

ARCHER, CATHRO

& ASSOCIATES LIMITED

CONSULTING GEOLOGICAL ENGINEERS

VANCOUVER, B.C. (604) 688-2568

BOX 4127, WHITEHORSE, Y.T. Y1A 3S9 (403) 667-4415



1016 - 510 WEST HASTINGS STREET
VANCOUVER, B.C. V6B 1L8

WERNECKE JOINT VENTURE
GEOLOGICAL AND GEOCHEMICAL REPORT
JOLLY 1-10 CLAIMS
(YA63101-YA63110)



JANUARY, 1982

Claim Sheet 106C/13

Latitude 64°48'N; Longitude 133°54'W

D. Eaton, B.A., B.Sc.

Work done on July 8

090966

090966

This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representative work in the amount
of \$ 750.

Alkison

for Regional Exploration and
Geological Services for Commissioner
of Yukon Territory.

TABLE OF CONTENTS

	<u>PAGE</u>
Introduction -----	1
Property, Location and Access -----	1
Geology and Mineralization -----	2
Geochemistry -----	3
Discussion and Conclusions -----	5

LIST OF ILLUSTRATIONS

<u>Figure</u>	<u>Description</u>	<u>Pocket</u>
WJV81 J1	Jolly Property: Pb, Zn, Ag Geochemistry	A
WJV81 J2	Jolly Property: Cu, Au, Co Geochemistry	B

APPENDICES

Appendix I	Analytical Techniques
------------	-----------------------

INTRODUCTION

The Jolly property was staked by Wernecke Joint Venture (Chevron Canada Limited and Aquitaine Company of Canada Ltd.) in June, 1981 to protect a series of pyrite, galena and sphalerite-bearing veins discovered during follow-up of strong lead, zinc and silver and moderate copper and mercury stream sediment anomalies reported by the Geological Survey of Canada's Uranium Reconnaissance Program in Open File 518. These veins cut the same Helikian carbonates that host lead-zinc-silver veins currently being developed by Prism Resources Limited on its Rusty Mountain property 45 km to the southwest where recent underground work has outlined approximately one million tons grading 5.91 per cent lead, 1.10 per cent zinc, and 17.03 oz/ton silver. Similar stream sediment anomalies occur downstream from the Riocanex Cord property 10 km to the northeast which was explored by 5 diamond drill holes during July and August, 1981.

The 1981 WJV exploration program included prospecting and geochemical sampling traverses on and adjacent to the property, plus chip and grab sampling of sulphides, limonitic oxides and gangue from the veins. On July 8 D. Eaton of 3125 - 3rd Ave., Whitehorse, mapped and sampled two of the most promising structures.

PROPERTY, LOCATION AND ACCESS

The Jolly property consists of 10 contiguous mineral claims recorded in the name of Archer, Cathro & Associates (1981) Limited in the Mayo Mining District as follows:

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
Jolly 1-10	YA63101-YA63110	July 6, 1982

The claims are located at latitude 64°48'N and longitude 133°54'W within NTS claim sheet 106C/13, 165 km northeast of Mayo. The closest lake suitable for float-equipped, fixed-wing aircraft is Gillespie Lake, 9 km to the southwest, while the nearest bush airstrip is on the Bear River 18 km to the west. Access in 1981 was by helicopter from the WJV base camp at Bear River.

GEOLOGY AND MINERALIZATION

The property is situated on the east side of a U-shaped valley drained by a north-flowing tributary of the Bonnet Plume River. Elevations range from 1200 m in the creek bed to 1800 m on the ridge. The lower slopes are obscured by narrow lateral moraines produced by Pleistocene alpine glaciation and long, steep talus slopes, thus limiting outcrop to cliffs on the upper slopes and actively eroding creek beds. Vegetation is restricted to alder (buckbrush) in the creek beds.

