Victoria / GP 007038 Middle Vein Prospect 92F/2E

THIS PROSPECTUS CONSTITUTES A PUBLIC OFFERING OF THESE SECURITIES ONLY IN THOSE JURISDICTIONS WHERE THEY MAY BE LAWFULLY OFFERED FOR SALE AND THEREIN ONLY BY PERSONS PERMITTED TO SELL SUCH SECURITIES. NO SECURITIES COMMISSION OR SIMILAR AUTHORITY IN CANADA HAS IN ANY WAY PASSED UPON THE MERITS OF THE SECURITIES OFFERED FOR SALE BY THIS PROSPECTUS AND ANY REPRESENTATION TO THE CONTRARY IS AN OFFENCE.

NEW ISSUE PROPERTY FILE ~~PROSPECTUS~~

CANADIAN IMPERIAL MINES INC.
(the "Issuer")
(Incorporated in British Columbia)

DEC 17 1991
Geological Survey Branch
MEMPR

COMMON SHARE OFFERING: 600,000 COMMON SHARES

	Price to Public	Commission(1)	Net Proceeds to the Issuer(2)
Per Share	$0.40	$0.04	$0.36
Total	$240,000	$24,000	$216,000

FLOW-THROUGH COMMON SHARE OFFERING: 200,000 COMMON SHARES

	Price to Public	Commission(1)(3)	Net Proceeds to the Issuer
Per Share	$0.40	Nil	$0.40
Total	$80,000	Nil	$80,000

(1) In addition, the Agent will be granted Agent's Warrants as described in the section captioned "Plan of Distribution".
(2) Before deduction of the balance of costs of this Prospectus estimated at $30,000.
(3) The Issuer will pay a fee of $8,000 to the Agent, from general working capital, in respect of the sale of the Flow-Through Common Shares.

THE PRICE TO THE PUBLIC WAS ESTABLISHED PURSUANT TO NEGOTIATIONS BETWEEN THE ISSUER AND THE AGENT.

THERE IS PRESENTLY NO MARKET THROUGH WHICH THE SECURITIES OF THE ISSUER MAY BE SOLD AND A PURCHASE OF THE SHARES OFFERED BY THIS PROSPECTUS MUST BE CONSIDERED A SPECULATION. THE ISSUER'S MINERAL PROPERTY IS IN THE PRELIMINARY STAGES OF EXPLORATION AND DEVELOPMENT AND THERE IS NO KNOWN BODY OF COMMERCIAL ORE PRESENT ON THE PROPERTY. REFERENCE IS MADE TO THE SECTIONS CAPTIONED "RISK FACTORS" AND "DILUTION".

NO PERSON IS AUTHORIZED BY THE ISSUER TO PROVIDE ANY INFORMATION OR TO MAKE ANY REPRESENTATION OTHER THAN THOSE CONTAINED IN THIS PROSPECTUS OR IN CONNECTION WITH THE ISSUE AND SALE OF THE SECURITIES OFFERED BY THE ISSUER.

THE OFFERING OF FLOW-THROUGH COMMON SHARES IS INTENDED TO ALLOW INVESTORS TO ACHIEVE CERTAIN TAX BENEFITS IN THE YEAR OF SUBSCRIPTION. THE ACHIEVING OF SUCH BENEFITS BY THE INVESTORS AND THE INCURRING OF EXPENDITURES BY THE ISSUER ON BEHALF OF THE INVESTORS ARE SUBJECT TO RISK AND UNCERTAINTY WHICH ARE DESCRIBED IN THE SECTIONS CAPTIONED "CANADIAN INCOME TAX CONSIDERATIONS OF FLOW-THROUGH SHARES" AND "RISK FACTORS".

ONE OR MORE OF THE DIRECTORS OF THE ISSUER ARE DIRECTORS OF OTHER NATURAL RESOURCE COMPANIES AND HAVE POTENTIAL CONFLICTS OF INTERESTS WHEN SERVING IN SUCH CAPACITIES. REFERENCE IS MADE TO THE SECTION CAPTIONED "DIRECTORS AND OFFICERS".

FOR COMPARISON OF THE SHARES BEING OFFERED TO THE PUBLIC FOR CASH AND THOSE ISSUED TO PROMOTERS, DIRECTORS AND OTHER INSIDERS, REFERENCE IS MADE TO THE SECTION CAPTIONED "PRINCIPAL SHAREHOLDERS". UPON COMPLETION OF THIS OFFERING, THE SECURITIES OFFERED HEREUNDER WILL REPRESENT 29.244% OF THE ISSUED SHARES OF THE ISSUER THEN OUTSTANDING WHILE THE DIRECTORS AND SENIOR OFFICERS OF THE ISSUER WILL HOLD 49.323% OF THE ISSUED SHARES THEN OUTSTANDING. THE PUBLIC WILL EXPERIENCE DILUTION OF $0.28 PER SHARE OR 70%. REFERENCE IS MADE TO THE SECTIONS CAPTIONED "DILUTION" AND "PRINCIPAL SHAREHOLDERS".

THE AGENT'S WARRANTS HAVE BEEN DISTRIBUTED UNDER THIS PROSPECTUS. ANY SHARES ACQUIRED BY THE AGENT UNDER THE GUARANTEE WILL ALSO BE DISTRIBUTED UNDER THIS PROSPECTUS THROUGH THE FACILITIES OF THE VANCOUVER STOCK EXCHANGE AT THE MARKET PRICE AT THE TIME OF SALE. REFERENCE IS MADE TO THE SECTION CAPTIONED "PLAN OF DISTRIBUTION".

THE VANCOUVER STOCK EXCHANGE HAS CONDITIONALLY LISTED THE SECURITIES OFFERED PURSUANT TO THIS PROSPECTUS. LISTING IS SUBJECT TO THE ISSUER FULFILLING ALL THE LISTING REQUIREMENTS OF THE EXCHANGE ON OR BEFORE DECEMBER 11, 1991 INCLUDING PRESCRIBED DISTRIBUTION AND FINANCIAL REQUIREMENTS.

WE, AS AGENT, CONDITIONALLY OFFER THESE SECURITIES SUBJECT TO PRIOR SALE, IF, AS AND WHEN ISSUED BY THE ISSUER AND ACCEPTED BY US IN ACCORDANCE WITH THE CONDITIONS CONTAINED IN THE AGENCY AGREEMENT REFERRED TO IN THE SECTION CAPTIONED "PLAN OF DISTRIBUTION".

THIS PROSPECTUS IS DATED THE 4TH DAY OF NOVEMBER, 1991.

AGENT

BRINK HUDSON & LEFEVER LTD.
1200 - 595 Burrard Street
Vancouver, B.C.
V7X 1J1

EFFECTIVE DATE: NOVEMBER 5, 1991

92 F/2
Latitude: 49° 06'N
Longitude: 124° 35'W

REVISED GEOLOGICAL REPORT

MIDDLE VEIN PROSPECT

in the

Mount McQuillan Area
Victoria Mining Division, B.C.

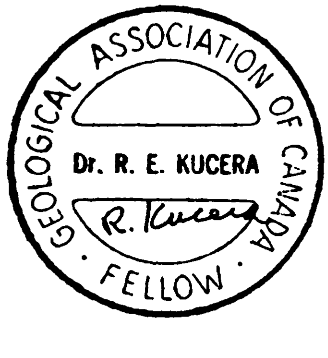
for

CANADIAN IMPERIAL MINES INC.
#777 - 1177 West Hastings Street
Vancouver, B.C. V6E 2K3

By

Kucera & Associates Consultants
Richard E. Kucera, Ph.D.

September 20, 1991



SUMMARY

Canadian Imperial Mines Inc. holds seven reverted Crown Grants (Middle Vein Prospect) in the Mt. McQuillan area, located 21 kilometres southeast of Port Alberni, Vancouver Island, B.C. (92F/2). Elevations range from 1200 to 1500 metres. Present access to the property is either by helicopter or by trail from China Creek or Nitinat River. The end of an old logging road lies 2.2 kilometres southeast of the property.

The Middle Vein Prospect is located on the Cowichan-Horn Lake Uplift, a geologically favourable area and contains past producers of the Mt. McQuillan-China Creek mining camps. The property is largely underlain by the lower part of the Sicker Group rocks, represented here by the Duck Lake Formation, composed of grey to greenish andesite, dacite tuffs and breccias. Gabbroic rocks (Island Intrusions) also occur locally.

Mineralization on the property consists of lenticular quartz-carbonate veins, up to 5 metres long and 20 cm wide, associated with a very strong and persistent NNE trending shear zone 2 to 3 metres wide that cuts light to dark brown weathered andesite. This mineralized zone has been referred to as the Middle Vein. The Middle Vein is exposed only in the Middle Vein workings for a distance of 5 metres. The veins and shear zone at this locality strike N 10 degrees to 18 degrees East and dip 78 degrees to 85 degrees East. Some of the veins are found associated with light-coloured feldspar-hornblende dykes that are as much as 2 metres wide. One 20 cm channel sample assayed 0.88 oz/ton Au.

Although the shear zone is largely obscured by overburden, it is also exposed for a distance of 350 metres on the northern portion of the property. There is no indication of the Middle Vein shear zone by VLF-EM survey on the Apex and Skyline claims nor on the War Lion and Conqueror claims.

Exploration by Canadian Imperial Mines Inc. in 1989 and 1991 included establishing grid lines, collecting chip and channel samples, geological mapping and geophysical surveys. The writer has taken no independent check samples but he directed sampling by employees of the vendor.

Individual quartz veins assay up 1.4 oz/ton Au across widths of up to 10 cm. Sampling by Sawyer Consultants (1980) reported values of up to 2.20 oz/ton Au and 2.09 oz/ton Ag.

The Middle Vein is judged to be a good target. A two stage exploration program is recommended. Stage One would consist of detailed geological mapping and sampling, aerial photo interpretation and trenching. Stage Two would consist mainly of diamond drilling.

TABLE OF CONTENTS

APPENDICES

ILLUSTRATIONS

In Pocket

INTRODUCTION

This report was prepared at the request of Mr. Clive Ashworth, on behalf of Canadian Imperial Mines Inc. The purpose of this report is to describe the results of geological exploration and assess the potential of the Middle Vein Prospect (seven reverted Crown grants) held by Canadian Imperial Mines Inc. in the Mt. McQuillan area, southeast of Port Alberni, Vancouver Island.

The report discusses the results of mapping, sampling and geophysical surveys carried out by Ashworth Explorations Limited in 1989 and Hi-Tec Resource Management Ltd. in 1991. In addition, observations made in conjunction with a drilling program carried out on an adjacent property in the early 1980's have been useful in this report.

The primary target is a mineralized zone (Middle Vein) consisting of quartz-carbonate veins associated with a very strong and persistent NNE trending shear zone. Examination of existing data followed by the 1989 and 1991 work programs have demonstrated the presence of gold anomolies in rocks with values up to 1.4 oz/ton across widths of up to 10 cm.

Certain recommendations are made in this report to explore the Middle Vein on the surface as well as at depth. The writer judges the exploration merit of the property to be good.

SOURCE OF INFORMATION

The primary source of information of which this report is based on included geological data, maps, and assays contained in a report by Mr. Hugo Laanela, Consulting Geologist, Nanaimo, B.C. In his report of August 8, 1989, for Ashworth Explorations Ltd., he summarized the work done on the property during the late 1970's and early 1980's by Lode Resources Corp. Laanela also reports on some geophysics and prospecting carried out in the summer of 1989 by Ashworth Explorations Ltd.

In addition, the present writer has drawn upon other appropriate sources including Annual Reports by the Minister of Mines, GSC Papers, and unpublished geological and geophysical reports on adjoining properties. He also had numerous discussions with Mr. Fayz Yacoub, Project Geologist for Ashworth Explorations Ltd.

The writer examined the northern part of the Middle Vein Prospect on October 16, 1989 and mapped a portion of the geology in the vicinity of the Middle Vein on the Apex claim. He was also accompanied by Mr. Yacoub and supervised sampling of the Middle Vein workings.

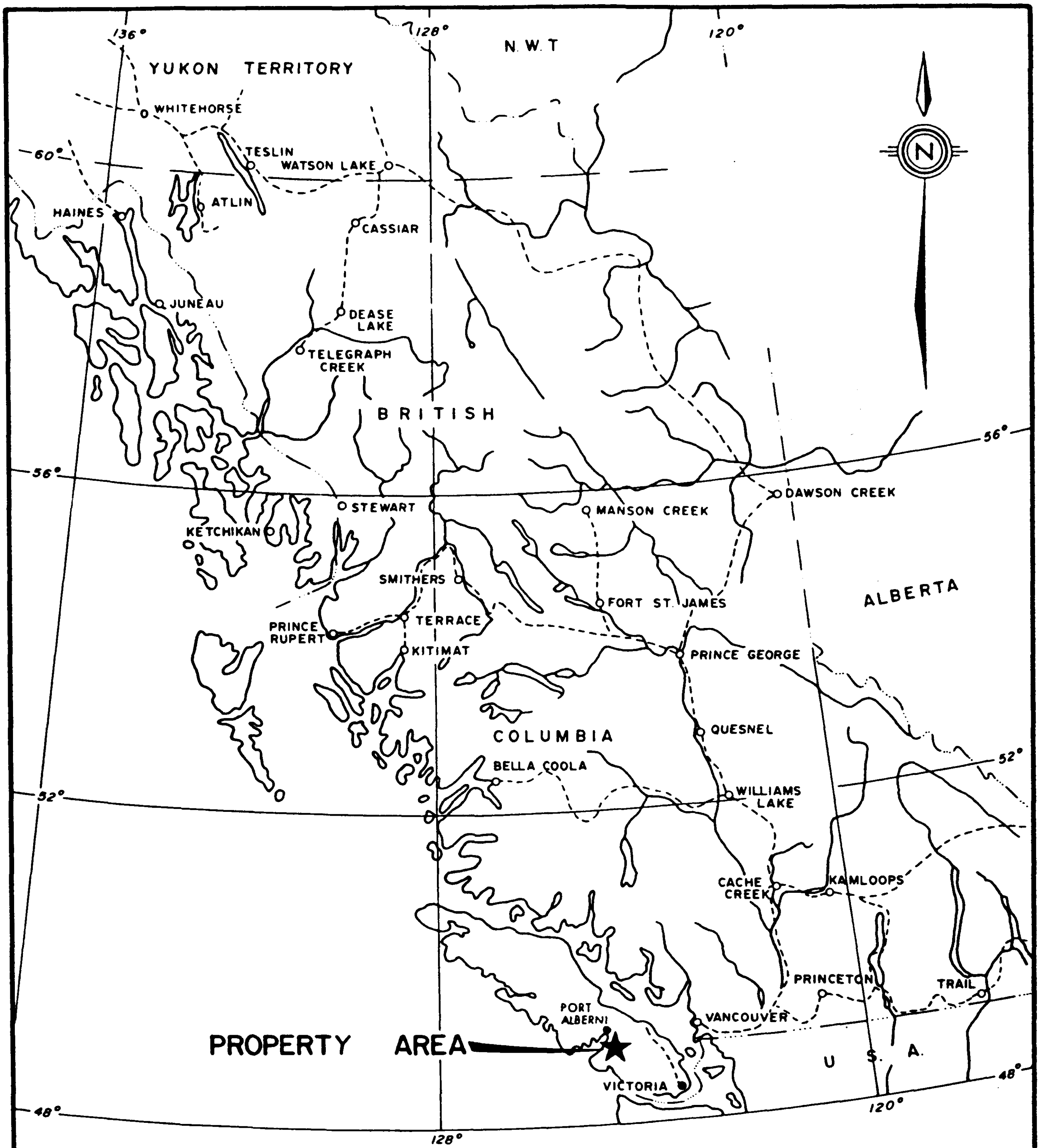
The results of geologic mapping, rock sampling and geophysical work by Hi-Tec Resource Management during June 1991 have been incorporated in this revised report.

LOCATION AND ACCESS

The Middle Vein Prospect is located 21 kilometres southeast of Port Alberni, Vancouver Island, B.C. (NTS map sheet 92 F/2). The geographical coordinates are 49 degrees 06'N, 124 degrees 35'W in the Victoria Mining Division.

The property is located along the east flank of McQuillan Ridge, the southern spur of Mt. McQuillan. The area lies west of the headwaters of the Middle Fork of Nitinat River.

Present access to the property is either by helicopter (12 minutes from Nanaimo) or by trail from China Creek or Nitinat River. However, a network of roads do exist in the area. The terminus of an old logging road located at the headwaters of the Middle Fork of Nitinat River lies 2.2 kilometres southeast of the workings at the Middle Vein.



CANADIAN IMPERIAL MINES INC.

GENERAL LOCATION MAP

OF MIDDLE VEIN PROSPECT

MOUNT McQUILLAN, VANCOUVER ISLAND, B.C.

SCALE : 1" = 125 MILES

GEOLOGICAL ASSOCIATION OF CANADA
Dr. R. E. KUCERA
R. Kucera
FELLOW

FIGURE 1

PHYSIOGRAPHY

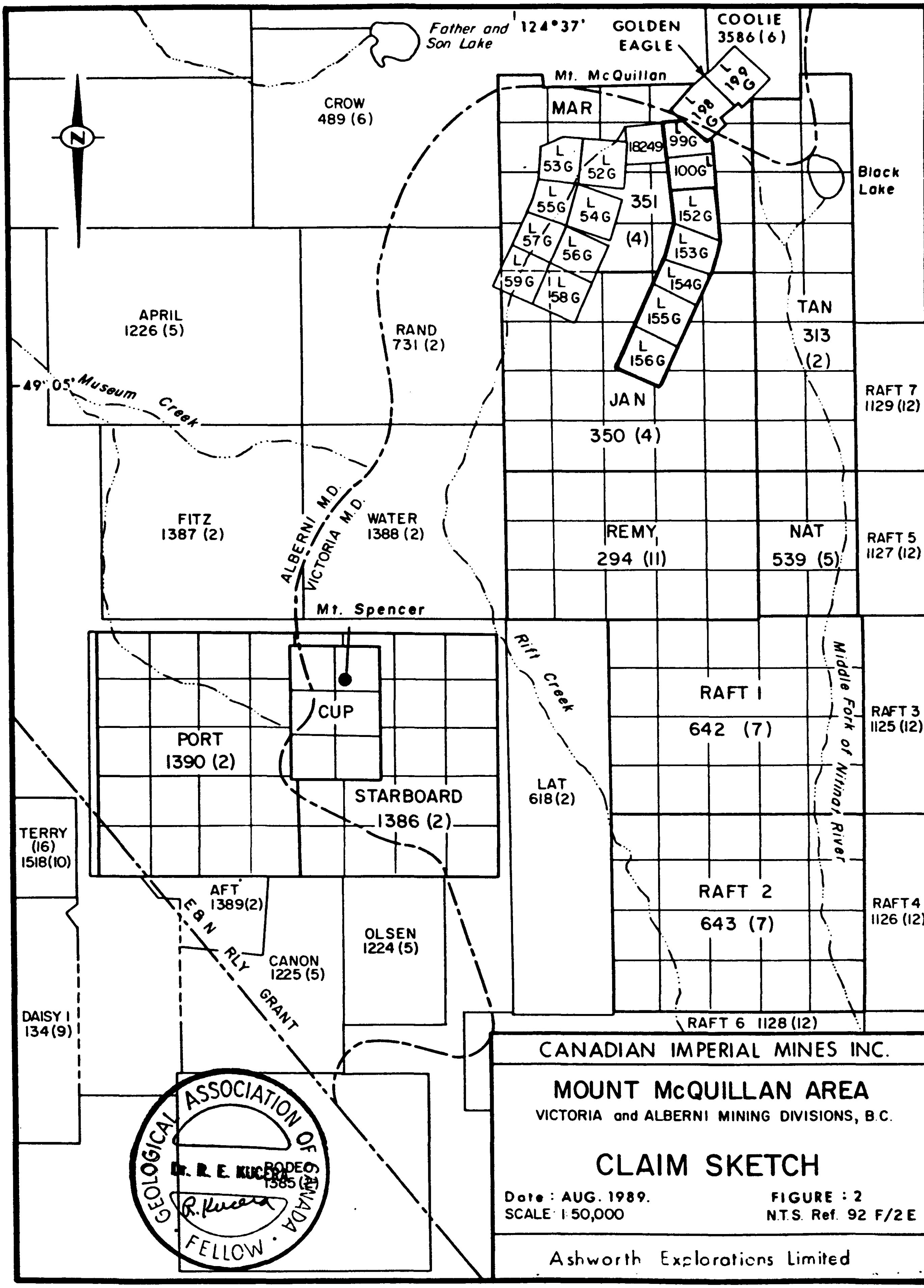
The Claim Group lies along the west flank of a ridge extending south of Mt. McQuillan. The area is bounded on the east by the steep valley of Nitinat River (Middle Fork). Elevations on the property range from about 1500 metres along the northern part of the ridge to about 1200 metres toward the eastern and southern parts. The easterly-facing slopes on the property average about 30 degrees - 45 degrees, often with steep rocky cliffs or gullies. Short stream courses drain the property and some segments exhibit distinct structural control. Summit Lake lies at the headwaters of China Creek, 0.5 km. northeast of the Apex Claim, at an elevation of 1020 metres. The property is covered with some heavy stands of timber, with dense underbrush. There are some open areas on the property.

PROPERTY STATISTICS

The Middle Vein Prospect consists of seven reverted Crown Grant 2-post claims (from Laanela, 1989). The property is owned by Mr. Clive Ashworth of West Vancouver, B.C.

Lot #	Record #	Record Date	Claim Name	Area (hectares)
99G	1577 (9)	Sept. 9, 1985	Apex	12.75
100G	1578 (9)	Sept. 9, 1985	Skyline	14.97
152G	1541 (7)	July 4, 1985	War Lion	19.78
153G	1542 (7)	July 4, 1985	Conqueror	16.83
154G	1543 (7)	July 4, 1985	Majestic	14.25
155G	1544 (7)	July 4, 1985	Empress of India	20.90
156G	1545 (7)	July 4, 1985	IXL	20.90
			Total Hectares =	120.38
			(297.5 acres / 1.204 sq. km.)	

The claim group is held under option by the Canadian Imperial Mines Inc. The Apex and Skyline claims were surveyed by J.E. Anderson and Associates, Surveyors and Engineers during June, 1989.



CANADIAN IMPERIAL MINES INC.

MOUNT McQUILLAN AREA

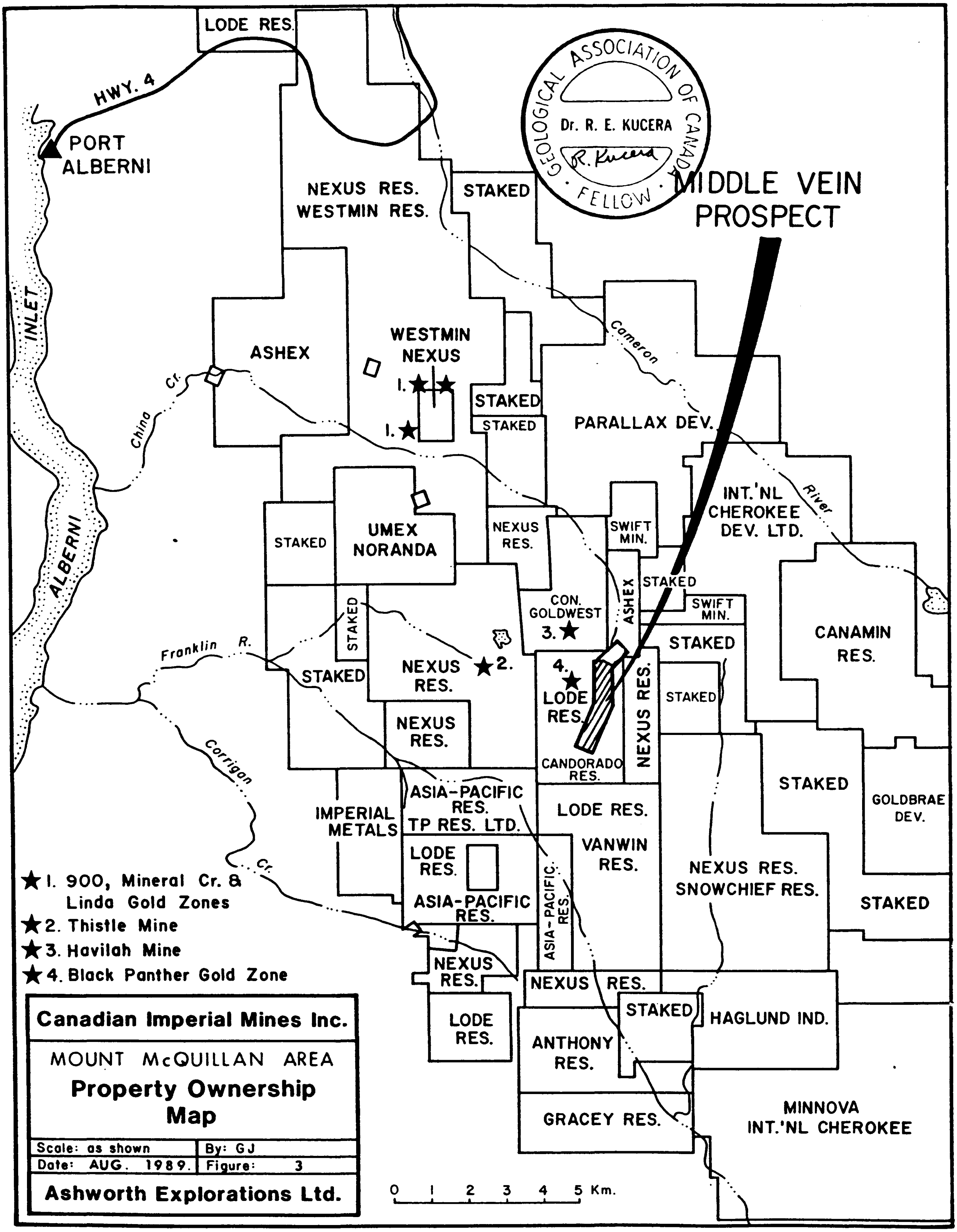
VICTORIA and ALBERNI MINING DIVISIONS, B.C.

