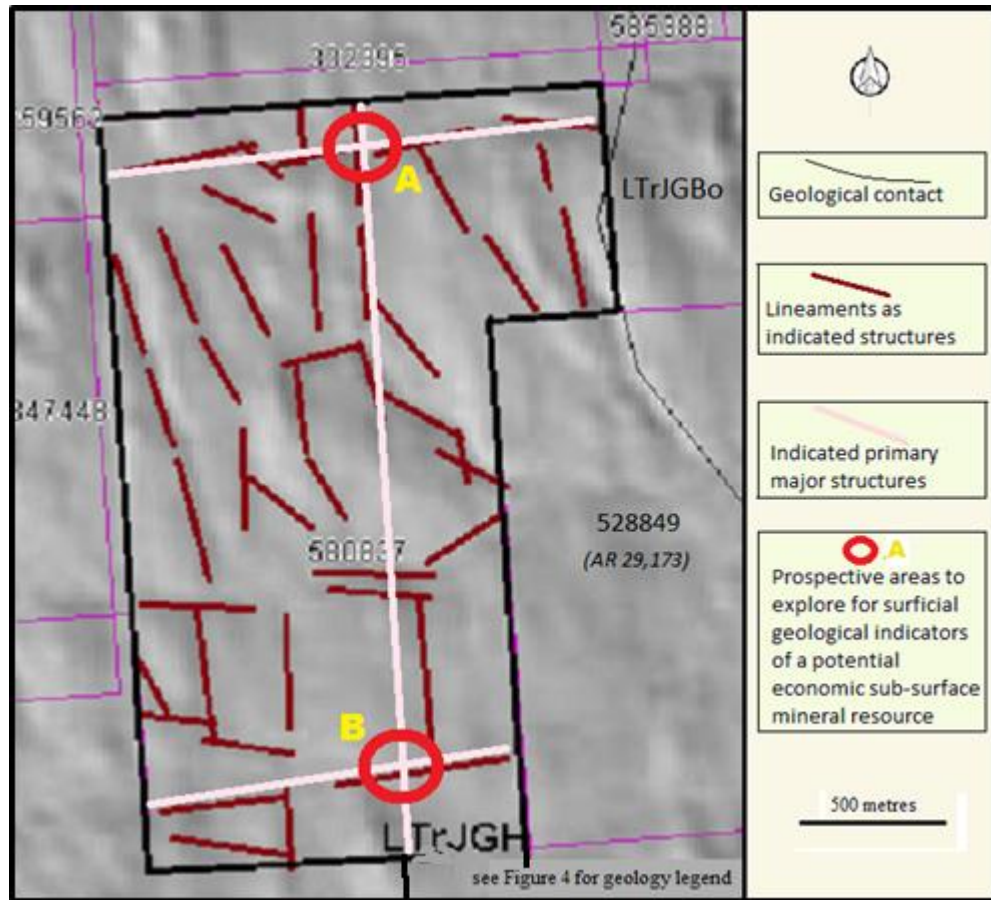
A trench exposes a steep mineralized fault which strikes 050 degrees and is parallel to joints in the adjacent quartz diorite of the Hybrid phase of the Guichon Creek batholith. Chalcopyrite and lesser amounts of bornite are present as fracture fillings and are partly oxidized to malachite, which is 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 hillside shade map of Tenure 580837 by viewing of the map and marking the lineaments as indicated structures thereon. A total of 41 lineaments were marked (*Figure 5*), compiled into a 10 degree class interval, and plotted as a rose diagram as indicated on *Figure 6*.

