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GEOLOGICAL AND GEOCHEMICAL
REPORT
ON 1987 ASSESSMENT WORK

JACKIE GROUP ^{8/88}
(JACKIE, JACKIE 2, BONBONAZ 4 CLAIMS)

Alberni and Nanaimo Mining Divisions
50°01'N Lat. 126°10'W Long.
00'30" NTS 92E/16E 92L/1E

October 9, 1987
B.Y. Thomae, B.Sc. T.G. Hawkins, P.Geol.

Owner/Operator: Canamin Resources Ltd.

FILMED

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,557



SUMMARY

The west and central Jackie property is underlain by a northerly striking succession of interbedded argillite, chert, calcareous sediments and tuffaceous intervals of the Mid-Triassic 'Sediment-sill' unit. These are in fault(?) contact with the overlying Upper Triassic Karmutsen Formation mafic volcanic succession and both are intruded by the Jurassic Island Intrusions diorite to granodiorite in the valley.

Two similar sulphide showings exist along an east-west fault(?) suggested by slickensides and marked lithologic changes across the creek, particularly at the 'Upper Showing'. Quartz veinlets and shear zones appear to be associated with sulphide mineralization, although anomalous lead in limonitic argillite may be partly stratabound.

At the 'Upper Showing', discontinuous bands of galena, chalcopyrite, sphalerite and pyrite with minor argentite occur within interbedded argillite and chert near a mafic volcanic(?) contact. A boulder from the showing assayed 67.2 g/t (1.96 oz/ton) Ag, 0.03 g/t (0.001 oz/ton) Au, 1.50% Cu, 11.98% Pb and 8.00% Zn with 1447 ppm Cd and 20 ppm Mo from ICP (18153). Gold concentrations from rocks in the 'Upper Showing' area are at background levels.

At the 'Lower Showing' a sheared siliceous limestone bed within a sedimentary sequence contains anomalous gold, silver, copper, lead, zinc and cadmium. A 1 m sample along the zone yielded 685 ppb Au, 21.9 ppm Ag, 361 ppm Cu, 6399 ppm Pb, 9535 ppm Zn and 137 ppm Cd upon AA and ICP analyses (11304).

Graphitic zones sampled at several locations did not contain anomalous base or precious metal elements although sample 18159 contained 138 ppm Pb. A limonitic interval up to 100 m long,



within interbedded chert and argillite, sampled south of the sulphide showings did not yield significant base or precious metal concentrations.

Further work is warranted to follow-up results of the 1987 project. Recommended work includes geological mapping, detailed traverses across section and soil sampling in the area of the sulphide showings. Trenching at both showings is to be followed by detailed mapping and chip sampling. Geophysical surveys including VLF-EM, magnetometer and IP will help to outline major structures and sulphide concentrations along conductive trends. This may lead to targets for diamond drilling.



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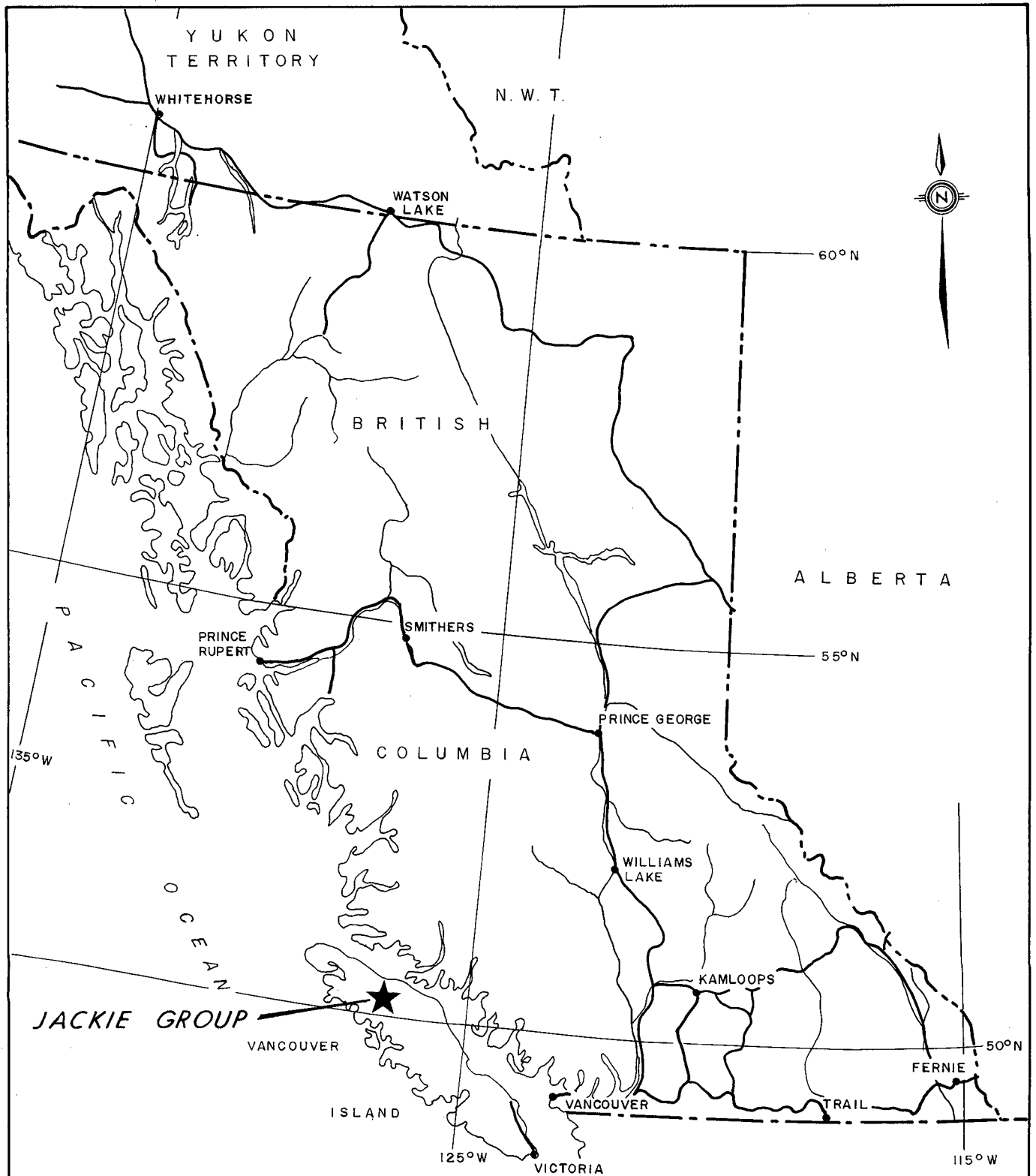


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CANAMIN RESOURCES LTD.

GENERAL LOCATION MAP
JACKIE GROUP

ALBERNI AND NANAIMO MINING DIVISIONS

| | |
|----------------------|---------------------|
| Project No: V 271 | By: B. T. |
| Scale: 1 : 8 000 000 | Drawn: J. S. |
| Drawing No: 1 | Date: OCTOBER 1987. |



MPH Consulting Limited



1.0 INTRODUCTION

This report is based on field work and research conducted by MPH Consulting Limited from August 11, 1987 to August 15, 1987 on the Jackie property. The work was commissioned by Mr. Stephen Quin of Canamin Resources Ltd. and headed by the author and an assistant for three days and by R.B. Anderson (consulting geologist for Canamin Resources Ltd.), for two days.

The work included geological mapping (1:5000), prospecting, rock and minor silt sampling. Research into previous work in and around the Jackie Group was also carried out and incorporated into this report.



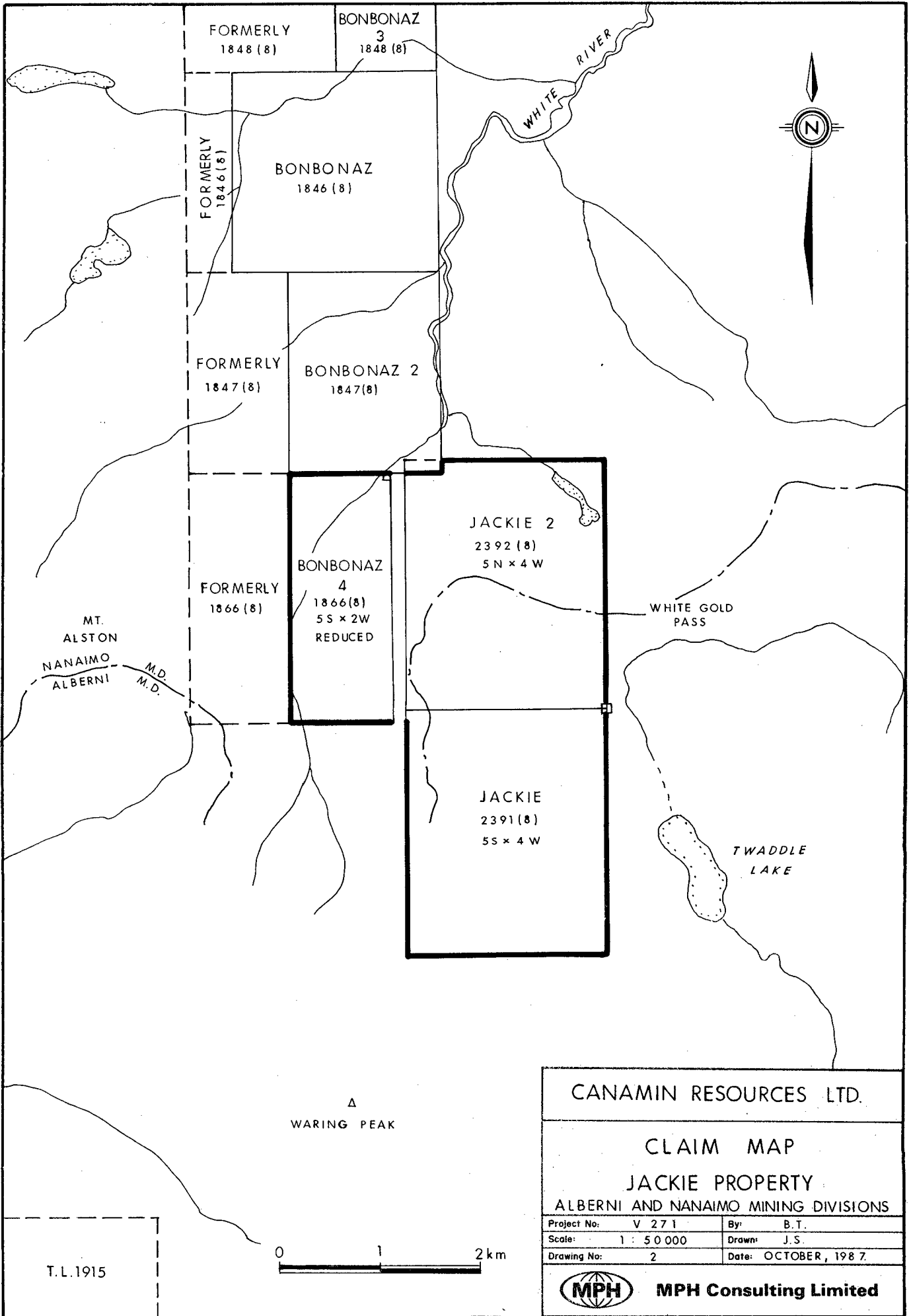
2.0 LOCATION, ACCESS, TITLE

The Canamin Resources Ltd. Jackie property comprises the Jackie, Jackie 2 and Bonbonaz 4 mineral claims which straddle the Alberni and Nanaimo Mining Divisions of B.C. The Jackie and Jackie 2 claims have been registered in the Alberni Mining Division and the Bonbonaz LCP is located in the Nanaimo Mining Division. The Jackie Group is located at the head of the Gold River Valley approximately 27 km north of the town of Gold River. The claim group is centred at approximately 50°01'N latitude and 126°10'W longitude on NTS mapsheet 92L/1, but straddles both mapsheets 92E/16 and 92L/1.

Access is gained via Gold River Main north for approximately 9 km then along the East Road for about 15 km to the intersection of Twaddle Main Line and West Road. The West Road heads north for approximately 5 km where W-74, W-74A and W-76 roads provide access to various parts of the property. A general logging road map (1:10,000) is available through CIP Forest Products Inc., in Gold River. A more detailed topographic map (1:5000), also available through CIP, is very useful, as all the new roads and logging area boundaries which are posted in the field, are shown on the map.

A Notice to Group, dated August 6, 1985 groups the Jackie, Jackie 2, Bonbonza 4 within the Jackie Group.

| Claim | Record No. | Units | Year Recorded | Expiry Date |
|------------|------------|-------------|---------------|--------------|
| Jackie | 2391 | 20 | 1984 | Aug 15, 1989 |
| Jackie 2 | 2392 | 20 | 1984 | Aug 15, 1989 |
| Bonbonaz 4 | 1866 | 10(reduced) | 1984 | Aug 23, 1989 |



MT. ALSTON
NANAIMO ALBERNI M.D. M.D.

Δ
WARING PEAK



T.L.1915


CANAMIN RESOURCES LTD.

CLAIM MAP

JACKIE PROPERTY

ALBERNI AND NANAIMO MINING DIVISIONS

| | | | |
|-------------|------------|--------|----------------|
| Project No: | V 271 | By: | B.T. |
| Scale: | 1 : 50 000 | Drawn: | J.S. |
| Drawing No: | 2 | Date: | OCTOBER, 1987. |

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3.0 PREVIOUS WORK

The Gold River Valley is relatively unexplored in terms of mining exploration. However, Minister of Mines reports dated 1924 and 1925, state that prospectors had been intermittently active in the area since the turn of the century, possibly due to the handing down of legends of ancient gold mine workings on Gold River.

In August of 1984 the present Jackie Property was staked by the Specogna family. From August 1984 to July 1985, work included prospecting, silt sampling and two rock cuts on the Jackie claim. The 'Lower' and 'Upper' showings along the easterly flowing creek are mentioned in the assessment reports. Mineralization at the showings, comprising sphalerite, galena, chalcopyrite, silver with limited gold, occurs at the contact of limestone and underlying sediments ('Lower Showing') and near the volcanic/chert contact within the chert ('Upper Showing'). Samples from the two pits at the 'Lower Showing' contained up to 9.6 g/t (0.28 oz/ton) Au (#1 pit) and 2.4 g/t (0.07 oz/ton) Au (#2 pit). A specimen from the 'Upper Showing' contained 0.14 g/t (0.004 oz/ton) Au, 347.7 g/t (10.14 oz/ton) Ag, 1.58% Cu, 29.46% Pb and 11.61% Zn (Specogna, 1985).

The following year, work carried out on the Jackie claims consisted of a rock cut at the 'Upper Showing' as well as a trail to the rock cut and prospecting for showings. Apparently no sampling was done as no results were mentioned in the report by Efrem and Marino Specogna (1986). It was reported, however, that garnets of gem quality were discovered at several locations on the property.

In early 1987, T.E. Lisle and Associates Ltd. prepared a report based on the previous work and a brief examination of the property. Four samples were collected from the 'Lower Showing' (at 670 m elevation). A selected composite grab sample contained up to 2.60 g/t (0.076 oz/ton) Au, 40.8 g/t (1.19 oz/ton) Ag, 921 ppm Cu, 20,961 ppm Pb, 15,502 ppm Zn, and 216 ppm Cd. A very general exploration program was outlined and recommended.

4.0 REGIONAL GEOLOGY

Government geological mapping in the Alert Bay - Cape Scott map area has been conducted by the Geological Survey of Canada. Two 1:250,000 scale maps are available for the area 1) Geology of Vancouver Island West Half by J.E. Muller, 1977 and 2) Geology Alert Bay - Cape Scott British Columbia compiled by Muller and Roddick (1983).