CLAIM SKETCH

Date : AUG. 1989. FIGURE : 2

SCALE 1:50,000 N.T.S. Ref. 92 F/2 E

Ashworth Explorations Limited


LODE RES.
HWY. 4
PORT ALBERNI
ALBERNI INLET
GEOLOGICAL ASSOCIATION OF CANADA
Dr. R. E. KUCERA
FELLOW
MIDDLE VEIN PROSPECT
NEXUS RES. WESTMIN RES.
STAKED
Cameron River
ASHEX
WESTMIN NEXUS
China Cr.
PARALLAX DEV.
INT.'NL CHEROKEE DEV. LTD.
UMEX NORANDA
NEXUS RES.
SWIFT MIN.
CON. GOLDWEST
CANAMIN RES.
Franklin R.
LODE RES.
CANDORADO RES.
Corrigan Cr.
ASIA-PACIFIC RES.
TP RES. LTD.
IMPERIAL METALS
LODE RES.
VANWIN RES.
NEXUS RES. SNOWCHIEF RES.
GOLDBRAE DEV.
ANTHONY RES.
HAGLUND IND.
GRACEY RES.
MINNOVA INT.'NL CHEROKEE
★1. 900, Mineral Cr. & Linda Gold Zones
★2. Thistle Mine
★3. Havilah Mine
★4. Black Panther Gold Zone
Canadian Imperial Mines Inc.
MOUNT McQUILLAN AREA
Property Ownership Map
Scale: as shown
By: GJ
Date: AUG. 1989.
Figure: 3
Ashworth Explorations Ltd.
0 1 2 3 4 5 Km.

The Crown grants and claims are shown on the B.C. Dept. of Energy, Mines and Petroleum Claim Map M92 F/2E as well as on Figures 2, 3, and 5 of this report. The locations of the 7 Crown Grant claims were not verified in the field as none of the claim posts or survey pins were inspected.

HISTORY OF EXPLORATION

The following summary of exploration and mining activity in the general area of the Middle Vein Prospect is condensed from a report by Mr. H. Laanela, 1989, Consulting Geologist.

Gold in the area was first discovered in the gravels of China Creek, just north of the Middle Vein property in 1862, followed by staking rushes and much mining activity. The Mt. McQuillan-China Creek area contains several modest past producers and numerous Au-Ag prospects, mostly vein-type, including the Black Panther mine, Havilah, Debbie Propsect, Golden Eagle, plus several less explored prospects in the area. These various mineral occurrences and the old mines are described by Stevenson (1945) in his report on the China Creek area.

During the 1960's Gunnex Ltd. carried out various regional and detailed surveys for minerals on the E and N Railway Land Grant on Vancouver Island. The results of these programs later led to the staking of favourable properties on Mt. McQuillan.

During the late 1970's and early 1980's Lode Resources Corp. had secured most of the favourable ground in the Mt. McQuillan area, including the High Grade Vein and Middle Vein area. Lode Resources sampled and drilled several of these properties including the High Grade Vein with encouraging results during 1980 and 1983. The High Grade Vein is located just west and outside of the Middle Vein Prospect, dipping steeply to the west of the property boundary. (See Figure 5).

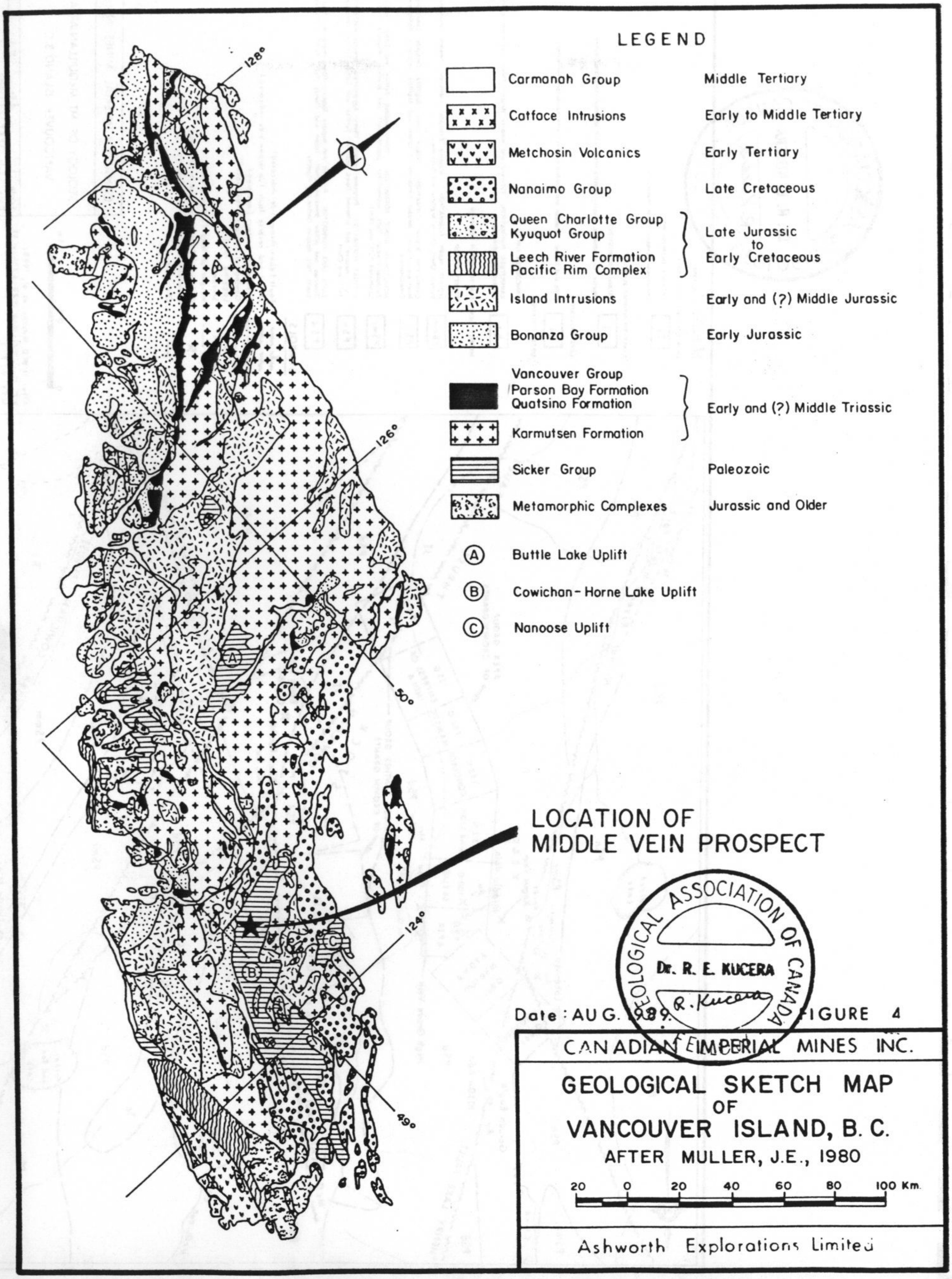
REGIONAL GEOLOGY

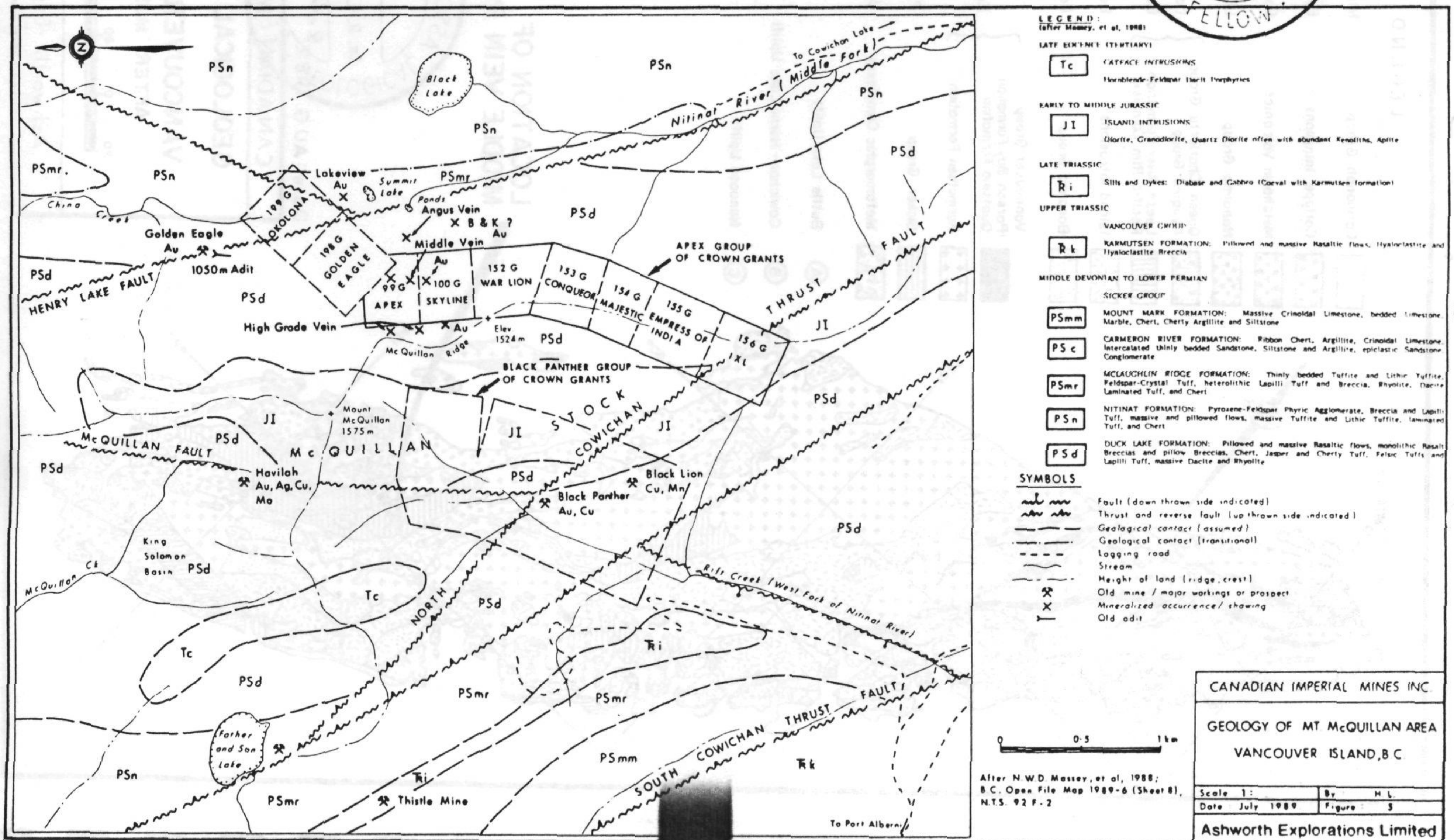
The Middle Vein Claim Group is located on the Cowichan-Horn Lake Uplift, a geologically and economically favourable area on Vancouver Island. This uplift is some 125 kilometres long and 15-22 kilometres wide and it contains the past producers of the Mt. McQuillan - China Creek mining camps. The area is underlain by the Sicker Group volcanics and associated sedimentary rocks. (Figure 4).

Stratigraphy

The regional stratigraphy has been studied by the GSC (Muller, 1977, 1980 and updating of the Sicker Group by Massey et al, 1988). Laanela, 1989, summarizes the pertinent stratigraphy related to Mt. McQuillan.

Era	Period or Epoch	Name	Lithology
CENOZOIC	Early to Middle Tertiary	Catfish Intrusions	Sills, dykes and small plutons of feldspar hornblende-plagioclase) porphyry. Associated with mineralized veins.
	Upper Cretaceous	Nanaimo Group	Conglomerate, sandstone, shale and coal
	Early and Middle Jurassic	Island Intrusions	Granitoid batholiths and stocks, largely dioritic composition.
MESOZOIC	Early Jurassic	Bonanza Group	Lava, tuff and breccia of basaltic and rhyolitic composition.
	Late to Middle Triassic	Vancouver Group	Limestone, argillites, greywackes and Karmutsen - basalts, pillow lavas, tuffs.
	Middle Penn. to Early Permian	Sicker Group	St. Marys Lake fm - volcanic sandstone and conglomerate, argillite.
			Mount Mark fm - crinoidal limestone, chert, argillite.
	Devonian		Cameron River fm - ribbon chert, argillite, limestone, sandstone.
PALEOZOIC			McLaughlin Ridge fm - tuffite, feldspar - crystal tuff, breccia, dacite. Nitinat fm - meta basaltic lavas, agglomerate, massive tuffite.
			Duck Lake fm - pillowed and massive basaltic flows, breccias, cherty tuff, massive dacite and rhyolite. Largely occupies the Middle Vein property area.


LEGEND
Carmanah Group — Middle Tertiary
Catface Intrusions — Early to Middle Tertiary
Metchosin Volcanics — Early Tertiary
Nanaimo Group — Late Cretaceous
Queen Charlotte Group
Kyuquot Group
Leech River Formation
Pacific Rim Complex
Late Jurassic to Early Cretaceous
Island Intrusions — Early and (?) Middle Jurassic
Bonanza Group — Early Jurassic
Vancouver Group
Parson Bay Formation
Quatsino Formation
Karmutsen Formation
Early and (?) Middle Triassic
Sicker Group — Paleozoic
Metamorphic Complexes — Jurassic and Older
(A) Buttle Lake Uplift
(B) Cowichan-Horne Lake Uplift
(C) Nanoose Uplift
N
128°
126°
124°
50°
49°
A
B
C
LOCATION OF
MIDDLE VEIN PROSPECT
GEOLOGICAL ASSOCIATION OF CANADA
Dr. R. E. KUCERA
FELLOW
Date : AUG. 1989
FIGURE 4
CANADIAN IMPERIAL MINES INC.
GEOLOGICAL SKETCH MAP
OF
VANCOUVER ISLAND, B.C.
AFTER MULLER, J.E., 1980
20 0 20 40 60 80 100 Km.
Ashworth Explorations Limited


LEGEND:
(after Massey, et al, 1988)
LATE EOCENE (TERTIARY)
Tc CATFACE INTRUSIONS
Hornblende-Feldspar Dacit Porphyries
EARLY TO MIDDLE JURASSIC
JI ISLAND INTRUSIONS
Diorite, Granodiorite, Quartz Diorite often with abundant Xenoliths, Aplite
LATE TRIASSIC
Ŧi Sills and Dykes: Diabase and Gabbro (Coeval with Karmutsen formation)
UPPER TRIASSIC
VANCOUVER GROUP
Ŧk KARMUTSEN FORMATION: Pillowed and massive Basaltic flows, Hyaloclastite and Hyaloclastite Breccia
MIDDLE DEVONIAN TO LOWER PERMIAN
SICKER GROUP
PSmm MOUNT MARK FORMATION: Massive Crinoidal Limestone, bedded Limestone, Marble, Chert, Cherty Argillite and Siltstone
PSc CARMERON RIVER FORMATION: Ribbon Chert, Argillite, Crinoidal Limestone, Intercalated thinly bedded Sandstone, Siltstone and Argillite, epiclastic Sandstone, Conglomerate
PSmr MCLAUGHLIN RIDGE FORMATION: Thinly bedded Tuffite and Lithic Tuffite, Feldspar-Crystal Tuff, heterolithic Lapilli Tuff and Breccia, Rhyolite, Dacite Laminated Tuff, and Chert
PSn NITINAT FORMATION: Pyroxene-Feldspar Phyric Agglomerate, Breccia and Lapilli Tuff, massive and pillowed flows, massive Tuffite and Lithic Tuffite, laminated Tuff, and Chert
PSd DUCK LAKE FORMATION: Pillowed and massive Basaltic flows, monolithic Basalt Breccias and pillow Breccias, Chert, Jasper and Cherty Tuff, Felsic Tuffs and Lapilli Tuff, massive Dacite and Rhyolite
SYMBOLS
Fault (down thrown side indicated)
Thrust and reverse fault (up thrown side indicated)
Geological contact (assumed)
Geological contact (transitional)
Logging road
Stream
Height of land (ridge, crest)
Old mine / major workings or prospect
Mineralized occurrence / showing
Old adit
Black Lake
Nitinat River (Middle Fork)
To Cowichan Lake
Lakeview Au
Summit Lake
Ponds
China Creek
199 G OKOLONA
198 G GOLDEN EAGLE
Golden Eagle Au
1050m Adit
Angus Vein
B & K ?
Middle Vein
99 G APEX
100 G SKYLINE
152 G WAR LION
153 G CONQUEOR
154 G MAJESTIC
155 G EMPRESS OF INDIA
156 G IXL
APEX GROUP OF CROWN GRANTS
HENRY LAKE FAULT
THRUST FAULT
High Grade Vein
Elev 1524 m
Mc Quillan Ridge
BLACK PANTHER GROUP OF CROWN GRANTS
Mount McQuillan 1575 m
McQUILLAN FAULT
Mc QUILLAN STOCK
NORTH COWICHAN
Haviloh Au, Ag, Cu, Mo
Black Panther Au, Cu
Black Lion Cu, Mn
King Solomon Basin
McQuillan Ck
Rift Creek (West Fork of Nitinat River)
Father and Son Lake
Thistle Mine
SOUTH COWICHAN THRUST FAULT
To Port Alberni
0 0.5 1 km
After N.W.D. Massey, et al, 1988; B.C. Open File Map 1989-6 (Sheet 8), N.T.S. 92 F-2
CANADIAN IMPERIAL MINES INC.
GEOLOGY OF MT McQUILLAN AREA
VANCOUVER ISLAND, B C
Scale 1:
By H. L.
Date July 1989
Figure 3
Ashworth Explorations Limited

Stucture and Igneous Intrusives

The Sicker Group rocks are buried under the Mesozoic cover except where they are now exposed in major uplift areas, such as the Cowichan-Horne Lake Uplift. The structure of the Sicker Group appears to be the result of a complex structural history including normal and transcurrent faulting and folding. The rocks are steeply folded and are in places highly sheared and metamorphosed to chloritic schists.

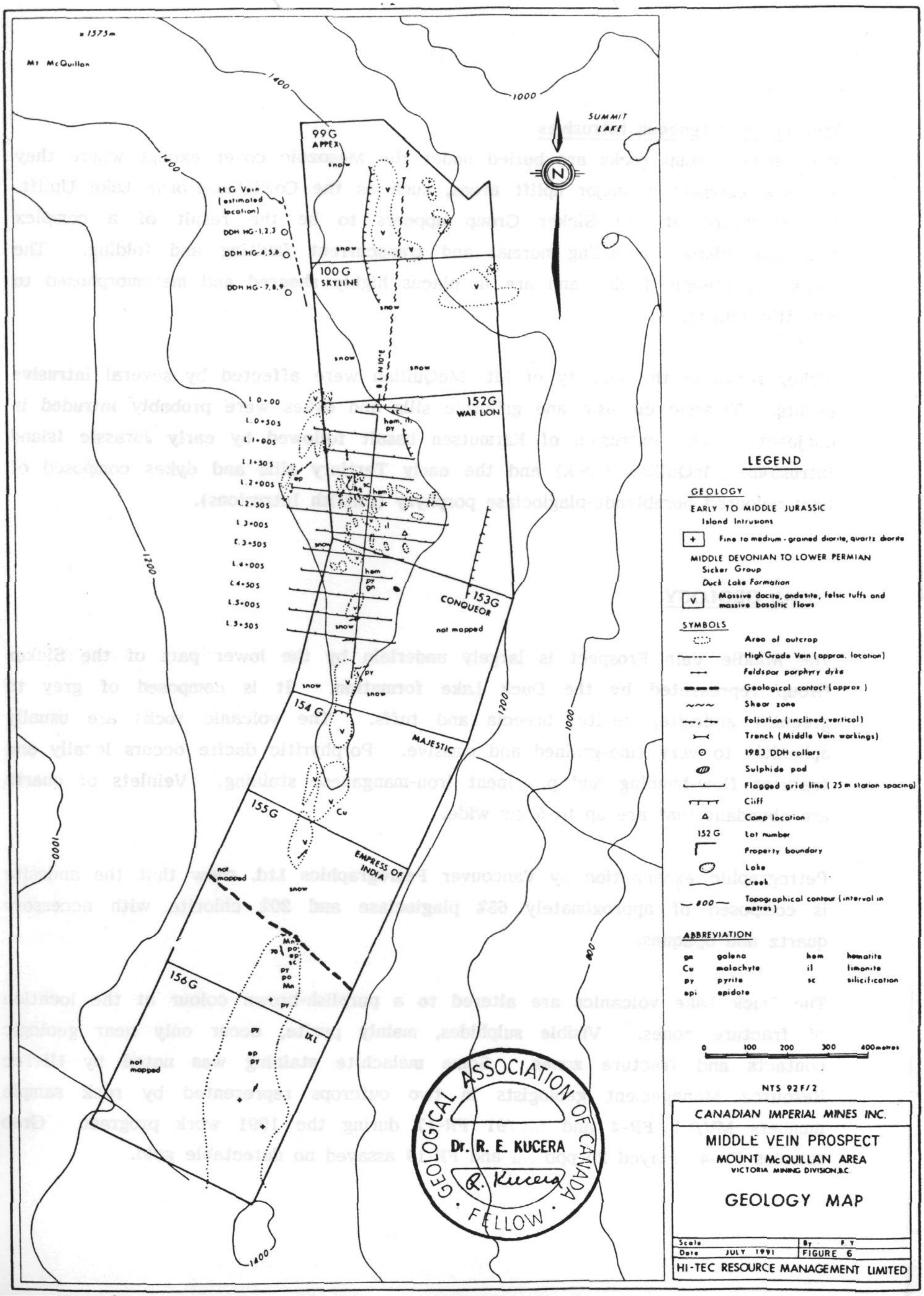
Sicker rocks in the vicinity of Mt. McQuillan were affected by several intrusive events. Triassic diabasic and gabbroic sills and dykes were probably intruded in conjunction with extrusion of Karmutsen basalt followed by early Jurassic Island Intrusions (McQuillan stock) and the early Tertiary sills and dykes composed of light-coloured hornblende-plagioclase porphyry (Catfish Intrusions).

LOCAL GEOLOGY

The Middle Vein Prospect is largely underlain by the lower part of the Sicker Group represented by the Duck Lake formation. It is composed of grey to greenish andesite, dacite, breccia and tuffs. The volcanic rocks are usually aphanitic to very fine-grained and massive. Porphyritic dacite occurs locally and features flow-banding and prominent iron-manganese staining. Veinlets of quartz are abundant that are up to 5 cm wide.

Petrographic examination by Vancouver Petrographics Ltd. show that the andesite is composed of approximately 65% plagioclase and 20% chlorite with accessory quartz and opaques.

The Duck Lake volcanics are altered to a purplish-brown colour at the location of fracture zones. Visible sulphides, mainly pyrite, occur only near geologic contacts and fracture zones. Some malachite staining was noted by Hi-Tec Resource Management geologists in two outcrops represented by rock sample numbers MV/91 FR-4 and MV/91 FR-17 during the 1991 work program. Grab samples FR-4 assayed 20 ppb Au and FR-14 assayed no detectable gold.



Mt. McQuillan
1575m
1400
1000
1200
SUMMIT LAKE
N
99G APPEX
100G SKYLINE
152G WAR LION
153G CONQUEOR
154 G MAJESTIC
155G
EMPRESS OF INDIA
156G
IXL
not mapped
H.G. Vein (estimated location)
DDH HG-1,2,3
DDH HG-4,5,6
DDH HG-7,8,9
snow
L 0+00
L 0+50S
L 1+00S
L 1+50S
L 2+00S
L 2+50S
L 3+00S
L 3+50S
L 4+00S
L 4+50S
L 5+00S
L 5+50S
hem
py
gn
Cu
Mn
po
ep
sc
LEGEND
GEOLOGY
EARLY TO MIDDLE JURASSIC
Island Intrusions
Fine to medium-grained diorite, quartz diorite
MIDDLE DEVONIAN TO LOWER PERMIAN
Sicker Group
Duck Lake Formation
Massive dacite, andesite, felsic tuffs and massive basaltic flows
SYMBOLS
Area of outcrop
High Grade Vein (approx. location)
Feldspar porphyry dyke
Geological contact (approx.)
Shear zone
Foliation (inclined, vertical)
Trench (Middle Vein workings)
1983 DDH collars
Sulphide pod
Flagged grid line (25 m station spacing)
Cliff
Camp location
152 G Lot number
Property boundary
Lake
Creek
800 Topographical contour (interval in metres)
ABBREVIATION
gn galena
Cu malachyte
py pyrite
epi epidote
hem hematite
il limonite
sc silicification
0 100 200 300 400 metres
NTS 92F/2
CANADIAN IMPERIAL MINES INC.
MIDDLE VEIN PROSPECT
MOUNT McQUILLAN AREA
VICTORIA MINING DIVISION, B.C.
GEOLOGY MAP
Scale
Date JULY 1991
By F.T.
FIGURE 6
HI-TEC RESOURCE MANAGEMENT LIMITED
GEOLOGICAL ASSOCIATION OF CANADA
Dr. R. E. KUCERA
FELLOW

Mapping by Hi-Tec Resource Management shows that gabbro, diorite and quartz-diorite rocks (Island Intrusions) outcrop on the IXL and Empress of India claims, at the south end of the property (Figure 6). The writer also mapped gabbroic intrusive rocks on a portion of the Apex claim.

A thin-section of the gabbro show that it is fine to medium-grained, composed essentially of an intergrowth of plagioclose (50%) and pyroxene (40%). The plagioclase shows strong saussuritization. The rock is notably low in opaques.

Generally, the rocks are quite fresh and unaltered but show more epidote, chlorite, quartz-calcite veining and pyrite adjacent to the contact of the Duck Lake formation. Geological mapping indicates the contact is gradational within a zone of 30-50 metres. Within this zone both rock units are usually highly altered, and the volcanic rocks are light green with intense chlorite and sericitic alteration. Fractures are more intense with iron-manganese staining.

Mapping shows the presence of quartz-feldspar porphyry dikes in several places on the War Lion and Conqueror claims and also at the Middle Vein workings on the Apex claim. They are 1 to 2 metres wide and strike N 10 degrees E at the Middle Vein workings to N 20 degrees W at L+50S 0+65 W.

