

84-#458-12563



3

**REPORT ON
RECONNAISSANCE GEOLOGICAL MAPPING
AND
ROCK SAMPLING
ALBERNI CLAIM - ALBERNI MINING DIVISION
FOR
SUNFIELD MANAGEMENT LTD.
MAY 11, 1984
T. NEALE, B.Sc. T.G. HAWKINS, P.Geol.**

92 F/2E
49° 09.5' N 124° 38' W

Owner/operator: Ladysmith Minerals Ltd/Sunfield
Management Ltd.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

12,563



SUMMARY

Exploration on the Alberni claim in the Alberni Mining Division consisting of reconnaissance geological mapping and rock sampling for geochemical analysis was carried out during March, 1984.

An anomalous result of 900 ppb Au was obtained from one of the samples from the Alberni claim.

A 20-day Phase I program of geological mapping and sampling, soil sampling, and VLF-EM and magnetometer surveys over a cut grid is recommended. The cost is estimated at \$76,000. Contingent upon favourable results from the first phase, a Phase II program consisting of trenching, rock sampling, and detailed geological mapping and geophysical surveys is recommended.



TABLE OF CONTENTS


	page
Summary	i /
1.0 Introduction	2 /
2.0 Property Location, Access, Title	3 /
3.0 Previous Work	5 /
4.0 Regional Geology	6 /
4.1 Sicker Group	6 /
4.2 Vancouver Group	10 /
4.3 Nanaimo Group	11 /
4.4 Intrusive Rocks	12 /
4.5 Structure	12 /
4.6 Economic Setting	14 /
4.7 Mineral Occurrences	17 /
5.0 Local Geology and Work Done	41 /
6.0 Recommended Work Program	43 /
6.1 Description	43 /
6.2 Budget	45 /
6.3 Schedule	47 /
7.0 Conclusions	49 /
8.0 Recommendations	51 /
Certificate - T. Neale, B.Sc.	53 /
- T.G. Hawkins, P.Geol.	54 /
Bibliography	55 /
Appendix I - Statement of Expenditures	
- List of Personnel	
Appendix II - Rock Sample Descriptions and	
Geochemistry Results	
Appendix III - Certificate of Analysis	
Appendix IV - Abbreviations Used in Mineral,	
Occurrences Section	



LIST OF ILLUSTRATIONS

		page
Figure 1	Location Map	1 /
2	Claim Map	4 /
3	Regional Geology Map	7 /
4	Mineral Occurrences Location Map	18 /
5	Vancouver Island Gold Mine workings	19 /
6	Havilah Mine workings	29 /
7	Alberni Claim Property Geology and Rock Sampling	in pocket /
Table I	Phase I Project Schedule	48 /



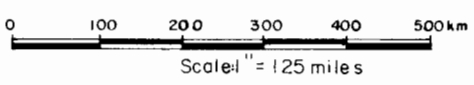
ALBERNI CLAIM 

SUNFIELD MANAGEMENT LTD.

LOCATION MAP
ALBERNI CLAIM
 ALBERNI MINING DIVISION

Project No.	V 150	By:	T. N.
Scale:		Drawn:	J. S.
Drawing No.	1	Date:	MAY, 1984.

 **MPH Consulting Limited**





1.0 INTRODUCTION

This report represents the compilation of field work carried out by MPH Consulting Limited for Sunfield Management Ltd. on the Alberni claim on March 9 and 10, 1984.

Work included reconnaissance geological mapping over as much of the claim as was readily accessible and rock sampling for litho-geochemical analyses over the same areas.

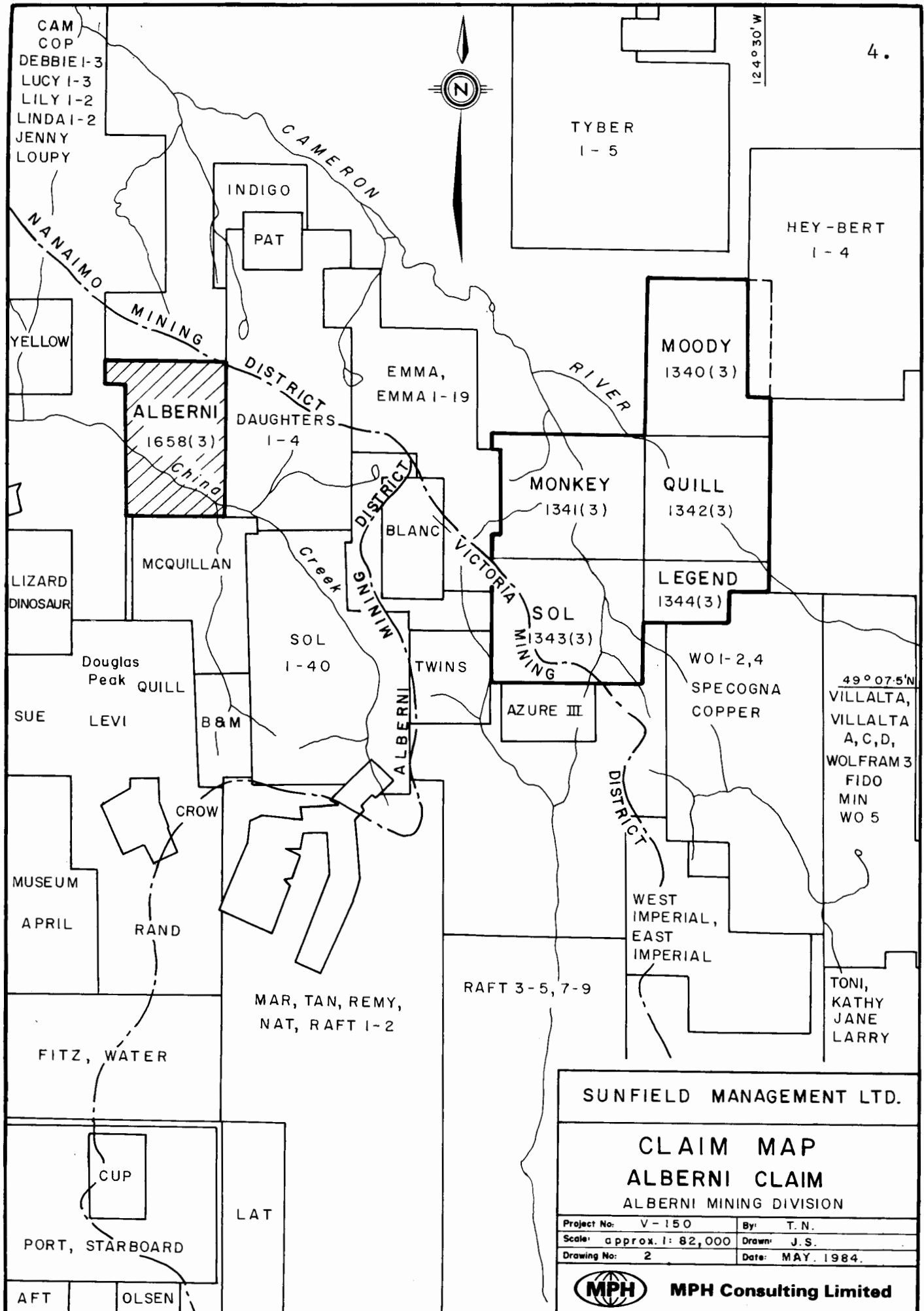


2.0 PROPERTY LOCATION, ACCESS, TITLE

The Alberni claim is located 17 km east of Port Alberni on the south slope of McLaughlin Ridge on NTS mapsheet 92F/2E, centred at approximately 49°09.5'N latitude, 124°38'W longitude in the Alberni Mining Division of British Columbia.

Access to the Alberni claim is provided by the China Creek Road, an all-weather gravel road which crosses the southwestern portion of the claim. The Alberni claim is located within the China Creek Watershed area and permission from the Health Department is necessary before the area may be entered.

The Alberni claim's record number is 1658. It is 20 units in size, is owned by Ladysmith Minerals Ltd. and has an anniversary date of March 14, 1985. Sunfield Management Ltd. acquired an option on the claims by virtue of an agreement with Ladysmith dated April 18, 1984.



SUNFIELD MANAGEMENT LTD.

CLAIM MAP
ALBERNI CLAIM
 ALBERNI MINING DIVISION

Project No: V-150	By: T.N.
Scale: approx. 1: 82,000	Drawn: J.S.
Drawing No: 2	Date: MAY. 1984.



MPH Consulting Limited

3.0 PREVIOUS WORK

During the period 1963-1966 Gunnex Ltd. carried out a regional mapping program with some prospecting and silt sampling and compiled a list of mineral occurrences. The Alberni claim area was mapped but apparently no mineralization was located. The 1962 Hunting aeromagnetic survey also covered the area of the Alberni claim but no anomalies were located on or near the claim.

An old showing, the Bank Group, occurs on or near to the southwestern corner of the Alberni claim. A 1917 reference report on the Bank Group states that a series of open cuts had been dug on a zone of quartz veins carrying pyrite, chalcopyrite, and galena with some silver and gold values. A 25 foot shaft had been sunk in the largest open cut and a caved adit also existed. The mineralized zone was reported to be up to 10 feet or more wide and several hundred feet in strike length. A grab sample from the dump assayed at trace Au, 1 oz/ton Ag, and 3.2% Cu. (Ministry of Mines Annual Report, 1917, p. 247)

Government geological work in the area includes mapping by C.H. Clapp (1912 and 1914), J.E. Muller and D.J.T. Carson (1969), and J.E. Muller (1977 and 1980) and a mineral compilation report by J.S. Stevenson (1945).

