

GEOCHEMICAL AND GEOPHYSICAL REPORT

ON THE

BLUE JAY 1 & 2, #18978, 18979;

BLUE JAY 3, #19007; BLUE JAY 4 & 5,

19092 & 19093; THE GROUSE 1 & 2,

#18976 & 18977; GROUSE 3 - 5,

#19004 - 19006; AND THE BELLE &

CHARLES, #19094 & 19095 MINERAL CLAIMS

92F/14W

49°45' NORTH LATITUDE, 125°15' WEST LONGITUDE

NANAIMO MINING DIVISION

15 Miles N.W. of Courtenay

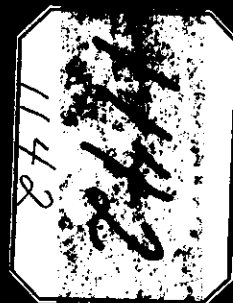
Vancouver, B.C.

W.G. Stevenson, P. Eng.

For Mt. Washington Copper Company Ltd.

November, 1967

92 F/14



1142

GEOPHYSICAL AND GEOCHEMICAL REPORT
ON 12 MINERAL CLAIMS
NANAIMO MINING DIVISION, B. C.
49°45' N. Lat., 125°15' W. Long.

W.G.Stevenson, P.Eng.

November, 1967

GEOCHEMICAL AND GEOPHYSICAL REPORT

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Vancouver, B. C.

W. G. Stevenson, P.Eng.

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INTRODUCTION:

During the 1967 field season I supervised an exploration program over a property called the Litchie Claim Group, which is located on Vancouver Island, 13 miles northwest of Courtenay and which is held under option by Mt. Washington Copper Co. Ltd.

The exploration program consisted of geological mapping, geochemical soil sampling and geophysical surveying with a Ronka Electromagnetic instrument.

This report is being submitted in lieu of physical work to accompany an affidavit on application for certificate of work, to satisfy the assessment requirements on 12 mineral claims for a period of one year.

PROPERTY AND TITLE:

A block of 12 mineral claims were staked and recorded to acquire title to the precious metal rights from the Crown. These claims are located within the area where the base metal mineral rights have been transferred to the Esquimalt and Nanaimo Railroad, a subsidiary of Canadian Pacific Oil and Gas. Canadian Pacific Oil and Gas have granted a lease on their base metal rights within the area of these claims, subject to provisions that call for Royalty payments on production and annual rental payments.

LOCATION AND ACCESS:

These mineral claims are located 5 miles southeast of Mt. Washington which is 105 miles northwest of Vancouver, at 49°45' North latitude and 125°15' West Longitude. They are situated 13 miles northwest of Courtenay, a station on the E & N Railway at tidewater. Access is gained over improved roads from Courtenay through a Crown Zellerbach timber licence.

HISTORY:

During 1940, gold, silver, copper bearing quartz veins were discovered 5 miles west of Wolf Lake, 15 miles northwest of Courtenay.

Qualicum Mines Ltd., a subsidiary of Mt. Washington Copper Co. Ltd., acquired title to the basemetal mineral rights from Canadian Pacific Railway, and title to the precious mineral rights from the B. C. Department of Mines & Petroleum Resources.

Noranda Mines Ltd. initiated an exploration program during 1957, 1958 and 1959, and Consolidated Mining and Smelting Company conducted an exploration program during 1963 and 1964.

Production from Mt. Washington Milling Company was initiated in 1965, and suspended in November, 1966 after 400,000 tons of ore had been milled.

HISTORY: (Continuation)

Other activity in this vicinity was at Western Mines, 19 miles southwest of Mt. Washington, the Argonaut Mines 13 miles northwest, and the Gem Prospect located 7 1/2 miles southwest.

There is no evidence of other discoveries until 1966 when chalcopyrite was exposed by Crown Zellerbach during construction of a road 6 miles southeast of Mt. Washington. Claims were staked and a lease obtained from Canadian Pacific Oil and Gas Co. This property was subsequently optioned to Mt. Washington Copper Co.

During 1967, geological mapping, a geochemical soil sampling and an electromagnetic survey were completed over these mineral claims.

GEOLOGY:

The oldest rocks exposed in this vicinity are massive thick layered, gently dipping, dark basalts, volcanic tuffs and breccias. This volcanic series, the Karmutsen of Triassic Age, extends over a large part of Vancouver Island and over the Lower Mainland of British Columbia. It is overlain unconformably by gently dipping sandstone, quartzite and shale beds which are the host rocks for the coal on Vancouver Island. These sediments, part of the Comox formation, are of the Cretaceous age.

GEOLOGY: (Continued)

Mt. Washington is a land mass which rises to a height of 5,215 feet, a distance of twelve miles from the ocean. The Karmutsen volcanic formation covers the lower slopes and the Comox formation extends over the upper slopes. The core of the mountain is an igneous stock which intruded the volcanic and sedimentary formations in Tertiary time, and which outcrops over an area of two square miles.