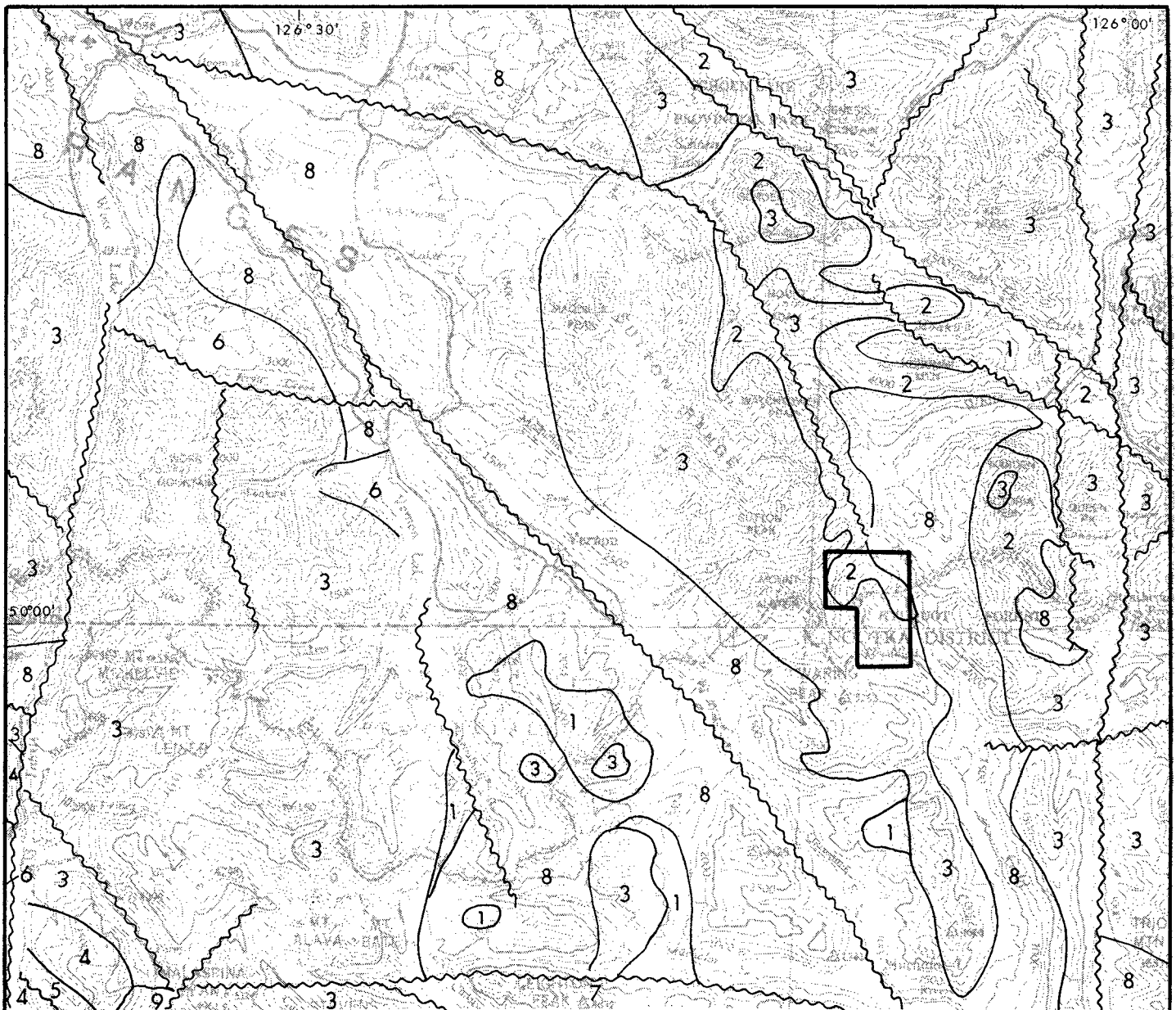
The area south of Johnstone Strait is chiefly underlain by the Vancouver Group. The Middle Triassic 'Sediment-sill' unit forms the base which is overlain by a thick sequence of Triassic Karmutsen Formation basalts. These are overlain by the Quatsino and Parson Bay Formations comprising carbonate, pelitic and volcanoclastic sedimentary rocks. The Lower Jurassic Bonanza Subgroup overlying the sediments, comprises basaltic to dacitic effusive and pyroclastic volcanics with minor intercalated sediments (Muller, Northcote, Carlisle, 1974).

Large and some small bodies of Middle Jurassic Island Intrusions intrude the Vancouver Group.

4.1 Sicker Group

Sicker sediments (Unit 1) comprising metagreywacke, argillite, schist and marble are exposed locally in the map area. Argillite and siltstone occur in graded beds from a few millimetres to several centimetres thick. Greywacke sandstone (with local lenses of detrital limestone) occurs in beds up to several decimetres thick.

Bedding varies from near flat lying to isoclinally folded, with total thickness estimated at 600 m. The formation is commonly siliceous (cherty?). A Middle Pennsylvanian age is suggested by fusulinids and other foraminifera found within the limestone (marginal notes, Muller, 1977).



GEOLOGY (after Muller, 1977)

CENOZOIC

9 TERTIARY INTRUSIONS : quartz diorite

JURASSIC

8 ISLAND INTRUSIONS : granodiorite, quartz diorite, granite quartz monzonite.

UPPER PALEOZOIC AND/OR ? TRIASSIC AND JURASSIC

7 WESTCOAST COMPLEX (silicic) : quartz - feldspar gneiss, metaquartzite, marble.

LOWER JURASSIC

6 BONANZA GROUP : basaltic to rhyolitic tuff, breccia, flows, sills and dykes, minor argillite, grey wacke.

MIDDLE TO LATE TRIASSIC VANCOUVER GROUP

5 PARSON BAY FORMATION : calcareous siltstone, greywacke, silty limestone, minor conglomerate, breccia.

4 QUATSINO FORMATION : limestone

3 KARMUTSEN FORMATION : pillow basalt, tuff, breccia minor flows.

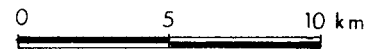
2 Sediment- sill unit : metasiltstone, diabase, limestone