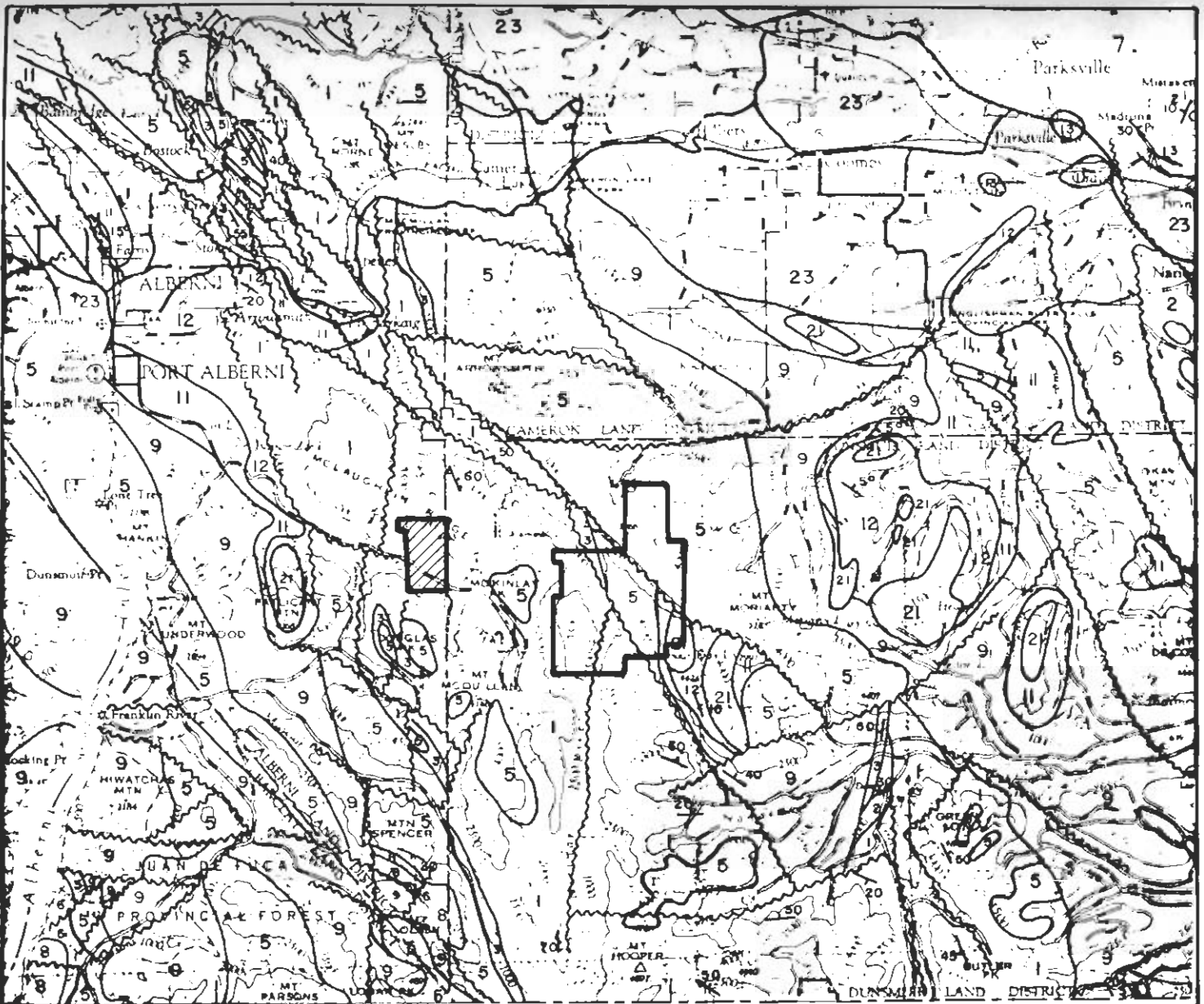
4.0 REGIONAL GEOLOGY

The predominant rock units in the Port Alberni-Cameron River area are the Upper Paleozoic Sicker Group rocks and the Lower Mesozoic Vancouver Group rocks. Both are eugeosynclinal sequences of volcanic and sedimentary rocks. Lesser amounts of the Upper Cretaceous Nanaimo Group and of intrusive rocks of various ages also occur.

4.1 Sicker Group

The oldest rocks in the area are those of the Sicker Group. Muller (1980) proposed the following subdivision of the Group from youngest to oldest: Buttle Lake Formation, Sediment-Sill Unit, Myra Formation, and Nitinat Formation.

The Nitinat Formation (Unit 1) consists predominantly of basic volcanic rocks, most commonly flow-breccias, including some massive flows, and rare pillow basalts or agglomerates. Locally, medium grained, generally massive basaltic tuff is interbedded with the flows. The flow-breccia is composed of fragments of basalt up to 30 cm in length containing uralite phenocrysts and black or white amygdules, both from 1 mm to more than 1 cm in size, in a matrix of finer grained, similar basalt(?). Thin sections show that the uralite is replacing diopside. Uralitized gabbroic rocks underlie and intrude the volcanics and are believed to represent feeder dykes, sills, and magma chambers to the volcanics. The Nitinat Formation may be distinguished from the



LEGEND

QUATERNARY

23 Glacial and alluvial deposits

TERTIARY

21 Hornblende quartz diorite, leucoquartz monzonite, porphyritic dacite, breccia

UPPER CRETACEOUS

NANAIMO GROUP

13 EXTENSION-PROTECTION FM sandstone, conglomerate, shale, coal.

12 HASLAM FM shale, siltstone, fine sandstone

11 COMOX FM sandstone, conglomerate, shale, coal

MIDDLE TO UPPER JURASSIC

9 ISLAND INTRUSIONS: biotite-hornblende granodiorite, quartz diorite

LOWER JURASSIC TO UPPER TRIASSIC

VANCOUVER GROUP

8 BONANZA SUBGROUP, VOLCANIC DIVISION andesitic to latitic breccia, tuff and lava, minor greywacke, argillite and siltstone

6 QUATSINO FM massive to thick bedded limestone, minor thin bedded limestone

5 KARMUTSEN FM pillow-basalt and pillow breccia, massive basalt flows, minor tuff, volcanic breccia; Jasperoid tuff, breccia and conglomerate at base

TRIASSIC OR PERMIAN

4 Gobbro, peridotite, diabase.

LOWER PERMIAN TO PENNSYLVANIAN SICKER GROUP

3 BUTTLE LAKE FM limestone, chert

2 MYRA FM: lower unit, argillite, greywacke, conglomerate, tuff, minor limestone
Upper unit, rhyodacite to rhyolite tuff, lapilli tuff, breccia lesser siliceous siltstone, argillite, quartz porphyry and mafic flows

1 NITINAT FM basaltic urolite porphyry, agglomerate, pillow lava; greenschist.

0 5 10 km



SUNFIELD MANAGEMENT LTD.

REGIONAL GEOLOGY MAP

ALBERNI CLAIM

ALBERNI MINING DIVISION

Project No	V 150	By	T.N.
Scale	1:250,000	Drawn	J.S.
Drawing No	3	Date	MAY, 1984



MPH Consulting Limited

similar Karmutsen Formation by the usual lack of pillow basalts, the abundance of urallite phenocrysts, the pervasive shear foliation, and lower greenschist or higher metamorphic grade.

The Myra Formation (Unit 2) unconformably overlies the Nitinat Formation. In the Nitinat-Cameron River area the Myra Formation is made up of a lower massive to widely banded basaltic tuff and breccia unit, a middle thinly banded pelitic albite-trachyte tuff and argillite unit, and an upper thick bedded, medium grained albite-trachyte tuff and breccia unit. In the lower unit crudely layered mottled maroon and green volcanoclastic greywacke, grit, and breccia are succeeded by beds of massive, medium grained dark tuff up to 20 m thick interlayered with thin bands of alternating light and dark fine grained tuff with local fine to coarse breccias containing fragments of Nitinat Formation volcanics. The middle unit is comprised of a sequence of thinly interbedded, light feldspathic tuff (albite trachyte or keratophyre composition) and dark marine argillite which has the appearance of a graded greywacke-argillite turbidite sequence. In the upper part of the middle unit sections of thickly bedded to massive black argillite occur. The upper unit contains fine and coarse crystal tuffs in layers up to 10 m thick with local rip-up clasts and slabs of argillite up to 1 m in length as well as synsedimentary breccias of light coloured volcanic and chert fragments in a matrix of black argillite.

The type locality of the Myra Formation is Myra Creek, at the south end of Buttle Lake, about 95 km northwest of the Alberni claim. Here, volcanoclastic rocks consisting dominantly of



rhyodacitic or rhyolitic tuff, lapilli tuff, breccia, and some quartz porphyry and minor mafic flows and argillite (Upper Myra Formation) are host to Westmin Resources' Myra, Lynx, Price, and H-W massive sulphide (Cu-Zn-Pb-Au-Ag-Cd) deposits.

Muller (1980) estimated the thickness of the Nitinat Formation at about 2000 m and that of the Myra Formation at 750 to 1000 m. Both the Nitinat and Myra Formations were dated as Devonian and/or older by Muller (1980).

The Sediment-Sill Unit contains thinly bedded to massive argillite, siltstone, and chert with interlayered sills of diabase. It is transitional between the Myra and Buttle Lake Formations. It is not mapped within the report map area.

The Buttle Lake Formation (Unit 3) consists of a basal green and maroon tuff and/or breccia overlain by coarse grained crinoidal and calcarenitic limestone, fine grained limestone with chert nodules, and some dolomitic limestone. Lesser amounts of argillite, siltstone, greywacke, or chert may also be present.

The Buttle Lake Formation is up to 466 m thick. The age of the formation, on the basis of fossil dating appears to be middle Pennsylvanian, but could possibly be as young as early Permian (Muller, 1980).

4.2 Vancouver Group

The Karmutsen Formation volcanic rocks (Unit 5) overlie the Buttle Lake Formation limestone paraconformably to form the base of the Vancouver Group. They are the thickest and most widespread rocks on Vancouver Island. The formation, which is well exposed southeast of Port Alberni, consists mainly of dark grey to black pillowed basalt, massive basalt and pillow breccia. Flows are commonly aphanitic and amygdaloidal. Pillowed volcanics generally occur toward the base of the section.

Conglomerate containing clasts of Sicker Group rocks and jasperoid tuff form basal sections in the Nitinat-Horne Lake area.

Karmutsen Formation rocks are generally relatively undeformed compared to Sicker Group rocks and are dated Upper Triassic and older.

Massive to thick bedded limestone of the Quatsino Formation (Unit 6) occurs south of Mount Spencer. The limestone is black to dark grey and fine grained to micro-crystalline. In the vicinity of intrusive rocks, coarse grained marble is recognized. Thin bedded limestone also occurs in the formation. Fossils indicate an age of Upper Triassic (Muller, 1968).

The Bonanza Subgroup of the Vancouver Group consists of a lower sedimentary unit and an upper volcanic unit. The sedimentary unit is not exposed in the Port Alberni area. The volcanic unit (Unit 8) is exposed south of Mount Spencer and south of Corrigan Creek

and consists of light coloured andesite to latite breccia, tuff and flows with minor greywacke, argillite and siltstone. The unit is considered to be possibly of Lower Jurassic age.

4.3 Nanaimo Group

Upper Cretaceous Nanaimo Group sedimentary rocks are scattered throughout the area. Extensive exposures occur near Port Alberni, Patlicant Mountain and south and northwest of Mount Moriarty. The formations present comprise the basal portions of the Nanaimo Group.

The Comox Formation (Unit 11) consists mainly of quartzo-feldspathic, cross-bedded beach facies sandstone and lesser conglomerate. Numerous intercalations of carbonaceous and fossiliferous shale and coal are characteristic.

The Haslam Formation (Unit 12) is a near shore littoral depositional facies unit characterized by massive bedded fossiliferous sandy shale, siltstone and shaly sandstone.

Interbedded coarse clastic conglomerate, pebbly sandstone and arkosic sandstone of the Extension-Protection Formation (Unit 13) are beach and deltaic sands. Minor shale and coal are reported.