The intrusive rock on Mt. Washington is quartz diorite with associated porphyry and two or more intrusive breccias. These breccias contain an assemblage of angular fragments, both large and small, in a fine matrix of granular quartz, feldspar, and debris from other rocks. Some of the breccias contain iron and copper sulphide mineralization.

A number of faults have been mapped within the Mt. Washington property. The most pronounced has a southeasterly direction parallel to the regional Cordilleran trend. Faults with north-south and northwest-southeast strike direction have also been mapped. These faults have guided the emplacement of the intrusive bodies and the localization of mineralization.

A large part of the surface over the Litchie Claim group is glacial debree and overburden which masks bed rock. Bed rock, where it was observed, was brown to gray, gently dipping volcanic rock cut by numerous narrow irregular porphyry dikes.

GEOLOGY: (Continued)

The mapping by J. R. Muller, published by the G. S. C. as Map 2-1965 shows the area of the claim block underlain by Karmutsen volcanics.

MINERALIZATION:

On the Mt. Washington property mineralization can be found in all rock types. This mineralization is essentially pyrite, pyrrhotite, arsenopyrite and chalcopyrite, with variable amounts of gold, silver and molybdenite. Three types of mineral deposits have been observed:

- i. Gently dipping shears containing narrow quartz veins and lenses mineralized with iron and copper sulphides and molybdenum.
- ii. Massive sulphides containing iron and copper in shear zones cutting the volcanic rocks.
- iii. Disseminated low grade copper mineralization in diorite, breccias and volcanics.

A gently dipping shear zone that contains quartz veins and lenses which are mineralized with copper has been the source of all production to date. This vein varies in thickness between a few inches up to twenty feet though averages possibly five feet. It occurs near the contact between sedimentary beds and porphyry sills.

MINERALIZATION: (Continued)

Small isolated high grade occurrences of chalcopyrite have been noted in many localities. The mineralization is randomly exposed in all rock types and widely distributed over the property. These occurrences are irregular, discontinuous and of unknown length. They are frequently associated with steeply dipping shear zones. The mineralization that is exposed on the Litchi claims is of this type, within enclosing volcanic rocks.

GEOCHEMICAL PROGRAM:

A series of geochemical samples were collected over a distance of 3/4 of a mile. These samples were collected from two road cuts and extend out from the chalcopyrite that was exposed ~~in~~ ~~the road~~ while constructing the logging road earlier this year. These samples were assayed for copper and selected samples were assayed for molybdenum. The attached map marked Appendix "C" which is drawn to scale 1" = 400 feet will show the position of these samples. The assay results and the location of the outcrop of chalcopyrite.

Copper values fall into a range between 20 and 180 parts per million (P.P.M.), with one sample appreciably above this at 495 PPM.

GEOCHEMICAL PROGRAM: (Continued)

I have plotted these assay results onto a histogram, a copy of which is attached. This is designed to show the amounts of copper in P.P.M.° the frequency of these groupings and those determinations that are considered anomalous.

These sample results do not appear to provide^{an} significant histogram. A sample with ~~the~~ unusually high copper content was taken in the vicinity of the chalcopyrite which was exposed in the road cut. This is the only obviously anomalous sample and the only one with copper in amounts which have been considered anomalous in the soil sampling that was accomplished on the adjoining Mt. Washington Copper property.

GEOPHYSICAL PROGRAM:

A geophysical survey with a Ronka E.M. 16 instrument was conducted over the lines where the geochemical soil samples were collected. Readings were taken along these lines at 100 foot intervals. Two readings were obtained of each station using separate crystals to obtain response from two transmitting stations.

The location of the stations along these traverse lines is shown on the attached map marked Appendix D which is drawn to a scale of 1" = 400 feet. I have also attached 4 profiles to show the inphase and quadrature responses along these traverse lines.

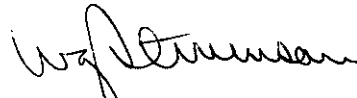
GEOPHYSICAL PROGRAM: (Continued)

An analysis of the survey has been made by Klycepton International Air Surveys Ltd. and their report is attached as appendix G

CONCLUSIONS:

1. The geochemical work has indicated that molybdenum content in the soil in the area tested does not provide information which can be correlated for guidance in exploration.
2. The geochemical work has shown only a moderate variation in the copper content in the soil within the area tested.
3. Only one sample and that in the immediate vicinity of exposed chalcopryite showed a distinct anomalous condition.
4. The geophysical program has provided information which is inconclusive and which will require additional field work.

RESPECTFULLY SUBMITTED,



W. G. STEVENSON, P.Eng.

WGS:mjr



INDEX MAP
SHOWING LOCATION OF
LITCHIE MINERAL CLAIMS
Nanaimo Mining Division
British Columbia

Scale 1" = 100 miles
Appendix A



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 1142 MAP 2

Photocopy of Part of
B.C. Department of Mines and
Petroleum Resources
Mineral Map
to show Litchie Claims

Nanaimo Mining Division

Scale 1" = 1 Mile

Appendix B

dry

Extra

GEO-CHEMICAL ANALYSIS REPORT

PROJECT: *M. A. Stinson*

REPORT NO:

SHEET: 1
OF: 2DATE: *July 18, 1967*APPROVED: *E. Fryberg*SAMPLE
IDENT.REF.
NO.