PALEOZOIC SICKER GROUP

PENNSYLVANIAN AND PERMIAN

1 Sicker sediments : metagreywacke, argillite, schist, marble.

— Geologic contact
 ~~~~~ Fault (approximate)



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REGIONAL GEOLOGY MAP

JACKIE PROPERTY

AL BERNI AND NANAIMO MINING DIVISIONS

Project No: V 271

By: B.T., G.P.

Scale: 1 : 250 000

Drawn: J.S.

Drawing No: 3

Date: OCTOBER, 1987.



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## 4.2 Vancouver Group

Areally the Vancouver Group is the most extensive unit on Vancouver Island. The group is subdivided by Muller from oldest to youngest as follows: a basal 'Sediment-sill' unit, the Karmutsen, Quatsino, Parson Bay and Harbledown Formations and the Bonanza Volcanics.

The 'Sediment-sill' unit of Mid-Triassic age, is a unit of thin-bedded clastic rocks between the Buttle Lake and Karmutsen Formations recognized initially by Yole (1969). Carlisle recognized a unit of basic sills and minor sediments between underlying Buttle Lake and overlying Karmutsen Formations. The total thickness of this unit is estimated at 750 to 900 m. It has been mapped in the lower parts of the northeasterly slopes of the range from Mount Schoen to Victoria Peak.

In the Port Alberni and Cowichan Lake areas, the 'Sediment-sill' unit, defined by Muller, occurs above the Myra Formation and below the Buttle Lake Formation within the Sicker Group. In the Alert Bay-Cape Scott area it apparently overlies the Sicker sediments. It would appear that this unit is poorly understood in terms of age and stratigraphic position.

The sedimentary layers between the diabasic sills are from approximately 0.3 m to 60 m thick, comprising laminated to bedded black shales and siltstones. These are silicified by diagenesis and intrusion of diabasic sills. The sills are thought to be in part coeval with the sediments but most of them were probably emplaced simultaneously with the extrusion of Karmutsen basalts (Muller, 1974).

To the north of the Jackie Group, the same sequence of sediments has been mapped and subdivided into three units comprising sediments, limestone and diorite(?) sills (Bruland, et al 1985).

The **Karmutsen Formation** (Unit 3) named by Gunning (1932), comprises tholeiitic volcanic rocks up to 6000 m thick. In the standard section (Carlisle, 1974) the formation comprises three members. The lower member consists of pillow lava, approximately 2600 m thick, overlain by a succession of about 800 m, of pillow breccia and aquagene tuff which is overlain by about 2900 m of massive flows and minor interbedded pillow lava, breccia and sediments. The Middle to Late Triassic age of the Karmutsen Formation has been determined by stratigraphic relationships as well as fossils found within the upper member sediments. The volcanics exhibit low-grade metamorphism except near the contacts of intrusions where metamorphism is higher grade. The formation is well-exposed in the Sutton Range area and forms steep ridges and peaks in the area of the Jackie property.

The Upper Triassic **Quatsino Formation** (Unit 4) limestone comprises mainly massive to thick-bedded calcilutite from about 25 m to 500 m thick containing ammonites and other fossils of Late Karnian to Early Norian age (Muller, Northcote, Carlisle, 1974). It paraconformably overlies the Karmutsen Formation.

The lower part of the formation is brown-grey to black, fine to microcrystalline, locally coarsely crystalline and commonly styalitic limestone. It weathers light grey to white. The upper part is medium to thin-bedded limestone with interlaminated black calcareous siltstone. The Quatsino Formation is at its maximum thickness of 500 m, south of Alice Lake.

The Quatsino and Parson Bay Formations (Unit 5) are commonly mapped as one unit, as the former grades upward into calcareous clastic sediments of the Parson Bay, making the distinction difficult, and often the Quatsino Formation is of insufficient thickness to show on a regional scale. Locally the Parson Bay Formation directly overlies the Karmutsen Formation volcanics. It comprises interbedded calcareous black argillite, calcareous greywacke and sandy to shaly limestone. The proportion and

grain size of clastic material increases toward the top of the formation. The thickness is approximately 300 to 600 m. The Quatsino and Parson Bay Formations were formed in near and offshore basins in the quiescent Karmutsen rift archipelago, according to Muller (1977).

#### **4.3 Bonanza Group**

The Bonanza Group (Unit 6) was originally named by Gunning (1932) at which time Upper Triassic sediments were included within the Group. The group is exposed mainly in the northwest and southwest parts of the island. Lava, tuff, and breccia mainly of basaltic and rhyolitic with local andesitic and dacitic compositions make up the group. Several eruptive centres of a volcanic arc are represented by the Bonanza Volcanics which explains the compositional and textural variety. Intercalated beds and sequences of marine argillite and greywacke occur locally within the group. Where only the sedimentary part of the group is present, the rocks are referred to as the Harbledown Formation (Lower Jurassic). It is distinguished from the Parson Bay sediments by its noncalcareous character. This formation has been mapped mainly in the northeast portion of the island. Generally a Lower Jurassic age is indicated by fossils.

#### **4.4 Westcoast Crystalline Complex**

The Westcoast Crystalline Complex (Unit 7) is a heterogeneous assemblage of hornblende-plagioclase gneiss, amphibolite, agmatite and quartz diorite or tonalite. Migmatization during Early Jurassic time, of the Vancouver and Sicker Group rocks is believed to have produced the complex. The mobilized granitoid portion of the complex is considered to be the source of the Island Intrusions and indirectly the Bonanza Volcanics (Muller, 1977).

#### 4.5 Island Intrusions

The Island Intrusions (Unit 8) form stocks and batholiths which range in composition from quartz diorite to granite. They intrude the underlying Sicker, Vancouver and Bonanza rocks. They have been estimated to underlie approximately 25% of Vancouver Island's surface area.

Hornblende-quartz-feldspar porphyritic, high-level stocks and dykes found within the Bonanza Group are apparently comagmatic with the volcanics. A Middle to Late Jurassic age has been determined mainly from K-Argon dating. Intrusive contacts with Sicker and Bonanza Group volcanics are characteristically transitional zones of migmatites and gneisses. Karmutsen Formation/Island Intrusive contacts are sharp and well-defined, however. Contact metamorphism (skarns) occur mainly at Quatsino Formation contacts, though also at Buttle Lake Formation contacts with the intrusions.

#### 4.6 Tertiary Intrusions

Early Tertiary potassium-argon ages have been obtained from the south Zeballos pluton and several more may be present but unrecognized (Muller, Northcote, Carlisle, 1974).

The quartz diorite consists mainly of quartz, oligoclase-andesine, and biotite. The rocks are characteristically higher in biotite and quartz than the Island Intrusions. They also lack epidote and are low in chlorite and opaques according to Carson (1973).

A Tertiary intrusion which contains most of the rich gold veins has been mapped in the Zeballos mining camp. According to Stevenson (1950), outcrops are conspicuously jointed with a bouldery or hummocky appearance due to exfoliation.



#### 4.7 Structure

Steep faults are the predominant structural feature on Vancouver Island. Faulting and rifting probably occurred during the outflow of Karmutsen lavas in Late Triassic time establishing the northerly and westerly directed fault systems which affect the Sicker and Vancouver Group rocks. During the Late Mesozoic to Early Tertiary, northwest faulting was accompanied by southwest tilting in the west, followed by northeast tilting in the east which affected Upper Cretaceous sediments (Muller, 1977).

Major regional faults such as the San Juan and Leech River Faults are thought to be structures associated with subduction zones (Muller, 1977).

#### 4.8 Economic Setting

The Sicker Group, and to a lesser extent, the Vancouver Group of volcanics, have been explored intermittently since the 1890's for gold, silver and base metal mineralization.

Deposits of copper and gold-silver in quartz veins and shear zones hosted by mafic to intermediate volcanic rocks, and base and precious metal skarn deposits, until recently, were the most widely recognized economic and subeconomic metal concentrations in the area.

At Buttle Lake, approximately 70 km southeast of the Jackie Group, the Myra Formation hosts Westmin Resources' volcanogenic massive sulphide deposit. Initially discovered in 1917, it was not recognized as a volcanogenic massive sulphide deposit until the late 1960's. Ore minerals including sphalerite, chalcocopyrite, galena, tetrahedrite-tennantite, minor bornite and covellite, are hosted by pyritic, rhyolitic to rhyodacitic volcanic and pyroclastic rocks of the Myra Formation.



Published reserves of the H-W mine are 13,901,000 tonnes averaging 2.2% Cu, 5.3% Zn, 0.3% Pb, 2.40 g/t (0.07 oz/ton) Au and 37.7 g/t (1.1 oz/ton) Ag (Walker, 1983). In the 3 years, 1980 to 1982, 811,987 tonnes of ore were milled, producing 7,306,880 kg Cu, 43,706,118 kg Zn, 6,455,040 kg Pb, 1,740,000 g (56,000 oz) Au, 78,630,000 g (2,528,000 oz) Ag, and 58,500 kg Cd.

The most common type of mineralization in the Karmutsen Formation appears to be related to shear zones and quartz veins with anomalous copper, silver, lead, zinc and local gold concentrations. Iron skarns also occur in the area.

Recent mineral exploration by Falconbridge Limited on the Davis Copper Showing located north of the Jackie property encountered similar mineralization as the Jackie showings. The Davis showing comprises copper mineralization in quartz veins located at a fault contact between the 'Sediment-sill' unit and the Karmutsen Formation. A grab sample taken prior to this work is reported to have contained 15.1% Cu, 2.45% Pb, 5.47 g/t Au, 115 g/t Ag and 14.5% As. The extent of mineralization (tested by drilling), however, appears to be limited.

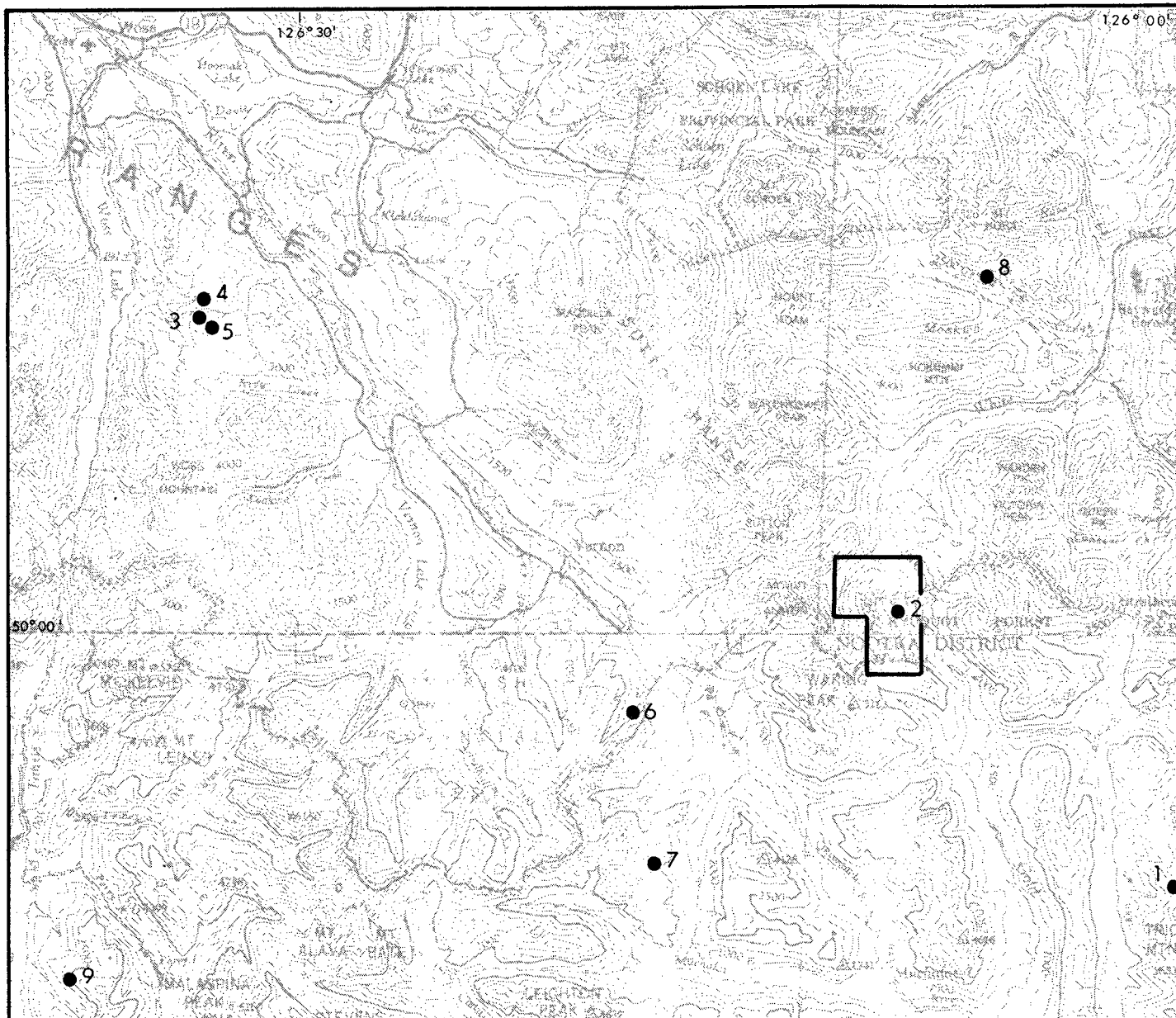
Several additional mineral occurrences in the area are shown on Figure 4. The following section, 'Mineral Occurrences' provides an account of the history, geology and nature of the mineralization at each location.

#### **4.9 Mineral Occurrences**

##### **1. Vanhall Cu, Zn, Ag, Mo**

###### **Geology:**

Karmutsen Formation andesitic to dacitic volcanics are cut by diorite, lamprophyre and dacite porphyry dykes and are intruded by Upper Jurassic Island Intrusions granodiorite to the southeast



PRECIOUS METAL OCCURRENCES

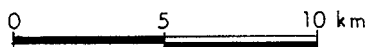
- 1 Vanhall (OV) Zn, Ag, Cu, Mo
- 2 Jackie Pb, Zn, Ag, Au, Cu

OTHER OCCURRENCES

- 9 Tahsis Inlet Limestone, Marble

BASE METAL OCCURRENCES

- 3 Woss Lake 4 Cu
- 4 Woss Lake 1 Fe
- 5 Woss Lake 2 Cu
- 6 Nimpkish Copper (AK) Cu, Fe
- 7 Oktwanish Cu, Fe
- 8 Davis Cu (Pb, Zn, Ag, Au)



CANAMIN RESOURCES LTD.

MINERAL OCCURRENCES  
LOCATION MAP  
JACKIE PROPERTY

ALBERNI AND NANAIMO MINING DIVISIONS

|                   |                      |
|-------------------|----------------------|
| Project No: V 271 | By: G. A. P.         |
| Scale: 1: 250 000 | Drawn: J. S.         |
| Drawing No: 4     | Date: OCTOBER, 1987. |



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of the property. Chlorite and minor epidote alteration of the volcanic rocks are common. Extensive fracturing and some coarse brecciation occurs in the Karmutsen Formation.

#### **Mineralization Features:**

Pyrite and chalcopyrite are disseminated throughout the andesites and in a dacite porphyry dyke. Pyrite, pyrrhotite, chalcopyrite, magnetite and sphalerite occur along fractures in the volcanics. Molybdenite is associated with quartz veins. From a soil survey conducted over the property, it was stated, "The few samples taken have extended both the silver and molybdenum anomalies without closure." (Roberts, 1980).

#### **History:**

- 1969: Moresby Mines Ltd. conducted a preliminary geological examination of the Vanhall Claims. The highest assays reported are: 32.6 g/t (0.95 oz/ton) Au, 1.72% Cu and 15.8 g/t (0.46 oz/ton) Au, 3.4 g/t (0.1 oz/ton) Ag, 0.2% Cu, 0.22% Mo and 43.5 g/t (1.27 oz/ton) Au, 85.7 g/t (2.5 oz/ton) Ag, 11.4% Cu, 0.14% Zn.
- 1972: Moresby Mines Ltd. carried out a geochemical survey of the property. A representative sample of the mineralized rock assayed 2.1 g/t (0.06 oz/ton) Ag and 2% Cu.
- 1980: Eastern Leaseholds Inc. carried out a geochemical survey of the property.

#### **References:**

- GEM 1972-263  
AR 2436, 3953, 8065  
GSC p. 72-44  
GCNL #44, 1982  
Minfile 92E050

### 3. Woss Lake #4 Cu

#### **Location:**

On the east side of Woss Lake; approximately 5 miles south of the north end of Woss Lake, Vancouver Island. Latitude: 50°07'N, Longitude: 126°34'W.

#### **Geology:**

Although Muller's 1977 regional geology map differs, property reports indicate that Karmutsen basalts underly the property and have been intruded by several northwesterly trending porphyry dykes. These dykes are cut by northeasterly striking quartz veins with associated parallel zones of epidote altered, brecciated volcanic rock. The mineralization appears to be associated with these veins and brecciated zones.

#### **Mineralization Features:**

The quartz veins and brecciated zones appear to carry chalcocopyrite and pyrite. Sulphides occur as 'knots', filling fractures and interspaces in the breccia. A grab sample from a mineralized quartz vein returned 10.3 g/t (0.03 oz/ton) Au, 85.7 g/t (2.5 oz/ton) Ag, 16.6% Cu. A soil geochemistry program failed to locate any new or significant mineralization. It was recommended that a reconnaissance grid be established, extending out from the present showings. An extremely large magnetic anomaly (+46,000 gammas) and a smaller anomaly (+6,000 gammas) were located.

#### **History:**

- 1964: Woss claims staked by Hans Knapp of Camp N, Beaver Cove, B.C.
- 1965: Empire Development Company Ltd. carried out an exploration program consisting of limited geological mapping.
- 1972-73: Whittles, A.B.L., Ph.D. completed exploration work consisting of geological mapping, magnetometer, VLF-EM surveys and lithogeochemical sampling.



1985: Archer Minerals Inc. conducted a reconnaissance prospecting program, established a flag and chain grid and conducted a soil geochemical survey. The grid consisted of 15 lines spaced 50 m apart with sample stations every 50 m. 159 samples were collected along 8.5 km of line.

**References:**

MMAR 1965-233  
