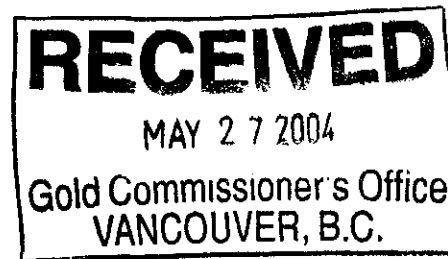


**GEOLOGY AND MINERAL DEPOSITS
WOLF LAKE GROUP PROPERTY**

**GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT**

27,450

**NANAIMO MINING DIVISION
N.T.S. 92F/14E
LAT. 49 47' N. LONG. 125 12' W
BRITISH COLUMBIA**



**Warren Geiger, Ph.D., P.Eng., P.Geol.
May 20, 2004**

TABLE OF CONTENTS

	Page
1.0 SUMMARY.....	1
2.0 INTRODUCTION.....	1
2.1 Terms of Reference.....	1
2.2 Location and Access.....	1
2.3 Topography, Climate and Vegetation.....	2
2.4 Property Status.....	2
2.5 Previous Work.....	2
3.0 GEOLOGY.....	3
3.1 Regional Setting.....	3
3.2 Wolf Lake Group Geology.....	3
4.0 CONCLUSIONS.....	4
5.0 RECOMMENDATIONS.....	5
6.0 REFERENCES CITED.....	5
7.0 CERTIFICATE & STATEMENT OF QUALIFICATIONS.....	6

FIGURES:

Fig. 1 Location map.....	after page 1
Fig. 2 Claims Map.....	after page 1
Fig. 3 Regional Geology.....	after page 4
Fig. 4 Showings.....	after page 4
Fig. 5 Bluff Vein.....	after page 4

APPENDICES:

Appendix A	Historic Published Assay Results of the Lake Zone
Appendix B	Minfile Information on the Wolf Lake Group Property
Appendix C	Statement of Expenses

1.0 SUMMARY

The property known as the Wolf Lake Group, is located in the Nanaimo Mining Division on Vancouver Island. It comprises 8 mineral claims centered on a hill 600 metres west of the north end of Wolf Lake and about 14km by paved and first class logging roads from Courtenay.

The Wolf Lake Group is underlain by rocks of the Upper Triassic Karmutsen Formation massive basaltic and andesitic flows with Upper Cretaceous Nanaimo Group sediments overlying the volcanics in places. Its location within the Mt. Washington-Constitution Hill area is within a major Tertiary intrusive/extrusive complex, radial fracture patterns and concentric fractures centered around a magnetic high at Mt. Washington suggest that an extensive plutonic complex underlies the whole area. Quartz diorite and dacite porphyry outcrops, including those on the property, are thought to be high level intrusives related to this pluton. Mineral deposition associated with these intrusive/extrusive events produced the copper-gold-silver-arsenic lodes and the porphyry copper-gold-silver systems of the Mt. Washington and Constitution Hill areas.

All three known gold-bearing sulfide deposits are hosted in shallow east dipping fracture zones or detachment faults in basalt of the Karmutsen Formation, and are proximal to northwest trending fault zones and Tertiary quartz diorite intrusives.

There is a good potential for discovering more high-grade gold zones and of extending the three known zones with further exploration work. A trenching program using track-hoe heavy equipment followed by detailed mapping, sampling and assaying at exposed areas is recommended, followed by diamond drilling where justified.