4.4 Intrusive Rocks

Gabbro, Peridotite, Diabase (Unit 4). Mafic and ultramafic rocks of Triassic or Permian age are scattered throughout the area. A large band is exposed approximately 8 km north of Port Alberni.

Although mapped as intrusive, some of these rocks may be basal flow units of the Karmutsen Formation.

Island Intrusions (Unit 9). Exposures of mainly quartz diorite and lesser biotite-hornblende granodiorite occur throughout the area and are assigned an age of Middle to Upper Jurassic.

Intrusive contacts with Sicker and Vancouver Group volcanic rocks are characterized by transitional zones of gneissic rocks and migmatite although contacts with Karmutsen Formation volcanic/sedimentary rocks are sharp and well defined. Skarn zones are reported at the contact of Island Intrusion rocks with Quatsino Formation limestone and less frequently with Buttle Lake Formation limestone.

Tertiary (Catface or Sooke) Intrusions (Unit 21). Sills and stocks of mainly hornblende-quartz diorite and dacitic hornblende-feldspar porphyry plus lesser leucocratic quartz monzonite intrude Nanaimo Group sedimentary rocks and Sicker Group rocks in the area.

4.5 Structure

The Buttle Lake Arch, Cowichan-Horne Lake Arch and Nanoose Uplift are north-northwesterly trending axial uplifts and are

believed to be the oldest structural elements in south central Vancouver Island. Uplifting occurred before the late Cretaceous, and possibly before the Mesozoic (J.E. Muller, 1968). Sicker Group volcanic and sedimentary rocks occur at the core of these uplifts.

Asymmetric southwest trending anticlinal structures characterized by sub-vertical southwest limbs and moderately dipping northeast limbs are reported at Buttle Lake and in the Cameron-Nitinat River area. Intense shearing and metamorphism to chlorite-actinolite and chlorite-sericite schist occurs in steep and overturned limbs of folds. Overlying Buttle Lake Formation limestones are relatively undeformed except where they are thin.

Vancouver Group units are not as intensely folded; gentle monoclinial and domal structures have been mapped. However, Karmutsen Formation volcanic rocks locally conform to the attitude of underlying Myra and Buttle Lake Formations (J.E. Muller, 1980).

Some early Mesozoic faulting occurred in the area prior to emplacement of Island Intrusions. Middle to Upper Jurassic intrusive activity (Island Intrusions) occurred along north-westerly trends.

Extensive west-northwest trending faulting occurred during the Tertiary and is best illustrated by large displacements of Nanaimo Group sediments. The north trending Alberni Valley fault is



traced over 45 miles and displaces a section of Karmutsen Formation approximately 5,000 feet (Muller, 1968).

4.6 Economic Setting

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

Until recently, deposits of copper and gold-silver in quartz veins and shear zones hosted by mafic to intermediate volcanic rocks and base metal plus gold-silver skarn deposits were the most widely recognized economic and subeconomic metal concentrations in the Port Alberni area. Placer mining for gold was carried out during the 1940's in various localities, especially in the China, Mineral and Corrigan Creeks area.

The volcanogenic massive sulphide deposits of Westmin Resources Ltd., first discovered in 1917 although not recognized as volcanogenic until the late 1960's, occur at Buttle Lake, approximately 70 km northwest of the Port Alberni area. Four zones of mineralization consisting of the ore minerals sphalerite, chalcopyrite, galena, tetrahedrite-tennantite plus minor bornite and covellite, are hosted by pyritic rhyolitic to rhyodacitic volcanic and pyroclastic rocks of the Myra Formation.

Proven reserves of the Lynx (open pit), Price and Myra deposits are 1,021,400 T grading 1% Cu, 0.9% Pb, 7.4% Zn, 0.06 oz Au/T,



2.6 oz Ag/T (1983). Published reserves of the H-W zone are 15,232,000 T averaging 2.2% Cu, 5.3% Zn, 0.3% Pb, 0.07 oz Au/T and 1.1 oz Ag/T (Western Miner, May 1983). In the 3 years 1980 to 1982, there were 895,048 T of ore milled producing 16,109,000 lbs Cu, 96,356,000 lbs Zn, 14,231,000 lbs Pb, 56,000 oz Au, 2,528,000 oz Ag and 129,000 lbs Cd.

Another volcanogenic massive sulphide deposit in the Sicker Group is the Twin J Mine near Duncan on Mount Sicker, about 65 km east of the Port Alberni area. Two parallel orebodies, each containing pyrite, chalcopyrite, sphalerite, and minor galena in a barite-quartz-calcite gangue and chalcopyrite in quartz, occur in schists believed to have been derived from acidic volcanics (Myra Formation).

Total production from 1898 to 1964 was 305,770 tons producing 44,491 oz Au, 934,522 oz Ag, 21,053,360 lb Cu, and 45,864,654 lb Zn with at least 362,854 lb Pb and 10 lb Cd.

Six past producing mines occur in the Port Alberni area. The Thistle Mine produced 2,760 oz Au, 2,120 oz Ag and 681,425 lbs Cu from 6,920 T of ore. It was originally considered to be a skarn deposit (J.S. Stevenson, 1944, D.J.T. Carson, 1968). Disseminated and massive sulphide mineralization occurs as lenses and bands within pyritic quartz-sericite schist and at the contact of quartz-sericite schist with chloritized mafic volcanic rocks (Sicker Group). Disseminated sulphide mineralization occurs



throughout the host rocks (visit by T.G. Hawkins, September 1983). The deposit may be of syngenetic-volcanogenic origin.

Other past producers in the area include the 3-W Mine ('limited' production of Au-Ag) and the Corrigan Creek Mine (116 T of ore grading 4.0 oz Au/T, 4.3 oz Ag/T, 0.23% Cu, 1.1% Pb), quartz vein deposits hosted by diorite and granodiorites (Island Intrusions).

The Havilah Mine (1,046 T produced 259 oz Au, 1,404 oz Ag) and the Vancouver Island Gold Mine (483 T produced 384 oz Au, 52 oz Ag) are quartz vein deposits hosted by andesite and andesite tuff of the Sicker Group.

The Black Panther Mine is a quartz vein deposit hosted by a shear zone in Sicker Group andesite and diorite. Production of 1890 T of ore yielded 509 oz Au, 953 oz Ag, 12,319 lbs Pb and at least 4,478 lbs Zn and 498 lbs Cu. All production figures are from Neale (1984) or Hawkins (1983).

Significant base metal and gold deposits and occurrences of the Sicker Group in the Port Alberni area are summarized below.



4.7 Mineral Occurrences

1. Vancouver Island Gold; (Victoria, L.205G; Alberni, L.206G; Missing Link, L.214G; Alberni Consolidated) Au Ag Cu

Geology:

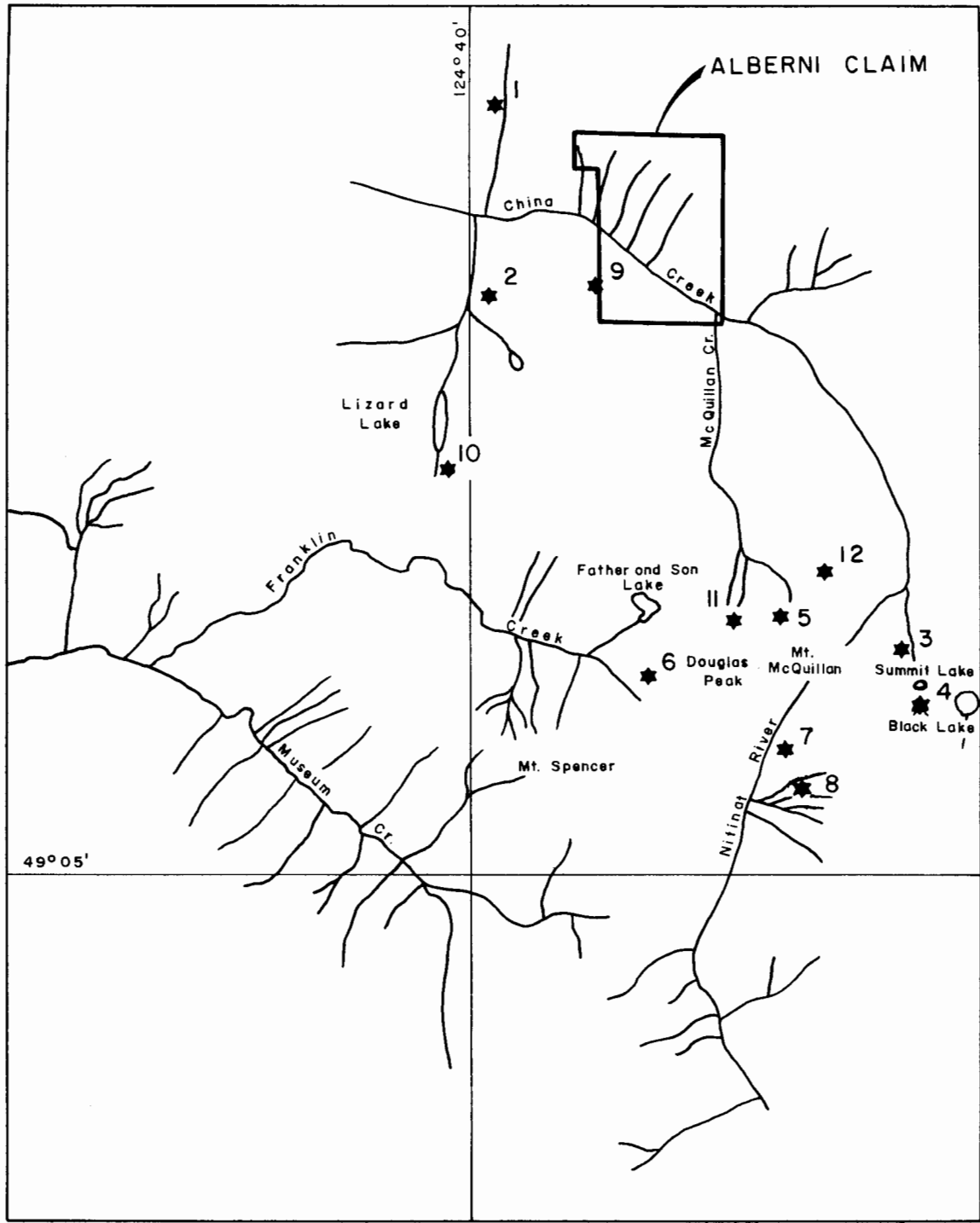
The area is underlain by highly altered massive, tuffaceous, slightly porphyritic, and amygdaloidal andesites of the Sicker Group. Three main quartz veins follow well developed shears and contain a small amount of pyrite and some free gold. As well, a 40 foot wide shear zone has been extensively altered by ankerite, quartz stringers, occasional pyrite veinlets, and kaolinitization.