Cu

Mo

ppm

ppm

28 *Line A # 1* 5587

29 2 5588

30 3 V 5589

1 *Line A # 4* A 5590

2 5 5591

3 6 5592

4 7 5593

5 8 5594

6 9 5595

7 10 5596

8 11 5597

9 12 5598

10 13 5599

11 14 5600

12 15 V 5601

13

14

15

16

17

18

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28

APPENDIX E

T S L

Laboratories Limited

325 HOWE STREET - VANCOUVER 1, B.C.

TELEX: 04-50613
CODE NAME: TSL-LABS-VCR.TELEPHONE 688-3504
AREA CODE 604ASSAYERS
CHEMISTS
GEOCHEMISTS

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM MT. WASHINGTON
#610-890 WEST PENDER
VANCOUVER, B.C.

REPORT NO.

V-3048

SAMPLE(S) OF SOIL

RESULTS IN PARTS PER MILLION

	SAMPLE No	Cu	Pb	Zn	Ag	Ni	Mo	Co
1	AND LAKE North Line #1	80					<.5	
2	2	95					<.5	
3	3	129					<.5	
4	4	87					<.5	
5	5	150					<.5	
6	6	175					<.5	
7	7	120					<.5	
8	8	161					<.5	
9	9	59					<.5	
10	10	106					<.5	
11	11	87					<.5	
12	12	70					<.5	
13	AND LAKE Northline 13	53					<.5	
14								
15								
16								
17								
18		Hot HCl Acid Extraction						
19		Cu Determined by A.A.						
20		Mo Determined by Zn Nitrate Method.						

< LESS THAN

DATE NOVEMBER 14, 1967

SIGNED

DIVISION OF TECHNICAL SERVICE LABORATORIES

Appendix E

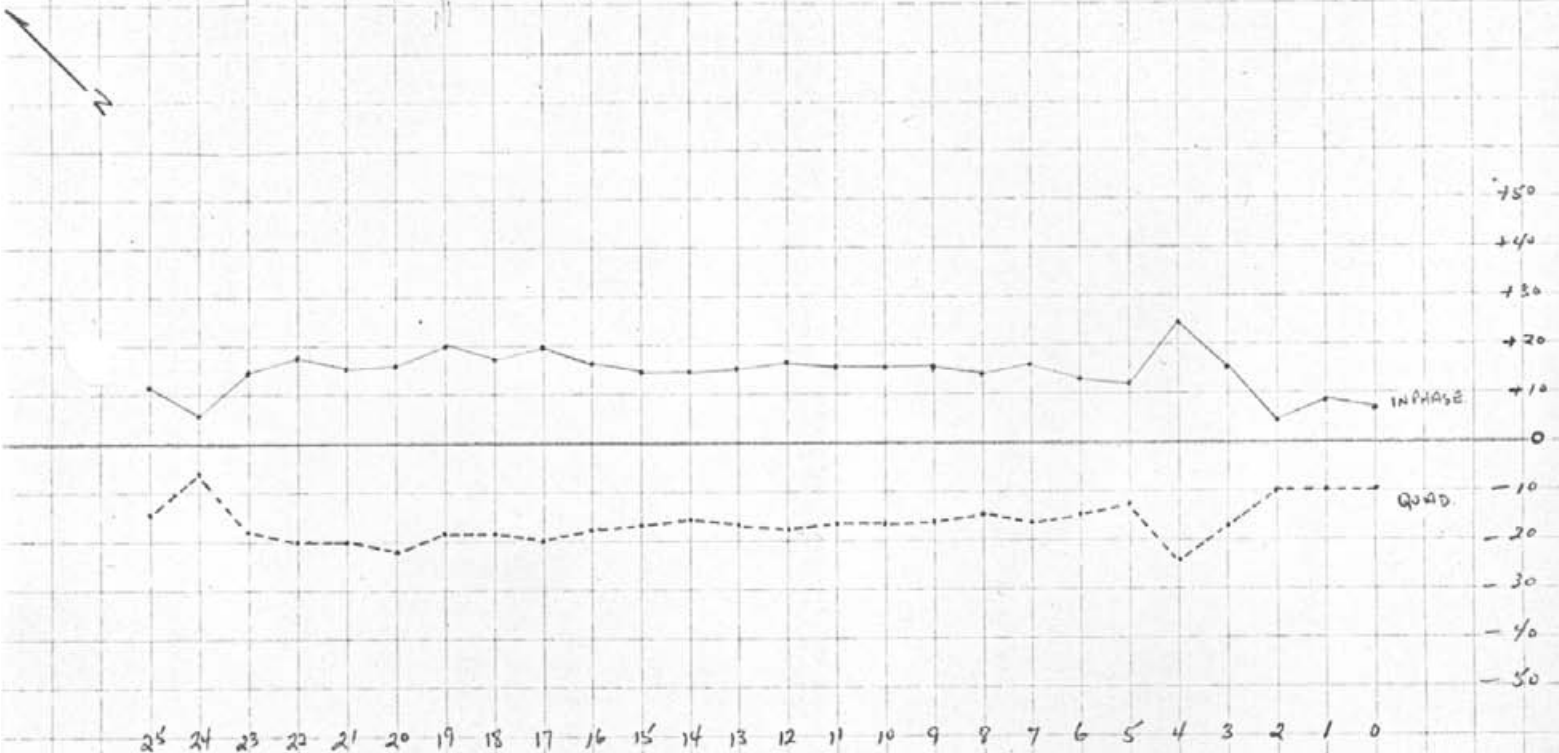


ANDERSON LAKE PROPERTY

1" = 400'