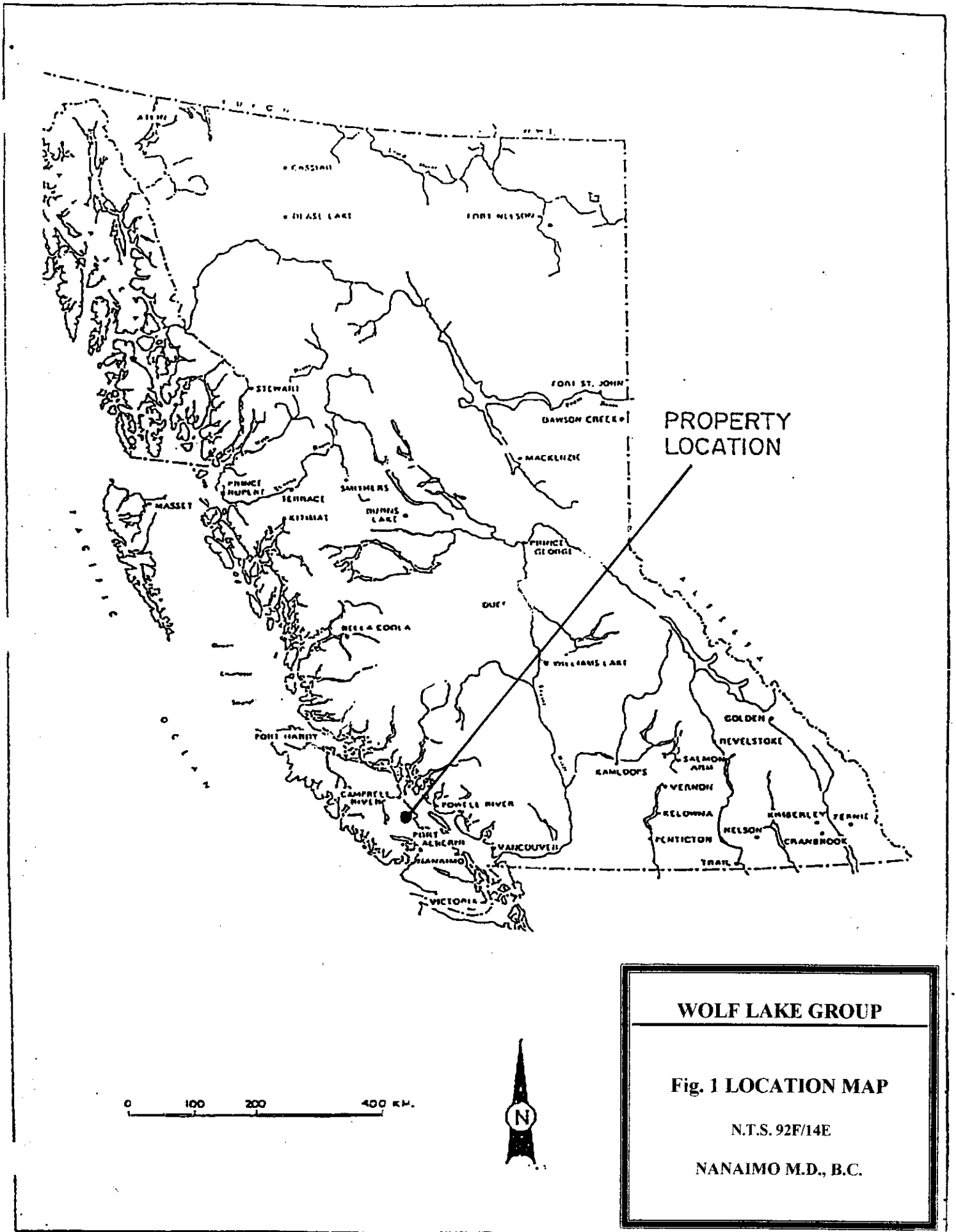
2.0 INTRODUCTION

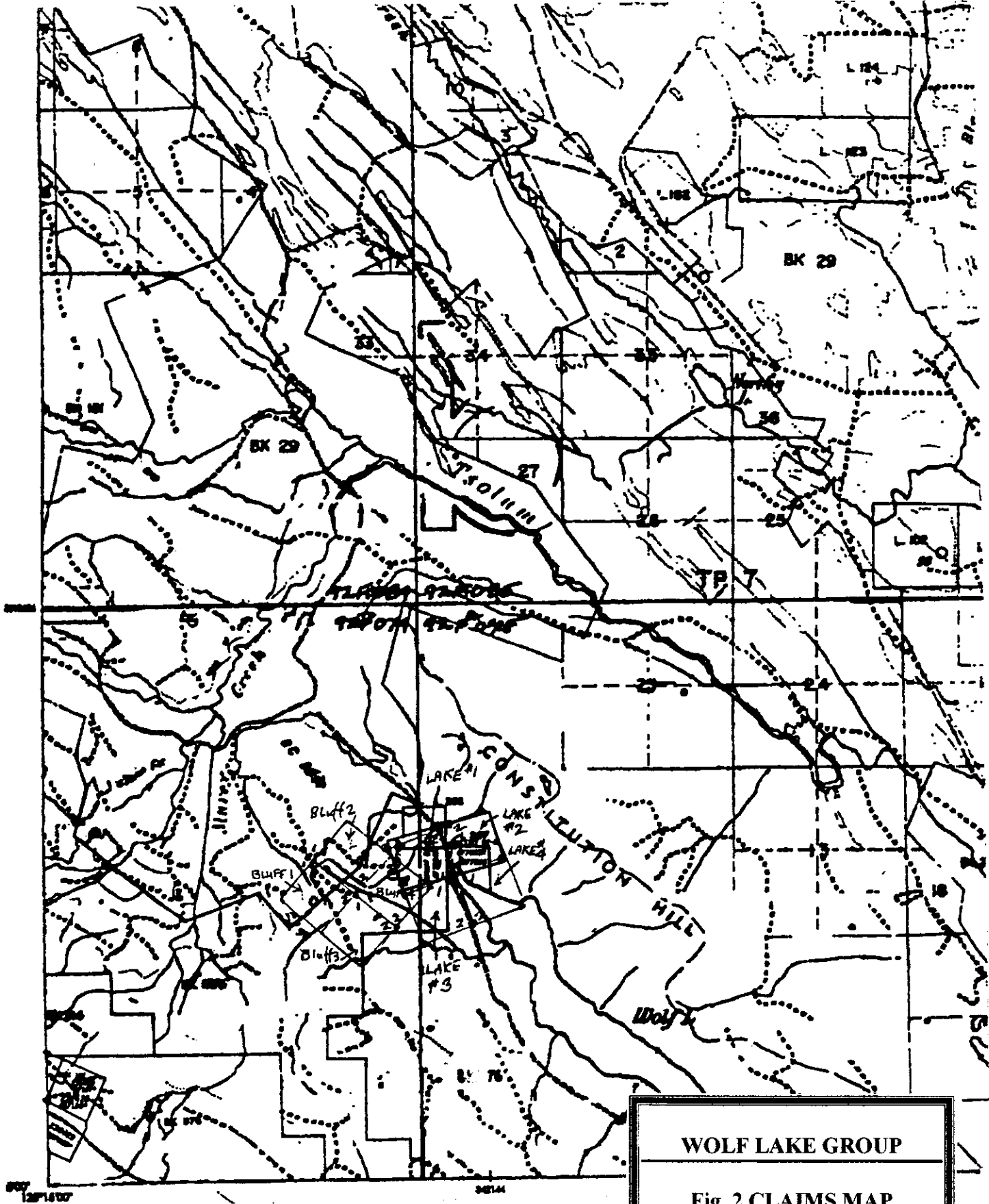
2.1 Terms of Reference

The writer visited the property on both February 25 and July 27, 2003 with Jim Laird, prospector and claims owner, to study and report on geology and mineral deposits of the Wolf Lake Group claims. Historical information from the Department of Mines and Geological Survey of B.C. and other sources has been reviewed and used where pertinent. Mineralized structures and locations mapped and described by Jim Laird were checked and have been used in the report.

2.2 Location and Access

The property known as the Wolf Lake Group contains the Bluff 1-4 claims and the recently staked Lake 1-4 claims and is centered on a hill, 600 metres west of the north end of Wolf Lake on Vancouver Island (Fig's 1 & 2). Access is from





WOLF LAKE GROUP

Fig. 2 CLAIMS MAP

N.T.S. 92F/14E

Nanaimo M.D., B.C.

Scale 1: 50,000

the Island Highway, 2km west along the Strathcona Parkway toward Mt. Washington, turn north on Duncan Bay main logging road and travel about 10km to the north end of Wolf Lake. The I.P. for the Lake 1-4 claims is located here beside the road. For the I.P. of the Bluff 1-4 claims, continue north to the intersection with the Murex Creek road, drive west about 0.75km, take south spur about 300m to an old road on the east side. The I.P. is located about 1.2km southeast beside the old road.

2.3 Topography, Climate and Vegetation

Topography within the claims area is relatively subdued with the main mineralized outcrop areas being between 250-350 metres above sea level. The climate is mild and typical of low elevation areas near the east coast of Vancouver Island. Vegetation is largely second growth spruce and fir in the claims area and in general the forest is thick and difficult to traverse.

2.4 Property Status

The Wolf Lake Group consists of eight claims as follows: (Fig's 2 & 4)

<u>Claim Name</u>	<u>Units</u>	<u>Record #</u>	<u>Expiry Date</u>
Bluff 1	1	400765	Feb. 25, 2006
Bluff 2	1	400766	Feb. 25, 2006
Bluff 3	1	400767	Feb. 25, 2006
Bluff 4	1	400768	Feb. 25, 2006
Lake 1	1	409237	March 16, 2005
Lake 2	1	409238	March 16, 2005
Lake 3	1	409239	March 16, 2005
Lake 4	1	409240	March 16, 2005

2.5 Previous Work

The earliest known information on showings in the claims area is found in a 1924 government report, which describes a realgar deposit on the Good Hope claim. These showings are on or near the Bluff #3 claim.

Gold mineralization was discovered on Mt. Washington in the Domineer zone, about 6.5km west of the claims in 1943. As interest in gold declined after the Second World War, interest in copper increased and 400,000 tons of 1.09% cu were mined from two open pits on Mt. Washington during 1964-1965.

Since 1983 Better Resources Ltd. has explored the gold and silver potential at Mt. Washington and by the end of 1989 had established a drill-indicated resource of 550,298 tonnes at a grade of 6.75 g/t gold and 32.23 g/t silver in the Domineer and Lakeview zones.

In his report on the Tertiary Mineral Deposits of Vancouver Island, Carson (1969) shows the geology and mineral deposits of the Mt. Washington and Constitution Hill area to be similar in character and origin.

Several companies, including Proquest Resources Corporation, Cactus West Explorations Ltd. and Homestake Mineral Development Company have explored the present claims area when it was held as part of the Lupus claims in the mid 1980's. During these programs two gold bearing showings were discovered, the Lake Zone and the Road Showing.

A prospecting report by Jim Laird for Cactus West Explorations Ltd. documenting work during the period March 10 to 27, 1987, describes the nature and mineralogy of the three important showings, recorded as the "Lake Zone, Road Showing and the newly discovered Bluff Gold Vein", which have so far been found on the Wolf Lake property (Fig's 3 & 4).