In thin-section, the porphyry of dacitic composition, is composed of phenocrysts of plagioclase (20%), quartz (15%) and minor altered mafics in a microgranular groundmass of fresh plagioclase (50%) with minor intergrowth quartz (6%) and chlorite (4%). The plagioclase phenocrysts show mild pervasive epidotization.

Early geological explorations refer to a mineralized vein on the property as the Middle Vein. The term Middle Vein as used in this report refers to narrow quartz lenses associated with a very well-defined structure, a 2-3 metre wide shear zone that strikes N10 degrees to 18 degrees E and dips 78 degrees to 85 degrees E. Although the shear zone can be traced on aerial photographs for a distance of at least 500 metres on the Apex, Skyline and War Lion claims (Figure 7), the associated quartz lenses are exposed only in the vicinity of the Middle Vein workings for 5 metres. Samples collected from the Middle Vein and shear zone are designated MV (see page 23).

The Middle Vein and associated shear is exposed in the early workings and in rock cuts adjacent to a small tributary creek located in the centre of the Apex claim (L99G). To the south, the shear zone is seen in a very steep rocky ravine on the Skyline claim (100G). This ravine owes its existence to differential erosion of the NNE trending shear zone.

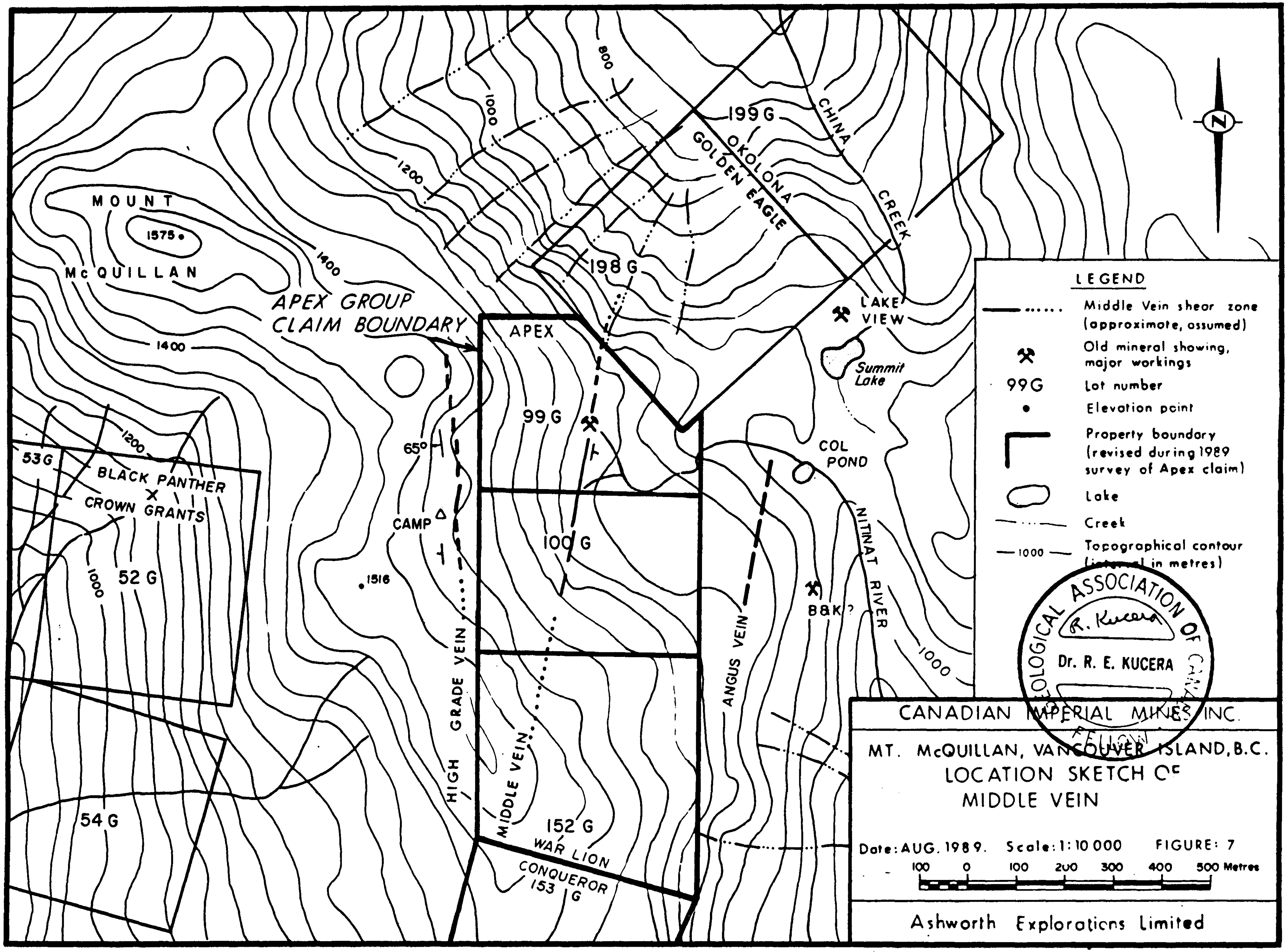
According to Laanela (1989) the shear zone becomes hidden by a small snow-bank on the War Lion claim (152G) but it probably continues farther south along the steep east slope of McQuillan ridge, where it trends northeast along the line of the old Crown Grants (L153G to 156G). (See Figure 5). Recent mapping by Hi-Tec Resource Management has not confirmed the presence of the shear zone nor the Middle Vein on the War Lion and Conqueror claims (Figure 6).

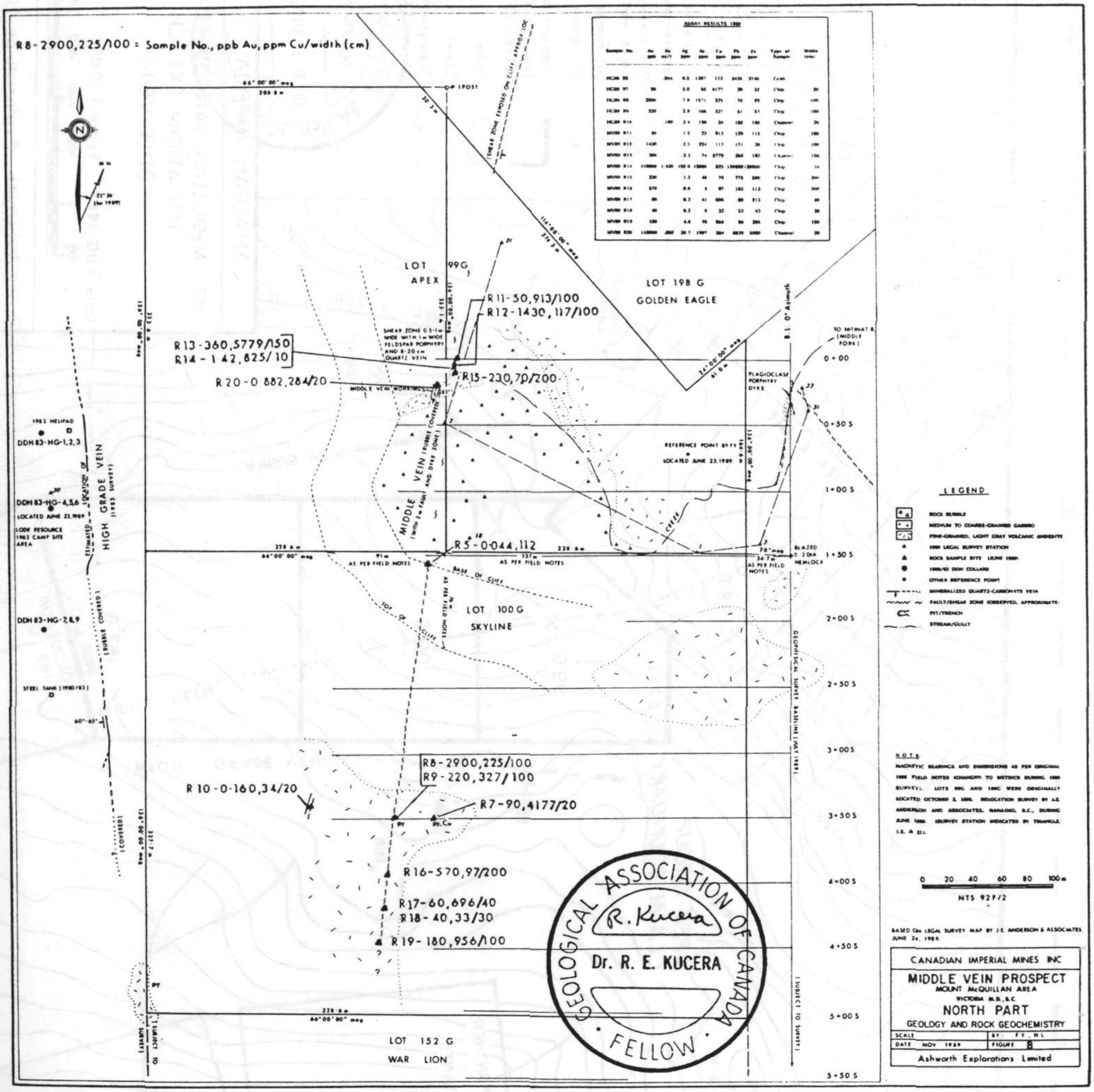
To the north, the veins and attendent shear zone, while being covered by overburden near the workings on the Apex claim, reappear in the China Creek headwaters, on the Golden Eagle claim. As Laanela (1989) points out, the Golden Eagle vein may be the northern extension of the Middle Vein, as both appear to have a similar attitude.

Immediately south of the Middle Vein workings, the Middle Vein structure is obscured for a distance of 110 metres by glacial debris, capped by rock rubble that was swept out of a ravine by debris flows and landslides from the eroded shear zone at the northern border of the Skyline claim. The presence of a quartz vein at depth is suggested by mineralized float located immediately downstream from its postulated trend.

<u>Middle Vein Workings and Mineralization</u>

The fault zone at the Middle Vein workings on the Apex claim consists of two distinct shears. The main shear is exposed near the base of the rocky cliffs, just south of an east flowing stream. The shear is one metre wide and strikes N 18 degrees E and dips 78 degrees E. The shear cuts grey andesite that is moderately silicified and strongly weathered with light to dark brown rusty colour. Sulphide minerals are 1-2% fine-grained pyrite with traces of malachite.


MOUNT
1575
McQUILLAN
APEX GROUP
CLAIM BOUNDARY
APEX
99 G
100 G
152 G
WAR LION
CONQUEROR
153 G
198 G
199 G
OKOLONA
GOLDEN EAGLE
CHINA CREEK
LAKE VIEW
Summit Lake
COL POND
NITINAT RIVER
ANGUS VEIN
B&K?
HIGH GRADE VEIN
MIDDLE VEIN
CAMP
65°
1516
53G
BLACK PANTHER
CROWN GRANTS
52 G
54 G
800
1000
1200
1400
N
LEGEND
Middle Vein shear zone (approximate, assumed)
Old mineral showing, major workings
99G Lot number
Elevation point
Property boundary (revised during 1989 survey of Apex claim)
Lake
Creek
Topographical contour (interval in metres)
ASSOCIATION OF
R. Kucera
Dr. R. E. KUCERA
CANADIAN IMPERIAL MINES INC.
MT. McQUILLAN, VANCOUVER ISLAND, B.C.
LOCATION SKETCH OF
MIDDLE VEIN
Date: AUG. 1989. Scale: 1:10 000 FIGURE: 7
100 0 100 200 300 400 500 Metres
Ashworth Explorations Limited



ASSAY RESULTS 1989

Sample No.	Au ppb	Au oz/t	Ag ppm	As ppm	Cu ppm	Pb ppm	Zn ppm	Type of Sample	Width (cm)
HC89 R6		.044	6.5	1207	112	3435	3740	Grab	
HC89 R7	90		2.0	55	4177	39	32	Chip	20
HC89 R8	2900		7.6	1571	225	70	29	Chip	100
HC89 R9	220		2.9	106	327	51	57	Chip	100
HC89 R10		.160	3.4	150	34	182	160	Channel	20
MV89 R11	50		1.5	23	913	139	115	Chip	100
MV89 R12	1430		2.5	224	117	171	39	Chip	100
MV89 R13	360		3.3	74	5779	268	183	Channel	150
MV89 R14	>10000	1.420	>50.0	>2000	825	>20000	>20000	Chip	10
MV89 R15	230		1.2	46	70	775	300	Chip	200
MV89 R16	570		0.6	4	97	103	113	Chip	200
MV89 R17	60		0.3	41	696	80	213	Chip	40
MV89 R18	40		0.2	9	33	53	43	Chip	30
MV89 R19	180		4.6	70	956	84	206	Chip	100
MV89 R20	>10000	.882	30.7	1907	284	6670	5000	Channel	20

Mineralized quartz-carbonate lenses up to 10 cm thick and 5 metres long are hosted by sheared, rusty light to dark brown andesite. A 10 cm chip sample (MV89-14) across a quartz-carbonate vein assayed 1.42 oz/ton Au. Isolated pyrite-rich lenses occur in the andesite west of the shear zone. The andesite in this area is cut by intersecting joint sets of N 20 degrees W and N 40 degrees W.

The writer has observed another shear that occurs 14 metres west of the main shear. It is exposed at its top of 10 metre high bluff, along the south side of the same creek that flows past the main shear. The shear is .5 to 1.0 metre wide, strikes N 10 degrees E and dips 85 degrees E. This shear has not been sampled.

A light coloured feldspar-hornblende porphyry dike, 1-2 metres wide is found associated with this shear. The dike weathers a light brown. The feldspar porphyry dike, in which the vein occurs, is very similar in appearance to numerous Tertiary porphyry intrusions occurring elsewhere in the area. Refer to a petrographic analysis by Vancouver Petrographics of a specimen of this dyke material (Appendix F).

A mineralized quartz-carbonate vein, 8 to 20 cm wide is associated with the shear zone as mentioned in the above paragraphs. One channel sample MV89 R20 collected across 20 cm of quartz vein strikes N 10 degrees E, and dips 85 degrees E. The vein is mineralized with 20% sulphides mainly pyrite, chalcopyrite and galena. Copper staining is associated with light brown feldspar porphyry. Sample MV89 R20 assayed 0.88 oz/ton Au. An old trench, 2 metres long, occurs at creek level here. Another trench 20 metres to the south, attempted to reach the vein through rock rubble.

Samples MV89 R11 to MV89 R15 were collected from the Middle Vein structure (the shear zone) where a small quartz carbonate vein, 10 cm wide, is exposed for 5 metres. It is represented by chip sample MV89 R14 which returned a value of 1.42 oz/ton Au. Refer to Appendix A for the gold content and width of samples MV89 R11 to MV89 R15.

The writer has mapped gabbroic dike rock cutting massive andesite north of the creek about 80 metres east of the Middle Vein workings. It trends N 20 degrees to N 40 degrees W and is as much as 10 metres wide. Its southern extension is covered with overburden. (See Figure 8).

The strong shear structure and associated mineralized veins appear to terminate at this creek on the north side of the workings. Although overburden (landslides and moraine) mantle the bedrock north of the creek, it might be possible that lateral movement of a cross fault has offset this shear zone toward the northwest. Inspection of the aerial photographs reveal a subtle lineament that extends N40 degrees W from the northeast corner of the Skyline claim, across the "flat" area of the Apex claim where it fades out in the bedrock bluff northwest of the Middle Vein workings.

RECENT EXPLORATION

Canadian Imperial Mines Inc. did work on the Apex Group property during June and July, 1989 under the direction of Mr. F. Yacoub, Project Geologist, Ashworth Explorations Ltd. This work included:

1. Established grid lines.
2. Legal survey to relocate the Apex and Skyline claims on the ground by J.E. Anderson and Associates, Surveyors and Engineers.
3. VLF-EM and Magnetic survey by Ashworth Explorations Ltd. with interpretation by Mr. T. Matich, Geophysicist of Interpretex Resources Ltd.
4. At the request of Canadian Imperial Mines Inc., Dr. Kucera visited the property on October 16, 1989 and was accompanied by Mr. Yacoub. Dr. Kucera mapped a portion of the Apex claim and supervised sampling of the Middle Vein.

Hi-Tec Resource Management did work on the southern portion of the Middle Vein Prospect during June 1991. This work included geological mapping prospecting, rock sampling and a magnetometer and VLF-EM survey. Three kilometres of grid lines were surveyed on the War Lion and Conqueror claim blocks.

Geophysical Surveys

Ashworth Explorations Ltd. conducted a combined VLF-EM and magnetometer survey on the Apex and Skyline claims. The survey was run on an E-W line grid, totalling 3 line kilometres, using a Scintrex Omni Plus combined VLF-EM and magnetometer. A total of 12 lines, located at 50 metre intervals were established nearly perpendicular to the strike of the known vein system with station spacing at 12 metres.

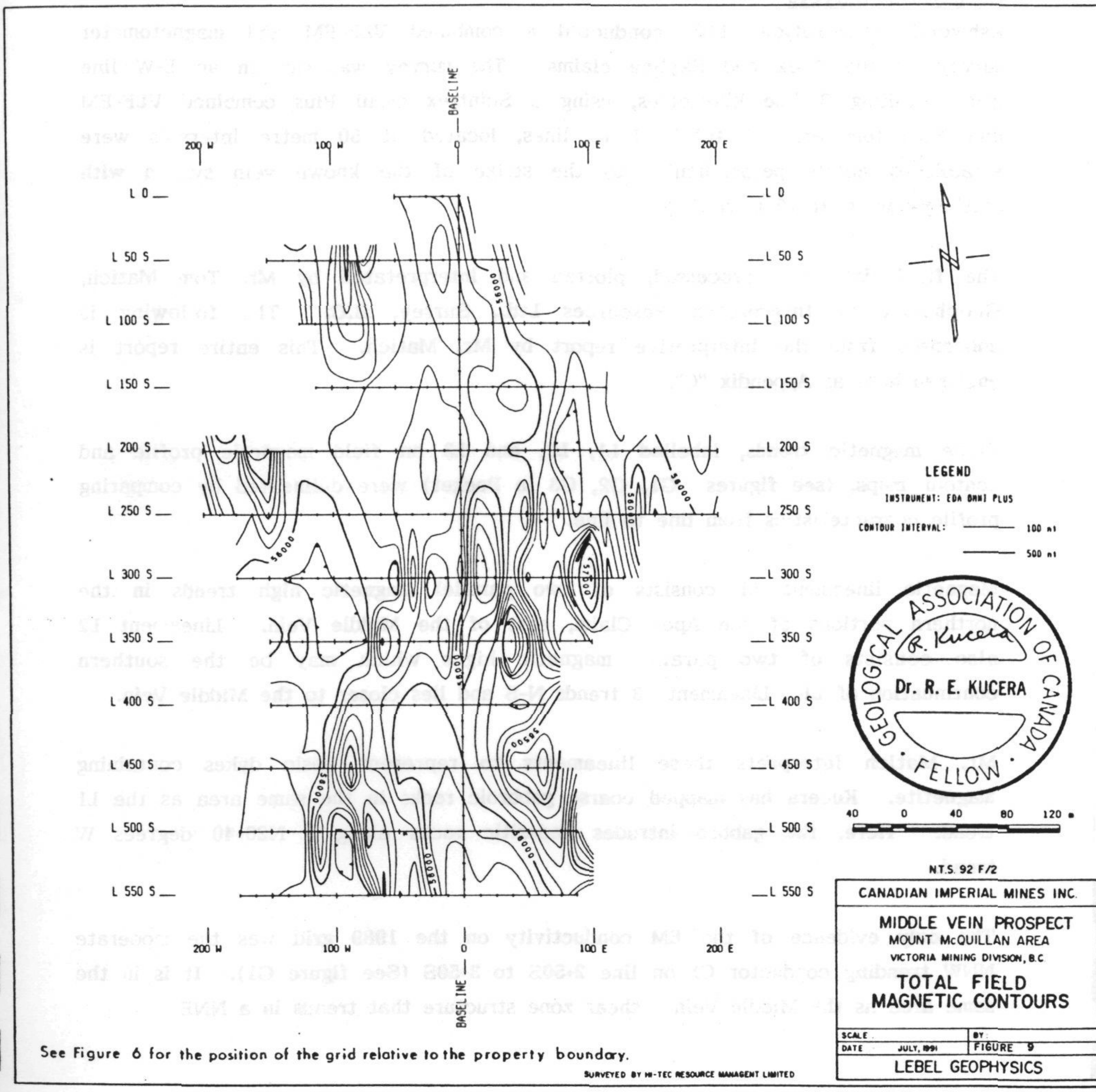
The field data was processed, plotted and interpretated by Mr. Tom Matich, Geophysist of Interpretex Resources Ltd., Surrey, B.C. The following is condensed from the interpretive report by Mr. Matich. This entire report is enclosed here as Appendix "C".

Three magnetic trends, labelled L1, L2, and L3 on field magnetic profile and contour maps, (see figures G1, G2, G3 in Pocket) were delineated by comparing profile characteristics from line to line.

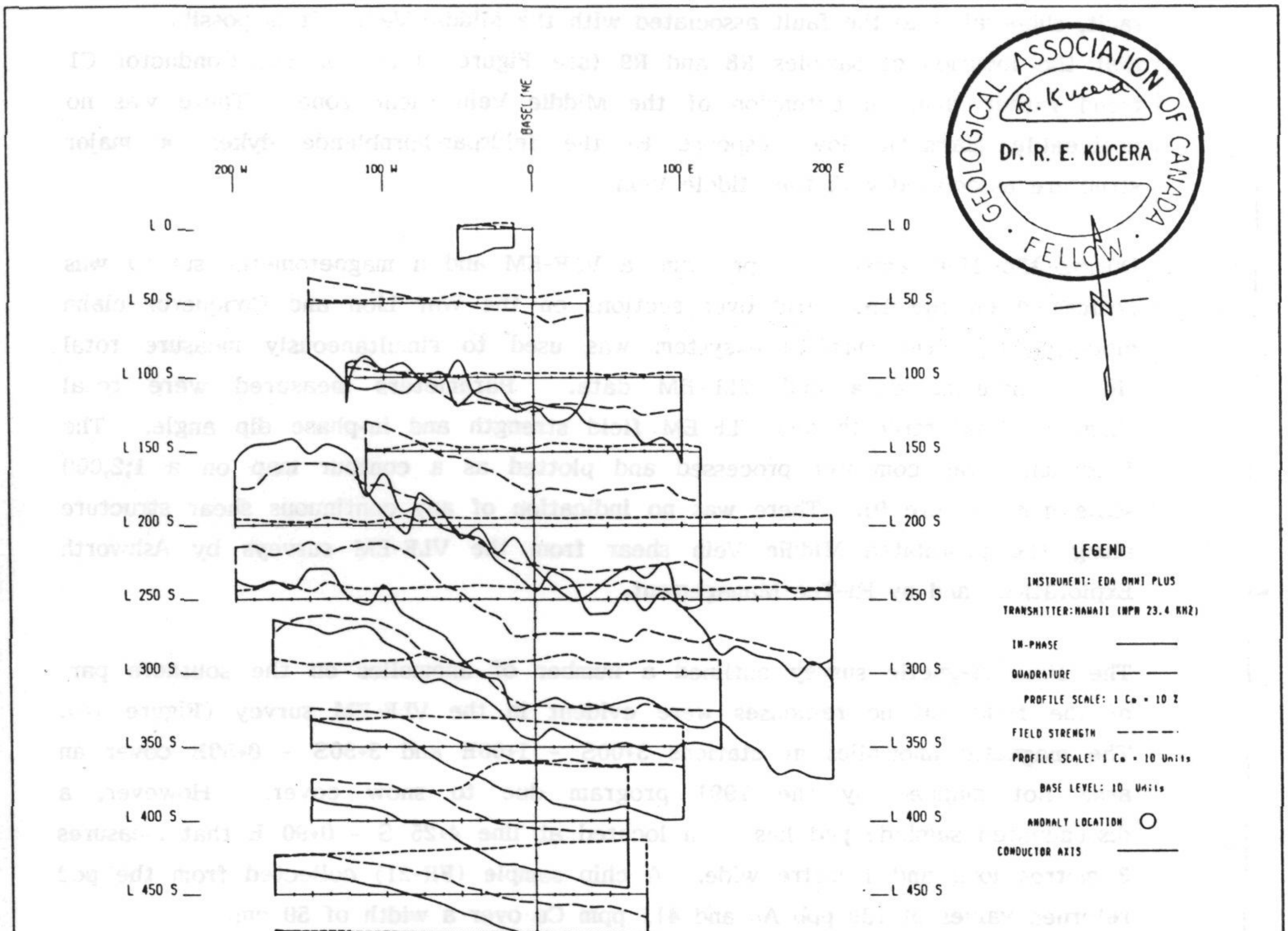
Magnetic lineament L1 consists of two parallel magnetic high trends in the northern portions of the Apex Claim, east of the Middle Vein. Lineament L2 also consists of two parallel magnetic highs which may be the southern continuation of L1. Lineament L3 trends N-S and lies closer to the Middle Vein.

Mr. Matich interprets these lineaments to represent basic dykes containing magnetite. Kucera has mapped coarse gabbroic rocks in the same area as the L1 trend. Here, the gabbro intrudes andesitic rocks along a N20-40 degrees W trend.

The only evidence of the EM conductivity on the 1989 grid was the moderate NNW trending conductor C1 on line 2+50S to 3+50S (See figure G1). It is in the same area as the Middle Vein - shear zone structure that trends in a NNE



See Figure 6 for the position of the grid relative to the property boundary.