CRYSTAL NPG. LOOKING SSW

STATIONS ON ROAD 53C



PROFILE NO. 1
RONKA EM 16
Looking Northeasterly
Scale 1" = 400 Feet

To accompany report by
W.G. STEVENSON P. Eng.

November, 1967

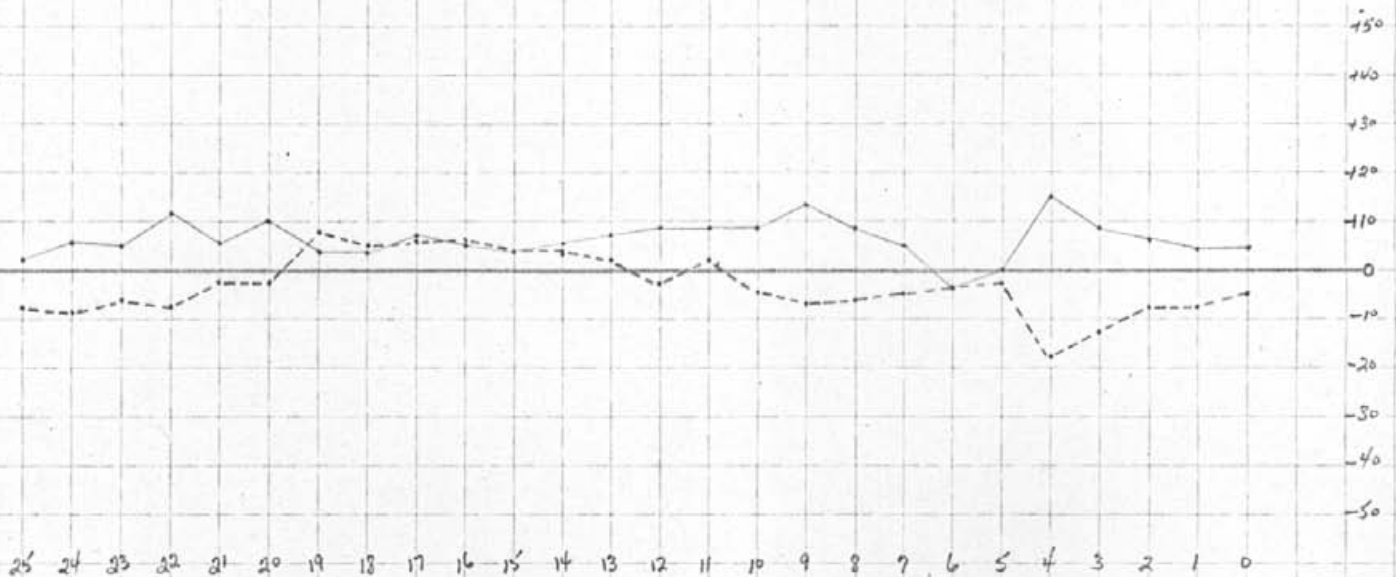
Appendix F

ANDERSON LAKE PROPERTY

1" = 400'

CRYSTAL NP.M. LOOKING SSE.

STATIONS ON ROAD 53C



PROFILE NO. 2
RONKA EM 16
Looking Northeasterly
Scale 1" = 400 Feet

To accompany report by
W.G. STEVENSON P. Eng.