3.0 GEOLOGY

3.1 Regional Setting (Fig.3)

Vancouver Island is built on a thick platform of Paleozoic volcanic-sedimentary rocks known as the Sicker Group. They host all of the known rhodonite gemstone deposits, and the large polymetallic volcanogenic deposits mined at Myra Falls near Buttle Lake and several other former mines. This rock package is not well exposed in the area, although it does trend up the center of the North Island.

Rocks of the Mt. Washington-Constitution Hill area (Fig.3) overlie the Sicker Group platform and comprise an unconformable sequence of oldest to youngest, Karmutsen Formation volcanics of Upper Triassic age and gently dipping Upper Cretaceous sediments of the Nanaimo Group.

Into this Late-Triassic and Late Cretaceous package, a dominant quartz diorite stock of Tertiary age and associated marginal breccias has been intruded at Mt. Washington. Largely concordant sills and/or laccoliths underlie the semi-circular ridge south and west of the stock.

At Constitution Hill a porphyry laccolith, associated with the Mt. Washington stock, overlies Upper Cretaceous sediments along its western and eastern sides and at one location underlies them.

The age of the Mt. Washington stock is reported to be 35 ± 6 my.

3.2 Wolf Lake Group Geology (Fig's 3 & 4)

The Wolf Lake Group is underlain by Karmutsen Formation volcanics, Nanaimo Group sediments and porphyry laccolithic intrusive rocks.

All three known gold-bearing sulfide deposits are hosted in shallow east dipping fracture zones in amygdaloidal basalt flows of the Karmutsen Formation volcanics, and are proximal to northwest trending fault zones and Tertiary quartz diorite intrusives (Fig's 3, 4 & 5). A thin intra-volcanic sedimentary package comprised of limestone and volcanic conglomerate underlies the mineralized areas.

The Lake Zone, which has been previously trenched and sampled, is situated in a rock quarry beside the main logging road at the north end of Wolf Lake. The gold-bearing zone is a shallow east dipping tabular sheet of sulphides and altered wallrock about 2m thick. Mineralogy is pyrite, sphalerite, arsenopyrite, minor galena and chalcopyrite in a gangue of vuggy quartz, carbonate, and dark brecciated wallrock fragments. The vein breccia was discovered during quarrying operations and did not outcrop, indicating good potential for similar "blind" zones on strike or parallel to the Lake Zone. A 0.90m sample reported in Minfile assayed 4.42gm/t. gold and 20.57gm/t. silver. Among the ten samples reported by Cactus West Explorations Ltd. is a chip sample assaying 82.10 g/t gold and 174.47 g/t silver (Appendix A).

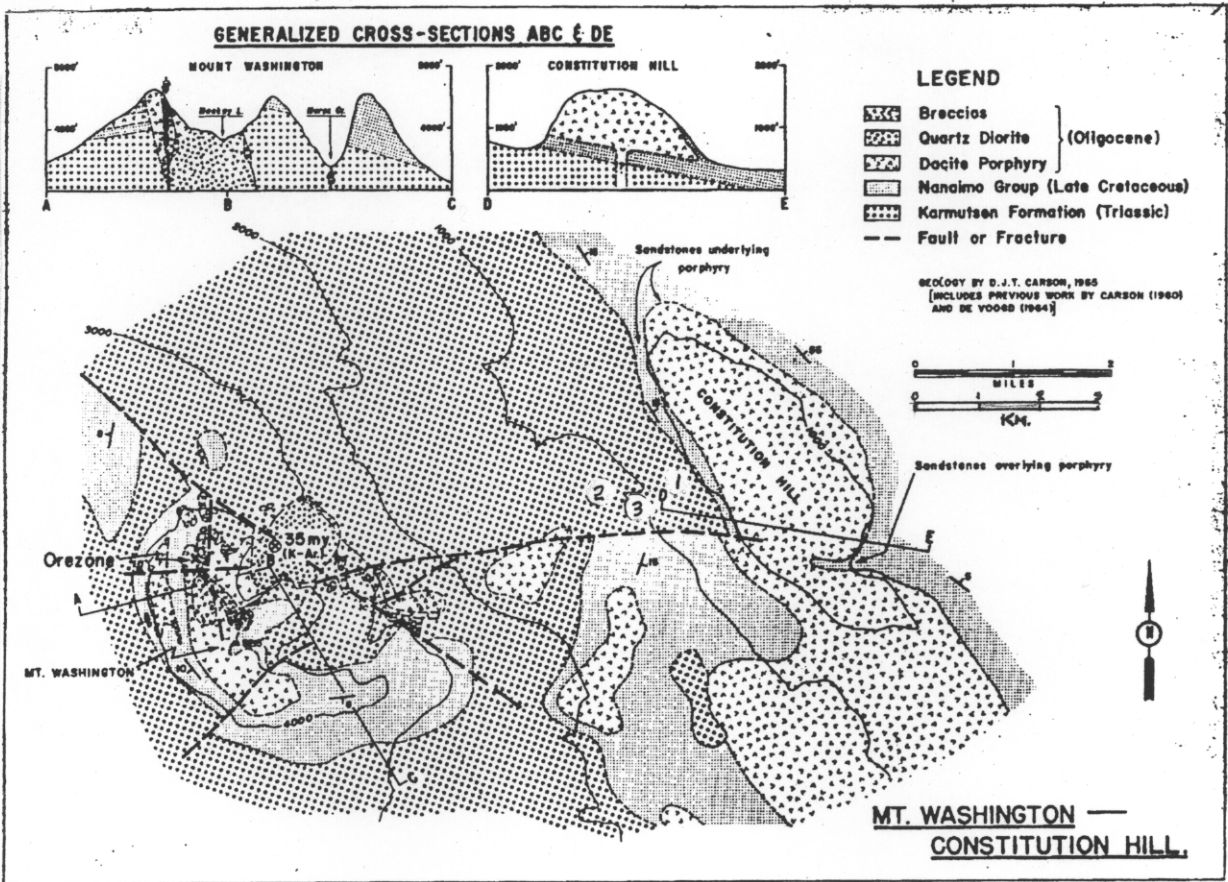
The Road Zone is located about 1.4km west of the Lake Zone and is accessible from a small spur road off the Murex Creek road, which joins the main logging road just north of Wolf Lake. A small bridge has been washed out near the beginning of the spur road, and will need to be rebuilt for vehicle or heavy equipment access. The Road Showing is similar in structure to the Lake Zone in that it is a shallow east dipping sheet of sulphides, but differs in mineralogy, which includes: pyrite, chalcopyrite, pyrrotite, minor malachite and azurite in a gangue of vuggy quartz veins and silicified basalt. A grab sample reported in Minfile assayed 21.94gm/t gold and 30.86gm/t. silver.

The Bluff Zone, situated roughly half way between the Road Zone and the Lake Zone (Fig's 3 & 4) is a narrow (0.1m), vuggy quartz-pyrite vein with rare native gold exposed in the wall of a small cliff on the opposite side of the hill that contains the Lake Showing. The vein has the same attitude as the Lake Zone and Road Zone. A side view sketch of the Bluff Zone mapped and sampled by Jim Laird has been included (Fig.5).