GEM 1973-255  
AR 633, 4568, 14413  
GSC Mem. 272  
Minfile 92L064

**4. Woss Lake #1 Fe**

**Location:**

As in 3. Woss Lake #4.

**Geology:**

This property is underlain by Karmutsen volcanics with a north-easterly band of white to blue-grey crystalline limestone, 60-90 m thick.

**Mineralization Features:**

Fairly dense 'pure looking' magnetite with sparse disseminated pyrite replaces limestone within Karmutsen basalts.

**History:**

1964: Woss Claims staked by Hans Knapp of Camp N, Beaver Cove, B.C.  
1965: Empire Development Company Ltd. carried out an exploration program consisting of limited geological mapping.



1972-73: Whittles, A.B.L., Ph.D. completed an exploration program consisting of geological mapping, magnetometer, VLF-EM surveys and lithogeochemical sampling.

**References:**

MMAR            1965-233  
                  1973-255  
AR                663, 4568  
GSC              Mem. 272  
Minfile         92L066

**5. Woss Lake #2    Cu**

**Location:**

As in 3. Woss Lake #4.

**Geology:**

Karmutsen basaltic flows cut by northwesterly trending porphyritic dykes. Mineralization is associated with quartz lenses in brecciated volcanics.

**Mineralization Features:**

Scattered pods of chalcopyrite occur in quartz lenses. Narrow quartz veins are mineralized with chalcopyrite, pyrite and specular hematite. Isolated anomalous Au and Cu soil concentration occur. A dip needle survey outlined an anomalous area 20 m by 20 m.

**References:**

As in 3. Woss Lake #4.  
Minfile         92L065



## 6. Nimpkish Copper (AK) Cu, Fe

### Location:

Twenty km north of Gold River by logging road. NTS 92E/16W, latitude 49°56'N; longitude 126°17'W.

### Geology:

Karmutsen Formation basaltic flows, andesites and an interbedded sequence of limestone, carbonaceous argillite and tuffaceous rocks underly the area. This assemblage is intruded by rocks of granodioritic composition. The mineralization is associated with the limestone/intrusive contacts.

### Mineralization Features:

Two occurrences of magnetite and garnet skarn are near intrusive/limestone contacts. Massive magnetite with hematite occurs near the intrusive volcanic contact. Minor copper occurs within skarn along the contact of a 'greenstone(?)' dyke with limestone. Massive chalcopyrite with pods of bornite and chalcopyrite form a vein obliquely cutting a skarn body along a strong northwest fault which strikes 160° and dips steeply to the east. A sample of mineralized quartz vein taken over 1 m assayed 30.03% Cu.

### History:

- 1928: 40 claims staked in mineralized area discovered by E.L. Kinman.
- 1929: Several open cuts were completed and samples assayed up to 20% Cu.
- 1930: Several more open cuts were completed, 20 diamond drill holes sunk, and a 46 m tunnel driven. One sample taken over 1 m of mineralized rock assayed \$49/ton gold.
- 1965-66: Empire Development Co. carried out geological mapping and a dip needle survey of the area.
- 1972: First National Mines Ltd. commissioned Manny Consultants Ltd. to carry out a geological survey of the area.



**References:**

MMAR 1928-379, 1929-381, 1930-299, 1965-230, 1966-246  
GEM 1970-273, 1972-263  
AR 728, 4102  
GSC Paper 72-44  
GSC Mem. 272-71  
Minfile 92L025

**7. Oktwanish Cu, Fe****Location:**

Situated on the Oktwanish River (lat. 49°54'N and long. 126°16'W) in the Upper Nimkish Valley, Vancouver Island, B.C.

**Geology:**

This area is underlain by andesitic, basaltic flows with porphyritic members and poorly formed pillow lavas of the Karmutsen Formation, Sicker Group sediments and Jurassic granodiorite.

**Mineralization Features:**

Lenses of magnetite and of skarn with chalcopryite, pyrite and local pyrrhotite occur in places along several contacts. These include limestone-argillite and andesite-granodiorite contacts. The largest magnetite lense is 27 m x 1 m; largest chalcopryite lense is 15 m x 30 cm x 4 m (falls showing).

**History:**

1965: Empire Development Company Ltd. carried out an exploration program consisting of geological mapping at a scale of 1"=500 feet and some dip needle surveying.

**References:**

MMAR 1965-23, 1966-246  
AR 743  
GSC Paper 72-44  
Minfile 92L019



## 8. Davis Cu

### Location:

62 km West of Campbell River (62 km), Nanaimo Mining Division. NTS 92L/1E, latitude 50°08'N, longitude 126°07'W.

### Geology:

Karmutsen Formation volcanics and the 'Sediment-sill' unit underly most of the property. The 'Sediment-sill' unit is located stratigraphically between the Karmutsen Formation and the Sicker Group, while conflicting ages based on fossil evidence, place it either within the Vancouver Group or alternatively within the Paleozoic Sicker Group. Granitic rocks of the Jurassic Island Intrusions occur to the south of the showing. Most of the mineralization is associated with the fault contact between the Karmutsen Formation volcanics and the 'Sediment-sill' unit.

### Mineralization Features:

Chalcopyrite occurs as stringers in quartz veins and shear zones and as disseminations in schistose, chloritic Karmutsen Formation volcanics near the fault contact with the 'Sediment-sill' unit. Lenses, veins and stringers of pyrite, chalcopyrite and arsenopyrite were found during drilling and the best assays are: B84-3: 0.30 m grading 4.10 g/t Au and 1.5 g/t Ag; B84-4: 0.30 m grading 4.65 g/t Au and 1.5 g/t Ag.

### History:

- 1930's: Showing discovered by Gerald Davis.
- 1956: Gerald Davis staked Davis 1 and 2.
- 1957: Gerald Davis sold claims to Falconbridge Nickel Mines Ltd.
- 1964: 6 trenches and rock geochemical sampling completed. Highest assays were 7% Cu and 54.8 g/t (1.6 oz/ton) Ag over 1 m and 13.7 g/t (0.4 oz/ton) Au, 6.9 g/t (0.2 oz/ton) Ag, 10.7% Pb and 2.57% Zn.



- 1968: Geophysical survey completed by S.N. Charteris, P.Eng.
- 1972: Claims returned to G. Davis.
- 1983: E. Specogna staked claims in area and optioned them to Falconbridge Ltd.
- 1984: Airborne EM and magnetometer survey completed.
- 1985: Falconbridge Ltd. conducted geological, geophysical and geochemical surveys over property. They also carried out 405.6 m of diamond drilling to test the strike and dip extension of the Davis Copper Showing.

**References:**

Minfile 92L229  
AR 1844, 12168, 13836

**9. Tahsis Inlet****Location:**

Centered at 49°54'N latitude, 126°38'W longitude.

**Geology:**

The property is underlain by rocks of the Vancouver Group and Upper Triassic carbonate, pelitic and volcanoclastic sediments (Quatsino and Parson Bay Formations). The Vancouver Group is intruded by large and small bodies of Middle Jurassic Island Intrusions.

**Mineralization Features:**

The Tahsis Inlet showing consists of limestone and marble located in the Quatsino and/or Parson Bay rocks. Rock samples and heavy mineral samples collected in the area of the showing have been anomalous in gold, arsenic, copper and zinc. The highest rock sample gold value was 17,000 ppb while the highest arsenic, copper and zinc values were 1000 ppm, 7500 ppm and 16,000 ppm respectively.

**History:**

- 1917: Marble and limestone occurrence noted.
- 1979: Pan Ocean Oil Ltd. conducted regional field work.
- 1980: Pan Ocean Oil Ltd. staked Tah claims. They conducted a program of heavy mineral sampling, rock sampling, and stream sediment sampling. A total of 164 rocks, 14 heavy mineral and 92 stream samples were collected.

**References:**

- Dept. of Mines, Mines Br. Rpt. 452-p.163, 171
- GSC Map 1027A  
Mem. 272, p.17
- AR 9130
- Minfile 92L059

## 5.0 1987 ASSESSMENT WORK

Five days were spent conducting geological fieldwork on the Jackie Group of claims from August 11 to August 15, 1987. Work included three days of geological mapping, prospecting, rock and limited silt sampling, conducted by the author and an assistant of MPH Consulting Limited, and two days of mapping, prospecting and rock sampling conducted by R.B. Anderson (consulting geologist for Canamin Resources Ltd.). Geological mapping at a scale of 1:5000, using a blow-up of 1:50,000 scale topography map for a base, was concentrated mainly in and around the 'Upper' and 'Lower' showings and along logging road cuts and creeks.

Rock samples (35) and silt samples (4), were sent to Rossbacher and Acme Laboratories in Burnaby and Vancouver for Au analysis by AA and for 30-elements by ICP. In addition, rock samples rich in sulphides were assayed for Au, Ag, Cu, Pb and Zn. Rock sample descriptions and selected results are included in Appendix II, and Certificates of Analysis are provided in Appendix III.

### 5.1 Property Geology (Figure 5)

The Jackie Group of claims is underlain by the mid-Triassic(?) 'Sediment-sill' unit of (?) the Vancouver Group (Muller, 1977), in fault contact with, and overlain by volcanics of the Upper Triassic Karmutsen Formation. A large body of Jurassic Island Intrusions quartz diorite to granodiorite intrudes the sediments and volcanics.

The property geology appears to be similar to that of the Bruno Group located north of the Jackie property and southeast of Mount Schoen where the Karmutsen Formation hosts the Davis Showing which occurs at a fault contact between sediments and volcanics. Bruland (1985) has subdivided the 'Sediment-sill' unit into three subunits: sediments, limestone and diorite sills. He interpreted the 'Sediment-sill' unit as a 'window' in the Mesozoic Vancouver Group, and as belonging to the Sicker Group.

On the Jackie property sediments and sills have not been differentiated. The sills are mainly andesitic(?) to basaltic, (to locally gabbroic) in composition. Bodies of coarse-grained diorite were mapped as part of the Jurassic Island Intrusions.

Sediments of the 'Sediment-sill' unit comprise mainly thin-bedded argillites and siltstones interbedded with cherts, cherty tuffs(?), mafic tuffs and minor calcareous sediments. Bedding strikes from north-northeast with a moderate southeast dip to north-northwest with a moderate westerly dip. A limestone bed occurs above a thick succession of mainly argillite and siltstone at the 'Lower Showing'. Graphitic lenses and zones occur throughout the unit. Chloritic schists occur particularly near the upper part of the unit. Schistosity trends slightly east of north and dips steeply to the west. The unit forms near vertical cliffs along the sides of the main creeks.

Sills appear to follow bedding and are at times difficult to differentiate from mafic tuffs. They appear to consist of andesitic(?) and basaltic to locally gabbroic compositions. Feldspar porphyritic texture is common in the sills.

A 'flower porphyritic' unit containing glomerophyric feldspars may be a large xenolith within a coarse-grained diorite unit which is part of the Jurassic Island Intrusions.

The Karmutsen Formation mafic flows form the high peaks and steep ridge on the western side of the Jackie property. Karmutsen Formation volcanics are in contact with the 'Sediment-sill' unit on the northern side of the showings' creek. However, on the southern side sediments were mapped. This suggests a fault with left lateral(?) displacement, following the creek. At this location the lower part of the volcanics(?) are schistose and chlorite-altered. Detailed mapping further up the creek west of the 'Upper Showing' should confirm or deny the presence of a fault.

The Island Intrusions of dioritic, to granodioritic composition are exposed in the valley in the eastern portion of the Jackie claim. They intrude the 'Sediment-sill' unit along with an irregular, generally northwest trending contact. The intrusive varies in composition and over most parts of the property it appears to be mottled black and white, medium to coarse-grained, xenolithic and locally cut by rusty shear zones. Epidote alteration and quartz veining ('bull' quartz) occur locally.

## 5.2 Mineralization

The 'Upper' and 'Lower' sulphide showings are the most important known mineralization on the property. Iron-oxide staining within the 'Sediment-sill' unit is quite common. The highest value for Au from this year's samples is 685 ppb (sample 11304) from the 'Lower Showing'.

At the 'Upper Showing' located on the north side of the easterly flowing creek at the 860 m elevation in the northern Jackie claim area, galena, sphalerite, chalcopyrite, pyrite occur as banded, apparently discontinuous lenses with quartz veins and veinlets. These are exposed over an area at least 3 m wide within argillite interbedded with chert, with local chloritic schist, and epidote and sericite alteration. Assays from a chip sample (18157) over 1.6 m of sulphide-rich chloritic schist near a mafic volcanic contact, contained 6.17 g/t (0.18 oz/ton) Ag, 0.08% Cu, 0.54% Pb and 0.66% Zn and 0.03 g/t (0.001 oz/ton) Au. A 1.0 m chip sample of argillite with interbedded chert with massive sulphide lenses assayed 26.0 g/t (0.76 oz/ton) Ag, 0.48% Cu, 8.20% Pb, and 4.80% Zn and 0.03 g/t (0.001 oz/ton) Au in addition to 874 ppm Cd, 19 ppm Mo (ICP).

A chip sample (18153) across a boulder from the showing, containing massive sulphides hosted within a cherty interval in contact with fine-grained mafic volcanic, assayed 67.2 g/t (1.96 oz/ton)

Ag, 1.50% Cu, 11.98% Pb and 8.00% Zn with 0.03 g/t (0.001 oz/ton) Au in addition to 1447 ppm Cd and 20 ppm Mo (ICP). Argentite was noted in a hand sample as well as galena, chalcopyrite and pyrite.

Limonitic argillite and chert occur in deep dark brown, yellow and rusty red zones mainly on the southern side of the creek, particularly southeast of the 'Upper Showing' over an approximately 10 m exposed zone. Three adjacent chip samples from the zone were collected (18154 to 18156) with all three containing anomalous lead and high zinc concentrations up to 541 ppm Pb and 239 ppm Zn (sample 18154).

A graphitic(?) layer within a chlorite schist chip sampled (18160) along a zone, southwest of the 'Upper Showing', contained 138 ppm Pb with no other significant mineralization.

As previously mentioned, a fault of relatively major displacement likely exists along the creek near the 'Upper Showing'. Slickensided surfaces are observed and displacement is suggested by marked lithologic contrasts across the creek. Mineralization appears to be associated with this fault, although more detailed mapping is necessary to establish the nature of this relationship, as well as the extent of this zone.

The 'Lower Showing' is located on the south side of the same easterly flowing creek as the 'Upper Showing', at the 540? m elevation at the top of a steep cliff. It was sampled and briefly mapped by R.B. Anderson. It is most easily accessible via a 'dry gulch' trending northeast from a switchback on W-74 approximately 50 m(?). Mineralization is apparently concentrated within a sheared grey limestone approximately 6 m wide, within locally gossanous argillaceous sediments. Shear zones appear to be common in this area.