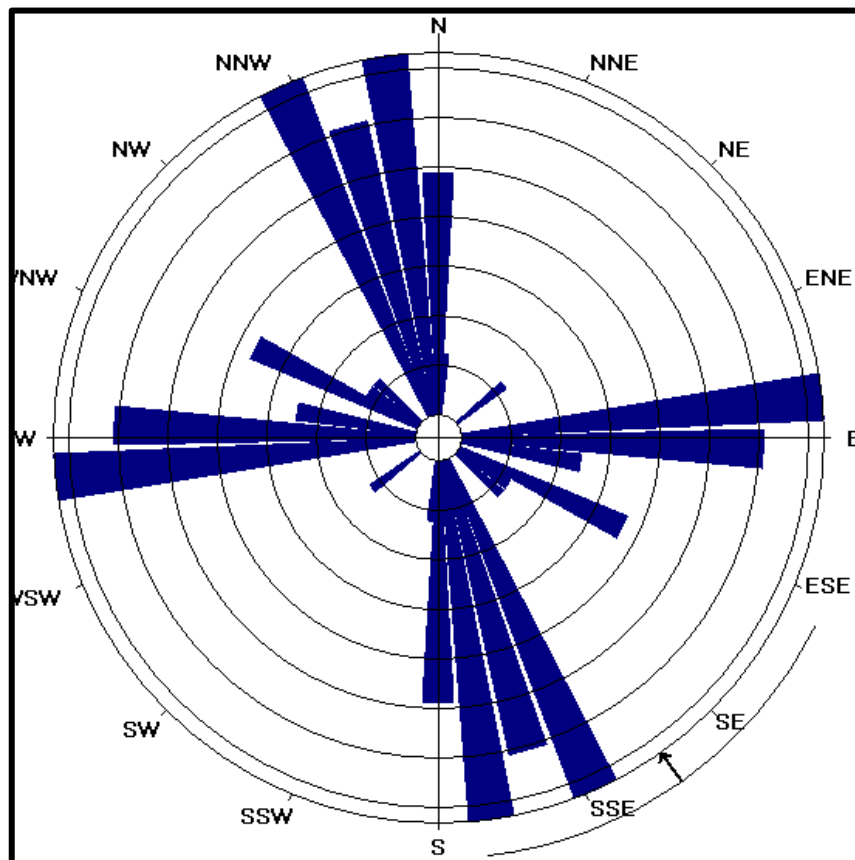
Structural Analysis (cont'd)

Figure 5. Indicated Lineaments on Tenure 580837



Structural Analysis (cont'd)

Figure 6. Rose Diagram from lineaments (Figure 5) of Tenure 580837



STATISTICS
(for Figure 6)

Axial (non-polar) data

No. of Data = 41

Sector angle = 8°

Scale: tick interval = 2% [0.8 data]

Maximum = 14.6% [6 data]

Mean Resultant dir'n = 145-325

[Approx. 95% Confidence interval = ±28.4°]
(valid only for unimodal data)

Mean Resultant dir'n = 144.8 - 324.8

Circ. Median = 155.0 - 335.0

Circ. Mean Dev. about median = 34.0°

Circ. Variance = 0.26

Circular Std. Dev. = 44.62°

Circ. Dispersion = 2.42

Circ. Std Error = 0.2429

Circ. Skewness = 3.82

Circ. Kurtosis = -8.13

kappa = 0.62

(von Mises concentration param. estimate)

Resultant length = 12.19

Mean Resultant length = 0.2974

'Mean' Moments: Cbar = 0.1; Sbar = -0.28

'Full' trig. sums: SumCos = 4.0999; Sbar = -11.4818

Mean resultant of doubled angles = 0.5722

Mean direction of doubled angles = 168

(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 Tenure 580837
(Base Map: Google Earth)