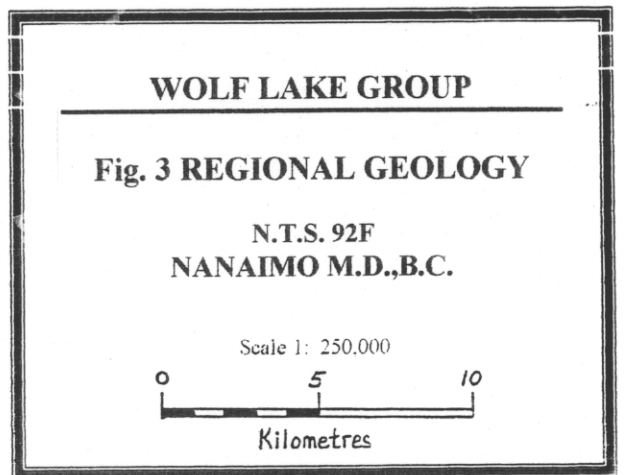
Trenches along the southwest boundary of Bluff #3 claim contain sulfide and gangue mineralization similar to that at the Road and Lake zones and may well lie along the same or similar zone or zones.

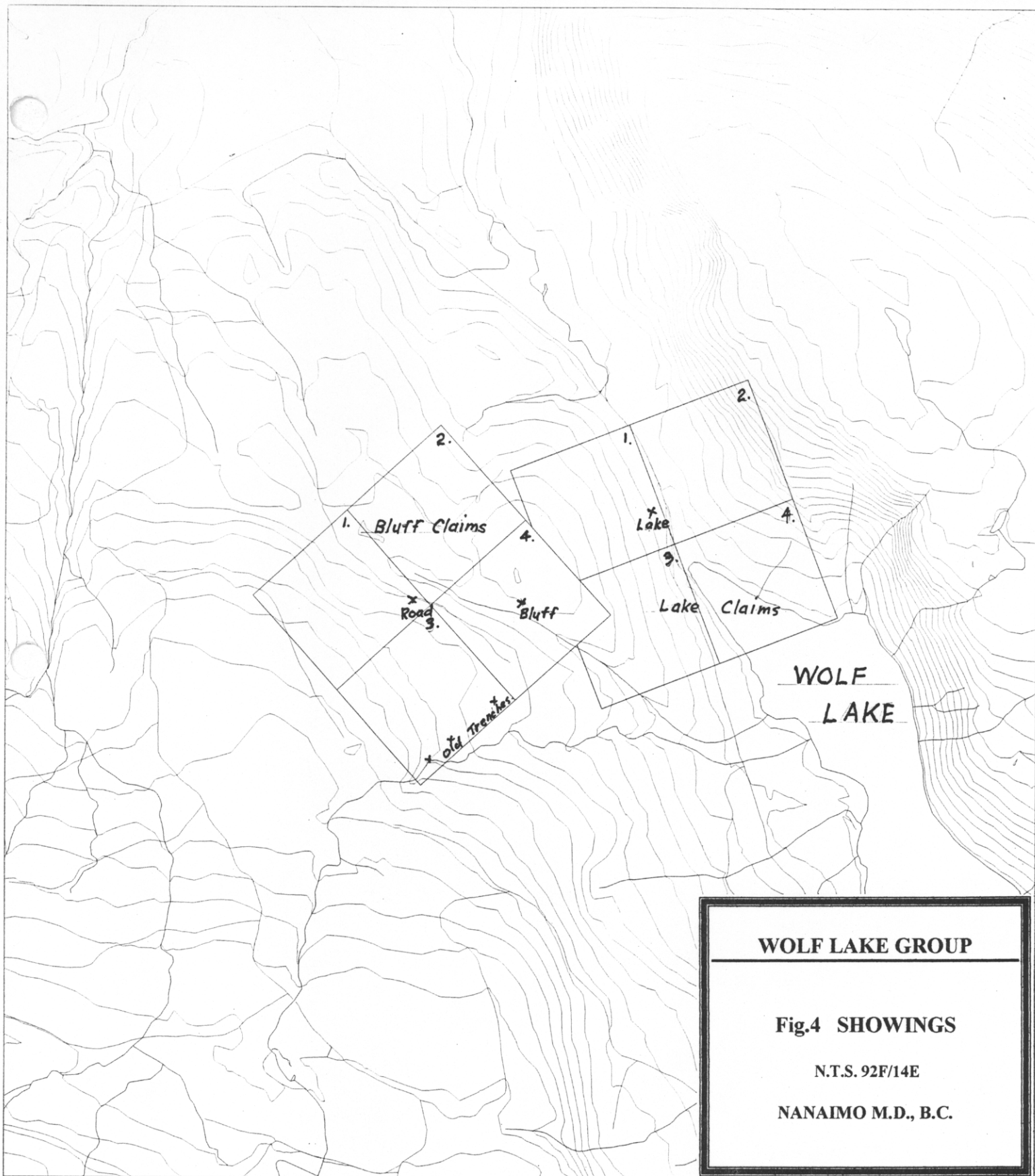
4.0 CONCLUSIONS

The location of the Wolf Lake Group of claims within the Mt. Washington-Constitution Hill area is within a major Tertiary intrusive complex. Radial fracture patterns, detachment faults and concentric subsidence fractures centered around an aeromagnetic high at Mt. Washington suggests that an extensive plutonic complex underlies the area. Quartz diorite and dacite porphyry outcrops

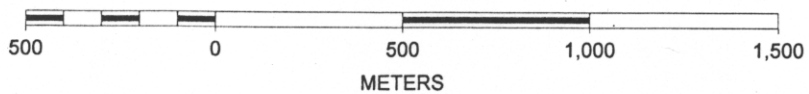


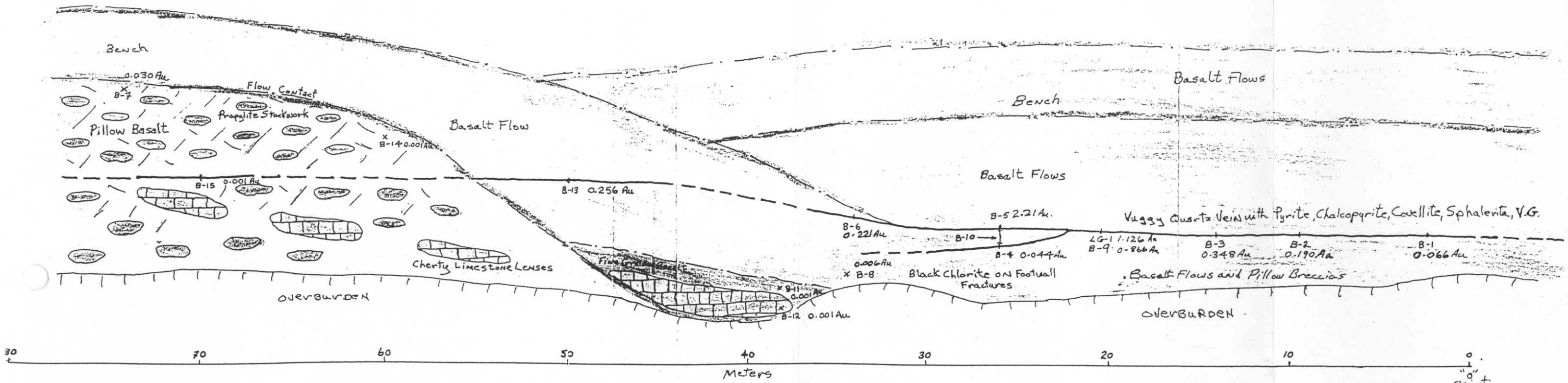
Showings
 1. Lake
 2. Road
 3. Bluff





SCALE 1 : 20,000





Side View Sketch of the Bluff Gold Vein

WOLF LAKE GROUP

Fig. 5 BLUFF VEIN
(SKETCH ON BLUFF)

N.T.S. 92F/14E

Nanaimo M.D., B.C.