Economic Features:

Recorded production in 1896, 1898, 1933-36, and 1939 totals 483 tons of ore yielding 384 oz Au, 52 oz Ag, and 194 lb Cu.

The Mac vein is traced for 250 feet and ranges from 3 to 18 inches wide, averaging 5 to 6 inches. Sixty-three samples taken over the 250 feet averaged 6 inches in width and 3.69 oz/ton Au. The highest assay was 20 oz/ton Au. A 40 ton shipment from the Mac vein returned 2.9 oz/ton Au and 0.5 oz/ton Ag. (Ref. 1-1934)

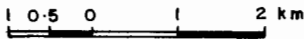
The Belcher vein is exposed discontinuously for 950 feet and ranged from almost nothing to 4 feet in width, averaging 6 to 12 inches in the upper adit. Gold content is reported to be low



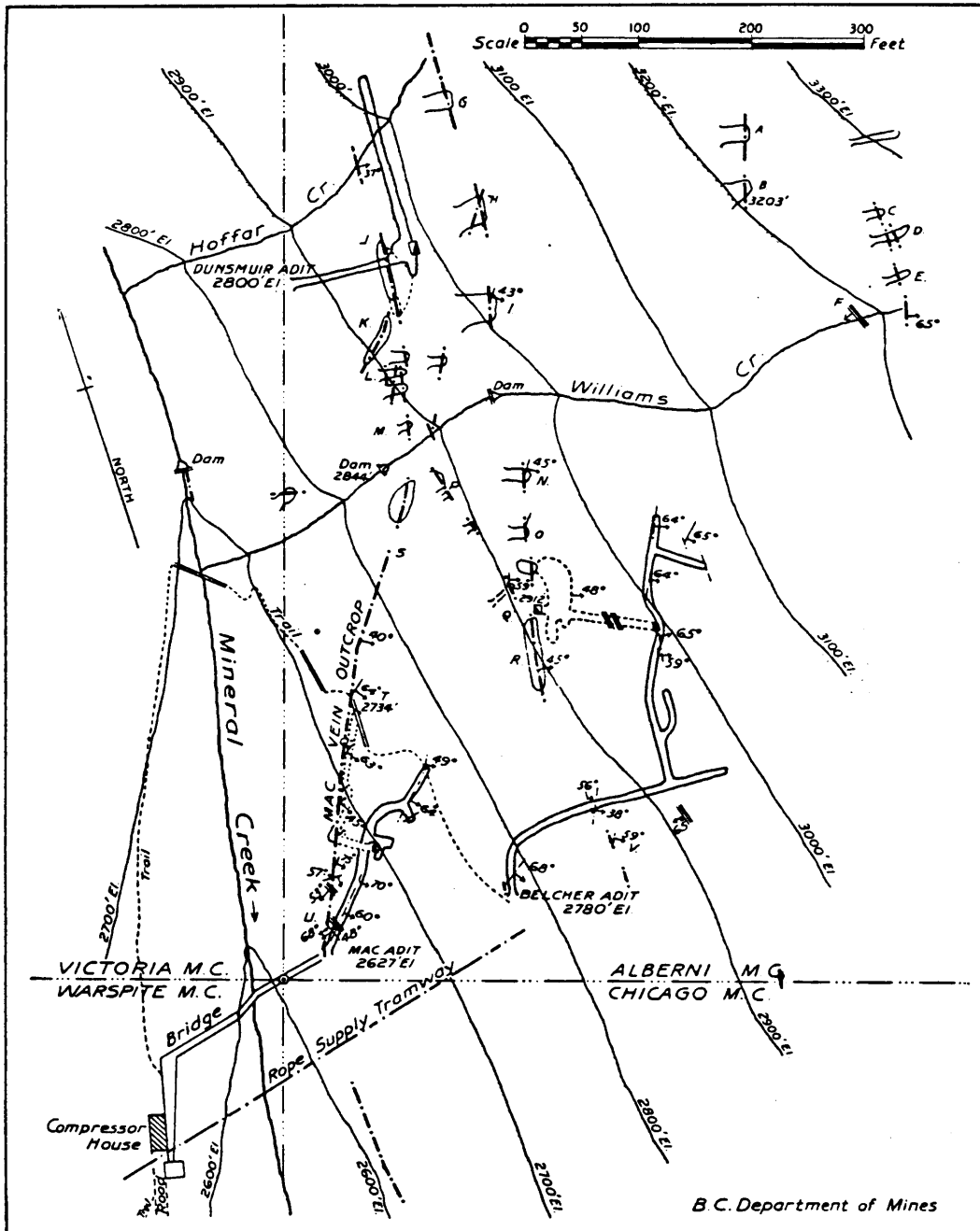
MINERAL OCCURRENCES

- 1 Vancouver Island Golds (Consolidated Alberni)
- 2 Regina
- 3 Golden Eagle
- 4 B & K
- 5 Havilah
- 6 Thistle
- 7 Black Panther
- 8 Black Lion
- 9 Bank Group
- 10 Ken
- 11 McQuillan Creek
- 12 Sol

Reference: B.C. Ministry of Mines
Annual Report, 1944, p. 142.



SUNFIELD MANAGEMENT LTD.	
MINERAL OCCURRENCE LOCATION MAP	
ALBERNI CLAIM	
ALBERNI MINING DIVISION	
Project No. V 150	By: T. N.
Scale: 1:112,500	Drawn: J. S.
Drawing No: 4	Date: MAY, 1984.
MPH Consulting Limited	



Vancouver Island Gold Mines workings

(from MMAR, 1934)

Figure 5



except in the shaft and stope workings. Recent sampling results show from <0.003 to 0.29 oz Au/ton and from 0.06 to 0.10 oz Ag/ton over 5 foot lengths (Ref. 3).

The Dunsmuir vein is exposed in trenches for about 400 feet and ranges up to 10 inches in width. No assays are reported (Ref. 1-1936).

The Waterfall vein is exposed for 108 feet and is 3 inches to 2.5 feet wide. Gold assays were low in sampling done by Vancouver Island Gold Mines Ltd., except for two samples which ran 1.4 oz Au/ton over 3 inches and 11.8 oz Au/ton over 6 inches (Ref. 1-1934). This illustrates the very spotty nature of free gold distribution.

Seventy-nine chip samples taken from the carbonatized shear zone by the BCDM assayed from nil to 0.16 oz/ton Au over widths of 5 and 10 feet (Ref. 1-1936).

A 1934 BCDM report stated that there is a possible relationship between bands of sediments and gold mineralization, as the gold values in the Mac vein are concentrated just above a bed of argillaceous sediments, and are low below that.

History:

1895: Alberni, Chicago, Warspite, Victoria claims staked; dispute over ownership.



- 1896: Alberni Consolidated Mining Co.; won dispute, shaft at 40 feet and a tunnel being driven, two tons of ore shipped from a smaller vein (Dunsmuir?) uphill from main vein, open cut on 8-30 inch vein on Chicago claim.
- 1897-98: An English company built a 10 ton per day 8 stamp mill and only made two clean-ups. Results unknown.
- 1933-39: Vancouver Island Gold Mines Ltd. (NPL); R.W. Williams leased the reverted Crown Grants in 1933 and turned them over to Vancouver Island Gold Mines. Numerous open cuts were made, 5 adits totalled 1905 feet including various raises, etc. on the quartz veins and 2 adits totalling 277 feet and 12 strippings were made on the carbonatized shear zone. A total of 403 tons of ore was mined. In 1936 a 35 ton pilot mill was built, but only milled a few tons of ore before the operations were ceased due to operating difficulties. In 1939 some rehabilitation work was done in the Mac adits and 48 tons of ore were shipped.
- 1964: Gunnex Ltd.; visited property, some sampling. Mapping planned for 1966.
- 1973-74: Keywest Resources Ltd.; (Sam Group) sampling in Belcher adits, prospecting, geological mapping on surface and underground.
- 1976: Western Mines Ltd.; (Tasha-Shannon and Rupert-Dog claim groups) reconnaissance geological mapping and soil sampling.

**References:**

- 1) MMAR 1895-650, 1896-6, 1897-566, 1898-1132, 1934-F2-4,
1936-F25-30, 1944-148
- 2) GEM 1973-230, 1974-173
- 3,4) AR 4915, 6153
- 5,6) GSC P68-50 p38
Map 1963-49
- 7) Gunnex #6
- 8) Minfile 92F079

2. Regina (L.55G) Au Ag Cu**Geology:**

Lenses and veinlets of quartz with pyrite, chalcopyrite, some galena, and Au and Ag values occur in shears in silicified and pyritized Sicker Group andesite. Some reports also mention sphalerite in the quartz. Another type of showing occurs in highly silicified and leached pyritic, ankeritic andesite which contains gold values.

Economic Features:

The quartz lenses and silicified zones vary up to 2 feet in width but the mineralized portions appear to be very discontinuous. A grab sample of quartz with considerable pyrite, chalcopyrite, and galena from the dump assayed at Au 0.66 oz/ton, Ag 14.0 oz/ton (Ref. 1-1944). A large, highly oxidized bulk sample from the



carbonatized zone assayed Au 0.64 oz/ton, Ag trace (Ref. 1-1944). A sample from 20 tons of ore on the dump (possibly hand sorted) in 1930 returned Au \$3.60/ton, Ag 5 oz/ton, Cu 5.0% (Ref. 1-1930). A grab sample from 40 tons of high grade hand-picked ore on the dump in 1964 assayed 0.02 oz/ton Au, 1.8 oz/ton Ag, 2.57% Cu, 1.98% Pb, and 9.01% Zn (Ref. 7).

History:

- 1898: Alberni Gold Development Syndicate; granted Crown Grants L.54, 55, 57.
- 1930: E. Maralia; an open cut and an incline shaft a few feet deep. Twenty tons of ore from this work on a dump.
- 1944: E. Marillia; no recent work. Five adits totalling 288 feet, a 30 foot incline shaft, 2 open cuts, and a 5 foot pit at the entrance to one of the adits exist. All probably date back to the late 1890's.
- 1964-65: Gunnex Ltd.; visited the workings, sampling, prospecting, in the general area.
- 1976: Western Mines Ltd.; (Tasha) geological mapping 1:14,400, soil sampling.

References:

- 1) MMAR 1898-1197, 1930-291, 1944-148-150
- 2) EBC 1976-111
- 3) BCDM Bull 1 p132
(Special Report #5, 1936)
- 4) AR 6153



- 5,6) GSC P68-50 p38
Map 1963-49
- 7) Gunnex #7
- 8) Minfile 92F078

3. Golden Eagle (L.198G) Au

Geology:

A vein of ribbon-quartz cuts a small intrusion of feldspar porphyritic diorite and contains pyrite, minor sphalerite, galena, chalcopyrite, and arsenopyrite (about 10% total sulphides) and gold values. Sicker Group volcanics and bedded cherts occur in the area.