November, 1967

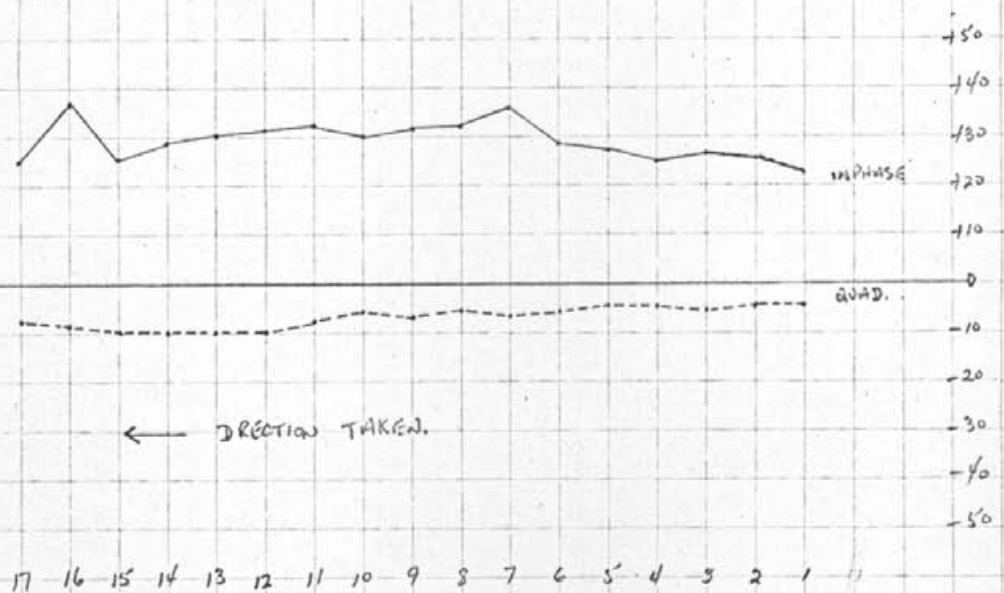
Appendix F

ANDERSON LAKE PROPERTY

1" = 400'

CRYSTAL NPG. LOOKING SSW

STATIONS ON ROAD 53N.



PROFILE NO. 3

RONKA EM 16

Looking Northeasterly

Scale 1" = 400 Feet

To accompany report by

W.G. STEVENSON P. Eng.

November, 1967

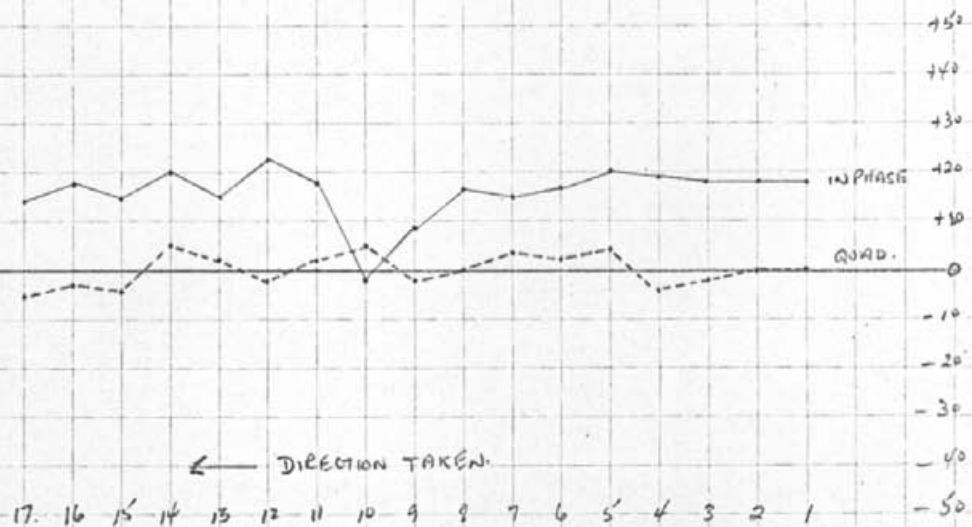
Appendix F

ANDERSON LAKE PROPERTY

1" = 400'

CRYSTAL NAA.

STATIONS ON ROAD S3N.



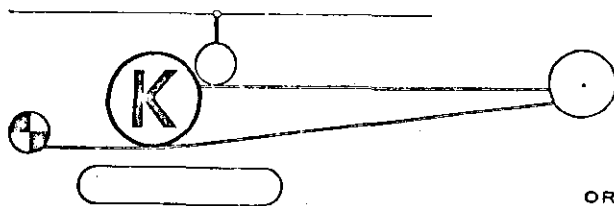
PROFILE NO. 4
RONKA EM 16
Looking Northeasterly
Scale 1" = 400 Feet

To accompany report by

W.G. STEVENSON, P.Eng.

November, 1967

Appendix F



KLYCEPTOR
INTERNATIONAL AIR SURVEYS LTD.

ORIGINATORS OF GEOELECTROMAGNETIC SURVEYS BY AIR
CUSTOM GEOPHYSICAL INTERPRETATIONS

November 20, 1967.

509 Stock Exchange Building,
475 Howe Street,
Vancouver 1, B. C.

Attention: Mr. W. G. Stevenson, Geologist

Dear Sir:

Your plan map appendix D of Mount Washington Copper Mines Ltd of November, 1967 and attached EM Survey profiles 1,2,3, and 4 have been assessed as requested.

The profiles 1 and 3 made over the two lines indicated on your plan, from the Ronka EM 16 instrument were taken on the signals emitted from NPG in northwestern Washington, U. S. A. These signals are exceptionally strong in this region and saturation of the instrument is evident. For this reason the profiles 1 and 3 are of little or no value geophysically.

The profiles 2 and 4 were taken from the signals of separate stations - profile 2 from NPM, Hawaii and profile 4 from NAA, Maine, U. S. A. This complicates the interpretation of the profiles by providing almost inverse anomalous polar patterns.

Profile no. 2 indicates an anomaly related to structure and partially conductive between stations 5 and 6.

Appendix G


Profile no. 4 indicates a near surface anomaly at station 10 with the footwall to the northwest and dip to the southeast.