James Aird
June 1987

are thought to be high level intrusives related to the underlying magma and were emplaced along zones of weakness during episodes of forceful intrusive activity. Mineral deposition associated with these events produced the copper-gold-silver-arsenic lodes and the porphyry copper- gold-silver systems of Mt. Washington and Constitution Hill areas.

The Wolf Lake Group is underlain by Upper Triassic Karmutsen Formation massive basaltic and andesitic flows with some Upper Cretaceous Nanaimo Group sediments overlying the volcanics in places. The three gold-bearing sulfide zones are hosted in shallow east dipping fracture zones in the basalt and are proximal to northwest trending fault zones and Tertiary quartz diorite intrusives.

5.0 RECOMMENDATIONS

There is a good potential for discovering more high-grade gold zones and of extending the three known zones with further exploration work. A trenching program using track-hoe heavy equipment followed by detailed mapping and sampling of exposed areas is recommended to extent the areas of the known shallow dipping gold showings. Where the overburden becomes too deep for trenching, shallow diamond drilling on a grid pattern should be carried out where the trenching results justify.

6.0 REFERENCES CITED

- Barr, D.A., (1980): Gold in the Canadian Cordillera, CIM Bulletin, June, Pages 59-76.
- Carson, D.J.T. (1973): The plutonic rocks of Vancouver Island: Geological Survey of Canada, Paper 72-44, 70 pages.
- Carson, D.J.T. (1968): Metallogenic study of Vancouver Island with emphasis on the Relationship of Plutonic Rocks to Mineral Deposits, Ph.D. thesis, Carlton University, Ottawa.
- Carson D.J.T. (1969): Tertiary Mineral Deposits of Vancouver Island; CIM Bulletin, Volume 62, Number 685, May, pages 511-519.
- Harrap, K.L. (1986): Geology and Geochemistry of the Lupus 1-6 Claims, B.C. Geological Branch Assessment Report Number 14,442, 20 pages.
- Muller, J.E. (1989-1): Tertiary Low-Angle Faulting and Related Gold and Copper Mineralization on Mt. Washington, Vancouver Island: B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1989-1.
- Verley, C.G. and Keyser, H.J. (1984): Reconnaissance Report on the Lupus Claims, 20 pages.
- Verley, C.G. and Keyser, H.J. (1985): Geological and Geochemcial Report on the Lupus 1,3,5 and 6 Claims, B.C. Geological Branch Assessment Report Number 13,426, 36 pages.

The image shows a handwritten signature in cursive that reads "F. W. Lake". To the right of the signature is a circular official stamp. The stamp contains the text "GEOLOGICAL SURVEY OF CANADA" around the top inner edge and "VANCOUVER" at the bottom. The center of the stamp is mostly obscured by the signature and some other markings.

7.0 CERTIFICATE AND STATEMENT OF QUALIFICATIONS

I, K. Warren Geiger, P.Eng., P.Geol., am a Professional Engineer (British Columbia and a Professional Geologist (Alberta)

I am:

A member of the Association of Professional Engineers and Geoscientists of British Columbia, a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

I graduated from the University of Alberta with a B.Sc. degree in mining engineering in 1955 and subsequently obtained a M.Sc. degree in economic geology from Cornell University in 1959 and a Ph.D. degree in economic geology from Cornell University in 1961. *I have practiced my profession continuously since 1961.*

Since 1967 I have been involved in:

- Mineral exploration for uranium, gold, silver and copper in northern Saskatchewan, Northwest Territories, northern Alberta and British Columbia from June, 1967 to June 1984 during which time I directed exploration programs for uranium in northern Saskatchewan and Northwest Territories from June 1967 to June, 1974 and for gold and copper in British Columbia from June 1974 to June 1984 where I was exploration manager for Aquarius Resources Ltd.
- Mineral exploration for gold in southwestern United States and Mexico from June 1984 to June 1995 where I was exploration manager for Arizona Star Resources Corp. and Nevada Star Resources Corp.
- Mineral exploration for gold, copper, cobalt and gemstones as independent consultant working for companies with properties in Mongolia, Northwest Territories, Ecuador and British Columbia.

As a result of my experience and qualifications I am a Qualified Person as defined in N.P. 43-101.

I am presently a Consulting Geologist and have been so continually since June 1995 and at various times previously from June 1967 to June 1995.

From June 18, 2000 until October 31, 2000 I was employed by Hampton Court Resources Inc. and Anglo Swiss Resources Inc. as Senior Consulting Geologist and Project Manager of the hard rock exploration program on the Slocan Gemstone Property in Nelson and Slocan Mining Divisions near Nelson, B.C. I was personally present on the property during the Periods June 18 to June 22; July

4 to July 7; July 17 to July 19; July 29 to August 1; August 16 to August 21;
August 30 to September 1; September 14 to September 19; October 9 to October
12; October 21 to October 30.

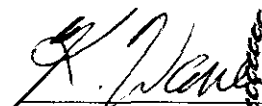
On December 1, 2002 I was employed by Diamcor Mining Inc. as an independent consulting geologist to provide geological guidance in the acquisition of good exploration properties and in particular, to manage the geological evaluation of the Merry Widow property and to prepare a first phase exploration program for that property.

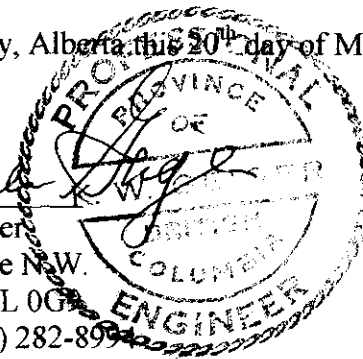
This assessment report was prepared by me.

I am not aware of any material fact or material change with respect to the subject matter of the report, the omission to disclose which would make this report misleading.

I have read National Instrument 43-101, Form 43-101F1 and the report has been prepared in essential compliance with NI 43-101 and Form 43-101F1.

Dated at Calgary, Alberta, this 20th day of May, 2004


K. Warren Geiger
29 Capri Avenue N.W.
Calgary, AB T2L 0G6
Telephone (403) 282-8994
e-mail: kwgeiger@telus.net



APPENDIX A

**Historic Published Assay Results
From the Lake Zone**

**By
Cactus West Exploration Ltd.
1987**

Mt Washington Gold Property Vancouver Island

Recent work on the property has disclosed two areas of significant gold mineralization.

Lake Zone:

The lake zone is a vein breccia in karmutsen volcanics, wherein gold is associated with silver, zinc, arsenic, copper and lead. An I.P. survey indicates that the zone has a length of at least 1500' and is open in both directions.

Rockchip sampling results of the Lake Zone:

Sample #	Thickness	au oz/T	Ag oz/T	Zn %
1-A	1 metre	0.175	0.747	2.86
2-A	70 cm	0.056	0.211	1.06
3-A	43 cm	0.318	0.0406	1.00
4-A	Grab	2.442	12.44	4.45
5-A	11 cm	2.30	4.23	9.48
6-A	23 cm	0.779	2.743	4.17
7-A	Grab	1.400	3.40	6.58
8-A	11 cm	2.64	5.61	9.58
9-A	1 metre	0.245	2.03	3.59
10-A	1.56 metres	0.415	1.43	2.01

Composite samples of the upper alteration zone, the vein breccia and the lower alteration zone range from:

1.41 metres	0.415	1.76	1.75
2.0 meters	0.357	2.01	2.86

Contact: **Dennis Baxter**

CACTUS WEST

Cactus West Explorations Ltd.