BASELINE
200 W
100 W
0
100 E
200 E
L 0
L 50 S
L 100 S
L 150 S
L 200 S
L 250 S
L 300 S
L 350 S
L 400 S
L 450 S
L 500 S
L 550 S
GEOLOGICAL ASSOCIATION OF CANADA
R. Kucera
Dr. R. E. KUCERA
FELLOW
LEGEND
INSTRUMENT: EDA OMNI PLUS
TRANSMITTER: HAWAII (NPM 23.4 KHZ)
IN-PHASE
QUADRATURE
PROFILE SCALE: 1 Cm = 10 %
FIELD STRENGTH
PROFILE SCALE: 1 Cm = 10 Units
BASE LEVEL: 10 Units
ANOMALY LOCATION
CONDUCTOR AXIS
40 0 40 80 120 m
N.T.S 92 F/2
CANADIAN IMPERIAL MINES INC.
MIDDLE VEIN PROSPECT
MOUNT McQUILLAN AREA
VICTORIA MINING DIVISION, B.C.
VLF-EM PROFILES
NPM HAWAII STATION
SCALE:
BY
DATE: JULY, 1991
FIGURE 10
LEBEL GEOPHYSICS
See Figure 6 for the position of the grid relative to the propery boundary.
SURVEYED BY HI-TEC RESOURCE MANAGENT LIMITED

direction. Mr. Matich interprets C1 to be a structural feature, such as a splay fault, subparallel to the fault associated with the Middle Vein. It is possible that the location of samples R8 and R9 (see Figure 7) are on the Conductor C1 trend rather than an extension of the Middle Vein shear zone. There was no noticeable magnetic low response to the feldspar-hornblende dykes or major structure associated with the Middle Vein.

During the 1991 exploration program, a VLF-EM and a magnetometer survey was performed on the 1991 grid over sections on the War Lion and Conqueror claim blocks. An EDA Omni-Plus system was used to simultaneously measure total field magnetics data and VLF-EM data. Parameters measured were total magnetic field strength and VLF-EM field strength and in-phase dip angle. The field data was computer processed and plotted as a contour map on a 1;2,000 scale map (Figure 9). There was no indication of any continuous shear structure along the postulated Middle Vein shear from the VLF-EM surveys by Ashworth Explorations and by Hi-Tec Management.

The 1991 magnetic survey outlined a number of anomolies on the southern part of the field but no responses were evident in the VLF-EM survey (Figure 10). The magnetic anomalies at stations 3+00S - 1+00E and 3+50S - 0+50E cover an area not mapped by the 1991 program due to snow cover. However, a disseminated sulphide pod has been located at line 4+25 S - 0+90 E that measures 3 metres long and 1 metre wide. A chip sample (FR-21) collected from the pod returned values of 130 ppb Au and 411 ppm Cu over a width of 50 cm.

Results of Sampling

Laanela (1989) reported on assays of samples collected in 1980 and 1983 from various parts of the Middle Vein. Four selected samples from the Middle Vein in the old workings, gave assays ranging from 0.58 to 2.20 oz Au/ton and from 0.89 to 2.09 oz Ag/ton, while a grab sample of the andesite wallrock gave traces of Au and Ag. A mineralized boulder containing pyrite and galena from the shear zone about 200 metres south of here, assayed 0.689 oz Au/ton and 0.60 oz Ag/ton. No samples were taken from the shear zone at this locality. Chip samples across one metre of the mineralized vein/dyke further to the south below the snowfield (Skyline Claim) assayed 0.028 oz Au/ton and 0.20 oz Ag/ton.

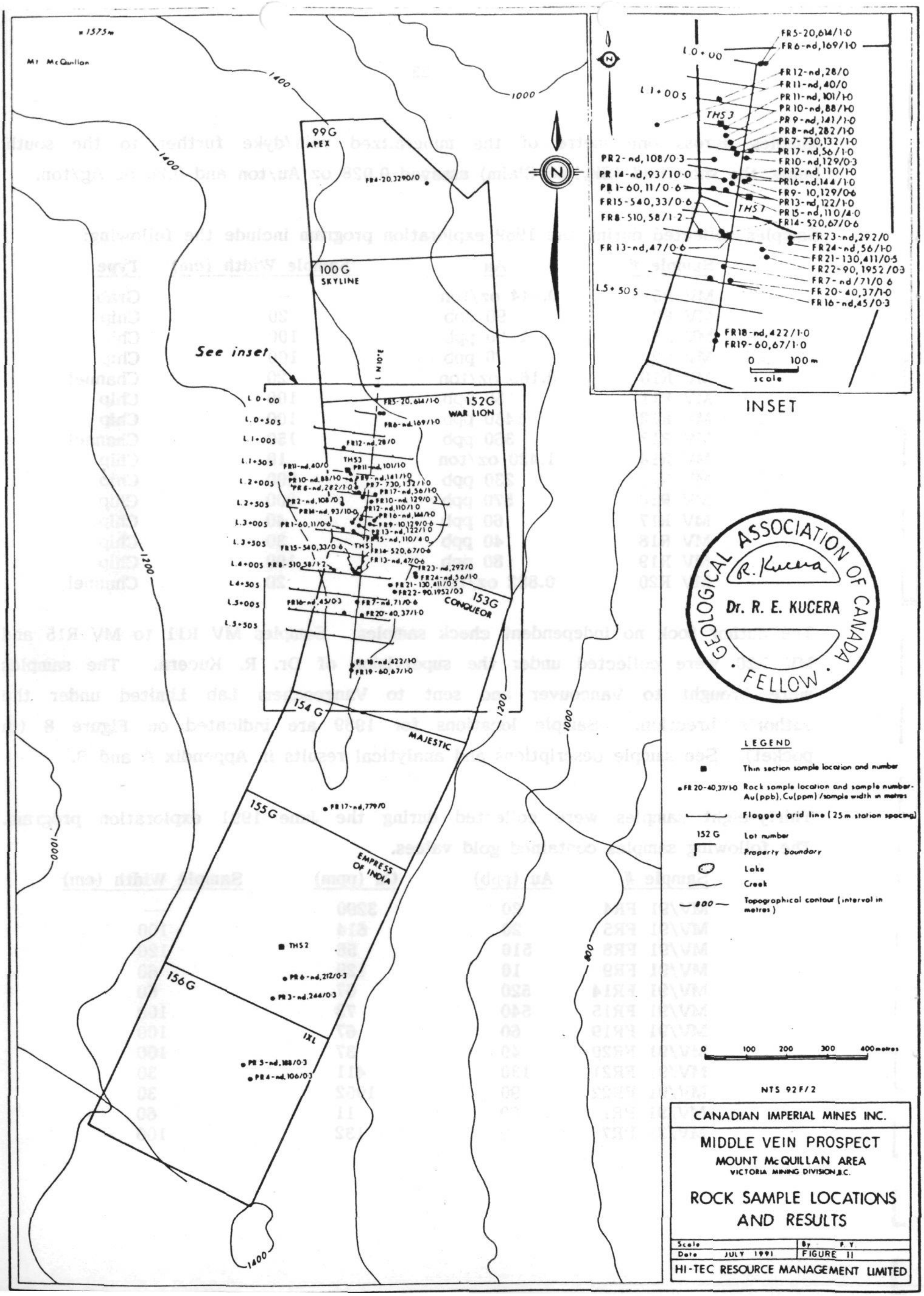
Samples collected during the 1989 exploration program include the following:

Sample #	Au	Sample Width (cm)	Type
MV R5	0.044 oz/ton	---	Grab
MV R7	90 ppb	20	Chip
MV R8	2900 ppb	100	Chip
MV R9	220 ppb	100	Chip
MV R10	0.169 oz/ton	20	Channel
MV R11	50 ppb	100	Chip
MV R12	1430 ppb	100	Chip
MV R13	360 ppb	150	Channel
MV R14	1.420 oz/ton	10	Chip
MV R15	230 ppb	200	Chip
MV R16	570 ppb	200	Chip
MV R17	60 ppb	40	Chip
MV R18	40 ppb	30	Chip
MV R19	80 ppb	100	Chip
MV R20	0.882 oz/ton	20	Channel

The author took no independent check samples. Samples MV R11 to MV R15 and MV R20 were collected under the supervision of Dr. R. Kucera. The samples were brought to Vancouver and sent to Vangeochem Lab Limited under the author's direction. Sample locations for 1989 are indicated on Figure 8 (in pocket). See sample descriptions and analytical results in Appendix A and B.

Thirty-eight samples were collected during the June 1991 exploration program. The following samples contained gold values.

Sample #	Au (ppb)	Cu (ppm)	Sample Width (cm)
MV/91 FR4	20	3290	---
MV/91 FR5	20	614	100
MV/91 FR8	510	58	120
MV/91 FR9	10	129	60
MV/91 FR14	520	67	60
MV/91 FR15	540	73	100
MV/91 FR19	60	67	100
MV/91 FR20	40	37	100
MV/91 FR21	130	411	50
MV/91 FR22	90	1952	30
MV/91 PR1	60	11	60
MV/91 PR7	730	132	100



Mt McQuillan
1575m
1400
1000
1200
1600
800
99G APEX
100G SKYLINE
152G WAR LION
153G CONQUEROR
154 G
155G
156G
MAJESTIC
EMPRESS OF INDIA
IXL
See inset
L 0+00
L 0+50S
L 1+00S
L 1+50S
L 2+00S
L 2+50S
L 3+00S
L 3+50S
L 4+00S
L 4+50S
L 5+00S
L 5+50S
THS 3
THS 1
THS 2
FR 17-nd,779/0
PR 6-nd,212/0·3
PR 3-nd,244/0·3
PR 5-nd,188/0·3
PR 4-nd,106/0·3
FR4-20,3290/0
INSET
L 0+00
L 1+00S
L 5+50S
FR5-20,614/1·0
FR6-nd,169/1·0
FR12-nd,28/0
FR11-nd,40/0
PR11-nd,101/1·0
PR10-nd,88/1·0
PR9-nd,141/1·0
PR8-nd,282/1·0
PR7-730,132/1·0
PR17-nd,56/1·0
PR2-nd,108/0·3
FR10-nd,129/0·3
PR12-nd,110/1·0
PR14-nd,93/1·0-0
PR16-nd,144/1·0
PR1-60,11/0·6
FR9-10,129/0·6
FR15-540,33/0·6
PR13-nd,122/1·0
PR15-nd,110/4·0
FR8-510,58/1·2
FR14-520,67/0·6
FR23-nd,292/0
FR13-nd,47/0·6
FR24-nd,56/1·0
FR21-130,411/0·5
FR22-90,1952/0·3
FR7-nd/71/0·6
FR20-40,37/1·0
FR16-nd,45/0·3
FR18-nd,422/1·0
FR19-60,67/1·0
0 100 m
scale
GEOLOGICAL ASSOCIATION OF CANADA
R. Kucera
Dr. R. E. KUCERA
FELLOW
LEGEND
Thin section sample location and number
FR 20-40,37/1·0 Rock sample location and sample number-Au(ppb),Cu(ppm)/sample width in metres
Flagged grid line (25m station spacing)
152 G Lot number
Property boundary
Lake
Creek
800 Topographical contour (interval in metres)
0 100 200 300 400 metres
NTS 92F/2
CANADIAN IMPERIAL MINES INC.
MIDDLE VEIN PROSPECT
MOUNT McQUILLAN AREA
VICTORIA MINING DIVISION, B.C.
ROCK SAMPLE LOCATIONS AND RESULTS
Scale
Date JULY 1991
By P.Y.
FIGURE 11
HI-TEC RESOURCE MANAGEMENT LIMITED

Rock sample locations and analytical results for gold and copper are plotted on Figure 11 at a scale of 1:5,000.

Summary statistics for 38 rock sample analyses for Au and Cu suggest that 60 ppb Au and 130 ppm Cu might be considered geochemically anomalous and >500 ppb Au and >400 ppm Cu as highly anomalous. No predictable relationship exists between high Au and high Cu values. Because of the small sample of Au and Cu values, a statistical test is not easily supported.

CONCLUSIONS AND RECOMMENDATIONS

The 1980 and 1983 program by Lode Resources, and the 1989 work program by Ashworth Explorations Limited and the 1991 program by Hi-Tec Resource Management on the Middle Vein Prospect have demonstrated the presence of gold. Gold values range up to 2900 ppb across 100 cm of the shear zone whereas individual quartz-carbonate veins assay up to 1.4 oz Au/ton across widths of up to 10 cm. Exploration potential of the Middle Vein Prospect is judged to be good. Further development of this property is justified.

A two-stage program is recommended to explore the Middle Vein on the surface and at depth. The initial stage consists of aerial photo coverage, stereo-photo interpretation, compilation of a topographic base map, legal surveys, detailed geologic mapping, extensive sampling and surface trenching. The second stage of work, contingent on obtaining encouraging results from the first stage, is also recommended. This stage consists of 600 metres of diamond drilling to explore the Middle Vein at depth.

STAGE I

Aerial Photographs - Base Map

Low-level aerial photographs should be obtained of the property and used for stereo-photo interpretation and compilation of a topographic base-map. Careful stereoscopic examination of the aerial photos will help delineate rock types, locate very subtle fractures and facilitate tracing of the NNE shear-vein structure on the steep slopes of the southernmost claims.

Because of abrupt topographic relief on the property, a map produced directly from photo overlays will exhibit severe scale differences across the map area. Because of this, I recommend that a topographic map be compiled from the aerial photos. Using this map as a base, the geologic information on the aerial photos can be transferred to the base map, including all mineral outcroppings, trenches and sample locations.

Geological Mapping - Prospect the Middle Vein

Trace the vein structure and sample the Middle Vein particularly toward the south along the main ridge. Any new mineralized zones should be examined and sampled. Helicopter reconnaissance and stereoscopic study of the aerial photographs will prove useful.

Legal Survey

Claim boundaries on the southern part of the property may also have to be relocated on the ground by legal survey, similar to the recent survey on the Apex and Skyline claims. The location of the Middle Vein should be surveyed and accurately shown on the base map.

Trenching

Trenching by a small backhoe, brought in by helicopter, has to be considered the next logical step to explore the vein below the surface.

STAGE II

Drilling Program

I recommend a diamond drilling program, initially on the Apex Claim. Drill sites would be on gently sloping ground east of the Middle Vein and have a nearby water supply.

Drill sites located approximately 40 metres east of the shear-vein structure seem reasonable. Drill holes at - 45 will intersect the vein at depths ranging from 40 to 60 metres. Additional holes at - 70 should be drilled from the same initial set-ups.

Drilling along additional sections farther to the south should then be considered if the results of surface sampling warrant it. Although the topography is quite precipitous, a few drillsites could be located south of the rocky ravine on the Skyline and War Lion claims.

RECOMMENDED PROGRAM AND COST ESTIMATES

Stage I

Establish additional grid - 10 km	1,500
Topographic Base Map from photos	4,000
Aerial Photo Interpretation	2,500
Geologic Mapping (20 days @ $500/day)	10,000
Sampling (250 samples @ $40/sample)	10,000
Legal Surveys	7,500
Transportation (helicopter @ $600/hr)	18,000
Trenching	8,000
Reporting and Administration	7,000
Contingency Allowance	6,500
ESTIMATED STAGE I COSTS	$75,000

Stage II

A second stage program contingent on obtaining encouraging results from Stage I is recommended. It would include diamond drilling to test the middle vein at depth, assays and further geological work.

KUCERA & ASSOCIATES CONSULTANTS

Richard E. Kucera

Richard E. Kucera, Ph.D.

GEOLOGICAL ASSOCIATION OF CANADA
Dr. R. E. KUCERA
R. Kucera
FELLOW

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CERTIFICATE OF QUALIFICATION

I, Richard E.Kucera, hereby certify:

1. That I am an associate of Kucera & Associates Consultants of #201, 810 West Broadway, Vancouver, B.C., V5Z 4C9.

2. That I am a Fellow of the Geological Association of Canada and a Member of the American Association of Petroleum Geologists and Geological Society of America.

3. That I hold B.Sc. and M.Sc. degrees from Ohio State University, U.S.A. and a Ph.D. from the University of Colorado, U.S.A.

4. That I have been practicing my profession as a Geologist for over 25 years.

5. That I have no direct or indirect interest nor do I expect to have any direct or indirect interest in the properties or securites of Canadian Imperial Mines Inc. I have no direct or indirect interest in the properties of the vendor.

6. That the statements made in Kucera & Associates Consultants report of July 15, 1991 on the Middle Vein Prospect were based on an examination of the property on October 16, 1989 and from information as specified in the report.

7. That the report has been prepared for exclusive use of participants of the project and no part of it shall be reproduced, distributed or made available to any other person, company, regulatory body or organization without the complete context of the report or without my permission.

8. Consent is hereby granted to use the report, in its complete form only, in a Filing Statement, Statement of Material Facts, or Prospectus by Canadian Imperial Mines, Inc.

Dated at Vancouver this 20th day of September, 1991.

Richard E. Kucera, Ph.D.

GEOLOGICAL ASSOCIATION OF CANADA
Dr. R. E. KUCERA
FELLOW

APPENDIX A

ROCK SAMPLE DESCRIPTIONS

(1989, 1991)

MIDDLE VEIN PROSPECT

ROCK SAMPLE DESCRIPTIONS

1989

Sample No.	Sample Description	Width (cm)	Au ppb
HG89 R7	Chip sample across 20 cm of altered grey, fine-grained volcanic andesite, quartz vein 3 cm wide mineralized with 2% fine-grained pyrite, minor green malachite. Sample taken at L3+50 S 2+70 W.	20	90
HG89 R8	Chip; shear zone of light brown buff volcanic andesite, rusty on weathering surface hosting quartz vein 5 cm wide, mineralized with 1% pyrite, vugs filled with dark oxide minerals. Sample across the shear zone and the vein at 3+50 S 3+00 W.	100	2900
HG89 R9	Chip; shear zone of light to dark brown altered volcanics with slickenside striated surface, 20% dark brown rusty oxides in vugs, minor silicification. Sample at L 3+50 S 3+00 W.	100	220
HG89 R10	Channel; quartz vein, 10 cm wide, massive quartz in a shear zone strikes N 10 E, dipping 75 W, mineralized with 2% fine-grained pyrite, 1% chalopyrite, minor galena, the vein exposed at L3+40 S 3+60 W.	20	.169 oz/ton
MV89 R11	Chip; well defined shear zone, dark grey andesite moderately silicified with 5% quartz, rusty oxedized sulphide on weathered surface quartz-carbonate vein up to 5 cm wide, strikes N18 E, dips 78 E.	100	50
MV89 R12	Chip; shear zone, grey andesite, some silification, 1-2% fine-grained pyrite, weathered buff to dark brown, quartz vein up to 3 cm wide.	100	1430
MV89 R13	Channel, quartz-carbonate vein 10 cm wide fine-grained volcanic andesite with minor silicification, 1-2% pyrite.	150	360

Sample No.	Sample Description	Width (cm)	Au ppb
MV89 R14	Chip across 10 cm wide quartz carbonate vein up to 8% sulphides (5% pyrite, 3% chalopyrite) and copper staining, intercalated with grey andesite, vein at contact with shear zone (east) and grey andesite (west), fine-grained sulphides, pyrite decrease from about 8% at contact of andesite and vein to less than 1% in the andesite in a distance of 100 cm.	10	>10,000 (1.42 oz/ton)
MV89 R15	Chip across two metre, shear zone, aphanitic andesite moderatly silicified with 10% quartz.	200	230
MV89 R16	Chip; well defined shear zone, buff to dark brown, rusty fine-grained volcanic andesite, 1-2% fine-grained pyrite dissemination, minor silicification. Slickenside and scratched surface two metres wide, strikes N 10 E.	200	570
MV89 R17	Chip across 40 cm of massive, barren quartz lense in a shear zone of buff fine-grained volcanic andesite, no obvious sulphides.	40	60
MV89 R18	Chip across 30 cm of the same quartz lense as above in R17. No sulphides.	30	40
MV89 R19	Chip sample collected across one metre of a shear, dark brown, rusty fine-grained volcanic andesite with 1-2% fine-grained disseminated pyrite.	100	180
MV89 R20	Channel sample collected across 20 cm of quartz vein, strikes N 10 E, dips 85 E, mineralized with 20% sulphides, copper staining, associated with light brown feldspar porphyry.	20	>1000 (.882 oz/ton)

ASSAY RESULTS 1989

Sample No.	Au ppb	Au oz/t	Ag ppm	As ppm	Cu ppm	Pb ppm	Zn ppm	Type of Sample	Width (cm)
HG89 R5		.044	6.5	1287	112	3435	3740	Grab	----
HG89 R7	90		2.0	55	4177	39	32	Chip	20
HG89 R8	2900		7.6	1571	225	70	29	Chip	100
HG89 R9	220		2.9	106	327	51	57	Chip	100
HG89 R10		.160	3.4	198	34	182	160	Channel	20
MV89 R11	50		1.5	23	913	129	115	Chip	100
MV89 R12	1430		2.5	224	117	171	39	Chip	100
MV89 R13	360		3.3	74	5779	358	183	Channel	150
MV89 R14	>10000	1.420	>50.0	>2000	825	>20000	>20000	Chip	10
MV89 R15	230		1.2	46	70	778	590	Chip	200
MV89 R16	570		0.6	4	97	103	113	Chip	200
MV89 R17	60		0.3	41	696	88	213	Chip	40
MV89 R18	40		0.2	9	33	53	43	Chip	30
MV89 R19	180		4.6	70	956	66	395	Chip	100
MV89 R20	>10000	.882	30.7	1997	284	6828	5860	Channel	20

MIDDLE VEIN PROSPECT

Rock Sample Descriptions

1991

Sample No.	Description	Width (cm)
FR - 4	Grab Sample; rusty, dark grey to black massive volcanic basalt, mineralized with copper staining trace of fine-grained pyrite.	---
FR - 5	Chip sample across one metre of altered, light grey massive volcanic andesite, strong hematitic alteration, silicification with fine to very fine-grained pyrite.	100
FR - 6	Chip; altered limonitic volcanic andesite outcrop, 1% fine-grained pyrite.	100
FR - 7	Brecciated light brown altered volcanic outcrop, moderate limonitic alteration, no sulphides. Chip sample over 60 centimetres.	60
FR - 8	Chip sample across 120 centimetres of feldspar-hornblende porphyry dyke, light brown hematite along fractures, altered hornblende.	120
FR - 9	Weathered, altered light grey, fine-grained volcanic andesite, moderate silification with up to 3% secondary quartz, fractures oriented N-20 degrees east filled with oxides (limonite). Chip sample over 60 centimetres.	60
FR - 10	Silicified zone hosted by fine-grained volcanic andesite, secondary quartz in cavities, the zone exposed for 5 metres, 30 centimetres wide. Chip over the width of the zone.	30
FR - 11	Grab; light grey, fine-grained volcanic andesite outcrop, quartz veinlets up to 1 cm wide, minor epidote.	---
FR - 12	Grab; strong silicified zone at the contact between feldspar porphyry dyke and basic altered volcanic andesite, 25% brown, rusty hematite.	---
FR - 13	Chip; silicified zone of subcrop volcanic andesite with up to 20% brown, hematitic quartz disseminated with <1% very fine-grained pyrite, trace of galena, the zone can be followed for 10 metres, 60 centimetres wide, strike 240 degrees.	60

Sample No.	Description	Width (cm)
FR - 14	Chip sample collected from the same silicified zone as in FR-13, possible native copper.	60
FR - 15	Chip; altered bleached volcanic andesite (subcrop), strong silicification, <1% sulphides mainly pyrite and galena, 10% manganese oxide.	60
FR - 16	Chip; small fracture zone within massive dark grey volcanic outcrop, .5 cm quartz vein strike 320 degrees, hosted by the same outcrop. No mineralization.	30
FR - 17	Grab; fresh, light green plagioclase porphyry dyke strike N-10 degrees east, small 2-3 cm bands of malachite staining. The dyke is two metres wide hosted by volcanic andesite.	---
FR - 18	Altered bleached volcanic andesite, rusty dark brown Fe02, <1% fine-grained disseminated pyrite. Shear zone strike 240 degrees exposed for 10 metres. Chip over 1 metre.	100
FR - 19	The same as FR-18. Chip sample taken across another shear zone strike 310 degrees, 10 metres north of FR-18. Chip over one metre across the shear zone.	100
FR - 20	Chip; quartz lense, brown hematitic quartz <1% pyrite dissemination, hematite staining between fractures. Light grey fine-grained silicified volcanic andesite host rock.	100
FR - 21	Sulphide pod 3 metres long, 50 centimetres wide, strike 290 degrees, mineralized with 5% oxidized fine-grained pyrite.	50
FR - 22	Reddish to dark brown bleached volcanic outcrop, moderate to strong manganese oxide. Chip across 30 cms.	30
FR - 23	Grab; light grey slightly mineralized volcanic andesite outcrop, <1% disseminated pyrite, trace of galena.	---
FR - 24	Chip across 1 metres of disseminated volcanic andesite <1% fine-grained pyrite intense oxidation, limonite veinlets.	100

Sample No.	Description	Width (cm)
PR - 1	Slightly sheared basic volcanics, trace of fine-grained pyrite, Mn stain/Fe rust. Chip over 60 cms.	60
PR - 2	Silicifed dark grey volcanic andesite outcrop, quartz veinlets up to 15 mm thick. No visible mineralization. Chip sample over 30 cms.	30
PR - 3	Intrusive diorite 60% plagioclase, 40% hornblende, quartz veinlets 1 mm, <1% pyrite. Fractures within the rocks 146 degrees/70 west, Mn-staining. Chip sample over 30 cms.	30
PR - 4	Fine to very fine-grained diorite hosting quartz veinlets <1 cm, fractures/joints 20 degrees/90 degrees. Chip sample.	30
PR - 5	Chip; fine to medium-grained diorite, 2% disseminated pyrite, 1% in quartz veinlets 2 mm thick.	30
PR - 6	Chip; medium-grained intrusive diorite intercalated with altered to light grey volcanics (contact zone) up to 5% disseminated pyrite, chalcopyrite, 1-2 mm quartz veinlets.	30
PR - 7	Chip sample over 1 metre of shear zone trending 315 degrees, dip approximately 80 degrees west, quartz veins 1-15 mm within the zone disseminated with 1% pyrite and galena, hosted by slightly sheared basic volcanics with strong Mn stain and Fe rust.	100
PR - 8	The same shear zone as PR-7 quartz veins 2-40 mm with 2% Py <1% galena hosted by slightly sheared volcanics with intense Mn and Fe staining. Chip sample over 1 metre.	100
PR - 9	The same shear zone on the same trend as PR-7 and PR-8, quartz vein <2 cm wide, 1% disseminated pyrite, hosted by basic volcanic andesite. Chip over 1 metre of the shear zone.	100
PR - 10	Quartz veinlets, swarms and blebs <2 mm up to 7% pyrite in volcanic host, along the same trend with PR-7, PR-8 and PR-9. Chip sample over 1 metre.	100
PR - 11	Slightly sheared dark volcanic andesite, silicification with up to 3% pyrite dissemination along the same strike as PR-7 - PR-10. Chip sample.	100