Economic Features:

The vein varies from a few inches to 8 feet, averaging about 3.5 feet in width and has been traced in outcrop for 400 feet along strike and 325 feet vertically. An assay of \$56/ton Au, 3 oz/ton Ag, and 1% Cu is reported, and assays of up to \$103/ton Au are reported to have been obtained in 1894 (Ref. 1-1899). A tunnel 500 feet below the surface showing never intersected the vein despite being driven 1500 feet beyond the estimated intersection point of 600 feet.



History:

1892: the discovery of 2 quartz veins by prospectors searching for the source of the China Creek placer gold prompted the original claims to be staked.

1893-1902: Various individuals and/or companies; 4 adits totaling 205 feet in upper workings, an adit driven at a lower level to avoid snowslides from 1896-1902 reached 2100 feet without intersecting mineralization, "development work" of an unspecified nature.

1964-65: Gunnex Ltd.; prospecting and silt sampling in the general area. Also visited the lower adit and a showing near Summit Lake (B and K?) where rock samples were taken.

References:

- 1) MMAR 1893-1080, 1894-773, 1895-651, 1896-7, 556,
1897-566, 1898-1132, 1899-607, 779, 785,
1902-230, 1944-G150
- 2) AR 10194
- 3,4) GSC P68-50 p38
Map 49-1963, 17A
- 5) Gunnex #12
- 6) Minfile 92F080

4. B and K Au Ag

Geology:

Many widely scattered narrow quartz veins containing pyrite, and



minor galena, sphalerite, and chalcopyrite with Au and Ag values occur in andesite tuffs and flows, basalt, and local black chert; often in shear zones. A zone of strongly carbonatized andesite 6 to 25 feet wide contains minor pyrite, galena, and sphalerite in narrow veinlets. In the southern workings, veins are surrounded by a strong ankeritic carbonate alteration zone.

Economic Features:

The "high-grade" vein has been exposed in open cuts for 130 feet and is 5 to 8 inches wide. A sample assayed at 3.84 oz/ton Au, 3.2 oz/ton Ag, 0.06% Cu over 5 inches. This vein may be on Golden Eagle property (Ref. 4).

A vein near the north end of the workings varies from 2 to 6 inches to a 6 foot stringer zone in width. Assays of 2.56 and 2.26 oz/ton Au are reported (Ref. 1-1944).

A sample from quartz nodules containing galena and pyrite from an open cut on two parallel shears, each 18 inches wide, ran 0.82 oz/ton Au and 0.7 oz/ton Ag (Ref. 4).

No assays are reported from the carbonatized zone. Many other quartz veins, from a hairline to 8 inches wide, for which no assays are available, occur within an area about 1250 feet long.



History:

- 1938-40: Angus Beaton, Ed Keisig; staked claims, prospecting, 17 open cuts and trenches, stripping.
- 1964-65: Gunnex Ltd.; prospecting and silt sampling in the general area.

References:

- 1) MMAR 1944-151
- 2,3) GSC P68-50 p38
Map 49-1963
- 4) Gunnex #13
- 5) Minfile 92F081

5. Havilah (King Solomon, Storm, Red Rose, Spike, Sol 14)

Au Ag Cu Pb Mo

Geology:

Sicker Group andesite is intruded by Jurassic diorite and by Tertiary hornblende-feldspar and quartz-feldspar porphyry stocks, dykes, and sills. Ribbon-quartz veins and lenses containing abundant pyrite, sphalerite, and galena and lesser chalcopyrite and arsenopyrite occur in shears in the andesite. Occurs on the same shear zone as Black Panther (#7 below) and Black Lion (#8 below).



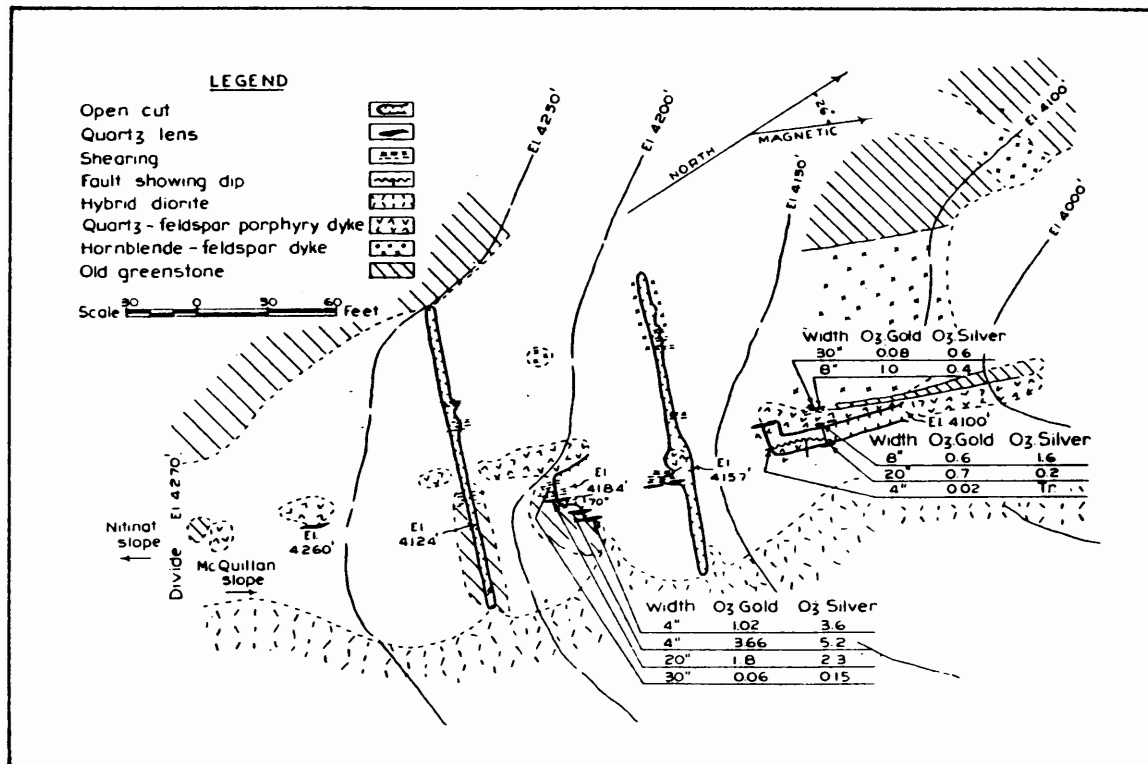
Economic Features:

The recorded production in 1936 and 1939 totals 1046 tons yielding 259 oz Au, 1,404 oz Ag, 4243 lb Cu, and 12,676 lb Pb. There are three main veins.

The Gillespie vein is the lowest. It is 3 to 34 inches wide and has been traced for 650 feet in 5 trenches. Most of the production came from the Gillespie vein. Assays range up to 0.4 oz/ton Au, 2.2 oz/ton Ag, 0.4% Pb, and 0.30% Zn over widths from 4 to 63 inches (Ref. 1-1936,1944). Some oxidized samples taken over 1 foot assayed as high as 7 oz/ton Au and 3 oz/ton Ag. Average grade of the ore shipped from the Gillespie vein was 0.235 oz/ton Au and 1.28 oz/ton Ag (Ref. 1-1939). The vein was faulted off in two of the three adits, and could not be re-discovered.

The Alberni vein consists of a 10 foot wide by about 70 feet long zone of intense shearing containing 1 to 3 lenticular quartz veins 4 to 24 inches wide. Assays of 3.66 oz/ton Au and 5.2 oz/ton Ag over 4 inches and 1.8 oz/ton Au and 2.3 oz/ton Ag over 20 inches are reported (Ref. 9).

The McQuillan vein was prospected with a 57 foot adit. It ranges up to 8 inches in width. Assays of up to 1 oz/ton Au over 8 inches and 1.6 oz/ton Ag over a different 8 inches, are reported (Ref. 9).



Havilah Mine workings

(from MMAR, 1936)

Figure 6



A fourth vein on the easterly side of the cirque 1 to 2 feet wide assayed 0.16 oz/ton Au and 0.6 oz/ton Ag from an oxidized 2 foot sample (Ref. 9).

History:

1893: First mentioned in MMAR (King Solomon).

1895: An open cut on the McQuillan(?) vein.

1936-44: Havilah Gold Mines Ltd.; claims staked in 1934 and 1936 by Walter Harris. In 1936 7 tons of ore were mined from the upper showings (Alberni and McQuillan veins). In 1938-39, 2072 feet of drifting, crosscutting and raising on three levels on the Gillespie vein resulted in production of 1039 tons of ore. Diamond drilling and prospecting were also carried out. A high-line tram was built to transport ore and supplies between the base camp and the mine. Little if any work was done after 1939.

1947: Nitinat Mines Ltd.; owned the ground.

1964: Gunnex Ltd.; silt sampling in McQuillan creek drainage, rock sampling wherever mineralization was observed.

1974-77: Cominco Ltd.; geological mapping 1:4800, soil sampling, trenching, several IP and resistivity surveys.

References:

- 1) MMAR 1893-1080, 1895-652, 1936-F30, 1939-88, 1944-G153
- 2) GEM 1974-172

- 3) EBC 1975-E95, 1976-E111, 1977-E110
- 4-6) AR 5354, 6138, 6643
- 7,8) GSC P68-50 p38
Map 49-1963, 17A
- 9) Gunnex #11
- 10) Minfile 92F-082

6. Thistle (L.91G) Au Ag Cu

Geology:

Mineralization occurs at contacts between thin black, chloritic, very finely crystalline basaltic flows or between andesitic tuffs and these flows within a complex sequence of basaltic and andesitic flows with lesser andesitic and minor basaltic fine grained tuffs of the uppermost Myra Formation. The strata are folded into a major anticline with the Thistle mine in the northeast dipping limb. Major and minor faults and rapid facies changes complicate the geology.

The ore consists of chalcopyrite and some pyrite in a gangue of dirty grey calcite and a little quartz. Magnetite disseminated through much of the calcite is locally oxidized to hematite. Beds(?) of calcite plus iron carbonate with up to 15% sulphides occur in the upper half of the mineralized interval. Early workers considered this to be a replacement deposit; Carson (1968)



believed it to be a type of skarn deposit; more recently it has been postulated that Thistle is a volcanogenic massive sulphide type of deposit.

Economic Features:

Production from 1938 to 1942 amounted to 6920 tons of ore which contained 2760 oz Au, 2120 oz Ag, and 681,425 lb Cu. The ore apparently occurs in lenses ranging from less than an inch up to at least 18 by 25 feet with much faulting cutting lenses off.

In the upper glory hole, basaltic flows occur at three intervals within 20 to 25 m, all of which are associated with massive sulphide mineralization. The mineralized interval in the lower glory hole is believed to be a fold repetition of one of the upper glory hole mineralized intervals (Ref. 10).