St. 201 - 717 W. Pender St., Vancouver, B.C. Canada V6C 1G9

(604) 681-2961

APPENDIX B
Minfile Information on the
Wolf Lake Property

•Ministry Home

•Government of British Columbia

Programs & Services

Ministry of
Energy & Mines

Ministry News Ministry Search Reports & Publications Site Map Contacts

MINFILE Capsule Geology and Bibliography

[MINFILE Home page](#)

[Main Search Menu](#)

[Back to Search Results](#)

[ARIS Home page](#)

Capsule Geology and Bibliography

■ [R] € - N_L 1/3 3/3 % 00 5/8 □ 5/8 H_T 1 [R] N_L

■ [R] 5/8 ⊕ € 1 V L F † € N_L

092F 183

Name	GOOD HOPE	Mining Division	Nanaimo
Status	Showing	NTS	092F14E NAD 27
Latitude Longitude	49 46 15 N 125 11 57 W	UTM	10 5515250 341650
Commodities	Arsenic Copper	Deposit Types	
Tectonic Belt	Insular	Terranes	Wrangell.

Capsule Geology

The Good Hope arsenic showing occurs about 800 metres northwest of the north end of Wolf Lake. The area is underlain primarily by basaltic lavas of the Upper Triassic Karmutsen Formation, Vancouver Group. These rocks are mostly massive flows and pillow lavas of partly amygdaloidal basalts, with minor tuffs, volcanic breccias and agglomerates. These are overlain by sediments of the Upper Cretaceous Nanaimo Group, Comox Formation.

The showing is exposed in a dry creekbed at an elevation of 260 metres. For about 75 metres the creek follows, and has exposed, a breccia zone in andesitic rocks. This zone varies from 0.6 to 3.6 metres in width, strikes 035 degrees and appears to dip steeply to the southeast. It contains lenses and veins of calcite up to 1.8 metres in width, in which numerous shattered and angular fragments of andesite are embedded. These bodies of calcite outcrop at intervals of about 45 metres along the creek bottom and contain occasional lenticular masses of realgar. The largest exposure of this arsenic sulphide measures 1.2 metres in length with a maximum width of 23 centimetres. Tiny veinlets of arsenopyrite occur locally within the andesitic wall rock. In some instances realgar has been replaced by native arsenic. Chalcopyrite has also been observed. The best assay from this zone was 4.9 grams per ton silver and 0.1 per cent copper over 2 metres (Assessment Report 14434).

The Cliff showing was discovered on the Lupus claims in the probable vicinity of the Good Hope arsenic showing. A 5 centimetre wide pyrite-arsenopyrite-quartz vein occurs in Nanaimo Group sediments. The vein has a vertical dip and a westerly trend. A grab sample assayed 15.77 grams per tonne silver, 0.10 grams per tonne gold, 0.52 per cent arsenic and 0.13 per cent copper (Assessment Report 15034).

Bibliography

EMPR ASS RPT [12015](#), [*14434](#), [*15034](#)
EMPR EXPL 1983-208; 1986-C183,C184
GSC EC GEOL *No.4, p. 36-38
GSC MAP 2-1965; 17-1968; 1386A
GSC OF 463
GSC P 68-50; 72-44; 80-16

Database last posted: April 29, 2004

Go to: [Main Search Menu](#): [MINFILE Name/No. Search](#): [Commodity/Status/NTS Search](#): [Deposit Type Search](#): [Tectonic Belt/Terrane/Latitude/Longitude Search](#):
[Mineralogy Search](#): [Deposit Character/Classification Search](#): [Formal/Informal Host Search](#): [Rock Type/Lithology Search](#):
[Stratigraphic Age Search](#):

[MINFILE Home page](#)

This page last updated: June 11, 2001

[•Top](#) [•Copyright](#) [•Disclaimer](#) [•Privacy](#)

[•Feedback](#)

[Ministry Home](#)
[Government of British Columbia](#)

Programs & Services

**Ministry of
Energy & Mines**
[Ministry News](#) [Ministry Search](#) [Reports & Publications](#) [Site Map](#) [Contacts](#)

MINFILE Capsule Geology and Bibliography

[MINFILE Home page](#)
[Main Search Menu](#)
[Back to Search Results](#)
[ARIS Home page](#)

Capsule Geology and Bibliography

092F 308

Name	LUPUS 1	Mining Division	Nanaimo
Status	Showing	NTS	092F14E NAD 27
Latitude Longitude	49 46 58 N 125 12 06 W	UTM	10 5516600 341500
Commodities	Gold Silver Zinc Copper Lead	Deposit Types	I06 : Cu±Ag quartz veins.
Tectonic Belt	Insular	Terranes	Wrangell.

Capsule Geology

The Lake showing occurs about 800 metres northwest of the north end of Wolf Lake. The area is underlain primarily by basaltic to andesitic lavas of the Upper Triassic Karmutsen Formation, Vancouver Group. These rocks are mostly massive flows and pillow lavas of partly amygdaloidal basalts, with minor tuffs, volcanic breccias and agglomerates.

The showing was exposed in a rock quarry in 1983. The showing is made up of a vein, up to 9 centimetres wide, that plunges 30 degrees toward 080 degrees. The vein consists of a core of massive sulphides lined with quartz. Sulphides include pyrite, arsenopyrite, sphalerite, minor chalcopyrite and galena. The vein is enveloped by a narrow clay zone that contains broken sulphide-quartz material. This zone is enveloped by a dark grey alteration zone which grades into a more bleached zone which in turn grades into unaltered green Karmutsen volcanics.

A sample of the zone material taken across 0.90 metres assayed 4.42 grams per tonne gold, 20.57 grams per tonne silver, 0.60 per cent zinc, 0.15 per cent copper, 1.59 per cent lead and 0.01 per cent arsenic (Assessment Report 15034). Various selected samples and samples taken across narrower widths contained significantly higher grades of all the above elements.

At the Road showing, 750 metres west-southwest of the Lake showing, a 6 centimetre wide quartz vein contains chalcopyrite and pyrite. A grab sample assayed 21.94 grams per tonne gold, 30.86 grams per tonne silver, and 0.66 per cent copper (Assessment Report 15034).

Bibliography

EMPR ASS RPT *13426, *14442, *15034
EMPR EXPL 1984-168; 1986-C183,C184
GSC MAP 2-1965; 17-1968; 1386A
GSC OF 463
GSC P 68-50; 72-44; 80-16

Database last posted: April 29, 2004

Go to: [Main Search Menu](#); [MINFILE Name/No. Search](#); [Commodity/Status/NTS Search](#); [Deposit Type Search](#); [Tectonic Belt/Terrane/Latitude/Longitude Search](#);
[Mineralogy Search](#); [Deposit Character/Classification Search](#); [Formal/Informal Host Search](#); [Rock Type/Lithology Search](#);
[Stratigraphic Age Search](#);

[MINFILE Home page](#)

This page last updated: June 11, 2001

[Top](#) [Copyright](#) [Disclaimer](#) [Privacy](#)

[Feedback](#)

•Ministry Home

•Government of British Columbia

Programs & Services**Ministry of
Energy & Mines****Ministry News Ministry Search Reports & Publications Site Map Contacts****Search the Assessment Report Database****ARIS/www Detailed Summary Report****Assessment Report: 15034**

Mining Division(s) Nanaimo

Location NAD 27: Latitude: 49 46 00 Longitude: 125 10 00 UTM: 10 343972 5514722
 NAD 83: Latitude: 49 45 59 Longitude: 125 10 05 UTM: 10 343876 5514913
 NTS: 092F14E
 BCGS: 092F075

Affidavit Date 1986-07-31

Claim(s) LUPUS 1, LUPUS 3-6

Operator(s) Pan World Ventures

Author(s) Verley, Carl G.