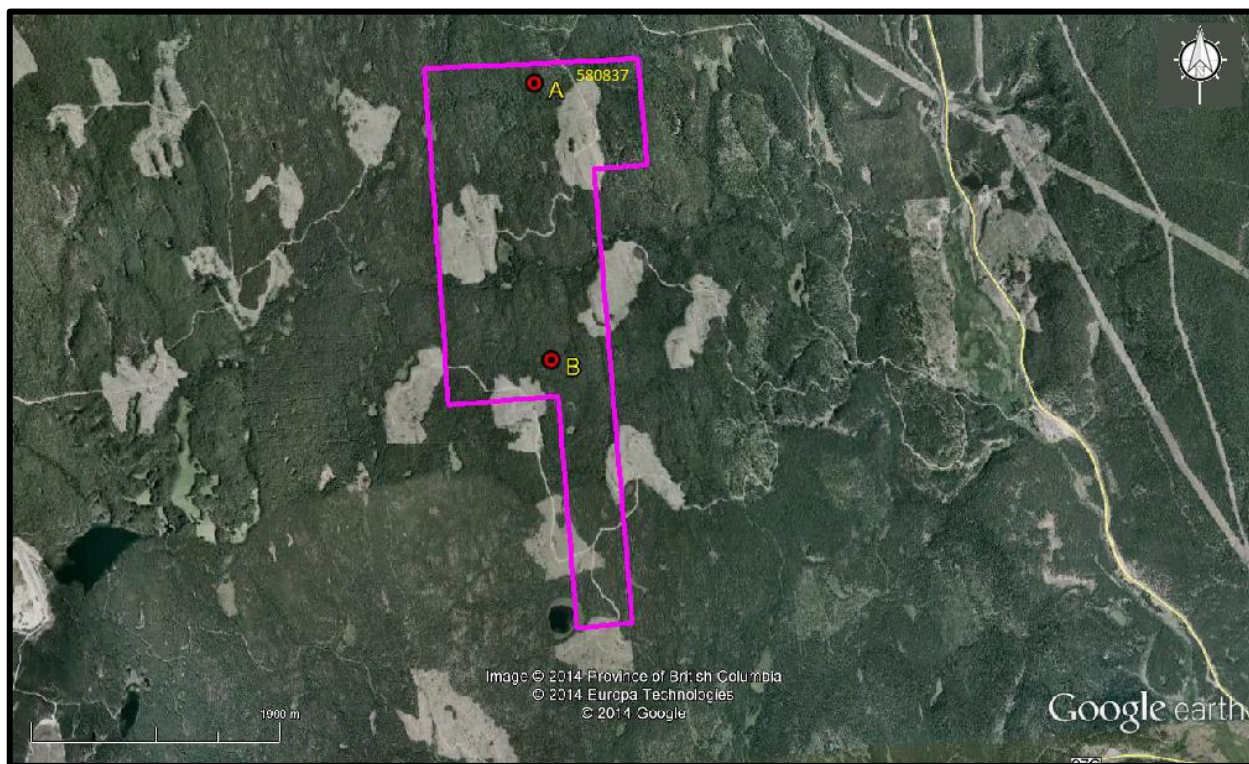


Table II. Approximate UTM locations of Figure 5 cross-structures
(UTM-NAD 83)

Location	UTM East	UTM North	Elevation
A	647,817	5,601,684	1,285
B	647,840	5,599,366	1,342