A showing on the Panther road is believed to be on the southwest limb of the Thistle anticline, so the possibilities of locating more fold repetitions of mineralization are good (Ref. 10).

The upper two mineralized intervals are reported to be within strongly magnetic basalt flows (Ref. 10).

Assays from 2.71 to 10.2% Cu, 0.226 to 1.22 oz/ton Au, and 0.15 to 1.33 oz/ton Ag over apparent true thicknesses of 15 cm to 4 m are reported (Ref. 10).

History:

1896: First staked.

1899: A. Watson et al; lower adit (500 adit) driven 65 feet but hadn't intersected ore that was 6 to 8 feet wide on surface, upper adit (300 adit) driven 90 feet but also hadn't intersected an orebody. A pit on one of the surface showings.

1901: Alberni Gold and Copper Co. Ltd.; roadbuilding, development work.

1902: J.M. Watson; granted Crown Grant L.91G.

1927: A. Watson et al; a 25 foot tunnel with a 20 foot crosscut, all in ore (300A adit?).

1938-40: United Prospectors Ltd.; shipments of ore were made from open cuts and glory holes and the old dumps.

1941-42: Vancouver Island Diamond Drilling and Exploration Co.; 1789 tons of ore mined, shut down July 25, 1942.

1944: The workings existing on the property included four adits totalling 527 feet, an 18 by 25 foot stope 60 feet long, two glory holes totalling about 6000 cubic yards, and several open cuts. Owned by United Prospectors Ltd., but no work done since 1942.

1962: Hunting Survey Corp.; regional aeromagnetic survey, geological mapping at the mine area.

1964-65: Gunnex Ltd.; visited the area, but no mapping done, silt sampling and prospecting in the general area.

1965: Vananda Explorations Ltd.; magnetometer, SP, and geochemical surveys, 4 diamond drill holes totalling 1745 feet.

- 1979: Kargen Development; linecutting, soil sampling.
- 1982: McQuillan Gold; airborne EM and magnetometer surveys, soil sampling, rock sampling, trenching, EM survey.
- 1983: Westmin Resources Ltd.; geological mapping, rock sampling (for assay, whole rock geochem, and thin sections), and prospecting.

References:

- 1) MMAR 1899-778, 1901-1097, 1902-307, 1927-340, 1928-366, 1930- 291, 1939-40,88, 1940-73, 1941-71, 1942-66, 1944-154-157, 1965-238
- 2-5) AR 8088, 9126, 10237, 11064
- 6,7) GSC P68-50 p38
Map 49-1963
- 8) Gunnex #10
- 9) Minfile 92F083
- 10) Westmin Resources Ltd.; Progress Reports by G. Benvenuto dated June 29, 1983, August 2, 1983, and September 1, 1983.

7. Black Panther (Nitinat) Au Ag Pb Zn Cu

Geology:

Ribbon-quartz lenses containing variable amounts of sulphides, mainly pyrite with minor galena and sphalerite occur in a shear zone which follows the contact of andesite lava on the west and diorite breccia on the east. The wall-rock of the shear is



strongly altered by ankeritic carbonate for widths of a few inches to 30 feet which locally is cut by numerous quartz stringers.

Economic Features:

The shear zone has been traced for at least two miles but the best mineralization is at the Black Panther workings where quartz lenses are one inch to three feet thick and up to 40 feet long. Four samples containing "heavy sulphides" from the 2700 and 2790 adits assayed from 2.30 to 2.88 oz/ton Au (Ref. 1-1944). A 1964 assay from the dump is reported as 1.16 oz/ton Au, 2.1 oz/ton Ag, 0.14% Cu, and 1.73% Pb (Ref. 4).

Production in 1947, 1948, and 1950 totalled 1890 tons which yielded 509 oz Au, 953 oz Ag, 498 lb Cu, and 12319 lb Pb, and at least 4478 lb Zn.

History:

1936: Claims first staked, upper adits driven shortly thereafter.

1939: Walter Harris; prospecting, drifting, cross-cutting (presumably those adits referred to above).

1941: Pioneer Gold Mines of B.C. Ltd.; drove the 2700 (Main) adit and the 2450 adit (about 1200 feet of drifting, crosscutting, and raising), 1631 feet of diamond drilling.

1944-48: Nitinat Golds Ltd. (became Nitinat Mines Ltd. in 1947);



built a 25 ton flotation mill, mining, shipped 68.5 tons of concentrate.

1962: Hunting Survey Corp.; regional aeromagnetic survey, geological mapping at the workings.

1964-65: Gunnex Ltd.; visited the workings, took a rock sample.

References:

- 1) MMAR 1939-88, 1941-71, 1944-157, 1945-114, 1947-182,
- 2,3) GSC P68-50 p38
Map 49-1963
- 4) Gunnex #14
- 5) Minfile 92F084

8. Black Lion Au Ag

Geology:

Similar to Black Panther (#7 above), as the Black Lion is on the southerly extension of the same shear zone as Black Panther.

Zones of quartz-sulphide (pyrite, galena, gold values) stringers are found in a strongly carbonatized zone 10 inches to 9 feet wide with local evidence of strong shearing.

Economic Features:

Open cuts exposed the "vein" for 175 feet with another exposure located 1300 feet to the south. The quartz-sulphide stringer zone is 12 to 18 inches wide. A sample of quartz and sulphides assayed



1.2 oz/ton Au. Samples of quartz-sulphide stringers and carbonatized country rock ranged from 0.27 to 0.43 oz/ton Au. The carbonatized rock itself assayed at trace to 0.03 oz/ton Au (Ref. 1-1944, Ref. 4).

History:

1941: Bralorne Mines Ltd.; prospecting, open cuts.

1942-64: Some diamond drilling is reported to have been done sometime during this period.

1964-65: Gunnex Ltd.; silt sampling and prospecting in the general area.

References:

- 1) MMAR 1944-159
- 2,3) GSC P68-50 p38
Map 49-1963
- 4) Gunnex #15
- 5) Minfile 92F085

9. Bank Group Au Ag Cu

Geology:

Pyrite, chalcopryrite and galena with Ag and trace Au occur in quartz veins in sheared and fractured metamorphic rock. Occurs in an area mapped as Sicker Group volcanics.

Economic Features:

The width of mineralization is reported to be up to 10 feet or more and it was traced for several hundred feet along strike. A grab sample from the dump assayed at trace Au, 1 oz/ton Ag, and 3.2 % Cu (Ref. 1).

History:

1917: James Dryden and I.B. Atkinson; a series of open cuts with a 25 foot shaft in the largest of the cuts, caved adit.

References:

- 1) MMAR 1917-247
- 2) Minfile 92F167

10. Ken Cu

Geology:

Chalcopyrite and some malachite occur in quartz stringers in epidotized shears in fractured, silicified, altered andesite.

Economic Features: Not known.

History:

1964-65: Gunnex Ltd.; sampling and prospecting in the general area, visited a rusty showing south of Lizard Lake.

1971: Nippon Mining of Canada Ltd.; geological mapping 1:14,400, soil sampling.



References:

- 1) GEM 1971-233
- 2) Gunnex #35(?)
- 3) Minfile 92F285

11. McQuillan Creek Fe

Geology:

An outcrop of jasper between a large bed of argillaceous schist and crystalline rock is locally heavily charged with hematite.

Economic Features: Not known.

History:

1895: First reported.

1964: Gunnex Ltd.; relocated the showing while working around Havilah (#5 above).

References:

- 1) MMAR 1895-652
- 2) Gunnex #11
- 3) Minfile 92F429

12. Sol Cu Mo

Geology:

A widespread area of low-grade copper mineralization occurs in an



area of Sicker Group volcanics intruded by Jurassic diorite and by narrow rhyolite or quartz feldspar porphyry dykes or sills of Tertiary age. The mineralization consists of pyrite and pyrrhotite disseminations and fracture fillings and minor chalcopyrite and molybdenite occurring mainly in northeast trending fractures and quartz veinlets within the iron sulphide zones. Most of the mineralization occurs either in andesite near to the diorite, or adjacent to and within the Tertiary dykes or sills.

Economic Features:

Soil sampling located three anomalous zones up to 1200 by 1200 by 1000 feet vertical in size. Mineralization was subsequently located in all three areas (Ref. 3). A large IP anomaly was also located (Ref. 4). Covers the old Havilah property (#5 above).

History:

1962: Hunting Surveys; regional aeromag survey over the area.

1962-65: Gunnex Ltd.; examined the old Havilah workings and covered the area with silt sampling and prospecting.

1974-77: Cominco Ltd.; geological mapping 1:4800, soil sampling, trenching, several IP and resistivity surveys.

References:

- 1) GEM 1974-172
- 2) EBC 1975-E95, 1976-E111, 1977-E110
- 3-5) AR 5354, 6138, 6643
- 6) Minfile 92F385



5.0 LOCAL GEOLOGY AND WORK DONE

The Alberni claim lies in an area mapped by Muller (1980) as Nitinat Formation volcanics.

Mapping and sampling (see Appendix II) was carried out on the southwestern portion only, due to lack of ready access on the steep, northern slope of the valley. All outcrops examined and sampled were andesitic in nature and were generally fine to medium grained and massive. Quartz and/or quartz-carbonate veining is common, although it generally is rather minor with veins in the order of 1 to 5 mm wide. Pyrite content is somewhat higher in the veined rocks. In one outcrop on the road up McQuillan Creek, feldspar phenocrysts ranging in size from 1 mm to about 5 mm were observed, and quartz and calcite amygdules were noted in an outcrop right at the southwestern corner of the claim.

A schistose zone with abundant disseminated pyrite in crystals up to 3 mm was found in the creek which flows from the southwestern corner of the claim to China Creek. One sample from this area which was taken in a zone of quartz-carbonate veining returned 900 ppb Au although two others from within a few feet ran only 10 ppb Au. Further down this creek a strongly silicified fault or shear zone about 5 feet wide with up to 40% quartz veins and much limonitic stain cuts the andesite. Only minor disseminated pyrite



42.

was observed in the fault zone. One sample from this fault zone ran 70 ppb Au while a second ran only 10 ppb Au. Ag and Cu values for all samples were low. The best Au results and some of the higher Cu results came from the southwestern corner of the claim, near the old Bank Group Au-Ag-Cu showing.

6.0 RECOMMENDED WORK PROGRAM

6.1 Description

Phase I will consist of detailed geological mapping with rock sampling, soil sampling, and VLF-EM and magnetometer surveys on a grid with lines spaced 100 m apart covering the entire Alberni claim. A total of 45.6 km of linecutting will therefore be required.