Report Year 1986

No. of Pages 0 Pages

Off Confidential 1987-07-31

General Work Categories Geochemical, Geological, Geophysical, Physical

Work Done

Geochemical	Rock	0 sample(s)
	Soil	0 sample(s)
Geological	Geological	0.0 ha
Geophysical	Induced Polarization	0.0 km
Physical	Line/grid	0.0 km

Geological Summary

THE CLAIMS ARE UNDERLAIN BY A SEQUENCE OF UPPER TRIASSIC KARMUTSEN FORMATION MAFIC VOLCANICS WHICH ARE UNCONFORMABLY overlain BY UPPER CRETACEOUS SANDSTONES AND SILTSTONES OF THE NANAIMO GROUP. THE SUCCESSION IS INTRUDED BY TERTIARY DACITE PORPHYRIES. GENTLY NORTHEASTERLY DIPPING GOLD-BEARING VEINS CONTAINING SPHALERITE, PYRITE, ARSENOPYRITE, GALENA AND CHALCOPYRITE OCCUR IN KARMUTSEN FORMATION ROCKS. STEEP, EASTERLY TREND- ING GOLD-BEARING VEINS OF SIMILAR MINERALOGY OCCUR IN NANAIMO GROUP ROCKS. AN INDUCED POLARIZATION CONDUCTOR ASSOCIATED WITH THE LAKE ZONE IS OPEN TO THE NORTH AND SOUTH.

MINFILE Nos.092F 308**Related Reports**12015 , 13426 , 14434 , 14442

Database last posted: April 29, 2004

For further information on mineral assessment reports or products, or comments/problems and/or suggestions for improvement please contact the Assessment Report Unit.

This page last updated: April 09, 2001

[•Top](#) [•Copyright](#) [•Disclaimer](#) [•Privacy](#)

[•Feedback](#)

Warren Geiger**From:** Jim Laird [JamesW._Laird@telus.net]**Sent:** Friday, May 21, 2004 1:19 PM**To:** kwgeiger@telus.net**Subject:** Emailing: search**MINFILE Capsule Geology and Bibliography**[MINFILE Home page](#)[Main Search Menu](#)[ARIS Home page](#)**Capsule Geology and Bibliography**

■ € - N 1/3 2/3 % 00 5/8 □ 5/8 H 1 C R N

092F 116Inventory Report

Name	DOMINEER (MOUNT WASHINGTON)	Mining Division	Nanaimo
Status	Developed Prospect	NTS	092F14W NAD 27
Latitude Longitude	49 45 31 N 125 17 55 W	UTM	10 5514109 334443
Commodities	Gold Silver Copper Lead Zinc Molybdenum	Deposit Types	H04 : Epithermal Au-Ag-Cu: high sulphidation. L04 : Porphyry Cu ± Mo ± Au.
Tectonic Belt	Insular	Terranes	Wrangell. Plutonic Rocks.

**Capsule
Geology**

The Domineer epithermal deposit comprises the Domineer, Lakeview and West Grid zones. The deposit lies 400 metres south of the Mount Washington Copper open pit (see 092F 117). The centre of the Lakeview zone is located 510 metres to the west of the Domineer zone, and the West Grid zone lies about 200 metres northwest of the Lakeview. The zones form a continuous shallow-dipping tabular body of argillic alteration containing discontinuous, en echelon or stacked lenses of mineralization.

The mineralized zone occurs within a subhorizontal package of Tertiary pyroclastics and underlying clastic sediments of the Upper Cretaceous Nanaimo Group (Comox Formation), which unconformably overlie mafic volcanic rocks of the Upper Triassic Vancouver Group (Karmutsen Formation). Intruding both formations is a Late Eocene to Early Oligocene quartz diorite stock of the Mount Washington Intrusive Suite (formerly Catface Intrusions - Nick Massey, Personal Communication, May 1990), dated at 35 million years (+/- 6 million years) (Carson, 1960). Several later breccia events are imposed on all other rock types locally.

The Karmutsen Formation comprises basaltic massive and pillow lavas that are commonly porphyritic. The lavas grade into pillow breccias and aquagene tuffs. The overlying Comox

Formation comprises fine-grained sandstone and greywacke, with interbedded siltstone, carbonaceous shale and minor coal. A basal conglomerate of rounded clasts separates the formations.

The Tertiary quartz diorite stock is variably porphyritic and is centred on McKay Lake northeast of the summit of Mount Washington. Several sills and dykes of quartz diorite and quartz diorite porphyry are related to the stock.

Late breccia events include the Washington, Murray, Glacier, Murex (092F 206) and Oyster (092F 365) breccias; others may also be present. Of these, the Washington breccia is the youngest and is located near the Domineer zone on a ridge north of Mount Washington. The Murex breccia, located east of the Domineer deposit, is the largest and most complicated of the breccias. Other breccias and diatremes are located 2 kilometres north and 2 kilometres east of Mount Washington.

Contact relationships of the Washington breccia with the Murray breccia, the Glacier breccia and quartz diorite are crosscutting but gradational, and are often characterized by vertically oriented crackle breccia zones. Within the Washington breccia, large angular clasts dominate over a matrix of finely pulverized rock flour, which has locally been replaced by magnetite and actinolite. Slab-like fragments, with length to width ratios of 10:1 are common, and suggest that subvolcanic collapse may have been the operative process.

Capping the west arm of Mount Washington is the tabular Murray breccia which generally contains a much higher matrix component than the other breccias, although considerable variability exists. Clasts are generally subrounded to subangular and range in size from 1 to 10 centimetres, averaging about 2 centimetres. The composition of clasts is mixed and consists of varieties of quartz diorite, sandstone, siltstone and mafic volcanics. Overlying, and in places adjacent to the Murray breccia, is a crackle breccia. The Murray breccia, which is bedded and locally displays shrinkage cracks and slump folds, has recently been identified as a coarse pyroclastic deposit with associated thinner beds of fine-grained tuff (Dahl, 1989).

Mineralization at the Domineer deposit has a defined strike length of 1.5 kilometres and an average width of 61 metres. Diamond drilling indicates that mineralization extends from the Domineer zone to the Lakeview-West Grid area. Mineralization consists of a tabular zone of alteration containing a stockwork of auriferous quartz-pyrite-arsenopyrite veins and lenses. The zone occurs within one of several subhorizontal fractures and breccias which post-date the Tertiary intrusions and volcanic activity, and may represent either thrust faults or decollements (Muller, 1989).