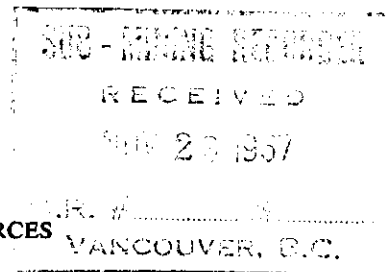
If these two anomalies are from the same formation then the strike would be approximately north 70° east.

In addition to these anomalous features there appears to be an increase in the surface conduction between stations 15 and 19 on profile 2 and between 13 and 17 on profile 4.

Yours truly,

KLYCEPTOR INTERNATIONAL AIR SURVEYS LTD.


D. L. Hings, P. Eng.
Consulting Geophysicist.



NOTICE TO GROUP

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

To Wit:

In the Matter of

The Exploration Program conducted over certain claims, called the Lichti group near Mt. Washington in the Nanaimo Mining Division

SUB-MINING RECORDER

RECEIVED

NOV 20 1967

M.R. # S
VANCOUVER, B.C.

I, WILLIAM G. STEVENSON, P. ENG., Consulting Geologist

of 509 - 475 Howe Street, Vancouver, B.C.

in the Province of British Columbia, do solemnly declare that During 1967 a tape and traverse survey was accomplished to establish the position of 2 traverse lines along existing roads. These lines were picketed and a series of soil samples were collected from each of these lines.

These samples were assayed for copper and selected samples were assayed for molybdenum.

A geophysical survey using a Ronka EM 16 instrument has been accomplished along each of these survey lines.

I have supervised this exploration program and have made periodic visits to this property. I have prepared maps, and a report which accompanies this declaration and which provides details for this work.

The program was accomplished during the period June - October, 1967. Two prospectors employed by Mt. Washington Copper Co. Ltd. spent a total of 10 days on this project. The costs of this program have been in excess of \$1,200.00. The details are as follows:

Parker @ \$550/month + 10%	\$605.00
Bieberdorf @ \$350/month + 10%	385.00
Transportation @ \$200/month	200.00
	<u>\$1,190.00/month</u>

$\frac{1190.00}{20} = 59.50/\text{day} \times 10$ \$ 595.00

Assaying	43.00
Engineering and technical assistance	500.00
Drafting	26.00
Supervision	200.00

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of

the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

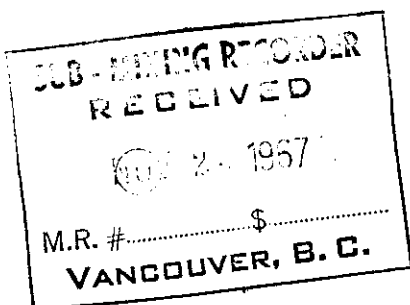
Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 23rd
y of November 1967, A.D.

W. Stevenson

L. Strickler
A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.

SUB-MINING RECORDER

Appendix I



DEPARTMENT OF MINES
AND PETROLEUM RESOURCES
MINERAL ACT
FORM B

Cha J. Bush, Box 694, Courtenay
B. C. - F.M.C. # 66408 - Nov. 23, 1967

Horst P.W. Licht, Box 2146, Courtenay
B.C. - F.M.C. #41543 - Nov. 22, 1967

Vera M. Peager, Box 64, Royston, B.C.
F.M.C. #41518 - May 30, 1967

William Frank Murray, Box 302,
Courtenay, B. C. - F.M.C. #41480
March 17, 1967

Affidavit on Application for Certificate of Work

I, WILLIAM G. STEVENSON Agent for Mt. Washington Copper Co. Ltd.
(Name.) (Name.)
509 - 475 Howe Street 610 - 890 West Pender Street
(Address.) (Address.)
Vancouver 1, B.C. Vancouver 1, B.C.
Free Miner's Certificate No. 64323 Free Miner's Certificate No. 64779
Date issued May 25th, 1967 Date issued May 31st, 1967

make oath and say:—

I have done, or caused to be done, work on the Blue Jay 1 & 2 and the Grouse 1 & 2

Mineral Claim(s)

Record No.(s) 18978, 18979, 18976, 18977

situate at Vancouver Island, 5 miles southeast of Mt. Washington, 13 miles
northwest to Courtenay
in the Nanaimo Mining Division, to the value of at least

twelve hundred dollars
~~one hundred dollars~~ since the 6, 7, 14 day of October, 1966 and

the 7, 21, 27 day of September, 1966

The following is a detailed statement of such work:—

(Set out full particulars of the work done in the twelve months in which such work is required to be done.)

A tape and compass survey has been accomplished to establish
picket lines along logging roads. A series of samples have
been collected along these lines for geochemical ^{Assaying} sampling. A
geophysical survey using a Ronka 16 EM instrument has been con-
ducted along these survey lines. The attached report contains
a description of these exploration programs. The work accomplished
on the claims listed above is to satisfy the assessment requirements
for a period of one year on the Lichti Claim group: Grouse 1 - 2,
Blue Jay 1 - 2, #18976 - 18979, Sept. 7, 1966; Grouse 3 - 5 #19004 -
Blue Jay 3, #19007, September 27, 1966
19006 Sept. 21, 1966; Blue Jay 4 - 5 #19092 - 19093 Oct. 6, 1966;
^{with THE} Labelle #19094 Oct. 7, 1966; and Charles #19095 Oct. 14, 1966

That I have not and will not use the work declared herein in any way for the purposes of obtaining tax exemption on a Crown-granted mineral claim under the terms of the Taxation Act.