Detailed geological mapping will serve to define the property geology, and will locate and as far as possible delineate, surface mineralization and structural features. Rock samples taken during mapping will be used for whole rock lithochemical analyses and possibly for thin section study. Whole rock analyses will aid in naming rock types and will locate diagnostic alteration patterns of massive sulphide mineralization such as Na_2O and CaO depletion and K_2O , MgO , and FeO enrichment. Thin section study of representative rocks from the various units located will assist in distinguishing between similar rock types and accurately naming them. Surface showings will be sampled and analyzed for Au, Ag, Cu, Pb, and Zn.

Soil sampling on the grid lines is to be done at 100 m spacing. A total of 457 samples will be collected and geochemically analyzed for Au, Ag, Cu, Pb, and Zn.



Geophysical surveys will consist of ground magnetometer and VLF-EM readings taken at 25 m intervals along the grid lines, which hopefully will define areas of anomalous conductivity and magnetic activity indicating massive sulphide zones or mineralized structural features such as faults, shear zones or quartz veins. Geophysics may also assist in geological interpretation.

Phase II work, if warranted by the results of Phase I, will consist of trenching, rock sampling, detailed geological mapping, and IP and time domain EM surveys in areas of geochemical and/or geophysical anomalies. This work is roughly estimated to cost \$62,000 and is estimated to take two weeks to complete. At the conclusion of Phase II, a decision regarding diamond drilling can be made.



45.

6.2 Budget

Phase I

Mobilization/Demobilization		\$ 200	
Personnel			
Geologist 20 days @ \$325	\$ 6,500		
Line Cutters (20 days @ \$175) x 2	7,000		
Soil Samplers (20 days @ \$150) x 2	6,000		
Geophysical Technicians (12 days @ \$175) x 2	<u>4,200</u>		
			23,700
Equipment			
Magnetometer and base station recorder 12 days @ \$130	1,560		
VLF-EM receiver 12 days @ \$75	<u>900</u>		
			2,460
Support Costs			
Accommodation and Meals 124 man days @ \$100	12,400		
Vehicles - Geology/Geochem crew 22 days @ \$75	1,650		
- Geophysics crew 14 days @ \$75	1,050		
Communications	500		
Miscellaneous Supplies	<u>500</u>		
			16,100
Geochemical Analyses			
457 soil samples (Au Ag Cu Pb Zn) @ \$7.70	3,518.90		
20 rock samples (Au Ag Cu Pb Zn) @ \$9.35	187.00		
70 rock samples (whole rock) @ \$38.65	<u>2,705.50</u>		
			6,411.40



Micro-Computer Processing		
Whole rock geochem -		
70 samples @ \$12	\$ 840	
Petrographic studies (optional)		
10 thin sections @ \$50		
(not included in totals)	<u>500</u>	\$ 840
Consulting/Supervision		
7 days @ \$450	3,150	
Expenses	<u>800</u>	3,950
Report Writing		
Geologist 15 days @ \$325	4,875	
Geophysicist 10 days @ \$450	4,500	
Drafting 60 hours @ \$18	1,080	
Materials	<u>800</u>	<u>11,255</u>
		64,916
Administration (15% of \$28,691)		<u>4,304</u>
		69,220
Contingency @ 10%		<u>6,922</u>
	say	<u><u>\$76,000</u></u>



6.3 Schedule

The following table is a summary of the estimated time requirements for Phase I. Phase II work is estimated to take two weeks to complete.

Week	..	1	2	3	4
Mobilization	—				
Geological Mapping		—	—	—	
Line Cutting, Soil Sampling,		—	—	—	
Geophysics			—	—	
Consulting, Supervision		—		—	
Demobilization					—
Analyses			—	—	—
Microcomputing				—	—
Reporting					—

TABLE I
 PHASE I PROJECT SCHEDULE
 ALBERNI CLAIM



7.0 CONCLUSIONS

1. The Alberni claim is mapped as being underlain by Sicker Group Nitinat Formation basic volcanics. Myra Formation rocks may also be present as previous exploration on nearby claims by MPH Consulting Limited has located felsic tuffaceous rocks.
2. The Myra Formation of the Sicker Group is known to host volcanogenic massive sulphide deposits.

The massive sulphide deposits of Westmin Resources Ltd. at Buttle Lake, 95 km northwest of the Cameron Group, containing reserves totalling 16.25 million tons grading 2.1% Cu, 5.4% Zn, 0.3% Pb, 0.07 oz/ton Au, and 1.2 oz/ton Ag (1983), are hosted by the Myra Formation.

3. The Thistle mine, located about 6.3km south of the Alberni claim is believed to be a volcanogenic massive sulphide deposit. The mine produced 2760 oz Au, 2120 oz Ag, and 681,425 lb Cu from 6920 tons of ore from 1938 to 1942.

Due to the proximity of the Thistle mine to the Alberni claim, and the possible existence of Myra Formation rocks on the property, massive sulphide potential is considered good.



4. The old Bank Group and Regina Au-Ag-Cu showings and the old Vancouver Island Gold Mines Au-Ag-Cu mine are all within a mile of the Alberni claim. All three are quartz vein occurrences in andesitic rocks of the Sicker Group.

The Bank Group showing may actually be on the Alberni claim. A grab sample assayed trace Au, 1 oz/ton Ag, and 3.2% Cu.

5. Numerous other precious and base metal bearing quartz vein deposits, mainly hosted by Sicker Group volcanics, are known in the Port Alberni area. Production from the Vancouver Island Gold Mine, Havilah Mine, and Black Panther mine totalled 3419 tons yielding 1152 oz Au, 2409 oz Ag, 4933 lb Cu, and 24,995 lb Pb.
6. The Alberni claim has the potential to host economic grade precious and base metal quartz vein deposits.
7. Further exploration including geological mapping and sampling, soil geochemistry, and ground geophysics plus follow-up trenching, detailed geological mapping and sampling, and detailed geophysical surveys is required to assess the economic potential of the property.



8.0 RECOMMENDATIONS

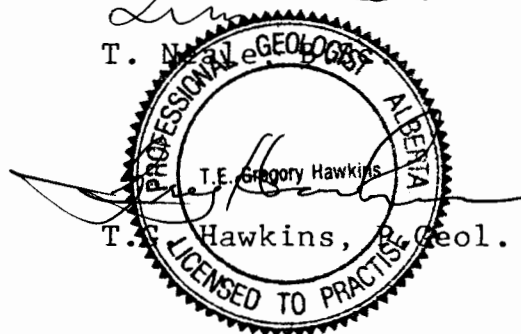
1. It is recommended that both volcanogenic massive sulphide deposits and precious/base metal quartz vein deposits be considered primary exploration targets.
2. Phase I work to consist of linecutting, geological mapping and sampling, soil geochemistry, and ground magnetometer and VLF-EM surveys on the Alberni claim is recommended.
3. Whole rock geochemistry is recommended to aid in classifying rock types and to locate alteration patterns which may indicate the presence of mineralized zones.
4. Petrographic studies on representative rock samples are recommended to assist in accurately differentiating between similar rock types and to aid in identification of rock types.
5. It is recommended that the Bank Group Au-Ag-Cu showing on or near the Alberni claim be located and mapped in detail.
6. The Phase I work is recommended at an estimated cost of \$76,000 for the Alberni claim. The work is estimated to take 20 days to complete.

7. It is recommended that tentative plans be made for a Phase II follow-up program to consist of trenching, detailed geological mapping and sampling, and detailed IP and time domain EM surveys, which would be contingent upon favourable results from Phase I. Cost of Phase II is estimated at \$62,000.

Respectfully submitted,
MPH Consulting Limited

Tim Neale

T. Neale



May 11, 1984



CERTIFICATE

I, T. Neale, do hereby certify:

1. That I am a graduate of The University of British Columbia (B.Sc. 1978).
2. That I have practised as a geologist in mineral exploration for six years.
3. That the opinions, conclusions, and recommendations contained herein are based on library research and on field examinations made on the properties in March, 1984.
4. That I own no direct, indirect, or contingent interest in the area, the subject property, or shares or securities of Sunfield Management Ltd. or associated companies.

A handwritten signature in cursive script that reads 'T. Neale'.

T. Neale, B.Sc.


Vancouver, B.C.

May 11, 1984

CERTIFICATE

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

- 1) That I am a Consulting Geologist with business offices at 301 - 409 Granville Street, Vancouver, British Columbia, V6C 1T2.
- 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 twelve years.
- 4) That I am a Fellow of the Geological Association of Canada and a Professional Geologist registered in the Province of Alberta.
- 5) That the opinions, conclusions and recommendations contained herein are based on field work carried out in the area in March, 1984 and research work supervised by me during the same period.
- 6) That I own no direct, indirect, or contingent interests in the area, the subject property, or shares or securities of Sunfield Management Ltd. or associated companies.

 T.E. Gregory Hawkins, P.Geol.

Dated at Vancouver, British Columbia, this 11th day of May, 1984.

Bibliography

- Clapp, C.H. 1912: Southern Vancouver Island; G.S.C. Memoir 13.
- 1914: Geology of the Nanaimo Map Area; G.S.C. Memoir 51.
- Gunnex Ltd. 1966: Mineral Occurrences (Mines, Surface Workings, and Showings), E&N Land Grant, Vancouver Island, B.C.; internal company report.
- Hawkins, T.G. 1983: Preliminary Assessment and Recommended Work Program; Grizzly, China, McQuillan, Canon, Olsen Claims; Alberni Mining Division, British Columbia; for Nexus Resource Corporation. September 22, 1983.
- Muller, J.E. and Carson, D.J.T. 1969: Geology and Mineral Deposits of Alberni Map-Area, British Columbia (92F); G.S.C. Paper 68-50.
- Muller, J.E. 1977: Geology of Vancouver Island (West Half); G.S.C. Open File 463.
- 1980: The Paleozoic Sicker Group of Vancouver Island, British Columbia; G.S.C. Paper 79-30.
- Neale, T. 1984: Compilation of Mineral Occurrences of the Sicker Group, Vancouver Island, British Columbia; for MPH Consulting Limited.
- Stevenson, J.S. 1945: Geology and Ore Deposits of the China Creek Area, Vancouver Island, British Columbia; Annual Report of the Minister of Mines of the Province of British Columbia, 1944, pp.A143-A161.
- Walker, R.R. 1983; Ore Deposits at the Myra Falls Minesite; Western Miner, May 1983, pp.22-25.



APPENDIX I

STATEMENT OF EXPENDITURE

AND

LIST OF PERSONNEL



List of Personnel and Statement of Expenditures

The following expenses have been incurred on the Alberni claim for the purposes of mineral exploration on the dates of March 9 and 10, 1984.