Enveloping the quartz-sulphide veins and lenses, is a zone of pervasive kaolinite alteration. A 2 to 5 metre wide zone of hydrothermal breccia usually lies at the centre of the alteration zone. This breccia consists of angular clasts of altered wallrock in a matrix of quartz and sulphides. Locally, the sulphides envelop these clasts and exhibit a banded appearance. Away from the central alteration zone is a stockwork of smaller quartz-sulphide veins. With increasing distance the veins decrease in size and frequency, alteration becomes limited to vein selvages and chlorite becomes the dominant alteration mineral.

The dominant sulphide minerals within the gold zone are pyrite and arsenopyrite. Chalcopyrite, covellite, sphalerite, galena, bornite, tennantite, wehrlite, hessite, chalcocite, realgar and orpiment are also present in varying amounts. Pyrrhotite, molybdenite and magnetite are present in the general vicinity but appear to be unrelated to the gold-bearing mineralization.

Two high grade pods have been identified. A northern pod, centred on the Domineer showing, averaged 6.99 grams per tonne gold and 58.63 grams per tonne silver over an average thickness of 1.6 metres. The southern pod, centred 180 metres to the south of the northern pod, averaged 7.06 grams per tonne gold and 45.26 grams per tonne silver over an average thickness of 2.56 metres (Assessment Report 18472).

Underground exploration and surface diamond drilling to August 1989 have established drill indicated reserves of 550,298 tonnes grading 6.75 grams per tonne gold and 32.23 grams per tonne silver (Open File 1992-1; George Cross News Letter - August 3, 1989).

Bibliography

EMPR AR 1956-119; 1957-69; 1959-135; 1960-111; 1961-102; 1962-105; 1963-103; 1964-155,157; 1965-235; 1966-71; 1968-101
 EMPR ASS RPT 839, 1120, 1142, 1145, 1691, 4471, 4505, 5146, 5267, 5604, 5979, 5980, 6407, 6930, 9445, 11946, 11995, 11996, 12604, *12605, 14085, *14705, 15228, *15395, 15526, 15776, 15825, 15826, 15857, 15765, 16762, 17123, 17181, *18472, 18473
 EMPR EXPL 1975-E102; 1976-E116; 1977-E115; 1978-E131; 1980-175; 1983-209; 1984-166,168; 1985-C156; 1986-B29,B32,C181,C184; 1987-A77,C156-158; 1988-C92,C93
 EMPR FIELDWORK *1988, pp. 81-91
 EMPR GEM 1969-212; 1970-281; 1973-236; 1974-183
 EMPR INF CIRC 1989-1, p. 32; 1990-1, p. 39; 1991-1, p. 74
 EMPR MAP 65 (1989)
 EMPR MER 1986, p. 70
 EMPR OF 1992-1; 1994-6; 1998-10
 EMPR P 1991-4, pp. 167,203
 EMPR PF (W.G. Stevenson and Associates, (1970): Mt. Washington Exploration Project; W.G. Stevenson and Associates, (1969): Geological Map, 1: 12000; McElhanney, (1972): Line Cutting Map, 1:9600; Cumberland Mining Company Limited and Mount Washington Copper Company Limited, Souvenir of the Official Opening, Dec. 5, 1964; Better Resources (1987): Statement of Material Facts dated June 19 1987; Photograph, (1965): Mount Washington Mill; Map (1959): Mount Washington Diamond Drill Hole Locations; Claim Map, Mount Washington Area; Noranda Exploration Company Limited (1959): Mount Washington Property Surface Plan, T. Walker, 1: 600 (waste dump area; Nicolls, O.W.,(1961): Report on the Mount Washington Domineer Drilling Option; Mount Washington Area Claims List and Ownership)
 EMR MIN BULL MR 223 (1989) B.C. 98
 EMR MP CORPFILE (Mount Washington Copper Company Limited; Noranda Exploration Company; Qualicum Mines Limited; Cumberland Mining Company Limited)
 GSC BULL 172
 GSC MAP 49-1959; 2-1965; 17-1968; 1386A
 GSC OF 9; 61; 463
 GSC P 66-1; 68-50, p. 39,42; 71-36; 72-44
 GSC SUM RPT 1924 Part A, pp. 106-144; 1925 Part A; 1930 Part A p. 64
 CIM Transactions No.72, p. 116; Special Volume 15, 1976, Table I
 CMJ Jan., 1965
 GCNL Sept.17, Dec.30, 1975; Sept.22, #210, 1976; May 25, Oct.26, 1977; #7, 1978; #121,#206, 1979; #128,#155, 1984; #107,#129, #142,#150,#176,#178,#194,#198,#214, 1986; #14,#91,#107, #114,#135,#175,#176,#191,#195,#212,#225, 1987; #11,#114, #144,#177,#187,#222, 1988; #13,#149,#178, 1989; #5,#198(Oct.12), 1990
 N MINER Aug.11, Oct.27, Nov.17,24, 1986; Feb.2, May 18, Sep.28, Oct. 19, Nov.16, 1987; Feb.8, July 4, 1988;
 NW PROSP Oct./Nov., 1988
 PERS COMM N. Massey, May 1990
 PR REL Better Resources Limited Jan.16, 1987, Jul.26, 1988
 V STOCKWATCH Sep.15, Jul.30, Sept.30, Oct.6, Oct.13, Nov.5,9,24, 1987; Jan.19, 1988; Aug.3, Sept.12, 1989
 W MINER Nov. 1965, p. 35; Nov. 1967, pp.35-40

*Better Resources Limited (1987): Mount Washington Precious Metals Project, Vancouver Island, Coreshack, Cordilleran Roundup
Better Resources Limited Annual Report 1987; Corporate Profile (not dated); 1989 Snapshot Review; Statement of Material Facts dated Aug. 1, 1984
Carson, D.J.T. (1960): Geology of Mount Washington, Vancouver Island, British Columbia, M.Sc. Thesis, University of British Columbia
Carson, D.J.T. (1968): Metallogenic Study of Vancouver Island with Emphasis on the Relationship of Plutonic Rocks and Mineral Deposits, Ph.D. Thesis, Carleton University
Dahl, R. (1989): Unpublished EMPR Report
Hudson, R. (1997): A Field Guide to Gold, Gemstone & Mineral Sites of British Columbia, Vol. 1: Vancouver Island, pp. 157-158
McGuigan, P.J. (1975): Certain Breccias of Mount Washington Property, Vancouver Island, B.Sc. Thesis, University of British Columbia
Mount Washington Copper Company Limited, (1971): Statement of Material Facts dated May 26, 1971
Vancouver Market Report February, 1987

Database last posted: April 29, 2004

Go to: [Main Search Menu](#); [MINFILE Name/No. Search](#); [Commodity/Status/NTS Search](#); [Deposit Type Search](#); [Tectonic Belt/Terrane/Latitude/Longitude Search](#);
[Mineralogy Search](#); [Deposit Character/Classification Search](#); [Formal/Informal Host Search](#); [Rock Type/Lithology Search](#);
[Stratigraphic Age Search](#);

[MINFILE Home page](#)

This page last updated: June 11, 2001

APPENDIX C

Statement of Expenses

Statement of Expenses
Wolf Group, Bluff 1-4 Claims
July 28, 2003

February 1, 2004

1 day Geological Field Consulting @ 600.00 per day Dr. K. Warren Geiger Ph.D.	600.00
1 day Prospecting @ 250.00 per day James Laird, Qualified Prospector	250.00
Room and Board – 1 day X 2 men @ 90.00 per day	180.00
Truck Mileage Charge- 200 km @ .45 per km	90.00
Field Supplies	50.00
Report Cost	<u>650.00</u>
Total	1820.00