Sample No.	Description	Width (cm)
PR - 12	Sheared basic volcanics with quartz blebs/veinlets, 1% disseminated pyrite, Fe/Mn stained. Chip sample.	100
PR - 13	Sheared zone of basic volcanics, 1% disseminated pyrite, Fe/Mn stained, quartz blebs and quartz veinlets. Chip sample over 1 metre.	100
PR - 14	Chip; porphyritic basic unaltered volcanic, <5 mm phenocrysts, flow/shear texture aligned with fractured direction 360 degrees/90 degrees.	1000
PR - 15	Chip over 4 metres of sheared basic volcanics, 2% disseminated pyrite. Shearing 309 degrees and vertical, fractures at 301 degrees/70 degrees south.	400
PR - 16	Grey, reddish basic volcanic hosting quartz veinlets with 1% disseminated pyrite chip over 1 metre.	100
PR - 17	Highly silicified basic volcanics, white and red bleached, rusted rocks with >30% quartz; Fe/Mn stained, 3% Py mostly oxidized. Chip sample over 1 metre.	100

APPENDIX B

ANALYTICAL RESULTS

(1980, 1983, 1989, 1991)

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667

BONDAR-CLEGG

Geochemical Lab Report

Mt. McQuillan

COPY

RECEIVED OCT 2 1 1983

REPORT: 123-3260

PROJECT: NONE GIVEN PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Au PPB	NOTES
R 12805	* Middle Vein		<0.00584 oz/t =		<0.2	<5 = <0.000146	
B 12860-	↑			0.11972 =	4.1	600.0…	

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667

Certificate of Analysis

RECEIVED NOV 7 1983

REPORT: 423-3491

PROJECT: HIGH GRADE PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	Ag OPT	NOTES
~~R 89383~~		~~0.002~~	~~0.02~~	
89384	M.Vein	0.548	0.71	} Middle Vein
89385	MV	0.061	0.14	}
R 89386	MV	0.002	0.02	}

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667

BONDAR-CLEGG

Certificate of Analysis

REPORT: 423-3284

PROJECT: NONE GIVEN PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	As OPT	Cu PCT	Pb PCT	Zn PCT	NOTES
~~12811~~		~~0.133~~	~~0.58~~	<0.01	0.72	0.14	— H/C N end of BL 4th vein pyrgol.
12812	Middle Vein	<0.002	0.04				
R 12813		<0.002	0.04				
12814		0.028	0.10				— M.V. dyke (mineralized)
~~12905~~		~~<0.002~~	~~0.07~~				[illegible]

~~T R-218~~ 22 14 78 40.2 45

R KR-S-12604 ([illegible] vein) 300 2400 15600 18.0 > 10000

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667

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Certificate of Analysis

REPORT: 423-3140

PROJECT: NONE GIVEN PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	As OPT	NOTES
R 12804	MV	0.689	0.60	Middle Vein

VGC

VANGEOCHEM LAB LTD.
1521 PEMBERTON AVE.,
NORTH VANCOUVER, B.C.,
CANADA V7P 2S3

TELEPHONE: 986-5211
AREA CODE: 604

Certificate of Geochemical Analyses

• Specialising in Trace Elements Analyses •

–IN ACCOUNT WITH–
Lode Resources Corp.
Suite 1020 - 475 Howe Street
Vancouver, B.C. V6C 2B3
Attention:

Report No: 83-01-046 Page 1 of 1
Samples Arrived: October 3, 1983
Report Completed: October 13, 1983
For Project: MIDDLE VEIN Job No. 83-381
Analyst: D. Chiu Invoice No. 7554

	GEOCHEM			ASSAY		
Sample Marking	Ag ppm	Au ppb		Ag oz/st	Au oz/st	
N. EXTENTION	2.3	345		—	—	} along M.V. to N
N. EXTENTION SOIL	2.5	1475		—	—	
N. EXTENTION ROCK	—	—		0.11	0.018	? head waters of Clive Creek (G.E. Clain)

McQuillan - Middle Vein - Clive Ashworth.

REMARKS: One copy sent to Ashworth Exploration Ltd.

Provincial Registered Assayer

Signed:

% Mo x 1.6683 = % MoS_2 1 Troy oz./ton = 34.28 ppm 1 ppm = 0.0001% nd = none detected ppm = parts per million

All values are believed to be correct to the best knowledge of the analyst based on the method and instruments used.

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
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• FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD
BATHURST, N.B.
MISSISSAUGA, ONT
RENO, NEVADA U.S.A.

ASSAY ANALYTICAL REPORT

CLIENT: ASHWORTH EXPLORATION LTD.
ADDRESS: 718 - 744 W. HASTINGS ST.
: Vancouver, B.C.
: V6C 1A5

DATE: AUGUST 2 1989
REPORT#: 890403 AA
JOB#: 890403

PROJECT#: HG
SAMPLES ARRIVED: AUGUST 1 1989
REPORT COMPLETED: AUGUST 2 1989
ANALYSED FOR: Au

INVOICE#: 890403 NA
TOTAL SAMPLES: 2
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 2 ROCK

SAMPLES FROM: ASHWORTH EXPLORATION LTD.
COPY SENT TO: ASHWORTH EXPLORATION LTD.

PREPARED FOR: CLIVE ASHWORTH

ANALYSED BY: Raymond Chan

SIGNED: ____________________
Registered Provincial Assayer

GENERAL REMARK: None

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1988 TRIUMPH ST
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BRANCH OFFICES
PASADENA, NFLD
BATHURST, N.B.
MISSISSAUGA, ONT
RENO, NEVADA, U.S.A.

REPORT NUMBER: 890403 AA   JOB NUMBER: 890403   ASHWORTH EXPLORATION LTD.

SAMPLE #	Au oz/st
R-5	.044
R-10	.169

DETECTION LIMIT .005

1 Troy oz/short ton = 34.28 ppm   1 ppm = 0.0001%   ppm = parts per million   < = less than

signed: [signature]

1988 Triumph Street, Vancouver, B.C. V5L 1K5
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Pd, Pt, Sn, Sr and W.

ANALYST: [signature]

REPORT #: 890403 PA   ASHWORTH EXPL   Proj: H5   Date In: 89/08/01   Date Out:89/08/04   Att:

Sample Number	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%
R- 5	6.5	0.20	1287	13	<3	1.17	36.5	7	108	112	2.59	0.25	0.54
R-10	3.4	0.20	198	40	<3	2.26	1.2	8	109	34	2.24	0.40	0.39
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00

Sample Number	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
R- 5	1015	2	0.07	12	0.04	3435	<2	<2	32	<5	<3	3740
R-10	1405	2	0.01	9	0.01	182	<2	<2	31	<5	<3	160
Minimum Detection	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< = Less than Minimum is = Insufficient Sample ns = No sample > = Greater than Maximum AuFA = Fire assay/AAS

ANOMALOUS RESULTS:
FURTHER ANALYSES
BY ALTERNATE
METHODS SUGGESTED

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
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BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: ASHWORTH EXPLORATION LTD.
ADDRESS: 718 - 744 W. Hastings St.
: Vancouver, BC
: V6C 1A5

DATE: OCT. 25 1989
REPORT#: 890765 GA
JOB#: 890765

PROJECT#: 287
SAMPLES ARRIVED: OCT. 18 1989
REPORT COMPLETED: OCT. 25 1989
ANALYSED FOR: Au (FA/AAS) ICP

INVOICE#: 890765 NA
TOTAL SAMPLES: 13
SAMPLE TYPE: 13 ROCK
REJECTS: SAVED

SAMPLES FROM: MR. F. YACOUB
COPY SENT TO: ASHWORTH EXPLORATION LTD.

PREPARED FOR: MR. F. YACOUB

ANALYSED BY: VGC Staff

SIGNED: ____________________

GENERAL REMARK: None

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1988 TRIUMPH ST
VANCOUVER, B.C. V5L 1K5
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• FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD
BATHURST, N.B.
MISSISSAUGA, ONT
RENO, NEVADA, U.S.A.

REPORT NUMBER: 890765 GA JOB NUMBER: 890765 ASHWORTH EXPLORATION LTD.

SAMPLE #	Au ppb
MV 89 R 7	90
MV 89 R 8	2900
MV 89 R 9	220
MV 89 R11	50
MV 89 R12	1430
MV 89 R13	360
MV 89 R14	>10000
MV 89 R15	230
MV 89 R16	570
MV 89 R17	60
MV 89 R18	40
MV 89 R19	180
MV 89 R20	>10000

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

1988 Triumph Street, Vancouver, B.C. V5L 1K5
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Pd, Pt, Sn, Sr and W.

ANALYST: [signature]

ORT #: 890765 PA ASHWORTH EXPL Proj: 287 Date In: 89/10/18 Date Out:89/10/26 Att: F YACOUB

ple Number	Ag ppm	Al %	As ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sn ppm	Sr ppm	U ppm	W ppm	Zn ppm
89 R 7	2.0	2.34	55	22	<3	0.17	0.7	38	28	4177	7.40	0.25	1.57	986	4	0.01	14	0.06	39	<2	<2	11	<5	<3	32
89 R 8	7.6	0.16	1571	16	<3	0.01	0.1	11	44	225	6.01	0.19	0.06	2170	2	0.01	16	0.01	70	<2	<2	3	<5	<3	29
89 R 9	2.9	2.15	106	23	<3	1.33	0.1	31	23	327	6.00	0.38	2.18	1395	1	0.01	39	0.06	51	<2	<2	28	<5	<3	57
89 R11	1.5	1.66	23	18	<3	2.64	0.1	29	26	913	5.28	0.55	2.96	1520	2	0.01	35	0.03	129	<2	<2	54	<5	<3	115
89 R12	2.5	0.38	224	17	<3	2.16	0.1	13	68	117	3.24	0.42	1.23	2387	<1	0.01	16	0.01	171	<2	<2	38	<5	<3	39
89 R13	3.3	3.78	74	14	3	0.97	1.1	61	8	5779	8.61	0.41	3.34	1456	7	0.01	22	0.07	358	<2	<2	19	<5	<3	183
89 R14	>50.0	0.16	>2000	7	3	0.03	226.3	7	97	825	>10.00	0.32	0.09	74	12	0.01	14	0.01	>20000	<2	<2	1	<5	<3	>20000
89 R15	1.2	0.35	46	246	<3	8.83	3.8	15	15	70	4.37	1.43	0.53	982	<1	0.01	12	0.05	778	<2	<2	74	<5	<3	590
99 R16	0.6	0.47	4	22	<3	0.28	0.1	4	64	97	1.51	0.08	0.37	312	1	0.01	6	0.03	103	<2	<2	4	<5	<3	113
89 R17	0.3	1.49	41	38	<3	3.69	0.1	25	39	696	4.79	0.70	2.64	2376	1	0.01	38	0.03	88	<2	<2	62	<5	<3	213
89 R18	0.2	0.14	9	14	<3	0.09	0.1	6	145	33	1.39	0.05	0.10	533	<1	0.02	6	0.01	53	<2	<2	2	<5	<3	43
99 R19	4.6	0.99	70	7	<3	0.04	0.7	24	29	956	9.25	0.28	0.96	568	9	0.01	11	0.02	66	<2	<2	1	<5	<3	395
89 R20	30.7	0.13	1997	7	<3	0.17	62.3	9	54	284	4.21	0.15	0.10	237	4	0.01	11	0.01	6828	<2	<2	5	<5	<3	5860
imum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
imum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

Less than Minimum is = Insufficient Sample ns = No sample > = Greater than Maximum ANOMALOUS RESULTS = Further Analyses by Alternate Methods Suggested

VGC VANGEOCHEM LAB LIMITED

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BRANCH OFFICES
PASADENA, NFLD
BATHURST, N B
MISSISSAUGA, ONT
RENO, NEVADA, U S A

ASSAY ANALYTICAL REPORT

CLIENT: **ASHWORTH EXPLORATION LTD.**
ADDRESS: 718 - 744 W. Hastings St.
: Vancouver, BC
: V6C 1A5

DATE: OCT. 25 1989

REPORT#: 890765 AA
JOB#: 890765

PROJECT#: 287
SAMPLES ARRIVED: OCT. 18 1989
REPORT COMPLETED: OCT. 25 1989
ANALYSED FOR: Au

INVOICE#: 890765 NA
TOTAL SAMPLES: 2
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 2 ROCK

SAMPLES FROM: MR. F. YACOUB
COPY SENT TO: ASHWORTH EXPLORATION LTD.

PREPARED FOR: MR. F. YACOUB

ANALYSED BY: Raymond Chan

SIGNED: Raymond Chan
Registered Provincial Assayer

GENERAL REMARK: None

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1988 TRIUMPH ST
VANCOUVER, B.C. V5L 1K5
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BRANCH OFFICES
PASADENA, NFLD
BATHURST, N.B
MISSISSAUGA, ONT
RENO, NEVADA, U.S.A

REPORT NUMBER: 890765 AA   JOB NUMBER: 890765   ASHWORTH EXPLORATION LTD.

SAMPLE #	Au oz/st
MV 89 R14	1.420
MV 89 R20	.882

DETECTION LIMIT .005

1 Troy oz/short ton = 34.28 ppm   1 ppm = 0.0001%   ppm = parts per million   < = less than

signed: [signature]

VGC VANGEOCHEM LAB LIMITED

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BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: HI-TEC RESOURCE MANAGEMENT LTD.   DATE: JUNE 28 1991
ADDRESS: 1500 - 409 Granville St.
: Vancouver, BC   REPORT#: 910079 GA
: V7Y 1G5   JOB#: 910079

PROJECT#: MIDDLE VIEN   INVOICE#: 910079 NA
SAMPLES ARRIVED: JUNE 27 1991   TOTAL SAMPLES: 38
REPORT COMPLETED: JUNE 28 1991   SAMPLE TYPE: 38 ROCK
ANALYSED FOR: Au (FA/AAS) ICP   REJECTS: SAVED

SAMPLES FROM: CANADIAN IMPERIAL MINE INC.
COPY SENT TO: HI-TEC RESOURCE MANAGEMENT LTD.

PREPARED FOR: CANADIAN IMPERIAL MINE LTD.

ANALYSED BY: Raymond Chan

SIGNED: ____________

GENERAL REMARK: None

1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCL to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST:

REPORT #: 910079 PA HI-TEC RESOURCE MGMT LTD. PROJECT: MIDDLE VIEN DATE IN: JUNE 27 1991 DATE OUT: JUNE 28 1991 ATTENTION: CANADIAN IMPERIAL MINE INC.

Sample Name	Ag	Al	As	*Au	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	%	ppm	ppb	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
MV91 FR4	2.2	2.79	<3	20	76	<3	1.40	3.5	42	33	3290	5.17	<0.01	2.27	869	<1	<0.01	86	0.07	16	<2	<2	118	<5	<3	57
MV91 FR5	<0.1	2.47	<3	20	13	<3	0.36	<0.1	23	39	614	5.06	<0.01	2.52	760	<1	<0.01	<1	0.07	<2	<2	<2	23	<5	<3	76
MV91 FR6	<0.1	3.46	<3	<5	<1	<3	0.17	2.4	31	32	169	6.10	<0.01	3.85	921	<1	<0.01	<1	0.07	<2	<2	<2	1	<5	<3	151
MV91 FR7	<0.1	3.13	<3	<5	6	<3	0.36	<0.1	33	9	71	6.32	<0.01	3.14	761	<1	<0.01	6	0.09	<2	<2	<2	6	<5	<3	120
MV91 FR8	<0.1	2.11	<3	510	<1	<3	0.13	<0.1	17	61	58	4.58	<0.01	2.17	653	<1	<0.01	<1	0.04	<2	<2	<2	1	<5	<3	118
MV91 FR9	<0.1	3.08	<3	10	2	<3	0.22	<0.1	31	39	129	6.11	<0.01	3.76	1654	<1	<0.01	23	0.04	<2	<2	<2	2	<5	<3	105
MV91 FR10	<0.1	2.32	<3	<5	9	<3	0.11	<0.1	25	67	129	3.68	<0.01	2.93	911	<1	<0.01	17	0.03	<2	<2	<2	1	<5	<3	65
MV91 FR11	<0.1	1.73	<3	<5	4	<3	0.28	<0.1	29	76	40	2.97	<0.01	2.35	975	<1	<0.01	21	0.02	<2	<2	<2	12	<5	<3	30
MV91 FR12	<0.1	0.47	<3	<5	8	<3	0.08	<0.1	13	109	28	1.49	<0.01	0.42	468	<1	0.02	<1	0.01	<2	2	<2	2	<5	<3	19
MV91 FR13	<0.1	0.83	<3	<5	59	<3	0.20	<0.1	13	32	47	1.68	<0.01	0.19	407	<1	0.08	8	0.05	9	<2	<2	6	<5	<3	39
MV91 FR14	0.2	1.92	<3	520	15	<3	0.12	<0.1	18	64	67	3.67	<0.01	1.89	719	<1	<0.01	10	0.04	<2	<2	<2	1	<5	<3	100
MV91 FR15	<0.1	1.80	<3	540	3	<3	0.08	<0.1	18	50	73	3.43	<0.01	1.90	860	<1	<0.01	<1	0.03	<2	<2	<2	<1	<5	<3	86
MV91 FR16	<0.1	2.71	<3	<5	5	<3	0.98	<0.1	33	67	45	3.84	<0.01	3.68	1399	<1	<0.01	30	0.03	2	<2	<2	7	<5	<3	56
MV91 FR17	<0.1	1.14	<3	<5	7	<3	0.42	<0.1	16	62	779	1.72	<0.01	1.00	507	<1	0.07	11	0.03	<2	<2	<2	16	<5	<3	28
MV91 FR18	<0.1	1.73	<3	<5	16	<3	0.14	<0.1	47	32	422	4.39	<0.01	1.59	331	<1	0.03	<1	0.06	<2	<2	<2	5	<5	<3	29
MV91 FR19	<0.1	3.05	<3	60	26	<3	1.00	<0.1	40	93	67	5.08	<0.01	2.74	914	<1	<0.01	38	0.07	<2	<2	<2	24	<5	<3	42
MV91 FR20	<0.1	1.87	<3	40	9	<3	0.21	0.3	13	79	37	3.78	<0.01	2.12	692	<1	<0.01	15	0.03	17	<2	<2	3	<5	<3	305
MV91 FR21	0.7	0.79	<3	130	<1	<3	0.10	<0.1	25	95	411	7.12	<0.01	0.64	220	<1	<0.01	<1	0.03	21	<2	<2	<1	<5	<3	97
MV91 FR22	1.4	2.35	<3	90	<1	<3	0.12	1.2	19	59	1952	9.10	<0.01	2.04	453	<1	<0.01	<1	0.04	<2	<2	<2	<1	<5	<3	69
MV91 FR23	<0.1	3.37	<3	<5	<1	<3	0.17	<0.1	25	15	292	6.93	<0.01	3.71	826	<1	<0.01	<1	0.08	<2	<2	<2	<1	<5	<3	216
MV91 FR24	0.2	2.74	<3	<5	61	<3	0.36	<0.1	25	24	56	4.99	<0.01	2.81	1170	<1	<0.01	104	0.07	4	<2	<2	5	<5	<3	189
MV91 PR1	0.2	1.10	<3	60	19	<3	0.12	<0.1	8	135	11	2.28	<0.01	1.16	471	<1	<0.01	8	0.02	20	<2	<2	2	<5	<3	44
MV91 PR2	0.2	2.06	<3	<5	12	<3	0.21	<0.1	22	35	108	3.94	<0.01	2.21	641	<1	<0.01	4	0.07	<2	<2	<2	6	<5	<3	74
MV91 PR3	<0.1	2.39	<3	<5	4	<3	0.70	<0.1	25	101	244	2.44	<0.01	2.38	452	<1	0.03	67	0.02	<2	<2	<2	15	<5	<3	44
MV91 PR4	<0.1	1.89	<3	<5	<1	<3	0.77	<0.1	31	63	106	2.12	<0.01	1.89	447	<1	0.01	27	0.02	15	<2	<2	32	<5	<3	35
MV91 PR5	<0.1	1.70	<3	<5	<1	<3	0.60	<0.1	37	19	188	2.49	<0.01	1.64	616	<1	0.02	4	0.03	<2	<2	<2	23	<5	<3	46
MV91 PR6	0.1	3.20	<3	<5	<1	<3	1.12	<0.1	49	31	212	5.32	<0.01	1.91	687	<1	0.18	11	0.02	<2	<2	<2	36	<5	<3	70
MV91 PR7	<0.1	3.34	<3	730	56	<3	0.40	<0.1	31	34	132	4.74	<0.01	4.25	1103	<1	<0.01	6	0.03	17	<2	<2	10	<5	<3	114
MV91 PR8	0.1	2.97	<3	<5	143	<3	0.15	<0.1	26	32	282	4.28	<0.01	4.16	990	<1	<0.01	6	0.05	91	<2	<2	4	<5	<3	165
MV91 PR9	<0.1	4.14	<3	<5	48	<3	0.12	<0.1	30	28	141	5.35	<0.01	5.92	1298	<1	<0.01	17	0.05	<2	<2	<2	<1	<5	<3	171
MV91 PR10	<0.1	3.64	<3	<5	3	<3	0.13	<0.1	25	26	88	5.43	<0.01	4.72	1413	<1	<0.01	6	0.07	<2	<2	<2	<1	<5	<3	249
MV91 PR11	<0.1	3.72	<3	<5	7	<3	0.30	<0.1	22	15	101	5.16	<0.01	4.50	1109	<1	<0.01	<1	0.07	<2	<2	<2	4	<5	<3	213
MV91 PR12	<0.1	3.75	<3	<5	6	<3	0.44	<0.1	35	24	110	5.84	<0.01	4.48	1052	<1	<0.01	15	0.10	<2	<2	<2	8	<5	<3	298
MV91 PR13	<0.1	3.87	<3	<5	7	<3	0.90	<0.1	35	39	122	6.05	<0.01	4.61	1355	<1	<0.01	25	0.11	<2	<2	<2	19	<5	<3	361
MV91 PR14	<0.1	3.69	<3	<5	156	<3	1.95	<0.1	41	201	93	5.06	<0.01	5.50	1337	<1	<0.01	174	0.15	<2	<2	<2	63	<5	<3	147
MV91 PR15	<0.1	3.76	<3	<5	41	<3	0.82	<0.1	35	69	110	6.02	<0.01	4.84	1462	<1	<0.01	42	0.07	<2	<2	<2	20	<5	<3	326
MV91 PR16	<0.1	3.66	<3	<5	18	<3	0.54	<0.1	35	50	144	5.56	<0.01	5.01	1376	<1	<0.01	38	0.06	<2	<2	<2	13	<5	<3	169
MV91 PR17	<0.1	1.98	<3	<5	12	<3	0.18	<0.1	13	113	56	3.98	<0.01	1.99	673	<1	<0.01	27	0.05	16	<2	<2	3	<5	<3	67
Minimum Detection	0.1	0.01	3	5	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	10000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample *Au Analysis Done By Fire Assay Concentration / AAS Finish.

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BATHURST, N.B.
RENO, NEVADA, U.S.A.

REPORT NUMBER: 910079 GA   JOB NUMBER: 910079   HI-TEC RESOURCE MANAGEMENT LTD.

SAMPLE #	Au ppb
MV91 FR4	20
MV91 FR5	20
MV91 FR6	nd
MV91 FR7	nd
MV91 FR8	510
MV91 FR9	10
MV91 FR10	nd
MV91 FR11	nd
MV91 FR12	nd
MV91 FR13	nd
MV91 FR14	520
MV91 FR15	540
MV91 FR16	nd
MV91 FR17	nd
MV91 FR18	nd
MV91 FR19	60
MV91 FR20	40
MV91 FR21	130
MV91 FR22	90
MV91 FR23	nd
MV91 FR24	nd
MV91 PR1	60
MV91 PR2	nd
MV91 PR3	nd
MV91 PR4	nd
MV91 PR5	nd
MV91 PR6	nd
MV91 PR7	730
MV91 PR8	nd
MV91 PR9	nd
MV91 PR10	nd
MV91 PR11	nd
MV91 PR12	nd
MV91 PR13	nd
MV91 PR14	nd
MV91 PR15	nd
MV91 PR16	nd
MV91 PR17	nd
DETECTION LIMIT	5

nd = none detected   -- = not analysed   is = insufficient sample

APPENDIX C

INTERPRETATION OF THE GEOPHYSICAL SURVEY

ON THE APEX GROUP

FIGURE G-1, G-2, G-[redacted]

1. INTRODUCTION

A geophysical program consisting of electromagnetic (VLF-EM) and magnetic surveys was carried out on a single grid located in the Victoria Mining District near Port Alberni, B.C. The survey was carried out in July 1989.

2. OBJECTIVES

- to establish a correlation between magnetic minerals and mineralized trends,
- to test the effectiveness of VLF-EM in following possible mineralized trends and to establish new unrecognized conductive trends,
- to establish geophysical areas of interest for future exploration.

3. SURVEY SPECIFICATIONS

Survey Parameters

- survey line separation - 50 m
- survey station spacing - 12.5 m
- VLF-EM survey total 3.0 km
- magnetic survey total 3.0 km

Equipment Parameters

- VLF-EM and Magnetic Surveys
  - Scintrex Omni Plus combined VLF-EM and magnetometer
  - Dip Angle (in-phase) and Quadratur (out-of-phase) measured in percent at each static
  - VLF-EM Field Strength measured at each station
  - transmitting stations used - NLK (24.8 kHz) - Seattle, Wash.
    - NAA (21.4 kHz) - Cutler, Ma.
  - earth's total magnetic field measured in gammas (nT)
  - magnetic variations controlled by automatic magnetic base station recording every 30 seconds
  - instrument accuracy +/- 0.1 gamma
  - station repeatability better than +/- 3 gammas in low gradients.