SWORN and subscribed to at Vancouver

this 23rd day of November

1967, before me—

* L. Strickler

SUB-MINING RECORDER

* This affidavit may be taken by a person empowered to take affidavits by the Evidence Act of British Columbia.

C E R T I F I C A T E

I, William G. Stevenson, do hereby certify:

1. That I am a Consulting Geological Engineer with offices at Suite 509 Stock Exchange Building, 475 Howe Street, Vancouver, B.C.
2. That I am a graduate of the University of Utah, 1946, with a Bachelor of Science degree.
3. That I am a registered Professional Engineer in the Association in British Columbia.
4. That I have practised my profession for twenty years.
5. That this report, dated November 17th, 1967 is based on work that has been accomplished under my direction and that I have made periodic trips to this property during the 1967 field season.

Dated at Vancouver, British Columbia, this 17th day of October, 1967.


W.G. STEVENSON, P. ENG.

A P P E N D I X M

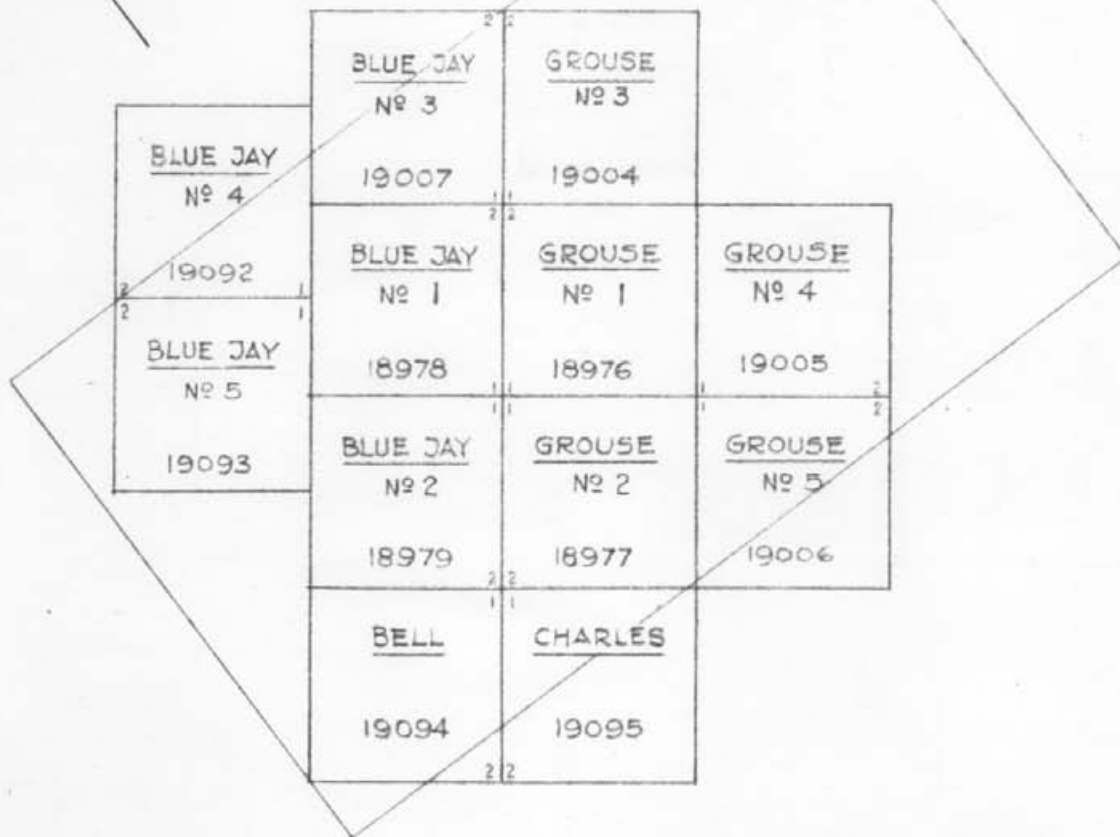
To accompany Geochemical Report dated November 17th, 1967 by W.G. Stevenson, P. Eng. regarding Blue Jay, Grouse, The Bell, and Charles Mineral Claims 13 miles northwest of Courtenay, Nanaimo Mining District.

1. The geochemical samples were collected from holes put down with a sharp narrow bladed spade.
2. The samples were collected immediately below the horizon containing humus and were free from humus. The material was for the most part slightly granular with only minor amounts of clay.
3. The samples were packaged in heavy paper bags specially prepared to assist in drying the samples.
4. The samples were partially dried by the personnel in the field. They were completely dried and screened to minus 80 mesh in the laboratory.
5. The geochemical assaying was accomplished by Bio Metals Corporation Ltd., 1515 Pemberton, North Vancouver and T.S.L. Laboratories, 325 Howe Street, Vancouver 1, British Columbia.
6. The samples were treated with hot HCL Acid extraction and assayed with an atomic flame photometer.