Samples were collected from the previously blasted outcrops (11304 to 11308). Four of the five samples were anomalous in Ag with concentrations up to 21.9 ppm in sample 11304. This sample of siliceous limestone(?) also contained 685 ppb Au, 361 ppm Cu, 6399 ppm Pb, 9535 ppm Zn and 137 ppm Cd. Samples 11397 and 11395 of cherty argillite near the showing contained 17 ppb Au and 16 ppb Au, respectively.

Limonitic zones over other parts of the property occur locally. A large limonitic zone occurs on a new (1987?) logging road cut extension of W-74, within a cherty argillite unit with local graphitic layers. Samples 18164 to 18166 from pyritiferous sediments contained only background concentrations of Au, Ag, Cu, Pb and Zn.

Another limonite stained zone in sediments occurs at a roadcut where the showings' creek (on the south side of creek) intersects the road near the contact between Island Intrusions and the bedded argillites. Sample 18168 from this chlorite and epidote altered zone, contained abundant fine-grained grey pyrite (up to 10%). Concentrations of 1.2 ppm Ag, 390 ppm Cu with only background Au, Pb and Zn were contained in this sample. On the north side of the creek a 2.0 m chip sample (18169) of a chloritic schist with abundant graphitic material contained 440 ppm Cu.

The 'Upper' and 'Lower' showings host significant silver, copper, lead, zinc (cadmium) mineralization with limited amounts of gold. These are thought to be related to the fault which occurs along the showings' creek. Anomalous lead concentrations occur within limonitic argillite and may be stratabound in part. A structural control for the Cu, Ag, Pb, Zn mineralization is suggested however, because the 'Upper' and 'Lower' showings are hosted by different lithologies and both appear to occur along the same major structure. Quartz veinlets which may be related to the fault at the 'Upper Showing' appear to be associated with the sulphide mineralization although the nature of the relationship is not clear.



## Silt Samples

Four silt samples were collected from streams draining the Jackie property. Locations are shown on Figure 5. Two samples (Silt #1 and Silt #2) collected from tributaries of an easterly flowing creek in the southern Jackie 2 claim, apparently underlain by Jurassic intrusive rocks. Concentrations of up to 0.6 ppm Ag, 116 ppm Cu, 40 ppm Pb and 131 ppm Zn were contained in these samples.

Silt #3 was collected from below (east of) the junction of the 'Upper Showing' creek and a major tributary flowing northeast. It drains an area underlain primarily by the 'Sediment-sill' unit. Concentrations of 0.4 ppm Ag, 213 ppm Cu, 11 ppm Pb, 90 ppm Zn indicate background levels of these elements in stream sediments. Silt #4 which was collected further east, along this creek, upstream of the road intersection, yielded similar background concentrations. Anomalous gold concentrations were not contained in any of the silt samples.



## 6.0 CONCLUSIONS

1. The Jackie Group of claims is underlain by a northerly striking succession of sediments of the mid-Triassic 'Sediment-sill' unit within the Vancouver Group. These are in fault(?) contact with the overlying Karmutsen Formation mafic volcanics. Jurassic Island Intrusions diorite, quartz diorite and granodiorite intrudes the sediments and volcanics. Slickensides and offset suggest that a fault exists in the easterly flowing creek near the 'Upper Showing'.
2. The 'Upper' and 'Lower' showings occur on the north and south sides respectively of the same easterly flowing creek, approximately 450 m apart. Mineralization appears to be associated with a shear and/or fault with some associated quartz veining, although additional detailed mapping is necessary to establish the nature of this relationship.
3. At the 'Upper Showing' discontinuous bands of sulphides including galena, sphalerite, chalcopyrite and pyrite occur within interbedded chert and argillite near the contact with a mafic volcanic. This unit is cut by quartz veins/veinlets near the showing. A chip sample across a boulder containing massive sulphides, from the showing assayed 62.7 g/t (1.96 oz/ton) Ag, 1.50% Cu, 11.98% Pb, and 8.00% Zn with only 0.03 g/t (0.001 oz/ton) Au. ICP concentrations of 1447 ppm Cd and 20 ppm Mo were yielded from this sample. Gold concentrations of 5 ppb were returned from all the rock samples collected in this 'Upper Showing' area.
4. Slightly southwest of the 'Upper Showing', limonite-stained argillite contains highly anomalous lead and weakly anomalous zinc concentrations with no associated gold, silver or copper mineralization. The lead may be partly stratabound.



5. At the 'Lower Showing' anomalous gold, silver, copper, lead, zinc and cadmium concentrations were contained in a 1 m sample of a sheared and siliceous limestone interval. Sample 11304 contained 685 ppb Au, 21.9 ppm Ag, 361 ppm Cu, 6399 ppm Pb, 9539 ppm Zn and 137 ppm Cd. Sulphide mineralization was not noted in hand specimen although limited iron-oxide staining was present.
  
6. A limonitic-stained pyritiferous, interbedded chert and argillite interval with graphitic layers exposed along a new road cut extension of W-74 contained no significant precious or base metal concentrations.
  
7. Past and previous encouraging results on the Jackie Property warrant further mineral exploration which is outlined in the following section.

## 7.0 RECOMMENDATIONS

1. Geological mapping and prospecting over the entire property using a 1:5000 scale orthophoto map with contours as a base.
2. At least three detailed traverses along the major easterly flowing creeks including the showings creek. These should cover both the upper and lower contacts of the 'Sediment-sill' unit.
3. Particular attention should be directed toward orientation and nature of shear zones and quartz veins to determine their relationship, if any, to the major fault within the creek.
4. Prospecting and sampling of structurally related mineralization and skarn type mineralization in areas where the Island Intrusions are in contact with calcareous sediments. The strike and dip of the intrusive contact may be shallow thereby increasing the potential for skarn-related mineralization.
5. In the area of the 'Upper' and 'Lower' showings, closely spaced soil grids may be useful in determining the extent of mineralization in these areas, as well as proving whether or not it will be an effective method for further exploration over other parts of the property.
6. Trenching followed by detailed mapping and chip sampling of the 'Lower Showing' and if possible the 'Upper Showing'.
7. Geophysics to include VLF-EM and magnetometer surveys for delineating structural features and lithologic changes, followed by IP to outline sulphide concentrations along conductive trends.



8. Drilling may be recommended contingent upon results from this program.

Respectfully submitted,  
**MPH CONSULTING LIMITED**

*B.Y. Thomae*

**B.Y. Thomae, B.Sc.**

*T.G. Hawkins*  
**T.G. Hawkins, P.Geol.**

October 9, 1987

**CERTIFICATE**

I, Barbara Y. Thomae, do hereby certify that:

1. I am a graduate in geology of the University of British Columbia (B.Sc. 1983).
2. I have practised as a geologist since 1980, for several major exploration companies.
3. The opinions, conclusions and recommendations contained herein are based on field work and research carried out by myself and MPH Consulting Limited staff members this year.
4. I own no direct, indirect, or contingent interests in the area, the subject property, or shares or securities of Canamin Resources Ltd. or associated companies.

*B. Y. Thomae*

B.Y. Thomae, B.Sc.

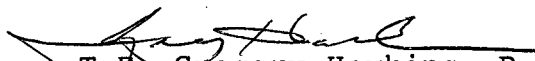
Vancouver, B.C.

October 9, 1987

**CERTIFICATE**

I, T.E. Gregory Hawkins, do hereby certify:

1. That I am a Consulting Geologist with business offices at #2406-555 West Hastings St, Vancouver, B.C. V6B 4N5.
2. That I am a graduate in geology of The University of Alberta, Edmonton (B.Sc. 1973), and of McGill University, Montreal (M.Sc. 1979).
3. That I have practised within the geological profession for the past sixteen years.
4. That I am a Fellow of the Geological Association of Canada and Professional Geologist registered in the Province of Alberta.
5. That the opinions, conclusions and recommendations contained herein are based on field work carried out on the claims of the Jackie Group by MPH personnel, under my supervision.
6. That I own no direct, indirect, or contingent interests in the area, the subject property, or shares or securities of Canamin Resources Ltd. or associated companies.

  
T.E. Gregory Hawkins, P.Geol.

Vancouver, B.C.

October 9, 1987



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## ABBREVIATIONS USED IN MINERAL OCCURRENCES REFERENCES

|         |                                                                                                          |
|---------|----------------------------------------------------------------------------------------------------------|
| AR      | B.C. Ministry of Energy, Mines, and Petroleum Resources<br>Assessment Report                             |
| BCDM    | British Columbia Department of Mines                                                                     |
| Bull    | Bulletin                                                                                                 |
| CJES    | Canadian Journal of Earth Sciences                                                                       |
| EBC     | Exploration in British Columbia; B.C. Ministry of<br>Energy, Mines and Petroleum Resources               |
| GCNL    | George Cross News Letter                                                                                 |
| GEM     | Geology, Exploration and Mining in British Columbia;<br>B.C. Department of Mines and Petroleum Resources |
| GSC     | Geological Survey of Canada                                                                              |
| Minfile | B.C. Ministry of Energy, Mines and Petroleum Resources<br>Minfile, Feb. 2 1984                           |
| MMAR    | B.C. Ministry of Mines Annual Report                                                                     |



**Appendix I**

**LIST OF PERSONNEL**

**and**

**STATEMENT OF EXPENDITURES**



## LIST OF PERSONNEL AND STATEMENT OF EXPENDITURES

The following expenses have been incurred for the purposes of mineral exploration on the Jackie and Jackie 2 claims from August 11/87 to August 15/87 (field work) by MPH Consulting Limited personnel.

### Field Costs:

#### Personnel:

|                                                         |                |           |
|---------------------------------------------------------|----------------|-----------|
| B. Thomae, B.Sc., Project Geologist<br>4 days @ \$350   | \$1400.00      |           |
| G. Picken, B.Sc., Assistant Geologist<br>4 days @ \$250 | <u>1000.00</u> | \$2400.00 |

#### Equipment Rental:

|                          |  |        |
|--------------------------|--|--------|
| 4 WD Truck 4 days @ \$90 |  | 360.00 |
|--------------------------|--|--------|

#### Disbursements:

|                                                  |              |         |
|--------------------------------------------------|--------------|---------|
| Food and Accommodation                           | 439.04       |         |
| Transportation                                   | 132.50       |         |
| Fuel                                             | 118.09       |         |
| Communications                                   | 8.18         |         |
| Field Supplies                                   | 50.00        |         |
| Laboratory Costs:                                |              |         |
| 17 rocks (Au, ICP) @ \$14.00                     | 238.00       |         |
| 5 rocks (Au, Ag, Cu, Pb, Zn)<br>assays @ \$29.50 | 147.50       |         |
| 5 rocks (ICP) @ \$6.00                           | 30.00        |         |
| 4 silts @ \$11.85                                | <u>47.40</u> |         |
|                                                  |              | 1210.71 |

### Report Costs:

|                                                   |               |         |
|---------------------------------------------------|---------------|---------|
| B. Thomae<br>8.5 days @ \$350                     | 2975.00       |         |
| G. Picken (Office Assistance)<br>5.5 days @ \$150 | 825.00        |         |
| T. Hawkins<br>0.5 days @ \$500                    | <u>250.00</u> | 4050.00 |

|                                   |              |               |
|-----------------------------------|--------------|---------------|
| Typing 65 pages @ \$5.00          | 325.00       |               |
| Drafting                          | 320.00       |               |
| Copying Report and Maps           | 238.92       |               |
| Maps                              | 12.48        |               |
| Report Covers, Pockets, etc.      | <u>50.00</u> |               |
|                                   |              | 946.40        |
| Administration (15% on \$2517.11) |              | <u>377.57</u> |

|       |                         |  |
|-------|-------------------------|--|
| Total | <u><u>\$9344.68</u></u> |  |
|-------|-------------------------|--|



**Appendix II**

**ROCK SAMPLE DESCRIPTIONS**

**AND SELECTED RESULTS**

| Sample Number | Description                                                                                                                                                           | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-----------|
| 18151         | Location: SE quadrant Jackie 2 claim. (1.5 km up road, 10 m N of creek)<br>Sample Type: Chip over 0.75 m<br>Rock Type: Shear zone, (gossanous) cutting quartz diorite | 0.2    | 18     | 9      | 47     |           |

Reddish brown to dark brown on fracture surface, with some soil-like gouge material. Coarse-grained, mottled black-white-grey with sericite and minor chlorite alteration. Hornblende  $\approx$ 40%, quartz  $\approx$ 30%, feldspar  $\approx$ 30%.

|       |                                                                                                                                           |     |     |    |    |  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----|----|--|
| 18152 | Location: At waterfall, just downstream from 'Upper Showing'<br>Sample Type: Composite; grabs over 0.5 m<br>Rock Type: Basaltic intrusive | 0.1 | 157 | 16 | 42 |  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----|----|--|