Equipment Specifications - see Appendix I

4. DATA

Calculations

Total Field Magnetic Survey

Total field magnetic readings were individually corrected for variations in the earth's magnetic field using magnetic base station values. The formula used for magnetic corrections was:

CTFR = TFR + (DBL - BSR)

where: CTFR = Corrected Total Field Reading
TFR = Total Field Reading
DBL = Datum Base Level = 56800 gammas
BSR = Base Station Reading

....2

Presentation

- VLF-EM in-phase, out-of-phase and field strength readings are presented in profile form on Figure # G-1 at a scale of 1:1000
- Magnetic data were profiled and are presented on Figure # G-2 at a scale of 1:1000
- Magnetic data were contoured and are presented on Figure # G-3 at a scale of 1:1000
- Field readings and calculated values are listed in Appendix II.

4. INTERPRETATION

Discussion of Results

Total field magnetic data in the Middle Vein area were quiet with no cultural sources observed. Magnetic readings range from 55000 nT to 57700 nT within a relatively stable background of approximately 55900 nT. Three magnetic high trends were delineated by comparing profile character from line to line. Magnetic lineaments are labeled "L1", "L2" and "L3" on the total field magnetic profile and contour maps, Figure #2 and Figure #3 respectively.

Magnetic lineament "L1" consists of two parallel magnetic high trends in the northern portion of the Middle Vein grid. Lineament "L2" also consists of two parallel magnetic highs which may be the southern continuation of "L1". Due to steep terrain it was not possible to continue surveying line 200S, making delineation between "L1" and "L2" difficult. Magnetic highs on line 500S and 550S may indicate that "L2" continues to the south, but again incomplete coverage due to extreme terrain prevent delineation of these anomalies. Both "L1" and "L2" exhibit anomalies ranging from 500 nT. to 1500 nT. above background. Located on the western edge of the grid, lineament "L3" trends north-south and runs 50 meters to the east of conductor "C1". "L3" exhibits anomalous magnetic highs from 300 nT. to 500 nT. above the background of 55900 nT.

Within the survey area VLF-EM data show a response to topography seen as a positive bias on in-phase results. The topographic effect is not considered to be a problem because the slope was relatively even and therefore the topographic effect was fairly constant.

VLF-EM results over the Middle Vein grid were quiet. Only one conductor, labeled "C1" on figure # 1, was observed on the grid. Conductor "C1" is a north-south trending, weak to moderate conductive feature characterized by moderate in-phase, strong field strength and weak positive quadrature response. The magnitude of the field strength response may be amplified due to better reception as the operator approached the top of the ridge.

....3

Conclusions

Magnetic results have delineated a number of magnetic high trends which, due to the long narrow geometry of these features, are interpreted to represent basic dykes containing magnetite. There was no noticeable magnetic low response to feldspar-hornblende dykes or major structure associated with the Middle Vein, perhaps due to deep overburden or insuficient sampling intervals.

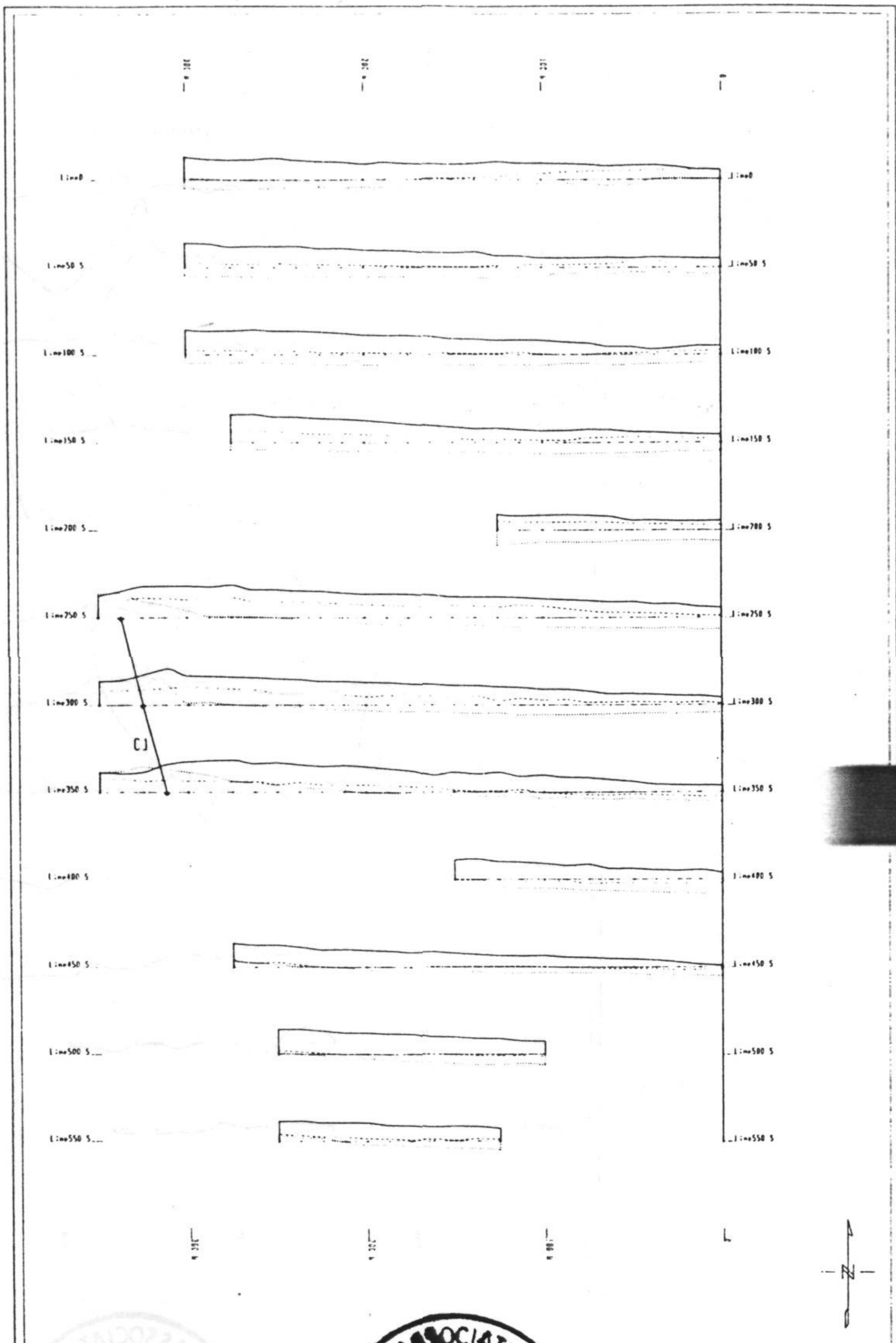
The only evidence of conductivity on the Middle Vein grid was conductor "C1". Conductor "C1" is a NNW trending, moderate conductor located in the same area as the NNE trending Middle Vein structure. "C1" is interpreted to be a structural feature, such as a splay fault, sub-parallel to the fault associated with the Middle Vein. There are a number of reasons why the Middle vein and associated structure did not respond to the VLF-EM method. One possibility is that the fault containing the Middle Vein was rehealed, perhaps by the Middle Vein itself. While conductive overburden does not appear to be present, it is possible that conductive overburden may have masked any response from the Middle Vein fault.

5. RECOMMENDATIONS

The VLF-EM and magnetic method did not appear to be succesful in delineating the Middle Vein structure. However conductor "C1" may reflect a conductive fault, therefore geological investigation of this conductor is recommended. While there is no magnetic response to known structure in the area, magnetic anomalies, interpreted as basic dykes, should be investigated to determine if any mineralization is present. The Middle Vein fault and associated feldspar-horneblende dykes would be expected to give a magnetic low response and thus a detailed gradient magnetic survey may help delineate structure in the area. An induced polarization/resistivity survey may be helpful to determine the extent of disseminated mineralization in the area and is recommended if further geophysical surveys are planned.

AUTHOR'S NOTE

Data interpreted in this report were accumulated without supervision by Interpretex Resources Ltd. and were supplied by the Client to the writer(s). These data and the locations on the ground from which these data were accumulated are, except when specified otherwise by the writer(s), assumed to be reliable and correct and were interpreted using this assumption.



LEGEND

- Anomalous Inflection (In-Phase)
- In Phase } 1 cm. = 20 %
- Quadrature } 1 cm. = 20 %
- Field Strength 1 cm. = 50 unit
- VLF-EM Conductor

SCALE 1 : 1000

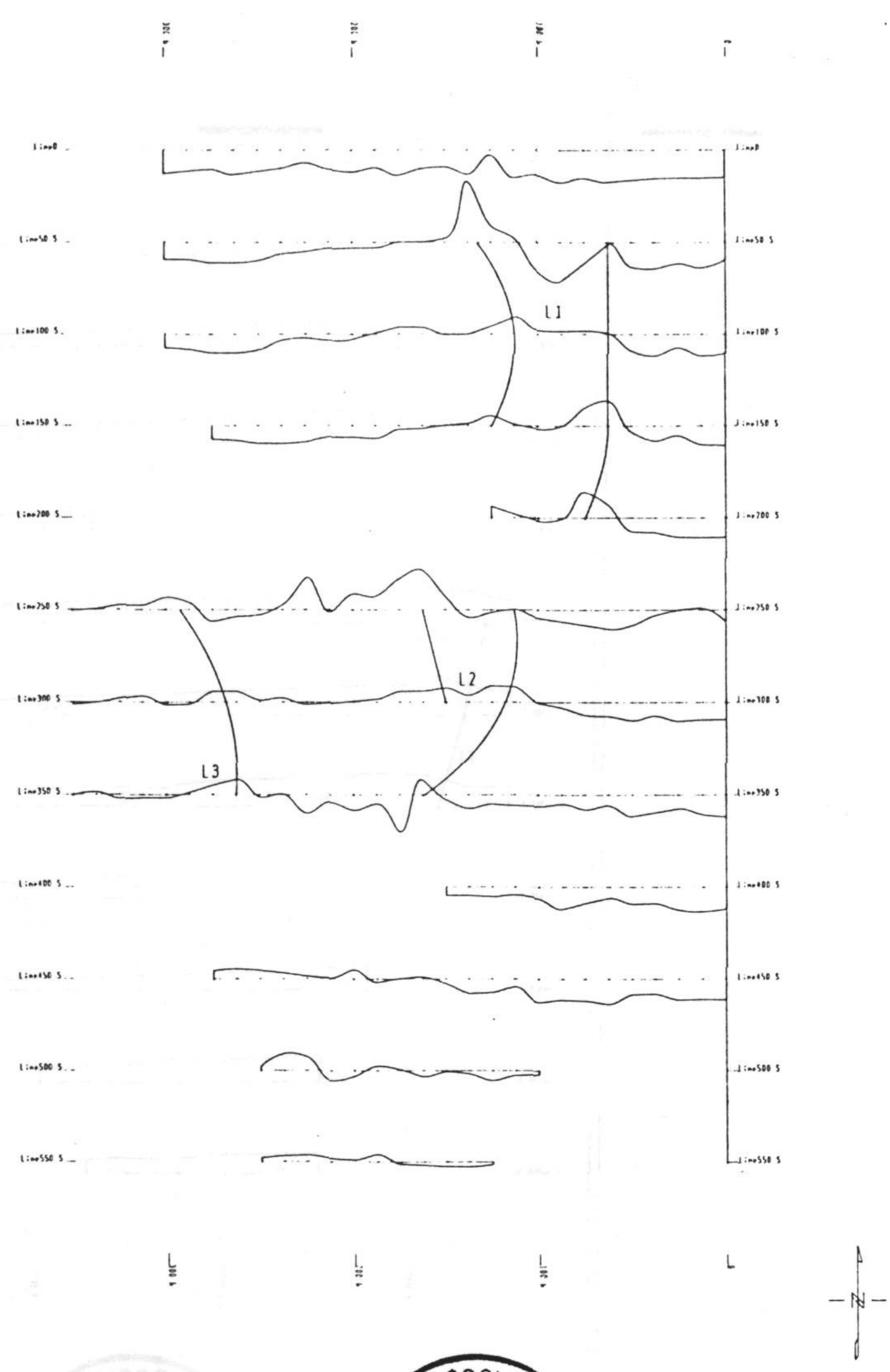
GEOLOGICAL ASSOCIATION OF CANADA
R. Kucera
Dr. R. E. KUCERA
FELLOW

CANADIAN IMPERIAL MINES INC.

VLF-EM Profiles
NLK, Seattle, Wash.
Middle Vein Area
Victoria Mining Division, B.C.
NTS 92 F/2E

Interpretex Resources Ltd.
Report T.D. Patick
Surveyed by Ashworth Explorations Limited
Project # 287
July 1989

Figure # 6.1



LEGEND

Total Magnetic Field Strength 1 cm. = 500 Gammas

Total Magnetic Field Datum Value = 56000 Gammas

Magnetic Lineament

SCALE 1 : 1000

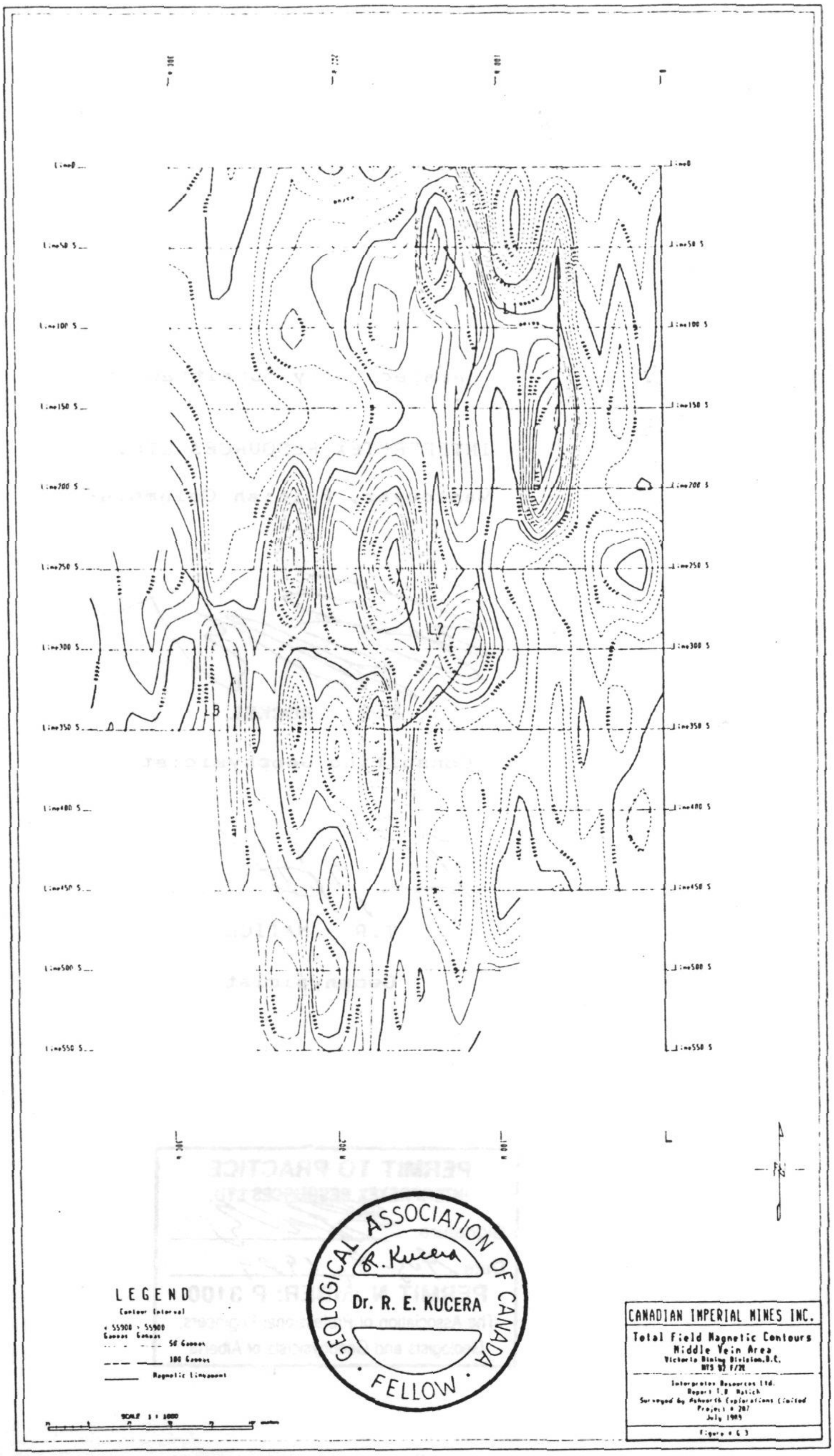
GEOLOGICAL ASSOCIATION OF CANADA
R. Kucera
Dr. R. E. KUCERA
FELLOW

CANADIAN IMPERIAL MINES INC.

Total Field Magnetic Profiles
Middle Vein Area
Victoria Mining Division, B.C.
NTS 92 F/2E

Interpretex Resources Ltd.
Report T.D. Patich
Surveyed by Ashworth Explorations Limited
Project # 207
July 1989

Figure # C 2



Line 0
Line 50 S
Line 100 S
Line 150 S
Line 200 S
Line 250 S
Line 300 S
Line 350 S
Line 400 S
Line 450 S
Line 500 S
Line 550 S
L1
L2
L3
LEGEND
Contour Interval
< 55900 > 55900
Gammas Gammas
50 Gammas
100 Gammas
Magnetic Lineament
SCALE 1 : 1000
GEOLOGICAL ASSOCIATION OF CANADA
Dr. R. E. KUCERA
FELLOW
CANADIAN IMPERIAL MINES INC.
Total Field Magnetic Contours
Middle Vein Area
Victoria Mining Division, B.C.
Interpretex Resources Ltd.
Surveyed by Ashworth Explorations Limited
July 1989

Respectfully Submitted

INTERPRETEX RESOURCES LTD.

Vancouver, British Columbia

E.R. ROCKEL

Consulting Geophysicist

T.R. MATICH

Geophysicist

PERMIT TO PRACTICE
INTERPRETEX RESOURCES LTD.
Signature
Date Aug. 8, 1989
PERMIT NUMBER: P 3100
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

APPENDIX D

GEOPHYSICAL FIELD DATA WORKSHEETS

(1989, 1991)

INTERPRETEX RESOURCES LTD. Data listing (L = # Station + = Northings and Eastings, - = Southings and Westings) Current File Name: MGDAT.WR From File: MG.XYZ

Area: PORT ALBERNI
Grid: MIDDLE VEIN
Date: July, 1989

DATA TYPE(S):		NSTRUMENT TYPE:	DATA DETAILS:
# 1.	Total Field Magnetic Values	EDA VLF-EM/Magnetic System	Corrected total magnetic field
# 2.	VLF-EM In-Phase Values	" " " "	Facing westerly using Seattle Transm
# 3.	VLF-EM Quadrature (Out-of-Phase)	" " " "	Facing westerly using Seattle Transm
# 4.	VLF-EM Field Strength	" " " "	Seattle total field strength
# 5.	VLF-EM In-Phase Values	" " " "	Facing westerly using Cutler Transmi
# 6.	VLF-EM Quadrature (Out-of-Phase)	" " " "	Facing westerly using Cutler Transmi
# 7.	VLF-EM Field Strength	" " " "	Cutler total field strength

E/W STATION	N/S LINE #		# 1.	# 2.	# 3.	# 4	# 5.	# 6.	# 7.
line -350									
-350	-350	-350	56020.0	23.6	15.0	410.5	4.1	11.0	7.0
-337.5	-350	-337.5	56114.3	22.5	15.1	412.9	5.7	11.8	7.4
-325	-350	-325	55940.7	24.3	12.3	425.6	4.4	8.7	7.6
-312.5	-350	-312.5	55956.8	32.9	13.7	418.9	3.4	5.3	7.5
-300	-350	-300	55954.3	36.3	12.5	410.1	2.5	4.7	7.5
-287.5	-350	-287.5	56106.3	37.5	12.8	401.0	1.5	6.9	7.5
-275	-350	-275	56297.7	38.0	11.5	385.1	0.3	4.1	7.6
-262.5	-350	-262.5	56449.4	33.8	11.9	378.5	1.6	5.3	7.7
-250	-350	-250	55978.3	35.0	8.6	372.6	1.6	[illegible]	7.5
-237.5	-350	-237.5	56062.6	32.6	10.8	365.6	-1.3	[illegible]	8.0
-225	-350	-225	55536.0	30.7	8.2	363.3	-2.3	[illegible]	7.8
-212.5	-350	-212.5	55847.4	31.8	7.5	358.3	-1.2	[illegible]	7.7
-200	-350	-200	55624.5	30.3	8.1	350.6	-1.5	5.0	7.8
-187.5	-350	-187.5	55799.5	28.0	7.3	350.6	-2.4	4.5	8.0
-175	-350	-175	55033.2	25.8	6.2	347.7	-3.9	4.3	8.0
-162.5	-350	-162.5	56433.9	20.9	5.4	347.5	-6.2	5.7	8.2
-150	-350	-150	55909.6	24.0	1.9	342.4	-4.7	1.2	8.1
-137.5	-350	-137.5	55672.6	22.1	0.8	342.8	-6.3	0.5	8.6
-125	-350	-125	55797.0	23.9	1.1	341.7	-4.5	1.4	8.3
-112.5	-350	-112.5	55755.7	19.5	2.7	346.4	-6.6	0.9	8.5
-100	-350	-100	55734.1	20.8	-1.0	335.3	-5.6	0.0	8.4
-87.5	-350	-87.5	55797.9	18.3	-2.1	338.8	-7.4	0.3	8.7
-75	-350	-75	55643.2	17.8	-3.1	335.5	-6.8	-2.0	8.5
-62.5	-350	-62.5	55755.4	15.6	-3.5	332.9	-7.9	-2.2	8.6
-50	-350	-50	55464.6	13.4	-2.4	335.0	-8.8	-1.4	8.8
-37.5	-350	-37.5	55561.1	10.3	-3.2	331.9	-11.1	-3.9	8.7
-25	-350	-25	55668.4	9.5	-4.1	330.0	-12.9	-4.2	8.6
-12.5	-350	-12.5	55507.8	9.2	-4.9	327.9	-12.6	-4.5	8.6
0	-350	0	55450.0	9.0	-4.8	327.3	-13.3	-5.0	8.6
line -300									
-350	-300	-350	55979.1	28.4	16.6	419.0	6.6	11.3	7.2
-337.5	-300	-337.5	56026.8	29.1	16.4	426.4	7.7	10.5	7.1
-325	-300	-325	56135.1	36.0	17.7	433.3	6.5	11.4	7.0
-312.5	-300	-312.5	56205.4	42.8	19.2	414.6	8.4	9.4	7.4
-300	-300	-300	55964.4	34.9	21.1	359.5	8.0	1.3	7.8
-287.5	-300	-287.5	55975.7	34.2	19.4	361.0	8.3	2.9	7.8
-275	-300	-275	56326.7	33.5	18.3	354.9	4.2	9.0	8.4
-262.5	-300	-262.5	56335.7	32.8	17.3	351.2	4.7	8.4	7.7
-250	-300	-250	56098.6	31.3	13.1	346.9	5.5	5.8	7.9

-237.5	-300	-237.5	56151.1	30.6	11.9	347.9	2.9	6.2	8.0
-225	-300	-225	55976.8	28.4	13.4	341.0	4.4	6.8	8.1
-212.5	-300	-212.5	56004.6	28.3	11.4	340.1	3.0	6.5	8.0
-200	-300	-200	56073.1	27.3	9.4	338.5	3.1	6.0	8.1
-187.5	-300	-187.5	56119.3	26.8	11.0	334.8	2.4	6.6	8.1
-175	-300	-175	56330.4	25.6	10.5	334.9	2.8	6.2	8.3
-162.5	-300	-162.5	56339.0	24.9	10.0	334.0	3.3	6.1	8.2
-150	-300	-150	56420.3	23.7	9.3	331.6	2.7	6.0	8.3
-137.5	-300	-137.5	56224.3	23.6	10.0	329.5	4.8	2.2	8.6
-125	-300	-125	56481.7	22.2	4.8	331.2	2.1	5.4	8.5
-112.5	-300	-112.5	56460.1	21.5	7.6	324.7	3.3	5.8	8.6
-100	-300	-100	56027.6	19.4	5.7	325.6	1.8	5.4	8.6
-87.5	-300	-87.5	55892.7	19.4	6.0	325.4	2.8	3.1	8.7
-75	-300	-75	55695.1	17.1	3.1	326.5	0.2	1.8	8.9
-62.5	-300	-62.5	55660.5	13.9	3.3	327.6	-1.0	3.3	9.0
-50	-300	-50	55548.4	14.0	3.7	329.5	-1.0	3.1	9.0
-37.5	-300	-37.5	55672.5	13.3	3.4	330.0	-1.0	3.1	9.1
-25	-300	-25	55528.3	12.0	2.7	329.2	-1.2	1.0	9.0
-12.5	-300	-12.5	55568.1	11.8	3.5	331.0	-2.2	1.3	9.0
0	-300	0	55571.5	9.7	1.5	332.2	-4.2	0.2	9.2
line	-250								
-350	-250	-350	56025.2	26.3	17.9	422.5	9.2	7.7	6.8
-337.5	-250	-337.5	56064.1	31.9	19.4	423.8	7.5	5.6	6.7
-325	-250	-325	56165.3	37.4	22.8	400.1	8.6	6.6	6.9
-312.5	-250	-312.5	56164.8	37.7	22.0	389.1	20.9	15.8	6.6
-300	-250	-300	56375.1	37.9	20.6	373.8	7.6	8.9	7.2
-287.5	-250	-287.5	56239.8	36.8	22.9	358.0	10.2	11.8	7.0
-275	-250	-275	55730.3	38.9	23.2	357.3	12.7	7.1	7.3
-262.5	-250	-262.5	55851.7	33.4	18.4	356.6	6.0	9.7	7.5
-250	-250	-250	55903.6	33.4	17.6	353.1	6.3	8.9	7.3
-237.5	-250	-237.5	56180.9	32.2	18.1	347.1	5.0	9.1	7.4
-225	-250	-225	56897.5	31.6	17.1	343.4	3.5	9.5	7.4
-212.5	-250	-212.5	55976.1	29.7	15.8	346.3	3.6	9.4	7.6
-200	-250	-200	56474.4	28.5	14.8	337.2	4.1	10.5	7.7
-187.5	-250	-187.5	56416.2	28.6	14.1	333.4	3.3	9.8	7.6
-175	-250	-175	56886.3	28.5	13.1	331.2	3.9	8.6	7.7
-162.5	-250	-162.5	57107.6	27.5	12.4	331.0	3.7	9.5	7.7
-150	-250	-150	56393.8	25.3	13.8	325.7	2.4	9.4	7.8
-137.5	-250	-137.5	55838.1	25.1	13.2	332.0	3.8	8.8	7.8
-125	-250	-125	55971.6	25.3	12.2	328.7	3.4	9.1	7.7
-112.5	-250	-112.5	56058.8	24.7	14.3	327.1	7.2	5.5	8.2
-100	-250	-100	55824.6	23.2	13.1	325.8	2.4	9.0	7.9
-75	-250	-75	55627.2	21.1	7.7	325.3	1.3	9.1	8.5
-62.5	-250	-62.5	55526.5	19.4	6.0	323.7	-0.3	8.4	8.7
-50	-250	-50	55627.1	19.6	5.6	323.7	-0.3	7.3	8.9
-37.5	-250	-37.5	55896.5	17.1	5.0	322.3	-3.2	6.5	8.7
-25	-250	-25	56035.0	17.0	3.8	324.3	-3.6	5.6	8.8
-12.5	-250	-12.5	56090.2	14.0	2.5	319.0	-3.5	4.6	8.8
0	-250	0	55714.1	12.9	2.3	321.1	-5.1	3.4	8.9
line	-200								
-125	-200	-125	56353.0	19.2	10.8	310.8	6.2	6.2	8.3
-112.5	-200	-112.5	56146.7	17.6	9.2	315.1	1.8	11.1	8.2
-100	-200	-100	55957.7	18.3	9.2	319.3	3.0	10.7	8.3
-87.5	-200	-87.5	55998.1	19.0	9.4	320.3	4.0	11.4	8.4
-75	-200	-75	56743.3	18.3	9.5	319.2	3.8	11.9	8.4
-62.5	-200	-62.5	56384.9	17.0	9.1	320.6	3.2	11.1	8.5