APPENDIX M

wyf

SEE APPENDIX C & D
SCALE 1"=400'



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

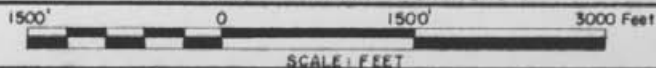
NO. 1142 MAP 5

APPENDIX K

MT. WASHINGTON COPPER MINES LTD.

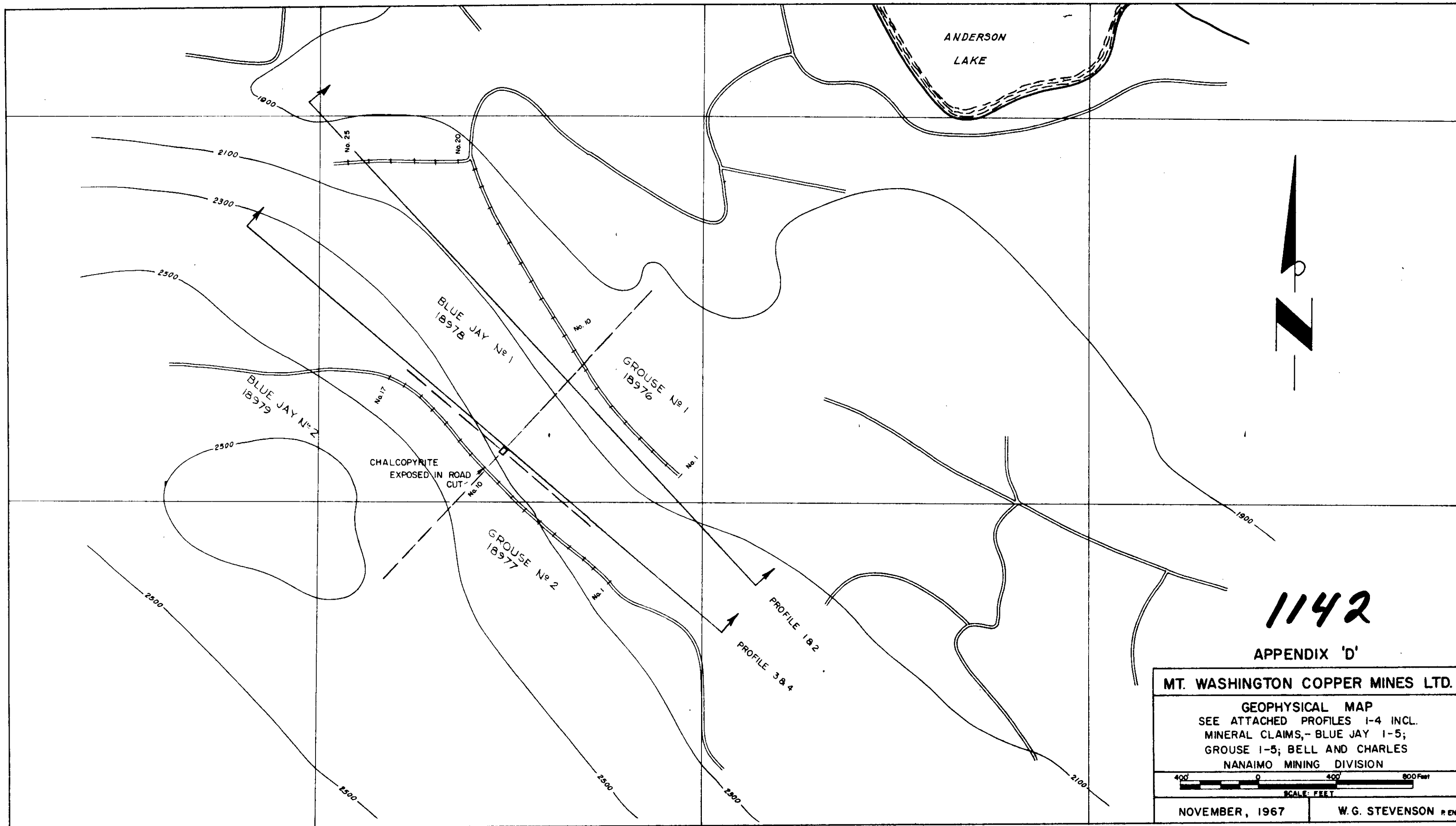
SKETCH MAP
OF
LITCHIE MINERAL CLAIMS

NANAIMO MINING DIVISION



NOVEMBER, 1967

W.G. STEVENSON PENG



1142

APPENDIX 'D'

MT. WASHINGTON COPPER MINES LTD.

GEOPHYSICAL MAP
SEE ATTACHED PROFILES 1-4 INCL.
MINERAL CLAIMS, - BLUE JAY 1-5;
GROUSE 1-5; BELL AND CHARLES
NANAIMO MINING DIVISION

400 0 400 800 Feet
SCALE: FEET

NOVEMBER, 1967

W. G. STEVENSON P. ENG.