Black to dark steel-grey with light green altered patches. Fine-grained to medium-grained. Magnetite is finely disseminated throughout and comprises  $\approx$ 20% of rock (strongly magnetic). Pyrite (2%) disseminated and on fracture surfaces, minor pyrrhotite and possibly local bornite. Sericite, chlorite and epidote alteration throughout. Minor Fe-oxide stain mainly on fracture surfaces.



| Sample Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ag ppm | Cu ppm | Pb ppm                                                                         | Zn ppm | Other ppm        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------------------------------------------------------------------------------|--------|------------------|
| 18153         | <p>Location: ~10 m up from top of waterfall</p> <p>Sample Type: Float, chips from a 50 x 30 cm boulder (near source)</p> <p>Massive sulphides hosted by very altered, cherty unit interbedded with fine-grained mafic volcanic. Grey-green, rusty brown with metallic lustre in areas of sulphides. Dark brown and light yellow and whitish limonites. Sulphides appear to be banded and locally in pods. Quartz veins are discontinuous and contain up to 2% pyrite. Galena (25%), pyrite (20%) with up to 10% chalcopyrite. Trace of argentite(?).</p> | 73.8   | 17451  | 4730                                                                           | 9999   | 1447 Cd<br>20 Mo |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |        | Assays: 0.001 oz/ton Au<br>1.96 oz/ton Ag<br>1.50% Cu<br>11.98% Pb<br>8.00% Zn |        |                  |
| 18154         | <p>Location: 32 m from top of waterfall</p> <p>Sample Type: Chips from outcrop over 1.6 m</p> <p>Rock Type: Argillite(?) Gossanous</p> <p>Deep dark brown to black core, rimmed by rusty red and pale yellow limonites. Botryoidal on weathered surface locally. Difficult to get fresh surface.</p>                                                                                                                                                                                                                                                     | 0.1    | 71     | 541                                                                            | 239    | 344 Ba           |
| 18155         | <p>Location: Adjacent to previous sample 18154 (32 m from top of waterfall)</p> <p>Sample Type: Chip from outcrop over 1.6 m</p> <p>Rock Type: Limonitic, brecciated interbedded argillite/chert</p> <p>Black, dark brown, buff, white, yellow, rusty brown oxides stain a cherty fractured unit. Appears brecciated locally.</p>                                                                                                                                                                                                                        | 0.3    | 123    | 304                                                                            | 138    |                  |





| Sample Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                           | Ag ppm | Cu ppm | Pb ppm                  | Zn ppm | Other ppm       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|-------------------------|--------|-----------------|
| 18156         | <p>Location: At entrance of cave or small adit(?) adjacent to previous sample 18155</p> <p>Sample Type: Chip over 3 m from outcrop</p> <p>Rock Type: Limonitic chert/argillite</p> <p>Very altered and fractured; difficult to get a fresh surface. Chocolate brown, pale green (powdery), pale yellow and rusty red oxide staining.</p>                                                                                                              | 0.4    | 149    | 135                     | 128    |                 |
| 18157         | <p>Location: 49 m up from top of waterfall; 3 m from bottom of trail. Near contact with mafic volcanic rock</p> <p>Sample Type: Chip from outcrop over 1.6 m</p> <p>Rock Type: Sulphide-rich chlorite schist</p> <p>Dark/light green patchy with abundant dark brown, rusty red and white-yellow limonitic stain. Epidote, chlorite and sericite alteration. Contains up to 2% galena, and 2% pyrite. Minor chalcopyrite. Cut by quartz veinlets.</p> | 6.9    | 690    | 5382                    | 8106   | 129 Cd          |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | Assays: 0.001 oz/ton Au |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 0.18 oz/ton Ag          |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 0.08% Cu                |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 0.54% Pb                |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 0.66% Zn                |        |                 |
| 18158         | <p>Location: At bottom of trail approximately 5 m up from creek</p> <p>Sample Type: Chip over 1.0 m from outcrop</p> <p>Rock Type: Silicified argillite/chert with lenses of massive sulphides</p> <p>Weakly schistose, very altered, greenish-grey, oxide-stained with quartz lenses and veinlets crosscutting. Galena occurs in pods and discontinuous bands up to 7%. Bornite occurs mainly on fracture surfaces up to 3%. Minor pyrite.</p>       | 26.6   | 4916   | 27795                   | 58007  | 874 Cd<br>19 Mo |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | Assays: 0.001 oz/ton Au |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 0.76 oz/ton Ag          |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 0.48% Cu                |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 8.20% Pb                |        |                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        | 4.80% Zn                |        |                 |



| Sample Number | Description                                                                                                                                                                                                                                                                                                                                                                                                      | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-----------|
| 18159         | <p>Location: 75 m from waterfall on left side of creek (looking upstream)</p> <p>Sample Type: 1.0 chip from outcrop</p> <p>Rock Type: Chert/argillite</p> <p>Medium grey-green with abundant oxide-staining, very fine-grained to aphanitic. Contains local sulphide blebs 1% pyrite and cubes of pyrite on fractures.</p>                                                                                       | 0.1    | 66     | 369    | 103    |           |
| 18160         | <p>Location: 84 m up from waterfall</p> <p>Sample Type: 0.75 m chip parallel to zone</p> <p>Rock Type: Graphite</p> <p>Black, soft, platy material at base of sediments. Sample contains chloritic schistose material. Minor Fe-oxide stain. Trace pyrite.</p>                                                                                                                                                   | 0.4    | 78     | 138    | 184    |           |
| 18161         | <p>Location: 1.2 km up road from intersection (NE Jackie claim)</p> <p>Sample Type: 1.2 m chip from outcrop</p> <p>Rock Type: Chert breccia cut by quartz veinlets</p> <p>Chert fragments are angular, irregular, medium to dark grey, aphanitic; matrix is coarser-grained sandy to soil-like material. Minor rusty stain.</p>                                                                                  | 0.2    | 24     | 44     | 31     |           |
| 18162         | <p>Location: 25 m NW of 18161 (along road)</p> <p>Sample Type: Grab sample from outcrop</p> <p>Rock Type: Cherty unit</p> <p>Medium green with abundant sericite alteration, aphanitic. Local pyrite in patches or lenses on fracture surfaces (up to 2%). Evidence of banding. Locally disseminated specks of pyrite in trace amount. Dark brown and light rusty-brown limonite stain, mainly on fractures.</p> | 0.1    | 20     | 37     | 52     | 453 Ba    |



| Sample Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-----------|
| 18163         | <p>Location: At end of road curve in creek.<br/>(South side)</p> <p>Sample Type: Chip from outcrop over <math>\approx</math> 1.0 m</p> <p>Rock Type: Mafic tuff(?) interbedded with chert<br/>(banded)</p> <p>Fine-grained to medium-grained, dark green tuff/pale green to buff aphanitic banded chert (epidote and sericite-altered). Abundant limonitic staining throughout especially on fracture surfaces. Locally moderately magnetic. Up to 1% disseminated sulphides.</p> | 0.1    | 259    | 21     | 45     |           |
| 18164         | <p>Location: 212 m from sample 18162 (near end of road)</p> <p>Sample Type: Chip across 1.0 m, from outcrop</p> <p>Rock Type: Gossanous chert/argillite unit</p> <p>Light grey to dark grey-black, aphanitic, very altered. Dark rusty brown, whitish and rusty red limonite staining. Finely disseminated pyrite up to 5%. Fracture pyrite abundant also.</p>                                                                                                                    | 0.1    | 56     | 22     | 70     | 439 Ba    |
| 18165         | <p>Location: Immediately above sample 18164</p> <p>Sample Type: Chip <math>\approx</math> 1.5 m wide, along zone immediately above previous sample and below a bed of argillite</p> <p>Rock Type: Graphitic material with some pieces of argillite</p> <p>Black, soft, crumbly to platy with minor Fe-oxide stain on fracture surfaces.</p>                                                                                                                                       | 0.1    | 55     | 18     | 91     |           |



| Sample Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm                                                                                            |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|------------------------------------------------------------------------------------------------------|
| 18166         | <p>Location: Near end of road at 265 m from truck</p> <p>Sample Type: Grabs taken over a 2 m x 2 m area</p> <p>Rock Type: Cherty tuff(?)</p> <p>Dark green, fine-grained to aphanitic, very siliceous, highly altered (epidote, chlorite, sericite), with abundant limonitic stain dark brown and rusty red-brown. Pyrite lenses and pods up to 2 cm (very fine mud, grey) and blotches of pyrite throughout (up to 3-5%) and on fracture surfaces.</p> | 0.1    | 111    | 18     | 119    | <p>Assays: 0.001 oz/ton Au</p> <p>0.02 oz/ton Ag</p> <p>0.02% Cu</p> <p>0.02% Pb</p> <p>0.02% Zn</p> |
| 18167         | <p>Location: At end of road and creek intersection (Rock Pit)</p> <p>Sample Type: 0.8 m chip sample perpendicular to zone</p> <p>Very weathered altered zone, soil-like, Fe-oxide staining abundant, contains siliceous (cherty) fragments.</p>                                                                                                                                                                                                         | 0.2    | 35     | 18     | 59     |                                                                                                      |
| 18168         | <p>Location: At end of road where it intersects creek (Rock Pit)</p> <p>Sample Type: Grab from zone (chlorite-altered) within bedded argillites</p> <p>Very altered, chlorite and epidote-altered with abundant patches and lenses of very fine-grained (muddy) sulphides and blebs of pyrite. Limonitic staining abundant. Soil-like in places. Very difficult to get fresh surface. (Up to 10% sulphides).</p>                                        | 1.2    | 390    | 19     | 105    | <p>Assays: 0.001 oz/ton Au</p> <p>0.04 oz/ton Ag</p> <p>0.06% Cu</p> <p>0.02% Pb</p> <p>0.02% Zn</p> |
| 18169         | <p>Location: N side of creek past 'Rock Pit'</p> <p>Sample Type: 2.0 m chip sample</p> <p>Dark green chloritic schist, very gossanous with abundant graphitic material. Dark brown with minor rusty brown limonites. Local pyrite up to 1%. Possibly minor bornite on fractures.</p>                                                                                                                                                                    | 0.5    | 440    | 29     | 130    |                                                                                                      |



| Sample Number | Description                                                                                                                                                                                                                                                                                                                                                                                       | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-----------|
| 18170         | <p>Location: S side of creek past 'Rock Pit'</p> <p>Sample Type: 0.5 m chip sample</p> <p>Rock Type: Chert interbedded with argillite</p> <p>Dark grey green, aphanitic to fine-grained, schistose. Very gossanous with grey fine-grained 'muddy' pyrite lenses. Locally graphitic. Limonitic, dark brown mainly.</p>                                                                             | 0.1    | 45     | 16     | 146    |           |
| 18171         | <p>Location: From cliffs below 'lower showing' above creek</p> <p>Sample Type: Grab from outcrop</p> <p>Rock Type: Mafic tuff bed</p> <p>Dark grey-green, fine to medium-grained cherty locally, chlorite-altered, minor sericite. Grey pods of fine sulphides. Fe-oxide staining on fractures. Up to 2% disseminated pyrite. Locally magnetic moderately. Pyrrhotite? Local quartz veinlets.</p> | 0.3    | 36     | 21     | 60     |           |
| 18172         | <p>Location: 88 m downstream from base of waterfall cliff on N side of creek</p> <p>Sample Type: Chip sample from outcrop over 1.2 m</p> <p>Rock Type: Mafic tuff</p> <p>Dark grey-green to black, fine-grained to medium-grained, chlorite-altered, very gossanous with abundant rusty Fe-oxide stain. Slickensides locally on small scale. Finely disseminated pyrite up to 0.5%.</p>           | 0.1    | 15     | 12     | 47     |           |



Samples 11301 to 11313 were collected by Bob Anderson.

A small piece of each rock sample was retained and described by G. Picken of MPH.

Mainly grabs from outcrop(?) were collected.

| Sample Number | Description                                                                                                                                                                                                                                                                                                                                           | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-----------|