-50	-200	-50	55662.6	12.6	7.6	323.8	2.0	9.0	8.8
-37.5	-200	-37.5	55638.1	12.7	7.1	324.2	0.0	8.4	8.9
-25	-200	-25	55511.6	11.7	6.9	324.3	-0.3	5.3	9.0
-12.5	-200	-12.5	55497.3	11.8	5.9	325.3	-0.4	5.6	9.1
0	-200	0	55502.4	12.3	6.4	323.3	1.0	5.9	9.1
line	-150								
-275	-150	-275	55679.4	33.5	12.6	332.2	4.4	7.1	6.9
-262.5	-150	-262.5	55649.0	33.8	13.3	333.1	7.0	6.4	7.1
-250	-150	-250	55566.0	30.7	12.5	334.0	3.2	7.9	7.1
-237.5	-150	-237.5	55561.7	30.5	10.9	332.9	5.2	4.8	7.4
-225	-150	-225	55606.6	28.9	9.4	330.4	1.7	6.2	7.3
-212.5	-150	-212.5	55739.5	28.1	10.3	328.4	1.3	7.1	7.5
-200	-150	-200	55738.1	26.7	9.0	329.1	1.0	6.4	7.6
-187.5	-150	-187.5	55702.0	24.8	8.4	329.8	0.6	6.7	7.6
-175	-150	-175	55942.0	22.6	6.7	325.2	0.2	5.7	7.6
-162.5	-150	-162.5	55968.5	20.9	5.1	325.7	0.3	4.7	7.7
-150	-150	-150	56051.3	19.1	4.8	325.7	0.3	6.8	7.8
-137.5	-150	-137.5	56108.7	17.3	3.3	328.0	0.6	6.3	7.7
-125	-150	-125	56317.7	17.7	3.9	322.0	0.8	5.9	7.9
-112.5	-150	-112.5	56090.7	16.2	3.1	321.8	0.0	5.3	7.8
-100	-150	-100	55960.1	14.9	2.8	322.1	-1.9	3.6	7.8
-87.5	-150	-87.5	56032.9	15.1	2.6	322.0	-1.3	2.8	7.7
-75	-150	-75	56530.4	16.4	5.5	323.4	0.8	6.4	7.7
-62.5	-150	-62.5	56724.2	16.1	5.6	323.4	1.9	7.5	7.8
-50	-150	-50	55874.8	13.9	6.8	324.7	1.5	7.0	8.0
-37.5	-150	-37.5	55633.1	13.2	5.9	325.7	2.0	7.1	8.1
-25	-150	-25	55776.8	11.9	6.0	329.1	1.7	7.2	8.1
-12.5	-150	-12.5	55526.9	11.0	4.8	327.7	1.5	6.3	8.3
0	-150	0	55511.4	10.6	6.2	331.2	0.1	6.4	8.5
line	-100								
-300	-100	-300	55671.6	29.9	5.7	329.9	-4.0	4.4	6.8
-287.5	-100	-287.5	55632.3	28.2	4.7	330.4	-3.1	4.1	6.9
-275	-100	-275	55528.0	28.6	4.9	330.4	-1.1	5.4	7.1
-262.5	-100	-262.5	55521.1	29.7	4.5	332.3	-3.5	7.1	7.8
-250	-100	-250	55603.2	28.3	4.5	330.5	-1.9	4.7	7.2
-237.5	-100	-237.5	55872.6	28.2	4.3	327.5	-1.8	6.1	7.4
-225	-100	-225	55935.4	27.3	2.8	326.6	-1.6	4.8	7.4
-212.5	-100	-212.5	55870.1	25.8	2.3	324.7	-1.5	4.5	7.5
-200	-100	-200	55905.7	23.7	2.5	324.6	-2.8	4.1	7.5
-187.5	-100	-187.5	56074.5	23.2	2.0	324.1	-3.0	4.6	7.5
-175	-100	-175	56236.4	23.3	2.2	325.2	-1.9	5.7	7.6
-162.5	-100	-162.5	56233.2	22.0	2.4	325.0	-1.3	5.7	7.6
-150	-100	-150	56022.2	19.4	1.7	325.3	-1.5	5.7	7.7
-137.5	-100	-137.5	56033.1	19.1	1.6	324.7	-2.0	6.1	7.8
-125	-100	-125	56252.5	17.8	1.6	324.8	-1.4	6.3	7.8
-112.5	-100	-112.5	56493.3	18.2	2.8	325.5	-1.7	6.2	7.8
-100	-100	-100	56155.1	17.8	1.0	323.8	-0.7	5.4	8.0
-87.5	-100	-87.5	56120.8	15.9	0.1	328.2	9	4.0	8.1
-75	-100	-75	56134.1	14.6	0.3	329.0	-2.1	3.7	8.1
-62.5	-100	-62.5	56072.2	10.7	2.0	324.6	-4.7	5.4	8.1
-50	-100	-50	55586.4	10.4	2.3	325.9	-4.2	4.4	8.0
-37.5	-100	-37.5	55439.4	7.9	2.7	328.1	-4.8	5.0	8.2
-25	-100	-25	55667.3	9.4	4.1	329.0	-2.8	5.2	8.2
-12.5	-100	-12.5	55447.0	11.7	4.3	331.1	-0.8	5.1	8.3
0	-100	0	55519.5	11.5	5.3	333.3	-1.0	5.8	8.5
line	-50								

-300	-50	-300	55575.1	29.3	5.5	330.1	0.6	1.6	7.3
-287.5	-50	-287.5	55570.8	28.6	5.0	327.0	2.6	1.4	7.3
-275	-50	-275	55482.9	24.9	3.5	328.7	2.0	3.1	7.1
-262.5	-50	-262.5	55485.9	25.3	3.7	327.0	0.9	3.6	7.2
-250	-50	-250	55541.5	25.2	4.5	322.2	1.0	3.3	7.3
-237.5	-50	-237.5	55730.5	25.5	3.1	325.9	0.2	3.1	7.3
-225	-50	-225	55789.7	23.0	3.3	325.9	-0.4	3.9	7.4
-212.5	-50	-212.5	55880.5	23.1	3.0	327.5	1.0	3.6	7.6
-200	-50	-200	55893.4	21.4	2.4	325.7	0.0	4.3	7.4
-187.5	-50	-187.5	55893.2	20.7	1.8	326.5	0.3	3.4	7.5
-175	-50	-175	56048.1	20.1	1.4	327.8	0.0	3.1	7.6
-162.5	-50	-162.5	56053.1	18.3	0.8	327.9	0.3	3.0	7.7
-150	-50	-150	56150.8	18.1	0.5	327.5	0.0	2.3	7.8
-137.5	-50	-137.5	57689.2	19.2	0.8	324.7	0.5	4.1	7.8
-125	-50	-125	56494.6	14.9	1.9	322.4	0.6	4.2	7.8
-112.5	-50	-112.5	56156.1	14.7	2.8	326.4	1.0	4.7	7.9
-100	-50	-100	55240.4	12.5	3.3	330.8	0.0	5.7	8.0
-87.5	-50	-87.5	54984.9	12.2	3.0	337.0	0.5	5.6	8.3
-75	-50	-75	55467.7	12.5	3.5	335.9	1.1	4.5	8.2
-62.5	-50	-62.5	55987.0	13.1	4.1	335.6	2.4	5.2	8.2
-50	-50	-50	55368.6	12.4	6.4	341.6	3.6	6.9	8.5
-37.5	-50	-37.5	55321.2	13.3	7.0	338.8	4.7	7.2	8.4
-25	-50	-25	55464.4	12.6	7.3	338.8	3.8	7.3	8.6
-12.5	-50	-12.5	55347.6	11.8	6.3	335.7	4.0	6.0	8.5
0	-50	0	55566.3	11.5	9.6	332.9	4.6	7.7	8.5
line 0									
-300	0	-300	55405.8	27.3	2.1	329.9	-4.8	2.6	7.3
-287.5	0	-287.5	55473.5	24.7	1.0	327.5	-5.1	2.3	7.3
-275	0	-275	55518.0	23.8	0.1	325.6	-3.3	2.3	7.4
-262.5	0	-262.5	55380.1	24.3	-0.7	328.8	-4.2	1.9	7.4
-250	0	-250	55459.7	25.9	-0.1	328.0	-4.7	1.5	7.5
-237.5	0	-237.5	55544.7	23.7	-0.2	332.6	-5.6	1.6	7.6
-225	0	-225	55687.8	22.3	-0.3	333.2	-4.6	2.6	7.6
-212.5	0	-212.5	55523.3	21.4	-0.3	330.9	-3.9	3.5	7.8
-200	0	-200	55449.3	19.0	0.0	332.1	-4.5	3.3	7.9
-187.5	0	-187.5	55559.9	20.9	-0.1	331.8	-3.3	3.9	7.9
-175	0	-175	55355.4	19.5	0.4	335.7	-1.5	4.4	8.0
-162.5	0	-162.5	55532.7	18.9	1.5	337.6	-1.7	4.5	8.0
-150	0	-150	55587.8	18.5	1.7	338.2	-1.1	5.3	8.1
-137.5	0	-137.5	55383.3	19.5	2.5	337.9	-0.1	5.3	8.2
-125	0	-125	55907.9	21.7	3.6	340.5	1.3	5.9	8.3
-112.5	0	-112.5	55298.2	20.1	6.0	340.7	1.6	8.0	8.3
-100	0	-100	55371.0	19.9	7.0	341.8	2.0	9.0	8.6
-87.5	0	-87.5	55158.0	19.5	8.9	342.5	1.9	9.7	8.5
-75	0	-75	55278.7	18.5	9.5	341.5	3.4	10.5	8.6
-62.5	0	-62.5	55169.4	16.9	10.3	337.0	1.6	10.0	8.7
-50	0	-50	55222.0	17.4	10.0	338.7	3.2	10.1	8.7
-37.5	0	-37.5	55270.6	17.7	11.4	355.3	3.1	10.5	10.7
-25	0	-25	55283.8	15.7	10.5	358.4	3.6	9.1	10.3
-12.5	0	-12.5	55277.8	12.6	11.2	355.9	2.1	8.1	10.4
0	0	0	55295.7	12.5	9.9	355.3	2.4	6.2	10.4
line -550									
-250	-550	-250	56148.1	24.3	8.1	370.3	-7.2	-5.2	8.3
-237.5	-550	-237.5	56203.9	25.0	6.5	363.4	-7.0	-4.2	8.2
-225	-550	-225	56224.0	22.9	5.3	362.5	-9.2	-5.5	8.2
-212.5	-550	-212.5	56137.1	23.0	4.7	350.7	-7.0	-4.6	8.4

-200	-550	-200	56103.2	22.8	3.2	342.3	-6.8	-5.5	8.3
-187.5	-550	-187.5	56241.3	20.0	2.7	343.7	-9.9	-3.2	8.7
-175	-550	-175	55976.0	19.6	1.4	339.2	-11.7	-4.6	8.4
-162.5	-550	-162.5	55949.1	18.1	2.5	336.9	-11.2	-4.1	8.4
-150	-550	-150	55912.7	18.8	0.8	332.4	-10.1	-4.1	8.5
-137.5	-550	-137.5	55907.0	18.4	2.8	332.6	-10.1	-5.0	8.5
-125	-550	-125	55972.6	16.1	2.0	328.2	-10.3	-2.6	8.5
line	-500								
-250	-500	-250	56142.1	30.3	4.6	357.9	-9.4	-3.9	8.3
-237.5	-500	-237.5	56494.0	30.4	3.0	354.4	-8.4	-2.6	8.4
-225	-500	-225	56404.0	28.4	1.5	349.1	-9.9	-4.8	8.3
-212.5	-500	-212.5	55767.9	26.2	0.2	341.3	-10.9	-3.3	8.4
-200	-500	-200	55882.9	26.1	0.4	342.2	-10.4	-3.7	8.4
-187.5	-500	-187.5	56161.8	25.0	-0.3	338.1	-11.9	-4.5	8.4
-175	-500	-175	56068.6	24.8	0.7	334.0	-11.4	-5.2	8.4
-162.5	-500	-162.5	55875.4	21.8	0.3	331.2	-13.5	-3.7	8.3
-150	-500	-150	56003.9	21.3	-0.7	326.9	-12.9	-3.5	8.3
-137.5	-500	-137.5	55953.8	19.7	-1.6	323.5	-12.1	-4.5	8.4
-125	-500	-125	55769.3	19.4	-1.8	323.5	-12.7	-3.0	8.4
-112.5	-500	-112.5	55908.0	16.9	-1.8	327.3	-13.6	-3.3	8.5
-100	-500	-100	55935.6	16.6	-2.3	322.5	-14.4	-4.5	8.6
line	-450								
-275	-450	-275	56261.5	28.5	8.1	368.9	-1.8	-3.1	8.4
-262.5	-450	-262.5	56314.2	26.4	4.5	366.0	-3.8	-2.8	8.4
-250	-450	-250	56274.0	26.5	5.6	360.3	-2.4	-2.9	8.5
-237.5	-450	-237.5	56204.4	24.2	2.6	355.3	-3.7	-4.1	8.4
-225	-450	-225	56119.5	21.1	-0.4	355.1	-7.8	-4.1	8.5
-212.5	-450	-212.5	56076.3	21.7	-0.6	352.2	-7.4	-4.5	8.4
-200	-450	-200	56294.5	20.6	-0.1	344.3	-5.5	-3.7	8.5
-187.5	-450	-187.5	55950.3	19.8	0.3	342.9	-6.9	-5.8	8.4
-175	-450	-175	56052.2	18.1	-0.4	342.8	-9.1	-5.4	8.5
-162.5	-450	-162.5	56096.3	19.0	0.3	339.7	-7.2	-5.5	8.5
-150	-450	-150	55912.2	17.2	0.2	339.4	-8.8	-4.6	8.4
-137.5	-450	-137.5	55647.8	15.8	0.6	340.2	-9.0	-3.9	8.6
-125	-450	-125	55677.7	14.6	0.7	337.1	-8.6	-3.5	8.5
-112.5	-450	-112.5	55836.3	14.2	0.9	335.3	-9.5	-3.8	8.6
-100	-450	-100	55413.2	14.4	0.3	337.7	-8.1	-4.3	9.7
-87.5	-450	-87.5	55472.7	12.9	-0.8	336.4	-9.4	-4.0	8.8
-75	-450	-75	55447.1	12.2	-1.1	336.9	-9.2	-4.6	8.9
-62.5	-450	-62.5	55361.0	11.2	-2.1	338.8	-10.9	-5.2	8.8
-50	-450	-50	55626.2	10.6	-1.8	334.1	-10.9	-5.4	8.9
-37.5	-450	-37.5	55638.0	9.4	-2.2	331.3	-10.6	-6.6	8.9
-25	-450	-25	55475.3	7.1	-3.6	332.0	-11.6	-7.3	9.0
-12.5	-450	-12.5	55486.4	4.6	-3.0	330.4	-14.8	-6.8	8.9
0	-450	0	55476.4	3.5	-2.8	329.0	-15.5	-6.9	8.9
line	-400								
-150	-400	-150	55813.0	23.1	-1.4	334.7	-8.2	-3.2	8.6
-137.5	-400	-137.5	55815.1	24.6	-0.8	338.0	-5.5	-1.8	8.5
-125	-400	-125	55784.6	21.7	-2.4	333.0	-7.9	-3.1	8.6
-112.5	-400	-112.5	55832.8	21.1	-2.4	328.2	-7.7	-1.6	8.6
-100	-400	-100	55724.8	19.5	-2.3	329.2	-7.3	-2.1	9.0
-87.5	-400	-87.5	55439.0	17.2	-1.7	326.4	-10.6	-2.1	8.7
-75	-400	-75	55601.5	18.4	-4.8	323.0	-8.8	-3.0	8.8
-62.5	-400	-62.5	55741.7	13.7	-3.7	321.6	-11.0	-3.3	8.9
-50	-400	-50	55578.0	13.8	-4.1	319.7	-12.5	-3.3	8.9
-37.5	-400	-37.5	55600.5	12.2	-4.4	317.6	-11.5	-4.6	8.9

-25	-400	-25	55412.5	11.4	-4.6	314.5	-12.7	-4.2	8.9
-12.5	-400	-12.5	55375.9	12.3	-3.9	313.1	-12.3	-4.0	8.9
0	-400	0	55444.6	9.1	-4.4	311.3	-17.2	-5.9	8.8

DATA LISTING

Line & Station + = Northings and Eastings
- = Southings and Westings

Area : Port Alberni
Grid : Middle Vein
Date : June, 1991

Data Type(s)	Data Details
#1. Total Field Magnetic Values	Corrected Total field
#2. VLF-EM In-Phase Values	Westerly using Annapolis station
#3. VLF-EM Quadrature (out of Phase)	Westerly using Annapolis station
#4. VLF-EM Field Strength	Annapolis Total Field Strength
#5. VLF-EM In-phase Values	Westerly using Hawaiian station
#6. VLF-EM Quadrature (out of Phase)	Westerly using Hawaiian station
#7. VLF-EM Field Strength	Hawaii Total Field Strength

The instrument used was the EDA VLF-EM/Magnetic System in gathering all of the above data types.

line 0
-50 0 -50 56181.4 5.3 14.5 7.17
-10.2 1.3 10.65
-37.5 0 -37.5 56235.3 4.9 14.3 7.26
-8.900001 1.3 11.45
-25 0 -25 56213.1 5.8 13.6 7.55
-6.5 .9 11.99
-12.5 0 -12.5 56173.5 5.8 13.1 7.44
-6.4 .3 11.96
0 0 0 56000.91 * * *
* * *
line -50
-150 -50 -150 56034.3 -14.1 .7 6.97
-16.9 8.6 11.29
-137.5 -50 -137.5 56010.8 -16.3 3.8 6.8
-21.3 7.2 10.72
-125 -50 -125 56036 -21.8 3.2 6.67
-27.1 6.2 10.62
-112.5 -50 -112.5 56081 -15.5 3.3 6.82
-29 5.1 10.99
-100 -50 -100 56210.6 -13.6 5.2 6.82
-27.9 4.1 11.41
-87.5 -50 -87.5 56556.8 -13.7 5.5 6.94
-30.4 2.7 11.46
-75 -50 -75 55742.4 -11.7 5.9 7.17
-25.9 1.2 11.51
-62.5 -50 -62.5 56052.2 -10 6 7.1
-27.1 0 11.6
-50 -50 -50 56076.4 -7.8 6.4 7.19
-19.4 .1 13.33
-37.5 -50 -37.5 56157.7 -11.9 5.3 7.11
-31.3 -1.6 11.81
-25 -50 -25 56276.7 -7.5 4.3 7.21
-33.2 -2.3 12.47
-12.5 -50 -12.5 56390 -8.400001 4 7.04
-36.7 -2.5 12.52
0 -50 0 56192.8 -8.400001 4.3 7.26
-34.8 -3.5 12.14
12.5 -50 12.5 55964.8 -9.2 2.9 7.39
-40.2 -6.5 12.94
25 -50 25 55968.3 -7.9 2.8 7.22
-38.4 -4.8 14.05
37.5 -50 37.5 55756.7 -2.2 6.3 7.36
-26.9 -3.8 14.61
line -100
-125 -100 -125 56379.4 -12.2 -4.8 6.59
-8.7 4.5 13.23
-112.5 -100 -112.5 56025.1 -11.3 -5.5 6.88
7.2 5.5 12.81
-100 -100 -100 56252 -8.8 -3.4 6.67
2.6 1.9 11.63
-87.5 -100 -87.5 56385.9 -7 -2.3 6.66

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-.7        -1         11.14
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1.8        -5.3       11.18
      -50        -100        -50    56058.5     -3       -1.1     6.29
-9.7       -9         10.33
      -37.5      -100        -37.5  56118.2     -5.1     -1.7     7.12
-4.2       -8.5       11.4
      -25        -100        -25    56173.7     -3.7     -1.8     6.82
-2.8       -9.3       10.95
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-9.1       -9.8       11.6
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-9.900001      -9.1       11.53
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-15.9      -9.3       11.33
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-16.7 -9.900001       11.33
      75         -100        75     55837.7     -.4      -.3      6.91
-22.5      -12.8      10.79
      87.5       -100        87.5   55878.7     -2.1     .7       7.21
-20.6      -11.9      11.52
      100        -100        100    55855.4     -2       3.1      7.28
-29.2      -11.1      11.5
      line       -150
      -112.5     -150        -112.5 56051.2     -17.4    -5.5     6.93
-13.3      10.1       10.96
      -100       -150        -100   56068.4     -20.9    -5.7     6.81
-21.2      8.3        10.5
      -87.5      -150        -87.5  56065.6     -17.9    -5.4     6.96
-27.7      5.5        11.61
      -75        -150        -75    56098.4     -14.5    -4.4     7.1
-14.4      2.5        12.52
      -62.5      -150        -62.5  56116       -16.1    -4.3     6.93
-20.2      -1.4       12.53
      -50        -150        -50    56138.2     -17.4    -4.4     6.94
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-26.2      -5.2       11.29
      -25        -150        -25    56235       -18.2    -3.9     7.06
-34.4      -7.6       11.71
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-29.5      -11.6      10.74
      0          -150        0      56190.7     -19.4    -4.3     6.93
-39.3      -13.7      11.4
      12.5       -150        12.5   55989.8     -20.4    -5.9     7.18
-45.3      -12.6      12.89
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37.5	-150	37.5	56137.8	-21.7	-6.4	6.98	-48.3	-15	11.92
50	-150	50	56105.8	-21.9	-6.5	7.13	-43.5	-13.2	11.65
62.5	-150	62.5	55983.1	-17.2	-6.5	7.06	-39.2	-12.9	11.95
75	-150	75	55890.5	-19.8	-7.1	7.23	-42.9	-12.2	12.26
87.5	-150	87.5	55711.2	-16.2	-6.5	7.29	-38	-11.7	12.11
100	-150	100	55817.2	-15.5	-3.1	6.84	-52.9	-15.7	12.2
112.5	-150	112.5	55898.3	-12.6	-3.7	6.87	-51.8	-16.5	11.53
line	-200								
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-162.5	-200	-162.5	56784.1	-11.2	-8.8	6.49	29.2	20.7	11
-150	-200	-150	56618.1	-13.3	-7.7	6.45	24.1	20.8	10.89
-137.5	-200	-137.5	56058.1	-13.8	-8.3	6.58	27.3	20.6	12.49
-125	-200	-125	56026.8	-12.7	-7.1	6.58	24.4	18.5	11.57
-112.5	-200	-112.5	56067.9	-16.9	-8.3	6.62	10	13.8	11.1
-100	-200	-100	56107.3	-14.8	-7.6	6.77	17.3	13.3	11.72
-87.5	-200	-87.5	56140.4	-17.4	-6.7	6.8	4.6	10.3	13.2
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-12.5	-200	-12.5	56242.4	-15.4	-9.400001	7.07	-16.7	-13	12.44
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12.5	-200	12.5	56173.8	-13.9	-9.5	6.94	-15.4	-14.7	12.52
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-25.2 -12.3 12.94
62.5 -300 62.5 55883.3 -13.2 -5.8 9.82
-24 -13.6 12.83
75 -300 75 55712.4 -14.4 -4.9 10.32
-26.3 -10.7 13.89
87.5 -300 87.5 56258.8 -14.1 -5.2 10.36
-28.4 -12.3 13.55
100 -300 100 57613.3 -14.7 -4.9 10.25
-24.2 -12.6 15
112.5 -300 112.5 55426.1 -14 -4.7 10.27
-23.8 -12.6 14.62
125 -300 125 55668.4 -13.8 -5.4 10.39
-25.8 -12.9 14.52
line -350
-150 -350 -150 56043.7 -9.5 .6 9.58
8.900001 12.8 18.98
-137.5 -350 -137.5 55999.8 -9.900001 .5 9.71
7.7 12.4 19.3
-125 -350 -125 56075.3 -10.1 .8 9.58
6.7 11.8 19.16
-112.5 -350 -112.5 55882.1 -10.7 .1 9.76
5.3 11.9 19.45
-100 -350 -100 55873.9 -10.2 .6 9.8
5.2 11 19.78
-87.5 -350 -87.5 55881.4 -11.2 -.5 9.83
2.5 9.400001 20.11
-75 -350 -75 55888.7 -11.3 -1.1 9.88
-1.5 5.9 20.33