Personnel

T.G. Hawkins, P.Geol.		
Consulting Geologist		
1 day @ \$450	\$450.00	
T. Neale, B.Sc.		
Geologist		
1 day @ \$325	325.00	
+ 19 hrs @ \$40	760.00	
S. Angus		
Assistant/Prospector		
1 day @ \$200	<u>200.00</u>	
		\$1735.00

Expenditures

Meals and Accommodation	111.27	
Transportation		
(gas, parking, ferries)	30.49	
Supplies	5.89	
Analyses 17 @ \$7.90	134.30	
Expenses - T.G. Hawkins	35.71	
Report Costs		
Drafting 189.09		
Copy Time 78.00		
Typing <u>250.00</u>	517.09	
Miscellaneous (phone, maps)	<u>5.50</u>	
		840.25
Administration (15% of \$840.25)		<u>126.04</u>
		<u>\$2701.29</u>



APPENDIX II



ROCK SAMPLE DESCRIPTIONS
AND
ROCK GEOCHEM RESULTS

Sample No.	Description	Au	Ag	Cu
64251	Very siliceous, pyrite-rich volcanic.	10	0.2	126
64252	Sicker volcanic (andesite) - sulphide rich, quartz-carbonate veining.	10	0.2	68
64253	Very rusty weathering volcanic with sulphides.	10	0.2	94
64254	Volcanic with quartz carbonate veining and pyrite.	10	0.2	12
64255	Schistose, quartz carbonate veined, sulphide rich volcanic.	900	0.4	14
64256	Volcanic, pyrite rich.	10	0.4	62
64257	Volcanic - cherty, pyrite rich.	70	0.2	18
64258	Volcanic - quartz carbonate veining, pyrite. See also 64407.	10	0.2	58
64401	Andesite - fine to medium grained, abundant small shears with slickensides, no pyrite noted.	10	0.4	6
64402	Andesite - feldspar phenocrysts from 1 to 5 mm, silicified, sheared, pyritic.	10	0.2	80
64403	Andesite - cut by many carbonate veins (in shears??) and some grey and white quartz. Minor pyrite.	10	0.4	80
64404	Chert - probably float; believed to overlie andesite.	10	0.4	6



Sample No.	Description	Au	Ag	Cu
64405	Andesite - quartz and calcite amygdules, weakly pyritic, local boxwork, heavily fractured.	10	0.2	96
64406	Andesite - fine grained, light green; calcite veins up to 1 cm wide. Only 1 or 2 specks of pyrite noted.	10	0.2	28
64407	Fault/shear zone - highly silicified (quartz veins up to 1 cm make up 20 to 40% of rock). Extremely limonitic. Cuts andesite. Sample 64258 in same zone on other side of creek.	10	0.4	30
64408	Andesite? - schistose (due to shearing?), siliceous, quartz veins \pm carbonate to 1 cm, very altered rock.	10	0.2	32
64409	Quartz-carbonate vein - rusty although no fresh sulphides were seen, carbonate is minor - calcite and possibly ankerite.	10	0.2	20



APPENDIX III

CERTIFICATE OF ANALYSIS



CERTIFICATE OF ANALYSIS

ROSSBACHER LABORATORY LTD.

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

TO: MPH CONSULTING LTD.
301-409 GRANVILLE STREET
VANCOUVER B.C.

CERTIFICATE NO. :84050- 1

INVOICE NO. :4074

PROJECT: V 150

DATE ANALYSED :MARCH 20 1984

SAMPLE# PPM Cu PPM Ag PPM Zn PPM Pb PPM Au

Table with 6 columns: SAMPLE#, PPM Cu, PPM Ag, PPM Zn, PPM Pb, PPM Au. Rows include sample numbers 64251 through 64282 with corresponding concentration values.

CERTIFIED BY :

Handwritten signature of J. Rossbach



CERTIFICATE OF ANALYSIS

ROSSBACHER LABORATORY LTD.

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

TO: MPH CONSULTING LTD.
301-409 GRANVILLE STREET
VANCOUVER B.C.

CERTIFICATE NO. :84050- 2

INVOICE NO. :4074

PROJECT: V 150

DATE ANALYSED :MARCH 20 1984

Table with 6 columns: SAMPLE#, PPM Cu, PPM Ag, PPM Zn, PPM Pb, PPB Au. Rows include sample numbers 64283 through 64425 with corresponding analytical values.

CERTIFIED BY :

Handwritten signature of J. Rossbach

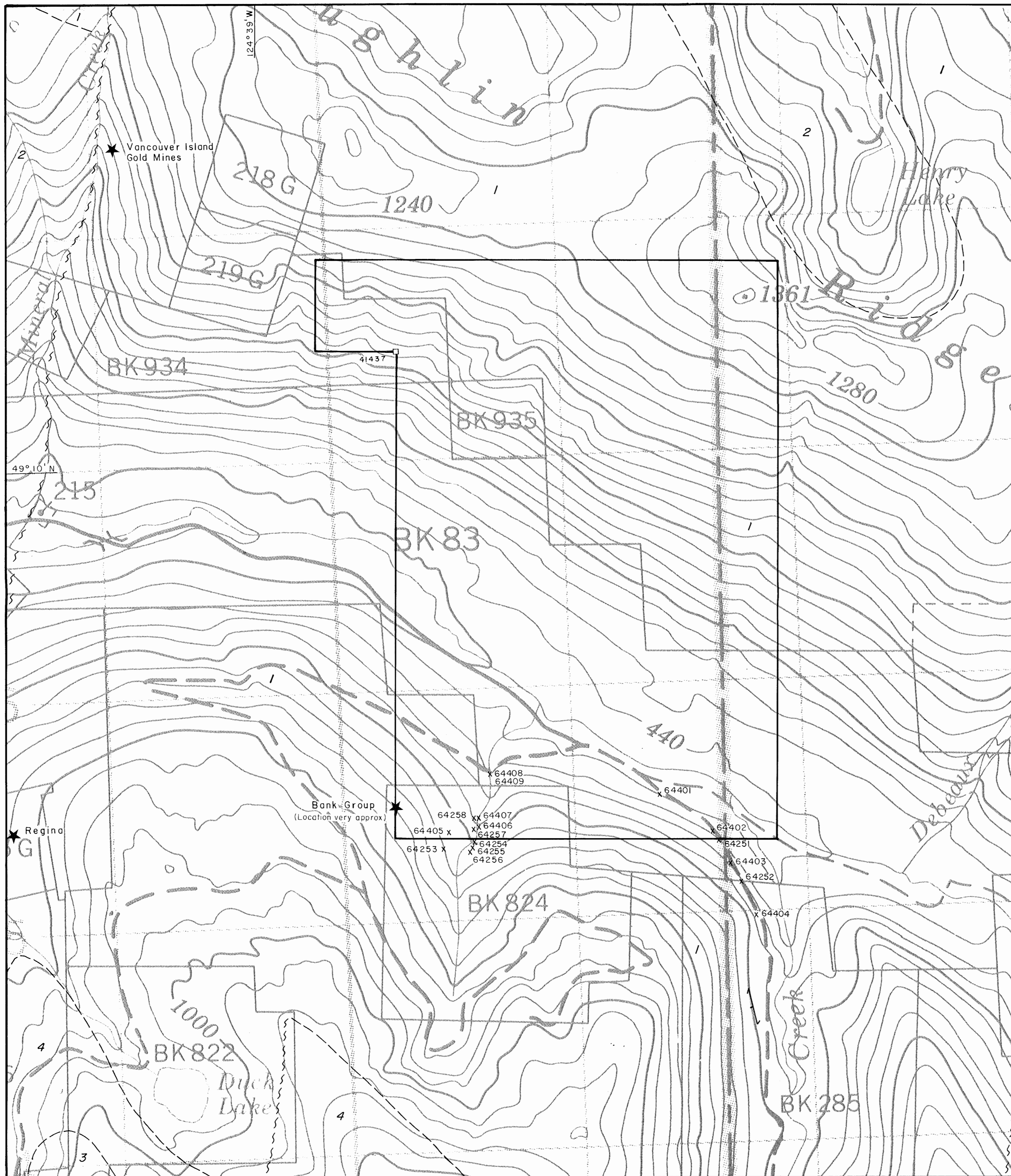



APPENDIX IV



Abbreviations Used in Mineral Occurrences Section

AR	B.C. Ministry of Energy, Mines, and Petroleum Resources Assessment Report
BCDM	British Columbia Department of Mines
Bull	Bulletin
EBC	Exploration in British Columbia; B.C. Ministry of Energy, Mines and Petroleum Resources
GEM	Geology, Exploration and Mining in British Columbia; B.C. Department of Mines and Petroleum Resources
GSC	Geological Survey of Canada
Gunnex	Mineral Occurrences, E&N Land Grant, Vancouver Island, B.C.; Gunnex Ltd., 1966
Minfile	B.C. Ministry of Energy, Mines and Petroleum Resources Minfile, Feb. 2, 1984
MMAR	B.C. Ministry of Mines Annual Report
P	Paper




**GEOLOGICAL BRANCH
ASSESSMENT REPORT**
12,563

LEGEND

GEOLOGY (Ref. G.S.C. Open File 463, Paper 79-30)

- VANCOUVER GROUP**
- 4 Karmutsen Formation - massive basalt, pillowed basalt, flow breccia; minor andesite and tuff.
- SICKER GROUP**
- 3 Buttle Lake Formation - limestone, calcarenitic, crinoidal, commonly recrystallized; interbedded with subordinate or equal thicknesses of calcareous siltstone and chert; some diabase sills.
 - 2 Myra Formation - basic to rhyodacitic banded tuff, breccia, and (?) lava; thinly bedded to massive argillite, siltstone, and chert.
 - 1 Nitinat Formation - metabasaltic lavas, pillowed or agglomeratic, commonly with large unalitized pyroxene phenocrysts and amygdules of quartz and dark green minerals; minor massive to banded tuff.

SYMBOLS

- ~ ~ ~ ~ Fault (approximate)
- - - - Geological contact (approximate)
- Schistosity
- x 64251 Rock sample location
- ★ Mineral occurrence
- Claim boundary

LITHOGEOCHEMISTRY RESULTS

Sample No.	Au (ppb)	Pb (ppm)	Cu (ppm)
64251	10	0.2	126
64252	10	0.2	68
64253	10	0.2	94
64254	10	0.2	12
64255	900	0.4	14
64256	10	0.4	62
64257	70	0.2	18
64258	10	0.2	58
64401	10	0.4	6
64402	10	0.2	80
64403	10	0.4	80
64404	10	0.4	6
64405	10	0.2	96
64406	10	0.2	28
64407	10	0.4	30
64408	10	0.2	32
64409	10	0.2	20

To: *T.E. Cr...* Report by
T.E. Cr... *J. S.*, P. Geol.
 11/05/84

SUNFIELD MANAGEMENT LTD.

**PROPERTY PLAN, GEOLOGY
and
ROCK SAMPLING
ALBERNI CLAIM**
 ALBERNI MINING DIVISION

Project No: V 150	By: T. N.
Scale: 1 : 10,000	Drawn: J. S.
Drawing No: 7	Date: MAY, 1984.


MPH Consulting Limited