| 11301         | Location: 100 m N of end of road W76B.<br>Rock Type: Intermediate volcanic (andesite)<br><br>Very fine-grained, medium grey-green, sericite altered, some quartz veinlets <1 mm across visible, local Fe-oxide stain. Very siliceous.                                                                                                                 | 0.1    | 16     | 7      | 18     |           |
| 11302         | Location: 100 m N of end of road W76B.<br>Rock Type: Andesitic feldspar-hornblende porphyry<br><br>Medium green, slight Fe-oxide stain, with white to dark green porphyritic texture. Feldspar phenocrysts range from 0.2 mm to 2 mm across. Hornblende phenocrysts are all <1 mm across and chlorite-altered. <1% cubic disseminated pyrite present. | 0.1    | 19     | 8      | 52     |           |
| 11303         | Location: 100 m N of end of road W76B.<br>Rock Type: Intermediate volcanic (andesite)<br><br>Fine to medium-grained, medium grey-green, local sericite alteration, local quartz veinlets <1 mm across, also Fe-oxide stain on weathered surfaces. Siliceous.                                                                                          | 0.1    | 39     | 7      | 38     |           |



| Sample Number | Description                                                                                                                                                                                                                                                                                                                                                                                                              | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm            |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|----------------------|
| 11304         | <p>Location: Taken at 'lower showing'.<br/> Sample Type: Grab from outcrop.<br/> Rock Type: Siliceous limestone</p> <p>White to dark grey, very fine-grained, layering evident varying between 0.5 mm to 2 cm thick. Local veinlets of calcite crosscut layering. Limited Fe-oxide stain visible on surface.</p>                                                                                                         | 21.9   | 361    | 6399   | 9535   | 137 Cd<br>685 ppb Au |
| 11305         | <p>Location: 10 m N of sample 11304.<br/> Rock Type: Cherty sandy(?) argillite</p> <p>Dark grey to black, fine-grained with &lt;1% pyrite on fractures and disseminated throughout rock. Abundant Fe-oxide on fractured surfaces.</p>                                                                                                                                                                                    | 1.5    | 171    | 40     | 413    | 16 ppb Au            |
| 11306         | <p>Location: 50 m S of intersection of creek and 'lower showing'.<br/> Rock Type: Siliceous argillaceous limestone</p> <p>White to dark grey-green, fine to medium-grained, distinctive layering with thicknesses ranging from &lt;1 mm to over 2 cm. Light layers tend to be more calcareous, while darker layers are more argillaceous. Local Fe-oxide staining evident. Minor quartz-sericite alteration present.</p> | 1.2    | 148    | 85     | 120    |                      |



| Sample Number | Description                                                                                                                                                                                                                                                                                                              | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-----------|
| 11307         | Location: 30 m S of intersection of creek and lower showing.<br>Rock Type: Cherty sandy(?) argillite<br><br>Medium to dark grey, fine to medium-grained, somewhat fractured and Fe-oxide stained. Some quartz veinlets and lenses 1-2 mm wide, also 1-2% pyrite along fractures and disseminated throughout hand sample. | 1.0    | 147    | 43     | 123    | 17 ppb Au |
| 11308         | Location: Approx. 50 m W of sample 11304.<br>Rock Type: Cherty sandy(?) argillite<br><br>Light grey to black, fine-grained, with some quartz veinlets and lenses. Moderate Fe-oxide staining on weathered surface.                                                                                                       | 0.3    | 35     | 21     | 102    |           |
| 11309         | Location: 1.1 km at bearing of 290° from end of W76 first switchback.<br>Rock Type: Hornblende diorite<br><br>Dark grey to black, fine-grained, intrusive with some epidote alteration. Local Fe-oxide stain on weathered surface.                                                                                       | 0.1    | 228    | 10     | 42     |           |
| 11310         | Location: 150 m N of sample 11309.<br>Rock Type: Bull quartz<br><br>Bull quartz with a few "whisps" of Fe-oxide stain. Quartz vein is irregular and up to 8 cm wide trending 325°.                                                                                                                                       | 0.1    | 13     | 9      | 12     |           |





| Sample Number | Description                                                                                                                                                                             | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Other ppm |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-----------|
| 11311         | Location: 200 m SE of sample 11309.<br>Rock Type: Bull quartz                                                                                                                           | 0.1    | 7      | 7      | 15     |           |
|               | White bull quartz with a few "whisps" of Fe-oxide stain. Quartz vein is irregular and has a 'bleached' porphyritic wall rock extending for 20 cm on each side. The vein trends at 285°. |        |        |        |        |           |
| 11312         | Location: 25 m due east from sample 11309.<br>Rock Type: Mafic to intermediate porphyritic(?) volcanic                                                                                  | 0.4    | 163    | 52     | 133    | 32 Mo     |
|               | Medium to dark grey-green, medium-grained with some quartz-epidote alteration. Moderate Fe-oxide stain on weathered and fractured surfaces.                                             |        |        |        |        |           |
| 11313         | Location: 125 m E from sample 11309.<br>Rock Type: Siliceous porphyritic volcanic(?)                                                                                                    | 0.2    | 82     | 7      | 109    |           |
|               | Medium grey-green, fine to medium-grained volcanic with quartz-sericite alteration evident. Moderate Fe-oxide stain on weathered and fractured surfaces.                                |        |        |        |        |           |





**Appendix III**

**CERTIFICATES OF ANALYSIS**

**ROSSBACHER LABORATORY LTD.**

2225 S. SPRINGER AVENUE  
BURNABY, B.C. V5B 3N1  
TEL : (604) 299 - 6910

**CERTIFICATE OF ANALYSIS**

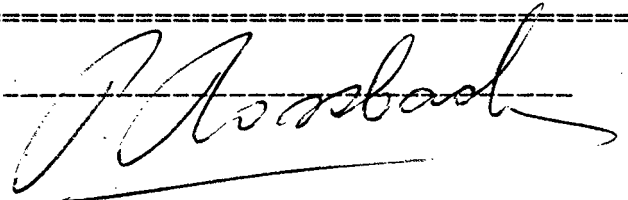
TO : MPH CONSULTING LTD.  
#2406-555 W. HASTINGS ST. (BOX 12092)  
VANCOUVER B.C.

CERTIFICATE#: 87472.A  
INVOICE#: 7953  
DATE ENTERED: 87-08-26  
FILE NAME: MPH87472.A  
PAGE # : 1

PROJECT: V 271  
TYPE OF ANALYSIS: ASSAY

| PRE<br>FIX | SAMPLE NAME | oz/t<br>Au | oz/t<br>Ag | %<br>Cu | %<br>Pb | %<br>Zn |
|------------|-------------|------------|------------|---------|---------|---------|
| A          | 18153       | 0.001      | 1.88       | 1.54    | 12.28   | 7.96    |
| A          | 18157       | 0.001      | 0.18       | 0.08    | 0.54    | 0.66    |
| A          | 18158       | 0.001      | 0.76       | 0.48    | 8.20    | 4.80    |
| A          | 18166       | 0.001      | 0.02       | 0.02    | 0.02    | 0.02    |
| A          | 18168       | 0.001      | 0.04       | 0.06    | 0.02    | 0.02    |

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2225 S. SPRINGER AVENUE  
BURNABY, B.C. V5B 3N1  
TEL : (604) 299 - 6910

CERTIFICATE OF ANALYSIS

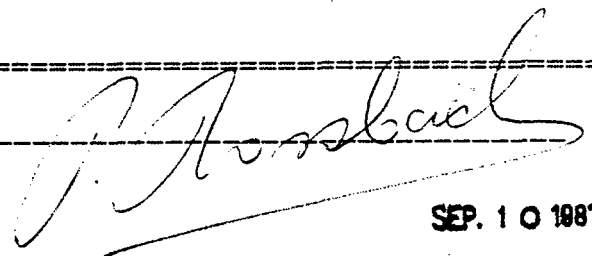
TO : MPH CONSULTING LTD.  
#2406-555 W.HASTINGS ST. (BOX 12092)  
VANCOUVER B.C.

CERTIFICATE#: 87472.B  
INVOICE#: 7996  
DATE ENTERED: 87-09-04  
FILE NAME: MPH87472.B  
PAGE # : 1

PROJECT: V 271  
TYPE OF ANALYSIS: ASSAY

| PRE<br>FIX | SAMPLE NAME | oz/t<br>Ag | %<br>Cu | %<br>Pb | %<br>Zn |
|------------|-------------|------------|---------|---------|---------|
| A          | 18153       | 1.96       | 1.50    | 11.98   | 8.00    |
| A          | 18158       | 0.80       |         | 8.08    | 4.82    |

CERTIFIED BY :



SEP. 10 1987

ROSSBACHER LABORATORY LTD.

2225 S. SPRINGER AVENUE  
BURNABY, B.C. V5B 3N1  
TEL : (604) 299 - 6910

CERTIFICATE OF ANALYSIS

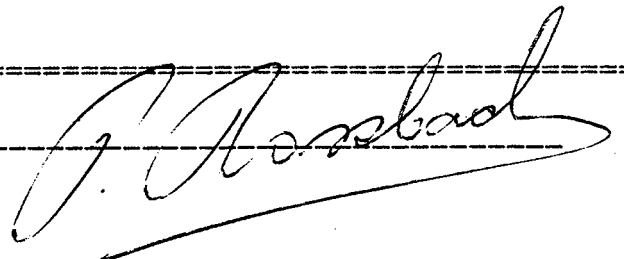
TO : MPH CONSULTING LTD.  
#2406-555 W. HASTINGS ST. (BOX 12092)  
VANCOUVER B.C.

CERTIFICATE#: 87472  
INVOICE#: 7936  
DATE ENTERED: 87-08-26  
FILE NAME: MPH87472  
PAGE # : 1

PROJECT: V 271  
TYPE OF ANALYSIS: GEOCHEMICAL

| PRE<br>FIX | SAMPLE NAME | PPB<br>Au |
|------------|-------------|-----------|
| A          | 18151       | 5         |
| A          | 18152       | 5         |
| A          | 18153       |           |
| A          | 18154       | 5         |
| A          | 18155       | 5         |
| A          | 18156       | 5         |
| A          | 18157       |           |
| A          | 18158       |           |
| A          | 18159       | 5         |
| A          | 18160       | 5         |
| A          | 18161       | 5         |
| A          | 18162       | 5         |
| A          | 18163       | 5         |
| A          | 18164       | 5         |
| A          | 18165       | 5         |
| A          | 18166       |           |
| A          | 18167       | 5         |
| A          | 18168       |           |
| A          | 18169       | 5         |
| A          | 18170       | 5         |
| A          | 18171       | 5         |
| A          | 18172       | 5         |
| L          | SILT #1     | 5         |
| L          | SILT #2     | 5         |
| L          | SILT #3     | 5         |
| L          | SILT #4     | 5         |

CERTIFIED BY :



RECEIVED AUG 27 1987

## GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG.C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
THIS LEACH IS PARTIAL FOR MN FE CA P LA CR MG BA TI B W AND LIMITED FOR NA AND K. AU DETECTION LIMIT BY ICP IS 3 PPM.  
- SAMPLE TYPE: SOLUTION

DATE RECEIVED: AUG 25 1987

DATE REPORT MAILED: *Aug 28/87*ASSAYER: *D. Toye* DEAN TOYE, CERTIFIED B.C. ASSAYER

ROSSBACHER LABORATORY PROJECT-CERT #87472 File # 87-3590

V 271

| SAMPLE#   | MO  | CU    | PB    | ZN    | AG   | NI  | CO  | MN   | FE    | AS  | U   | AU  | TH  | SR    | CD  | SB  | BI  | V   | CA   | P    | LA  | CR  | MG   | BA  | TI  | B   | AL   | NA  | K   | W  |
|-----------|-----|-------|-------|-------|------|-----|-----|------|-------|-----|-----|-----|-----|-------|-----|-----|-----|-----|------|------|-----|-----|------|-----|-----|-----|------|-----|-----|----|
|           | PPM | PPM   | PPM   | PPM   | PPM  | PPM | PPM | PPM  | %     | PPM | PPM | PPM | PPM | PPM   | PPM | PPM | PPM | PPM | %    | %    | PPM | PPM | %    | PPM | %   | PPM | %    | %   | PPM |    |
| AP 18151  | 1   | 18    | 9     | 47    | .2   | 4   | 9   | 555  | 3.67  | 3   | 5   | ND  | 3   | 150   | 1   | 2   | 2   | 121 | 3.40 | .044 | 5   | 72  | .99  | 48  | .19 | 2   | 3.42 | .10 | .07 | 2  |
| AP 18152  | 1   | 157   | 16    | 42    | .1   | 48  | 15  | 276  | 2.49  | 3   | 5   | ND  | 2   | 139   | 1   | 2   | 2   | 42  | 3.24 | .048 | 4   | 48  | .44  | 95  | .21 | 2   | 4.55 | .64 | .02 | 1  |
| AP 18153  | 20  | 17451 | 4730  | 99999 | 73.8 | 113 | 36  | 364  | 11.14 | 20  | 5   | ND  | 2   | 51447 | 113 | 6   | 2   | 12  | .93  | .009 | 2   | 28  | .27  | 1   | .04 | 2   | .65  | .03 | .01 | 2  |
| AP 18154  | 1   | 71    | 541   | 239   | .1   | 21  | 8   | 176  | 7.08  | 42  | 5   | ND  | 1   | 97    | 4   | 2   | 2   | 76  | 1.17 | .053 | 4   | 54  | .81  | 344 | .23 | 2   | 1.77 | .20 | .06 | 1  |
| AP 18155  | 4   | 123   | 304   | 138   | .3   | 11  | 6   | 273  | 16.45 | 7   | 5   | ND  | 2   | 15    | 2   | 2   | 2   | 91  | .91  | .058 | 5   | 77  | .74  | 66  | .16 | 2   | 1.06 | .07 | .03 | 1  |
| AP 18156  | 2   | 149   | 135   | 128   | .4   | 31  | 15  | 242  | 4.72  | 44  | 5   | ND  | 2   | 121   | 2   | 2   | 2   | 132 | 1.36 | .039 | 3   | 75  | 1.24 | 182 | .17 | 2   | 2.49 | .25 | .03 | 1  |
| AP 18157  | 3   | 690   | 5382  | 8106  | 6.9  | 48  | 15  | 1261 | 6.80  | 45  | 10  | ND  | 1   | 20    | 129 | 2   | 5   | 124 | 2.31 | .048 | 2   | 89  | 1.51 | 81  | .29 | 2   | 3.33 | .05 | .04 | 2  |
| AP 18158  | 19  | 4916  | 27795 | 58007 | 26.6 | 39  | 18  | 270  | 4.60  | 31  | 5   | ND  | 1   | 35    | 874 | 4   | 3   | 31  | .73  | .016 | 2   | 63  | .29  | 6   | .08 | 2   | .73  | .03 | .02 | 2  |
| AP 18159  | 2   | 66    | 369   | 103   | .1   | 10  | 5   | 288  | 2.39  | 7   | 5   | ND  | 1   | 13    | 2   | 2   | 2   | 57  | .32  | .018 | 2   | 80  | .98  | 91  | .11 | 2   | 1.28 | .04 | .12 | 1  |
| AP 18160  | 6   | 78    | 138   | 184   | .4   | 28  | 10  | 386  | 3.77  | 31  | 5   | ND  | 3   | 17    | 1   | 2   | 2   | 151 | 4.10 | .034 | 5   | 59  | 1.09 | 73  | .19 | 2   | 4.31 | .02 | .07 | 1  |
| AP 18161  | 1   | 24    | 44    | 31    | .2   | 9   | 2   | 186  | .80   | 7   | 5   | ND  | 1   | 14    | 1   | 2   | 2   | 27  | 3.77 | .019 | 8   | 149 | .04  | 14  | .05 | 2   | 2.63 | .02 | .01 | 3  |
| AP 18162  | 1   | 20    | 37    | 52    | .1   | 22  | 5   | 482  | 2.00  | 2   | 5   | ND  | 2   | 41    | 1   | 2   | 2   | 25  | .40  | .009 | 5   | 118 | .81  | 453 | .07 | 2   | 1.24 | .05 | .05 | 1  |
| AP 18163  | 7   | 259   | 21    | 45    | .1   | 36  | 17  | 249  | 3.46  | 4   | 5   | ND  | 2   | 49    | 1   | 2   | 2   | 82  | 1.49 | .028 | 4   | 114 | .54  | 21  | .20 | 2   | 1.37 | .12 | .01 | 3  |
| AP 18164  | 1   | 56    | 22    | 70    | .1   | 7   | 6   | 426  | 3.64  | 8   | 5   | ND  | 3   | 36    | 1   | 2   | 2   | 83  | .43  | .021 | 5   | 46  | 1.34 | 439 | .15 | 2   | 2.01 | .06 | .11 | 1  |
| AP 18165  | 1   | 55    | 18    | 91    | .1   | 18  | 6   | 348  | 1.48  | 4   | 5   | ND  | 3   | 120   | 1   | 2   | 2   | 55  | 3.85 | .012 | 7   | 125 | .26  | 36  | .15 | 2   | 3.02 | .02 | .01 | 1  |