-62.5	-350	-62.5	56539.4	-11.6	-2.3	9.76	-5.6	4.2	19.94
-50	-350	-50	56350.8	-12.8	-3.4	9.77	-8.6	1.4	19.7
-37.5	-350	-37.5	56134.4	-13.3	-3.6	9.86	-10.6	-.3	19.84
-25	-350	-25	56129	-14.8	-4.8	9.87	-14.2	-2.5	19.49
-12.5	-350	-12.5	56301.7	-14.1	-4.9	9.92	-15.9	-5	18.9
0	-350	0	55813.1	-14.1	-4.5	9.969999	-15.3	-4.8	18.59
12.5	-350	12.5	56016.5	-14.7	-3.7	9.79	-19.2	-4.8	18.15
25	-350	25	56100	-13.5	-4.3	9.73	-20.3	-4.4	17.6
37.5	-350	37.5	56982	-13.7	-4.2	9.59	-21.8	-5.5	17.23
50	-350	50	56537.3	-14.6	-4.3	9.92	-21.3	-6.5	17.33
62.5	-350	62.5	55891	-13.7	-4	9.82	-20.5	-6.2	17.12
75	-350	75	55604	-15	-4	10.01	-22.7	-6.2	17
87.5	-350	87.5	55400.4	-13.9	-4.1	10.03	-24.9	-6.2	16.97
100	-350	100	55725.6	-14.6	-4.1	10.14	-24.7	-7.2	16.65
line	-400								
-150	-400	-150	55843.3	-8.6	.7	9.54	7.4	13.8	19.21
-137.5	-400	-137.5	55831.9	-9.7	.5	9.37	5.6	13.5	19.53
-125	-400	-125	55864.1	-9.5	-.2	9.42	4.9	12.5	19.61
-112.5	-400	-112.5	55989.8	-9.7	-.3	9.36	4.5	12.5	19.51
-100	-400	-100	55996.5	-11.1	-.7	9.52	2.8	12.2	19.83
-87.5	-400	-87.5	56291.5	-11.6	-1.4	9.52	-.6	10	19.71
-75	-400	-75	56274.2	-12.2	-1.5	9.45	-.7	10.1	20.02
-62.5	-400	-62.5	56063.8	-11.7	-1.9	9.599999	-2.8	7.8	20.11
-50	-400	-50	55998.4	-12.1	-3.4	9.65	-7.5	3.9	21.3
-37.5	-400	-37.5	55953.4	-12.8	-3.5	10.19	-10.9	1.6	26.23
-25	-400	-25	55949.2	-14	-3.5	10.64	-14.5	-1.1	29.22
-12.5	-400	-12.5	56025.3	-13	-3.9	10.76	-15.1	-1.8	29.42
0	-400	0	56031	-13.7	-4.3	10.97			

-16.6	-2.6	29.49					
12.5	-400	12.5	56107	-14.9	-4.5	11.01	
-17.7	-2.8	29.01					
25	-400	25	56249.9	-14.5	-4.7	11.11	
-19.5	-3.5	28.41					
37.5	-400	37.5	56181	-15.5	-4.3	11.13	
-21.8	-3.6	28.39					
50	-400	50	56172.1	-15.6	-3.8	11.13	
-22.2	-4.3	28.12					
62.5	-400	62.5	56388.7	-15.9	-4	11.11	
-23	-4.5	27.98					
line	-450						
-175	-450	-175	55814.7	-8.3	3.4	9.15	
8.5	13.4	22.69					
-162.5	-450	-162.5	55791.9	-8.1	3.2	9.22	
7.9	13.4	23.11					
-150	-450	-150	55792.8	-8.1	4.2	9.099999	
6.9	13.7	23.34					
-137.5	-450	-137.5	55798.3	-9	2.9	9.21	
5.7	12.7	23.6					
-125	-450	-125	55899	-9.1	.9	9.19	
4.8	11.2	23.8					
-112.5	-450	-112.5	55863.3	-9.8	1.7	9.309999	
3.2	10.7	23.85					
-100	-450	-100	56303	-9.7	.7	9.3	
2.4	9.8	24.21					
-87.5	-450	-87.5	56684.5	-10.3	-.1	9.469999	
.3	8.400001	24.66					
-75	-450	-75	56199.1	-11	-.8	9.46	
-1.5	7	24.75					
-62.5	-450	-62.5	56197.1	-11.7	-1.7	9.66	
-3.6	5.7	25.06					
-50	-450	-50	55939.3	-11.7	-1.9	9.71	
-6.5	2.7	25.44					
-37.5	-450	-37.5	55989	-12.4	-1.8	9.71	
-8.2	1.2	25.36					
-25	-450	-25	55970	-12.6	-2	9.76	
-11.2	-1	25.63					
-12.5	-450	-12.5	55892.7	-13.6	-2.1	9.88	
-13	-2.4	26.43					
0	-450	0	55985.1	-12.8	-3.8	10.04	
-14.9	-2.7	26.78					
12.5	-450	12.5	56104.4	-14.7	-3	10.2	
-17.1	-3.7	27.65					
25	-450	25	56250.6	-14.2	-3.2	10.37	
-18.5	-3.5	27.72					
37.5	-450	37.5	56628.5	-15.3	-3.7	10.32	
-19.4	-4.5	27.83					
50	-450	50	56621.1	-15.2	-3.9	10.42	
-21.7	-4.2	27.93					
62.5	-450	62.5	56799.9	-15.6	-4.6	10.54	
-21.6	-6	28.5					
75	-450	75	56464.2	-16.4	-4.9	10.59	
-24.1	-8.1	28.36					

line	-500								
-175	-500	-175	55802.5	-9.6	.7	8.99	7.3	12.9	22.37
-162.5	-500	-162.5	55777.5	-9.6	1.5	8.96	5.9	12.3	22.51
-150	-500	-150	55761.1	-9.3	.9	9.05	4.3	12	22.41
-137.5	-500	-137.5	55744.9	-10.6	0	8.88	2.1	11.4	22.45
-125	-500	-125	55750.4	-11.2	-.5	8.889999	1.1	11.3	22.26
-112.5	-500	-112.5	56294.6	-10.9	-1.8	8.97	.3	11.2	22.08
-100	-500	-100	55876.4	-10.7	-1.2	8.79	-.2	10.6	22.18
-87.5	-500	-87.5	55914.1	-11.7	-1.5	8.9	-1.6	9.900001	21.96
-75	-500	-75	56573.5	-13.6	-2.3	8.639999	-3.5	9	21.82
-62.5	-500	-62.5	56433.5	-12.6	-3.4	8.91	-4.5	7.8	21.67
-50	-500	-50	56244.6	-13	-2.2	8.91	-5.7	6.4	21.53
-37.5	-500	-37.5	56220	-13.5	-4	8.889999	-8.5	4.1	21.57
-25	-500	-25	55868.1	-13.9	-4.4	8.99	-9.8	2.8	21.69
-12.5	-500	-12.5	55807.2	-17.2	-6.1	7.54	-12.5	.7	21.33
0	-500	0	55815.8	-18	-5.8	7.94	-14.6	-1.4	21.99
12.5	-500	12.5	55930.5	-19.4	-6.3	7.84	-16.7	-1.6	21.7
25	-500	25	55901.6	-19.1	-3.2	8.679999	-18.1	-3.6	21.68
37.5	-500	37.5	55978.4	-20	-6.8	7.57	-21.4	-4.5	21.34
50	-500	50	56093.1	-21.4	-6.9	7.64	-24.9	-6	21.53
62.5	-500	62.5	56322.6	-21.2	-9	7.58	-27.3	-8.7	21.21
75	-500	75	56354.2	-22.6	-8.900001	7.96	-27.6	-8	20.88
87.5	-500	87.5	55746.9	-22.3	-9.8	7.8	-29.3	-8.8	20.82
line	-550								
-175	-550	-175	55768.5	-9.7	4.1	7.31	11.8	15.3	21.21
-162.5	-550	-162.5	55779.4	-9.6	3	7.28	9.5	13.2	21.9
-150	-550	-150	55787.4	-10.5	2.9	7.39	7.8	12.3	22.45
-137.5	-550	-137.5	55821.8	-10.3	3.1	7.69	5.7	12	23.19

-125	-550	-125	55829.5	-9.400001	2.5	7.72	5.7	12	23.7
-112.5	-550	-112.5	55939.1	-10.4	1.8	7.77	2.2	10.1	23.57
-100	-550	-100	55986.2	-11	2.1	7.78	.7	9.3	23.82
-87.5	-550	-87.5	55985.9	-11.6	1	7.73	0	9.400001	23.8
-75	-550	-75	55889.8	-10.9	-.1	7.93	-1.4	7.8	24.03
-62.5	-550	-62.5	56533.2	-10	-1.2	7.9	-2.5	7.1	23.87
-50	-550	-50	56170.8	-13.2	-1.3	7.82	-4.8	5.8	23.8
-37.5	-550	-37.5	56399.6	-12.5	-2.9	7.7	-6.3	2.9	23.77
-25	-550	-25	56099.5	-14.9	-3.3	7.63	-9	1.3	23.58
-12.5	-550	-12.5	55754.9	-14	-2.7	8.37	-10.7	0	24.45
0	-550	0	55753.1	-15.6	-6.2	7.77	-12.9	-2.5	24.23
12.5	-550	12.5	55776.3	-16.7	-4.9	7.8	-15	-3.6	24.19
25	-550	25	55718.2	-17.6	-6.5	7.82	-16.4	-5	23.97
37.5	-550	37.5	55711.4	-17.8	-7	8.04	-18.2	-6.1	24.62
50	-550	50	55803.5	-19.6	-8.1	7.96	-21	-7.7	24.66
62.5	-550	62.5	55952.3	-20.6	-9.1	8.24	-25.4	-10	24.31
75	-550	75	56065.2	-22.3	-8.5	8.04	-27.8	-10.4	23.95
87.5	-550	87.5	56365.6	-20.1	-10.2	7.8	-30.2	-12.6	22.22

APPENDIX E

GEOPHYSICAL EQUIPMENT SPECIFICATIONS

OMNI PLUS
VLF/Magnetometer System

EDA

Specifications*

Frequency Tuning Range	15 to 30 kHz, with bandwidth of 150 Hz; tuning range accommodates new Puerto Rico station at 28.5 kHz
Transmitting Stations Measured	Up to 3 stations can be automatically measured at any given grid location within frequency tuning range
Recorded VLF Magnetic Parameters	Total field strength, total dip, vertical quadrature (or alternately, horizontal amplitude)
Standard Memory Capacity	800 combined VLF magnetic and VLF electric measurements as well as gradiometer and magnetometer readings
Display	Custom designed, ruggedized liquid crystal display with built-in heater and an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal strength status monitor and function descriptors.
RS232C Serial I/O Interface	2400 baud rate, 8 data bits, 2 stop bits, no parity
Test Mode	A. Diagnostic Testing (data and programmable memory) B. Self Test (hardware)
Sensor Head	Contains 3 orthogonally mounted coils with automatic tilt compensation
Operating Environmental Range	−40°C to +55°C; 0 – 100% relative humidity; Weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid 18V DC battery cartridge or belt; 18V DC disposable battery belt; 12V DC external power source for base station operation only.
Weights and Dimensions	
Instrument Console	2.8 kg, 128 x 150 x 250 mm
Sensor Head	2.1 kg, 130 dia. x 130 mm
VLF Electronics Module	1.1 kg, 40 x 150 x 250 mm
Lead Acid Battery Cartridge	1.8 kg, 235 x 105 x 90 mm
Lead Acid Battery Belt	1.8 kg, 540 x 100 x 40 mm
Disposable Battery Belt	1.2 kg, 540 x 100 x 40 mm

*Preliminary

EDA Instruments Inc.,
4 Thorncliffe Park Drive,
Toronto, Ontario
Canada M4H 1H1
Telex: 06 23222 EDA TOR.
Cables: Instruments Toro
(416) 425-7800

In USA,
EDA Instruments Inc.,
5151 Ward Road,
Wheat Ridge, Colorado
U.S.A. 80033
(303) 422-9112

Printed in Canada

OMNI IV 'Tie-Line' Magnetometer

Specifications

Dynamic Range	18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.
Tuning Method	Tuning value is calculated accurately utilizing a specially developed tuning algorithm
Automatic Fine Tuning	± 15% relative to ambient field strength of last stored value
Display Resolution	0.1 gamma
Processing Sensitivity	± 0.02 gamma
Statistical Error Resolution	0.01 gamma
Absolute Accuracy	± 1 gamma at 50,000 gammas at 23°C ± 2 gamma over total temperature range
Standard Memory Capacity	
Total Field or Gradient	1,200 data blocks or sets of readings
Tie-Line Points	100 data blocks or sets of readings
Base Station	5,000 data blocks or sets of readings
Display	Custom-designed, ruggedized liquid crystal display with an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.
RS 232 Serial I/O Interface	2400 baud, 8 data bits, 2 stop bits, no parity
Gradient Tolerance	6,000 gammas per meter (field proven)
Test Mode	A. Diagnostic testing (data and programmable memory) B. Self Test (hardware)
Sensor	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Gradient Sensors	0.5 meter sensor separation (standard), normalized to gammas/meter. Optional 1.0 meter sensor separation available. Horizontal sensors optional.
Sensor Cable	Remains flexible in temperature range specified, includes strain-relief connector
Cycling Time (Base Station Mode)	Programmable from 5 seconds up to 60 minutes in 1 second increments
Operating Environmental Range	−40°C to +55°C; 0–100% relative humidity; weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid battery cartridge or belt; rechargeable NiCad or Disposable battery cartridge or belt; or 12V DC power source option for base station operation.
Battery Cartridge/Belt Life	2,000 to 5,000 readings, for sealed lead acid power supply, depending upon ambient temperature and rate of readings
Weights and Dimensions	
Instrument Console Only	2.8 kg, 238 x 150 x 250mm
NiCad or Alkaline Battery Cartridge	1.2 kg, 235 x 105 x 90mm
NiCad or Alkaline Battery Belt	1.2 kg, 540 x 100 x 40mm
Lead-Acid Battery Cartridge	1.8 kg, 235 x 105 x 90mm
Lead-Acid Battery Belt	1.8 kg, 540 x 100 x 40mm
Sensor	1.2 kg, 56mm diameter x 200mm
Gradient Sensor (0.5 m separation - standard)	2.1 kg, 56mm diameter x 790mm
Gradient Sensor (1.0 m separation - optional)	2.2 kg, 56mm diameter x 1300mm
Standard System Complement	Instrument console; sensor; 3-meter cable, aluminum sectional sensor staff, power supply, harness assembly, operations manual.
Base Station Option	Standard system plus 30 meter cable
Gradiometer Option	Standard system plus 0.5 meter sensor

E D A Instruments Inc.
4 Thorncliffe Park Drive
Toronto, Ontario
Canada M4H 1H1
Telex: 06 23222 EDA TOR
Cable: Instruments Toronto
(416) 425 7800

In U.S.A.
E D A Instruments Inc
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
(303) 422 9112

APPENDIX F

PETROGRAPHIC ANALYSIS REPORTS

1983, 1991

Middle vein - p. p...

Lode Resource Corp.

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph. D. Geologist

P.O. BOX 39
8887 NASH STREET
FORT LANGLEY, B.C.
V0X 1J0

PHONE (604) 888-1323

Report for: Gordon House,
Sawyer Consultants Inc.,
675 W Hastings, #1201
VANCOUVER, B.C., V6B 1N2

Invoice 4215

Sample: Lode Middle Vein Porphyry (Porphyritic Andesite dike in Sicker Gp.

The sample contains phenocrysts of plagioclase and hornblende and inclusions of plagioclase aggregates in a very fine grained groundmass dominated by plagioclase with lesser chlorite and Ti-oxides. Late patches possibly filling cavities, are dominated by calcite.

phenocrysts	
plagioclase	7- 8%
hornblende	5- 7
inclusions	
diorite(?)	3- 4
groundmass	
plagioclase	60-65
calcite	7-10
chlorite	5- 7
leucoxene	1- 1½
opaque	0.3
apatite	0.3
late patches	
calcite	2- 3
plagioclase	0.2
sericite	minor
chlorite	minor

Plagioclase forms subhedral to euhedral phenocrysts averaging 0.5-1 mm in size, with a few up to 1.5 mm long. Most are equant to prismatic in outline. Alteration is moderate to locally strong to extremely fine grained sericite flakes and patches of extremely fine to very fine grained calcite. Calcite distribution is more variable than that of sericite, but the overall abundances of both alteration minerals are about the same.

The inclusion? may be an early formed glomeroporphyroblastic aggregate of plagioclase averaging 1-1.5 mm in size. Grains show similar alteration to that of plagioclase phenocrysts. The patch contains scattered aggregates of muscovite up to 0.2 mm long, a few patches of interstitial, fine grained more-sodic plagioclase (relatively fresh), and minor disseminated semiopaque (Ti-oxide).

Hornblende forms elongate prismatic to acicular phenocrysts averaging 1 mm in length, with a few up to 3.5 mm in length. The mineral is completely altered to aggregates of very fine grained chlorite and patches of very fine to fine grained calcite. Chlorite is pale green with brown and blue interference colors. Some grains contain clusters of orangish Ti-oxide, possibly after primary sphene. One cluster up to 3 mm across consists of an aggregate of hornblende phenocrysts, altered to chlorite, Ti-oxide, and calcite.

The groundmass is dominated by anhedral, interlocking grains of plagioclase averaging 0.05-0.1 mm in size. Lathy plagioclase grains of similar size are present in minor amounts. Alteration is to sericite and calcite as in the phenocrysts, but the intensity appears to be moderately less.

(continued)

As well as alteration of phenocrysts, calcite forms irregular patches throughout the groundmass. These are in part alteration of groundmass, and possibly in part late patches (see below).

Chlorite forms irregular interstitial patches of very fine grained aggregates intergrown with groundmass plagioclase.

Leucoxene (almost opaque, medium brown Ti-oxide) occurs as irregular disseminated patches from 0.02-0.3 mm in size. Much of it may be after original ilmenite.

Opaque, possibly ilmenite or hematite, occurs in subhedral to irregul patches averaging 0.02-0.05 mm in size, with a few irregular patches up to 0.3 mm across.

Apatite forms scattered subhedral to euhedral grains from 0.1-0.15 mm in average size. In places it is concentrated with hornblende phenocrysts.

The rock contains a few well-defined, late patches up to a few mm long, dominated by fine to medium grained calcite. This forms slightly interlocking aggregates, in part with moderately abundant dusty inclusions of opaque. Plagioclase forms scattered grains and aggregates, commonly nea the borders of patches. A few unusual aggregates up to 0.15 mm in size consist of radiating clusters of extremely fine grained sericite grading outwards to a rim of chlorite. A few other sericite aggregates occur withi plagioclase grains.

John G Payne

John G. Payne,
November 1983

This sample was taken by Mr. G. House from the main workings of the Middle Vein, on L10+00S Mt. McQuillan, Vanc. Isl., (due east from H.G. vein, on the lower flat), sample from porphyry dike (which contains the mineralized quartz veins), in the creek bed. Dike rock appears to be similar to Tertiary sills and dikes (Catface Intrusions) intruding Nanaimo sediments, et al, in the area.

GH

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph.D Geologist
CRAIG LEITCH, Ph.D. Geologist
JEFF HARRIS, Ph.D Geologist
KEN E. NORTHCOTE, Ph.D Geologist

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Report for: Fayz Yacoub,
Hi Tech Resources,
1500-609 Granville St.,
Vancouver, B.C.

Job 204

July 5th, 1991

SAMPLES:

3 rock samples, numbered MV/91 TH-1, 2 and 3 from the Middle Vein project, for sectioning and petrographic examination.

SUMMARY:

These samples are igneous rocks of hypabyssal intrusive aspect. They are generally fresh, and show no evidence of deformation, veining etc.

TH-1 is a fine-grained, non-porphyritic, meshwork-textured rock of andesitic composition. It is made up essentially of plagioclase and chlorite with accessory quartz and opaques.

TH-2 is a fine to medium-grained gabbro composed essentially of an intergrowth of plagioclase and pyroxene. Most of the plagioclase shows strong, even saussuritization, but there is also a late phase which is clear and unaltered. The pyroxene is generally fresh. It shows incipient late-magmatic modification to hornblende - which also occurs as an interstitial accessory component. The rock is notably low in opaques.

TH-3 is a typical quartz-feldspar porphyry, of dacitic composition. It is composed of phenocrysts of plagioclase and quartz (and minor altered mafics) in a microgranular groundmass of fresh plagioclase with minor intergrown quartz and chlorite The plagioclase phenocrysts show mild pervasive epidotization.

Individual petrographic descriptions are attached.

J.F. Harris Ph.D. (929-5867)

SAMPLE MV/91 TH-1 **ANDESITE**

Estimated mode

Plagioclase	66
Quartz	5
Chlorite	22
Carbonate	3
Opaques	4

This is a fine-grained, non-porphyritic rock, having the textural aspect of a dyke.

It is composed predominantly of plagioclase as an even, interlocking, meshwork aggregate of blocky to elongate prismatic grains, 0.05 - 0.4mm in size. The plagioclase is strikingly fresh.

Quartz is a minor accessory, as sporadic grains of similar size to the plagioclase, sometimes aggregating as clumps. It also forms a few irregular cross-cutting veinlets.

The other principal constituent is chlorite. This forms an intimately intergrown, felted-textured, interstitial phase throughout the plagioclase aggregate. It presumably represents a totally altered primary mafic component.

Opaque and sub-opaque granules, 10 - 50 microns in size, sometimes forming skeletal clusters, occur more or less abundantly, in close association with the chlorite. These are probably mainly rutile and Fe-Ti oxides, but may include a proportion of very fine-grained sulfides.

Carbonate is a minor deuteric or alteration phase, as sporadic flecks and interstitial pockets. It also occurs intergrown with one of the quartz veinlets.

SAMPLE MN/91 TH-2 **GABBRO**

Estimated mode

Saussurite	45
Plagioclase	6
Pyroxene	38
Hornblende	6
Chlorite	5
Opaques	trace

This rock has a grain size range of 0.2 - 4.0mm, and shows a fine to medium-grained, hypidiomorphic granular texture of typical intrusive aspect.

The cut-off block shows the typical speckled fabric of a gabbro, consisting of intergrown dark mafics and white-etched plagioclase.

The thin section shows that the principal mafic is clinopyroxene. This forms discrete, rather coarse, subhedral grains, fresh but for minor late magmatic modification to flecks of amphibole. A few pyroxene grains appear to have been converted almost totally to fibrous, secondary-type amphibole.

The accessory mafic is brownish hornblende, as an interstitial network in partial rimming relationship to the pyroxenes.

The majority of the plagioclase in this rock shows strong saussuritization in the form of even, virtually complete alteration to turbid, brownish, sub-opaque material. This forms clusters of blocky, subhedral-prismatic grains, alternating with the mafics, and corresponding with the white-etched areas of the cut-off block.

A small proportion of clear, unaltered, well-twinned plagioclase exists, as tiny individuals and small pockets, and as partial rims and overgrowths on the totally saussuritized material. The latter was apparently an early-formed component, and the clear plagioclase a late interstitial phase.

Chlorite is the remaining accessory - as sporadic, irregular, felted-textured pockets. This presumably represents deuteric alteration of some primary mafic component.

Opaques (oxides or sulfides) are extremely minor, and the rock is also distinguished by a notable lack of such typical accessories as apatite and sphene.

SAMPLE MV/91 TH-3 QUARTZ-FELDSPAR PORPHYRY

Estimated mode

Phenocrysts		
	Plagioclase	21
	Quartz	15
	Chlorite) Epidote)	4
Groundmass		
	Plagioclase	50
	Quartz	6
	Chlorite	4
	Rutile	trace

This is a leucocratic rock made up of phenocrysts of quartz and plagioclase in an even, microgranular groundmass composed predominantly of plagioclase.

The phenocrysts range in size from 0.2 - 4.0mm. The plagioclase is subhedral-euhedral in form, and commonly occurs as clumps. It is generally fresh, except for minor alteration to flecks of epidote.

The quartz ranges from anhedral to subhedral in form, and sometimes shows embayed outlines and groundmass inclusions. The quartz phenocrysts tend to be larger than the plagioclase. Minor mafic phenocrysts are now totally altered, and are represented by irregular clumps of felted chlorite and cryptocrystalline to granular epidote.

The phenocrysts are set, with random orientation, in an equigranular groundmass of grain size 20 - 100 microns, composed essentially of an interlocking mosaic aggregate of fresh, anhedral plagioclase. Indeterminate (but apparently minor) proportions of quartz occur sporadically intergrown, and there are scattered intergranular pockets of chlorite, and flecks of cryptocrystalline rutile.

This rock is a typical quartz feldspar porphyry, of dacitic composition. It has the texture of a hypabyssal intrusive. It is notably fresh (except for alteration of the minor mafics).

CERTIFICATES

The foregoing constitutes full, true and plain disclosure of all material facts relating to the securities offered by this Prospectus as required by the Securities Act and its regulations.

DATED: November 4 , 1991

ISSUER

Tom K.T. Cheng
President

ON BEHALF OF THE BOARD OF DIRECTORS

Michael I-Kuo Terng

Lian Thye Fong

PROMOTER

Michael I-Kuo Terng

AGENT

To the best of our knowledge, information and belief, the foregoing constitutes full, true and plain disclosure of all material facts relating to the securities offered by this Prospectus as required by the Securities Act and its regulations.

DATED: November 4 , 1991

BRINK HUDSON & LEFEVER LTD.

Per: ____________________

Brian D. Graves, President.

John L. Mathers, Vice-President.