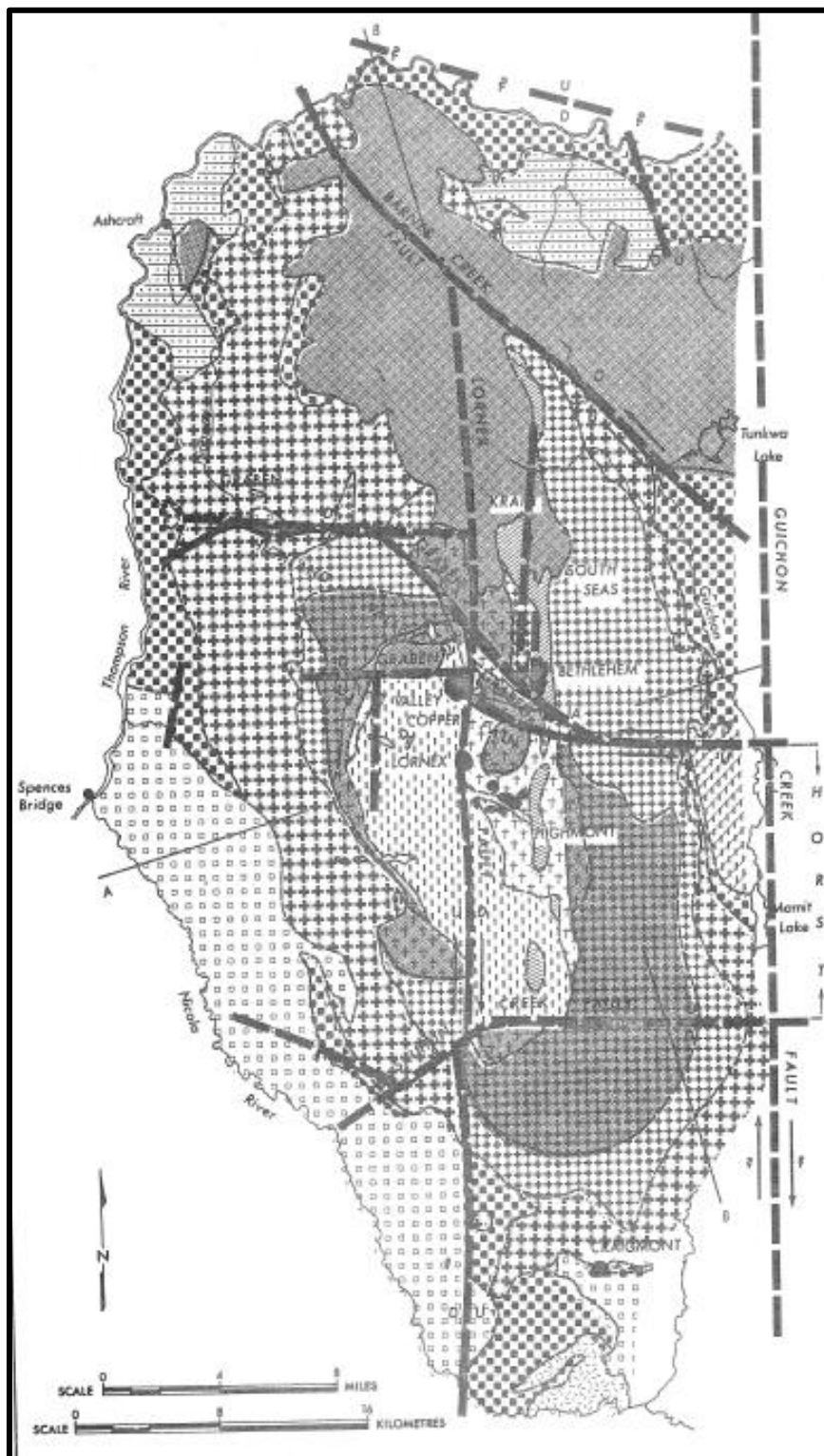
INTERPRETATION and CONCLUSIONS

Two cross-structures between a primary central northerly trending structure and two east-west primary (?) structures were indicated from the structural analysis of Tenure 580837. The cross-structures are located within the granodioritic rocks of the Highland Valley Phase of the Guichon Batholith.

The two primary fault directions may have been influenced by the same dynamic forces as in the development of the two major faults which are associated with the mineral controls of the Highland Valley Copper deposit (Valley). The location of the initial intersection of the two faults, the northerly trending Lornex Fault and the westerly trending Highland Valley Fault, was a major influence in the mineral controlling factor of the world class Highland Valley Copper and the Lornex deposits which were subsequently separated by five to six kilometres by the right lateral displacement by the Lornex Fault.

Figure 8. Tectonic Fabric of the Guichon Batholith

(Figure 6 - CIM Special Volume No. 15)



Interpretation and Conclusions (cont'd)

As fracture density was apparently the most important single factor in influencing ore grades of the Highland Valley mineral deposits, the most significant mineral deposit, the Highland Valley Copper deposit, located at the intersection of the Highland Valley and the Lornex Faults, might be attributed to the increased fracture density over a larger area and thus the significant mineral resource developed at the Highland Valley/Lornex mineral deposit.

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 by mineralized hydrothermal solutions would result in a porphyritic mineral deposit, the size primarily dependent on the degree and amount of breccia created and invariably the content and amount of mineral bearing 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.

Accordingly, the two structural intersections on Tenure 580837 should be explored for surficial geological indicators of a potential economic sub-surface mineral resource. The approximate UTM locations of the intersections are shown in Table II.

The eight Minfile descriptions copied herein from a BC Government supported Minfile directory, provide information as to the geological indicators for a productive mineral deposit or for surficial geological indicators of a potential underlying mineral resource.

Respectfully submitted
Sookochoff Consultants Inc.



Laurence Sookochoff, PEng

SELECTED REFERENCES

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

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

MapPlace – Map Data downloads

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

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

MtOnline - MINFILE downloads.

092ISE002 – BETHLEHEM (EAST JERSEY)
092ISW012 – HIGHLAND VALLEY COPPER
092INE034 – DANSEY
092INE040 – DAB
092INE042 – BX
092INW043 – GETTY SOUTH
092INE111 – RM
092INE135 – WDR

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

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

Sookchoff, L. – Geological Assessment Report on the DAB claim Tenure No.528849. June 27, 2007. *AR 29,173*.

Sookchoff, L. – Geological Assessment Report on the Dansey Claim Tenure No.528848. June 10, 2007. *AR 29,164*.

STATEMENT OF COSTS

Work on Tenure 580837 was done from April 26, 2014 to April 30, 2014 to the value as follows:

Structural Analysis

Laurence Sookochoff, P Eng. 3 days @ \$ 1,000.00/day -----	\$ 3,000.00
Maps -----	1,000.00
Report -----	<u>3,600.00</u>
	\$ 7,600.00
	=====

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 580837 Claim Group as described herein.



Laurence Sookochoff, P. Eng.