| AP 18166  | 4   | 111   | 18    | 119   | .1   | 9   | 11  | 402  | 5.30  | 7   | 5   | ND  | 1   | 54    | 1   | 2   | 2   | 63  | .46  | .018 | 2   | 48  | 1.62 | 28  | .14 | 2   | 1.97 | .06 | .06 | 1  |
| AP 18167  | 2   | 35    | 18    | 59    | .2   | 25  | 8   | 216  | 2.46  | 16  | 5   | ND  | 3   | 101   | 1   | 2   | 2   | 45  | 4.69 | .034 | 8   | 111 | .19  | 34  | .10 | 2   | 3.28 | .01 | .02 | 1  |
| AP 18168  | 8   | 390   | 19    | 105   | 1.2  | 36  | 55  | 295  | 6.63  | 59  | 5   | ND  | 3   | 130   | 1   | 2   | 2   | 55  | 2.67 | .013 | 5   | 47  | .59  | 21  | .17 | 2   | 2.53 | .02 | .01 | 2  |
| AP 18169  | 2   | 440   | 29    | 130   | .5   | 31  | 63  | 536  | 19.69 | 3   | 5   | ND  | 3   | 141   | 1   | 2   | 2   | 99  | 1.77 | .020 | 4   | 17  | .84  | 10  | .05 | 2   | 3.80 | .19 | .03 | 3  |
| AP 18170  | 1   | 45    | 16    | 146   | .1   | 12  | 19  | 996  | 9.46  | 5   | 5   | ND  | 1   | 40    | 1   | 2   | 2   | 116 | .53  | .037 | 2   | 34  | .61  | 29  | .03 | 2   | 2.51 | .14 | .06 | 1  |
| AP 18171  | 14  | 36    | 21    | 60    | .3   | 28  | 13  | 201  | 4.89  | 14  | 6   | ND  | 2   | 45    | 1   | 2   | 2   | 51  | 5.20 | .021 | 4   | 94  | .28  | 71  | .14 | 4   | 4.04 | .08 | .04 | 2  |
| AP 18172  | 1   | 15    | 12    | 47    | .1   | 6   | 5   | 215  | 3.87  | 2   | 5   | ND  | 5   | 14    | 1   | 2   | 2   | 35  | .01  | .008 | 32  | 31  | .39  | 42  | .05 | 2   | 1.82 | .08 | .11 | 2  |
| L SILT #1 | 2   | 116   | 40    | 131   | .6   | 19  | 16  | 869  | 3.49  | 40  | 5   | ND  | 1   | 64    | 1   | 2   | 2   | 85  | 1.30 | .038 | 4   | 105 | .66  | 141 | .18 | 5   | 3.47 | .07 | .03 | 1  |
| L SILT #2 | 1   | 46    | 20    | 64    | .1   | 17  | 12  | 516  | 4.05  | 6   | 5   | ND  | 2   | 86    | 1   | 2   | 2   | 113 | 1.19 | .030 | 4   | 169 | .87  | 142 | .19 | 2   | 2.62 | .06 | .05 | 1  |
| L SILT #3 | 2   | 213   | 11    | 90    | .4   | 58  | 19  | 434  | 4.15  | 15  | 5   | ND  | 2   | 87    | 1   | 2   | 2   | 111 | 3.59 | .059 | 3   | 122 | 1.33 | 66  | .43 | 2   | 5.05 | .10 | .06 | 1  |
| L SILT #4 | 2   | 180   | 33    | 120   | .4   | 51  | 17  | 357  | 3.72  | 11  | 5   | ND  | 1   | 80    | 1   | 2   | 2   | 94  | 2.51 | .048 | 4   | 155 | 1.10 | 163 | .31 | 2   | 3.67 | .10 | .04 | 1  |
| STD C     | 18  | 57    | 39    | 133   | 7.0  | 68  | 27  | 1032 | 3.94  | 42  | 19  | 8   | 37  | 48    | 18  | 16  | 21  | 56  | .48  | .086 | 36  | 55  | .88  | 176 | .08 | 34  | 1.84 | .08 | .13 | 13 |

✓ ASSAY REQUIRED FOR CORRECT RESULT -

RECEIVED SEP 02 1987

ACME ANALYTICAL LABORATORIES

852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6

PHONE 253-3158

DATA LINE 251-1011

## GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG.C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
 THIS LEACH IS PARTIAL FOR NM FE CA P LA CR MG BA TI B W AND LIMITED FOR NA AND K. AU DETECTION LIMIT BY ICP IS 3 PPM.  
 - SAMPLE TYPE: Rock Chips AU ANALYSIS BY AA FROM 10 GRAM SAMPLE.

DATE RECEIVED: AUG 19 1987

DATE REPORT MAILED:

Aug 27/87

ASSAYER: *A. Toye* DEAN TOYE, CERTIFIED B.C. ASSAYER

CANAMIN RESOURCES PROJECT-JACKIE File # 87-3438

| SAMPLE#    | ND  | CU  | PB   | ZN   | AG   | NI  | CO  | MN   | FE    | AS  | U   | AU  | TH  | SR  | CD  | SB  | BI  | V   | CA   | P    | LA  | CR  | MG   | BA  | TI  | B   | AL   | NA  | K   | W   | AU1 |
|------------|-----|-----|------|------|------|-----|-----|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|------|-----|-----|-----|------|-----|-----|-----|-----|
|            | PPM | PPM | PPM  | PPM  | PPM  | PPM | PPM | PPM  | %     | PPM | PPM | PPM | PPM | PPM | PPM | PPM | PPM | PPM | %    | %    | PPM | PPM | %    | PPM | %   | PPM | %    | %   | %   | PPM | PPB |
| E 11301    | 1   | 16  | 7    | 18   | .1   | 24  | 4   | 960  | 1.01  | 2   | 5   | ND  | 2   | 30  | 1   | 2   | 2   | 8   | 1.03 | .013 | 8   | 7   | .38  | 118 | .07 | 2   | .98  | .03 | .02 | 2   | 1   |
| E 11302    | 1   | 19  | 8    | 52   | .1   | 2   | 9   | 552  | 2.61  | 3   | 5   | ND  | 1   | 62  | 1   | 2   | 2   | 49  | .86  | .037 | 3   | 1   | 1.13 | 246 | .11 | 4   | 1.88 | .14 | .04 | 1   | 1   |
| E 11303    | 1   | 39  | 7    | 38   | .1   | 14  | 5   | 1239 | 2.14  | 2   | 5   | ND  | 1   | 34  | 1   | 2   | 2   | 32  | .47  | .015 | 4   | 11  | .82  | 490 | .09 | 8   | 1.23 | .06 | .02 | 1   | 1   |
| E 11304    | 3   | 361 | 6399 | 9535 | 21.9 | 11  | 6   | 200  | .93   | 15  | 5   | ND  | 1   | 32  | 137 | 4   | 29  | 10  | 9.98 | .058 | 7   | 8   | .05  | 17  | .07 | 5   | 1.59 | .01 | .01 | 5   | 685 |
| E 11305    | 4   | 171 | 40   | 413  | 1.5  | 63  | 15  | 92   | 3.06  | 57  | 5   | ND  | 1   | 11  | 5   | 2   | 2   | 128 | .40  | .018 | 4   | 77  | .77  | 75  | .23 | 2   | 1.20 | .07 | .29 | 1   | 16  |
| E 11306    | 1   | 148 | 85   | 128  | 1.2  | 34  | 9   | 69   | 2.68  | 32  | 5   | ND  | 1   | 21  | 1   | 2   | 2   | 78  | 1.66 | .027 | 4   | 46  | .43  | 48  | .22 | 3   | 1.36 | .08 | .09 | 1   | 1   |
| E 11307    | 3   | 147 | 43   | 123  | 1.0  | 45  | 10  | 107  | 3.21  | 41  | 5   | ND  | 1   | 15  | 1   | 2   | 2   | 118 | .49  | .031 | 4   | 74  | .72  | 82  | .22 | 2   | 1.11 | .11 | .22 | 1   | 17  |
| E 11308    | 1   | 35  | 21   | 102  | .3   | 29  | 7   | 144  | 2.70  | 47  | 5   | ND  | 2   | 16  | 1   | 2   | 2   | 149 | .44  | .023 | 6   | 102 | 1.01 | 137 | .31 | 2   | 1.47 | .09 | .34 | 1   | 3   |
| E 11309    | 1   | 228 | 10   | 42   | .1   | 12  | 7   | 401  | 2.16  | 2   | 5   | ND  | 1   | 85  | 1   | 2   | 2   | 66  | 1.59 | .070 | 5   | 14  | .59  | 134 | .28 | 2   | 1.67 | .28 | .04 | 1   | 1   |
| E 11310    | 1   | 13  | 9    | 12   | .1   | 2   | 1   | 64   | .41   | 2   | 5   | ND  | 4   | 151 | 1   | 2   | 3   | 5   | .73  | .003 | 6   | 2   | .06  | 263 | .03 | 4   | 1.12 | .20 | .01 | 1   | 1   |
| E 11311    | 1   | 7   | 7    | 15   | .1   | 2   | 1   | 34   | .28   | 2   | 5   | ND  | 5   | 221 | 1   | 2   | 2   | 2   | 1.65 | .001 | 12  | 2   | .01  | 165 | .01 | 2   | 2.13 | .15 | .02 | 1   | 1   |
| E 11312    | 32  | 163 | 12   | 133  | .4   | 83  | 5   | 443  | 2.50  | 4   | 5   | ND  | 4   | 63  | 1   | 2   | 2   | 80  | 1.68 | .396 | 12  | 138 | .64  | 12  | .09 | 2   | 1.33 | .04 | .01 | 1   | 1   |
| E 11313    | 1   | 82  | 7    | 109  | .2   | 7   | 18  | 450  | 10.75 | 2   | 5   | ND  | 3   | 20  | 1   | 2   | 2   | 138 | .07  | .009 | 7   | 19  | 1.41 | 85  | .14 | 3   | 4.42 | .09 | .32 | 1   | 1   |
| STD C/AU-R | 19  | 57  | 39   | 133  | 7.2  | 69  | 28  | 1052 | 3.84  | 41  | 18  | 7   | 38  | 51  | 18  | 16  | 19  | 57  | .47  | .088 | 38  | 57  | .86  | 181 | .08 | 38  | 1.80 | .08 | .12 | 12  | 510 |



**Appendix IV**

**ABBREVIATIONS USED IN**

**MINERAL OCCURRENCES REFERENCES**





## ABBREVIATIONS USED IN MINERAL OCCURRENCES REFERENCES

|         |                                                                                                          |
|---------|----------------------------------------------------------------------------------------------------------|
| AR      | B.C. Ministry of Energy, Mines, and Petroleum Resources<br>Assessment Report                             |
| BCDM    | British Columbia Department of Mines                                                                     |
| Bull    | Bulletin                                                                                                 |
| CJES    | Canadian Journal of Earth Sciences                                                                       |
| EBC     | Exploration in British Columbia; B.C. Ministry of<br>Energy, Mines and Petroleum Resources               |
| GCNL    | George Cross News Letter                                                                                 |
| GEM     | Geology, Exploration and Mining in British Columbia;<br>B.C. Department of Mines and Petroleum Resources |
| GSC     | Geological Survey of Canada                                                                              |
| Minfile | B.C. Ministry of Energy, Mines and Petroleum Resources<br>Minfile, Feb. 2 1984                           |
| MMAR    | B.C. Ministry of Mines Annual Report                                                                     |



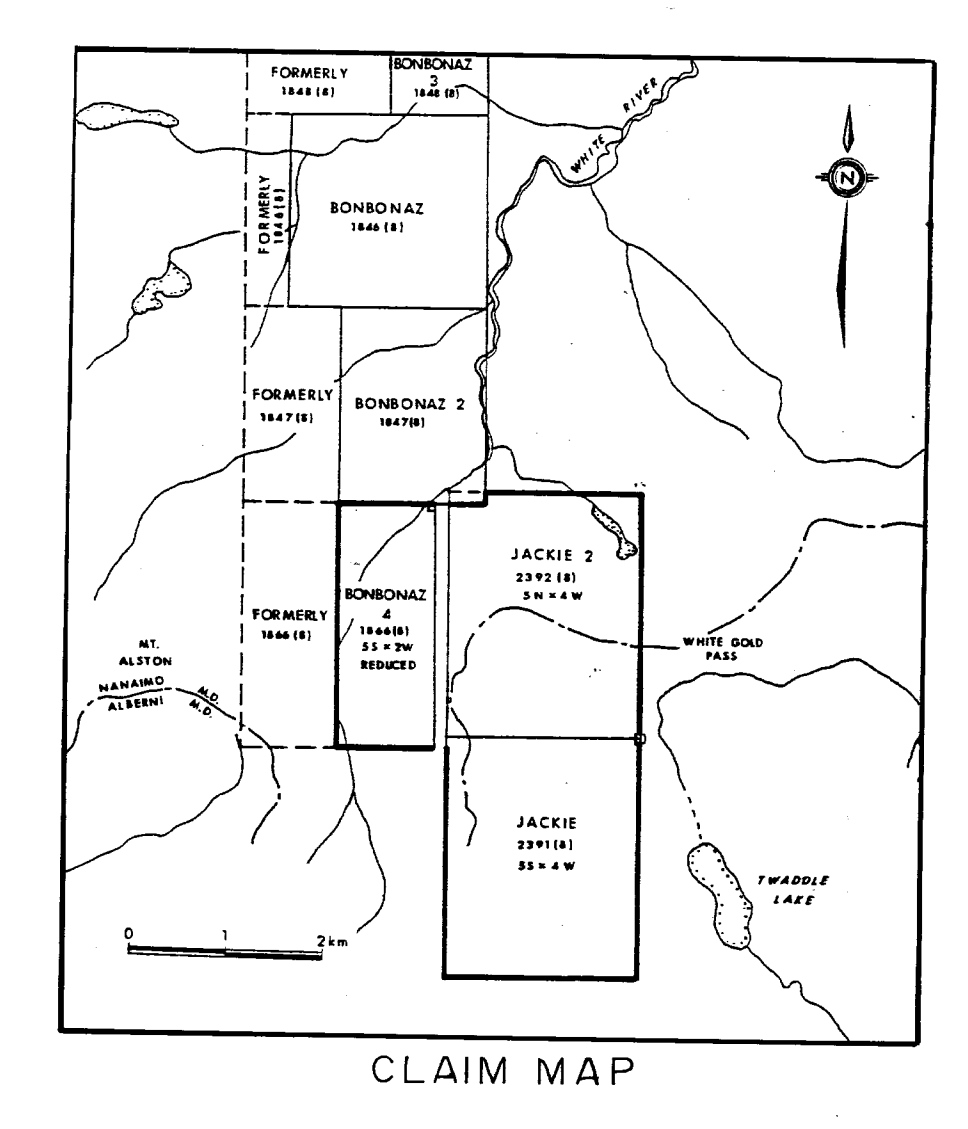
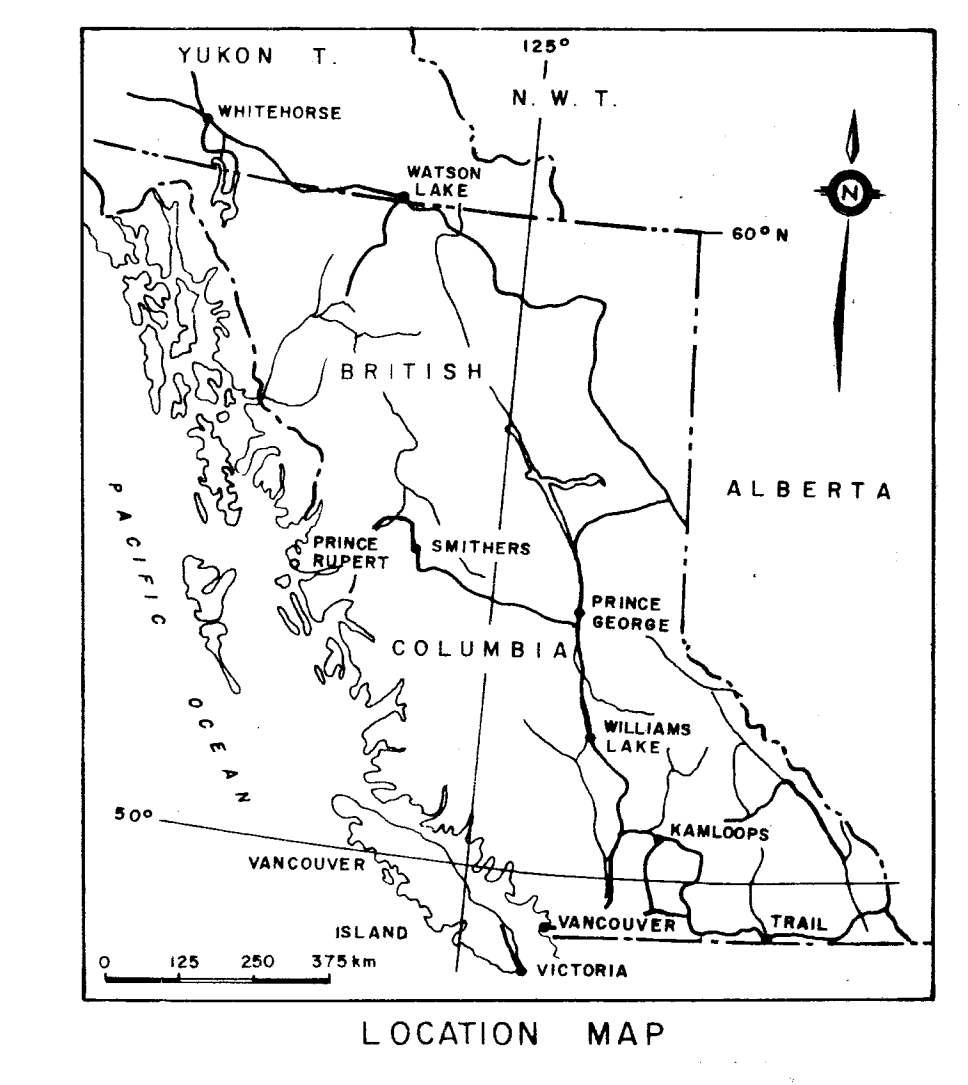
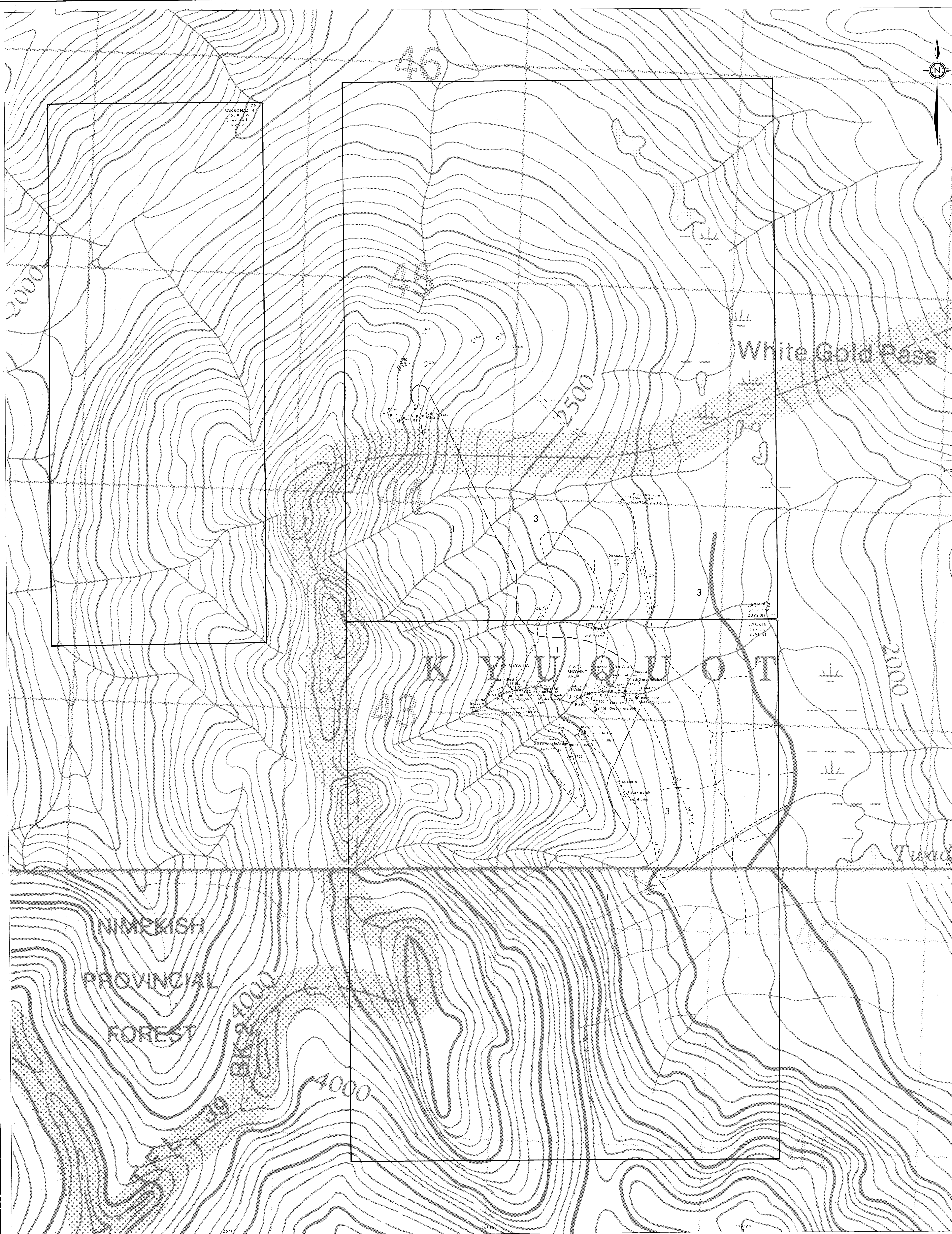
**Appendix V**

**METRIC CONVERSION TABLE**



### Metric Conversion Factors

|                         |                                         |       |
|-------------------------|-----------------------------------------|-------|
| 1 inch                  | = 25.4 millimetres                      | (mm)  |
|                         | or 2.54 centimetres                     | (cm)  |
| 1 cm                    | = 0.394 inch                            |       |
| 1 foot                  | = 0.3048 metre                          | (m)   |
| 1 m                     | = 3.281 feet                            |       |
| 1 mile                  | = 1.609 kilometres                      | (km)  |
| 1 km                    | = 0.621 miles                           |       |
| 1 acre                  | = 0.4047 hectares                       | (ha)  |
| 1 ha                    | = 2.471 acres                           |       |
| 1 ha                    | = 100 m x 100 m = 10,000 m <sup>2</sup> |       |
| 1 km <sup>2</sup>       | = 100 ha                                |       |
| 1 troy ounce            | = 31.103 grams                          | (g)   |
| 1 g                     | = 0.032 troy oz                         |       |
| 1 pound (lb)            | = 0.4536 kilogram                       | (kg)  |
| 1 kg                    | = 2.2046 lb                             |       |
| 1 ton (2000 lb)         | = 0.90718474 tonne (0.9072)             | (t)   |
| 1 tonne                 | = 1.1023 ton = 2205 lb                  |       |
| 1 troy ounce/ton (oz/t) | = 34.286 grams/tonne                    | (g/t) |
| 1 g/t                   | = 0.0292 oz/ton                         |       |
| 1 g/t                   | = 1 part per million                    | (ppm) |
| 1 ppm                   | = 1000 parts per billion                | (ppb) |
| 10,000 g/t              | = 1%                                    |       |



- LEGEND**  
**GEOLOGY**
- JURASSIC
    - 3 Island Intrusions - coarse-grained diorite, quartz diorite, granodiorite
  - UPPER TRIASSIC
    - 2 Karmutsen Formation - mafic volcanic rocks
  - Middle and Upper Triassic ?
    - 1 Sediment - silt unit - diabase, argillite
  - Sediments - Bedded argillite, siltstone, sandstone, chert, argillite, limestone, local graphitic lenses, cherty tuffs (?)
  - not differentiated
    - Sills - Basaltic - gabbroic, flower (star) porphyritic, locally chlorite altered mafic rocks.

- SYMBOLS**
- Outcrop location mapped
  - Rock sample location
  - x Silt sample location
  - - - Geologic contact (inferred)
  - - - Bedding strike and dip
  - - - Foliation
  - - - Claim boundary
  - - - Road location (approximate)
  - - - Legal Corner Post

**ABBREVIATIONS**

|        |                |        |                |
|--------|----------------|--------|----------------|
| arg    | argillite      | goss   | gossanous      |
| cht(y) | chert, cherty  | chl    | chlorite       |
| sst    | siltstone      | parph  | porphyritic    |
| vads   | sediments      | bdd    | bedded         |
| ls     | limestone      | intbdd | interbedded    |
| bslt   | basalt         | sch    | schist         |
| QD     | quartz diorite | schst  | schistose      |
| int    | intrusive      | loc    | local          |
| brx    | breccia        | wt     | with           |
| volc   | volcanic       | silic  | siliceous      |
|        |                | HW     | hanging wall   |
|        |                | o/c    | outcrop        |
| sph    | sphalerite     | fr     | fracture       |
| gn     | galena         | alt    | altered        |
| ep     | epidote        | c/g    | coarse grained |
| qz     | quartz         | m/g    | medium grained |
| sv     | syrite         | f/g    | fine grained   |

**I.C.P. AND ASSAY HIGHLIGHTS**

**UPPER SHOWING AREA**

|        |                                                                      |
|--------|----------------------------------------------------------------------|
| Sample | Assays                                                               |
| 18153  | 0.001 oz/ton Au, 1.96 oz/ton Ag, 1.50% Cu, 11.98% Pb, 8.00% Zn       |
|        | I.C.P. 1447 ppm Cd, 20 ppm Mo                                        |
| 18154  | 541 ppm Pb, 239 ppm Zn                                               |
| 18155  | 304 ppm Pb                                                           |
| 18156  | 135 ppm Pb                                                           |
| 18157  | Assays 0.001 oz/ton Au, 0.18 oz/ton Ag, 0.08% Cu, 0.54% Pb, 0.66% Zn |
|        | I.C.P. 129 ppm Cd                                                    |
| 18158  | Assays 0.001 oz/ton Au, 0.76 oz/ton Ag, 0.48% Cu, 8.20% Pb, 4.80% Zn |
|        | I.C.P. 874 ppm Cd, 20 ppm Mo                                         |
| 18159  | 369 ppm Pb                                                           |
| 18160  | 136 ppm Pb                                                           |
| 18163  | 259 ppm Cu                                                           |
| 18168  | 1.2 ppm Ag, 390 ppm Cu, 0.04 oz/ton Ag, 0.06% Cu                     |
| 18169  | 440 ppm Cu                                                           |

**LOWER SHOWING AREA**

|       |                                                                                     |
|-------|-------------------------------------------------------------------------------------|
| 11304 | 21.9 ppm Ag, 340 ppm Cu, 6399 ppm Pb, 9535 ppm Zn, 137 ppm Cd, 685 ppm Au (geochem) |
| 11305 | 1.5 ppm Ag, 171 ppm Cu, 40 ppm Pb, 413 ppm Zn, 16 ppm Au (geochem)                  |
| 11306 | 1-2 ppm Ag, 85 ppm Pb                                                               |
| 11307 | 1-0 ppm Ag, 17 ppm Au                                                               |
| 11312 | 32 ppm Mo                                                                           |

**GEOLOGICAL BRANCH ASSESSMENT REPORT**

# 16,557

0 100 200 300 400 500 metres

NTS 92E/16, 92L/1

CANAMIN RESOURCES LTD.

**GEOLOGY AND SAMPLE LOCATIONS**

**JACKIE PROPERTY**

ALBERNI AND NANAIMO MINING DIVISIONS

|             |        |       |                    |
|-------------|--------|-------|--------------------|
| Project No. | V 271  | By    | B. T., G. P., R.A. |
| Scale       | 1:5000 | Drawn | J.S.               |
| Drawing No. | 5      | Date  | OCTOBER 1987       |

**MPH Consulting Limited**