Figure WJV81 J1 in Pocket A illustrates property geology which consists of a thick section of Helikian orange weathering, stromatolitic and cherty dolomites unconformably overlain by a thin layer of grey-green to maroon Hadrynian shales capped by orange to red-brown weathering dolomites and limestones. The Helikian dolomites trend 120°/25 N while the younger rocks trend 070°/10 E. A series of 1 to 3 m wide, northeast-striking and steeply dipping shear zones, cutting only the older dolomites, host lead-zinc mineralization and are the main areas of interest on the property.

The mineralization is predominantly pyrite with lesser galena and honey-yellow to dark-brown sphalerite in a matrix of secondary dolomite plus calcite and vuggy quartz surrounding dolomite breccia fragments. Anglesite, smithsonite and hydrozincite coat most weathered specimens and traces of malachite were seen in a few areas. No chalcopyrite or sulpho-salts were observed. The overall grade of the vein is visually estimated to be 1 per cent zinc and 0.5 per cent lead, although a few hand specimens containing up to 20 per cent zinc and 10 per cent lead have been discovered suggesting that high grade zones may be developed locally within the structures. Three grab samples and two chip samples of sulphide-bearing vein material from three veins returned assays ranging from 0.18 to 33.6 per cent lead, 0.06 to 6.52 per cent zinc and 0.2 ppm to 1.3 oz/ton silver. The silver to lead ratio ranged from 0.05:1 and averaged 0.22:1 per cent with little variation in the ratio between veins. A grab sample of limonite boxwork assayed 6.92 per cent lead and 0.9 oz/ton silver for a silver to lead ratio of 0.13:1 per cent. None of the samples from the veins, including samples of barren vuggy quartz and secondary dolomite gangue, returned gold values greater than 7 ppb.

Weathering has resulted in formation of extensively ferricrete gossans and kill zones on the talus slope below the veins. Three grab samples and a chip sample from these gossans averaged 0.12 per cent lead and 0.23 oz/ton silver for a silver to lead ratio of 1.9:1 per cent.

GEOCHEMISTRY

Figures WJV81 J1 and J2 in Pockets A and B respectfully, are a compilation of lead, zinc and silver and copper, gold and cobalt geochemical results

from the GSC stream sediment program and from 1981 WJV prospecting and sampling traverses.

Stream sediment samples collected below the mineralized veins returned strongly anomalous values for several elements including up to 870 ppm lead, 2600 ppm zinc, 4.0 ppm silver, 225 ppm copper, and 550 ppb mercury, while samples taken upstream from the veins reflect regional backgrounds which average approximately 40 ppm lead, 200 ppm zinc, 0.1 ppm silver, 30 ppm copper, and 50 ppb mercury.

These anomalies are part of a 3 km wide belt of stream sediment anomalies which extends from this property 15 km to the northwest, terminating downstream from a shale-hosted, lead-zinc occurrence on the Riocanex Cord property.

Soil and silt samples collected from small seeps are moderately anomalous for lead and zinc over a larger area than the claims, however, the most anomalous values lie within the claim block. Of the 46 samples collected, 28 per cent returned strongly anomalous lead values of greater than 500 ppm and 13 per cent returned moderately anomalous lead values of 200 to 500 ppm. Silver and copper anomalies ranging up to 9.6 ppm and 610 ppm respectively are mostly confined to the property with only two values exceeding 2.0 ppm silver and one value exceeding 75 ppm copper from outside the claim boundaries. Silver to lead ratios in anomalous soils ranged from a low of 0.07:1 per cent to a high of 8.8:1 and averaged about 0.5:1 per cent. No anomalous gold values were obtained either on or off the property.

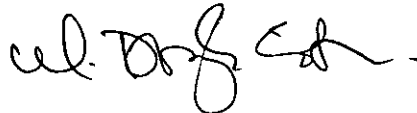
All samples collected during the program were analyzed at Chemex Labs Ltd., North Vancouver, B.C. and analytical techniques are discussed in Appendix I.

DISCUSSION AND CONCLUSIONS

The veins are too narrow and discontinuously mineralized to be of interest for lead and zinc, and silver to lead ratios from vein samples are too low to warrant further exploration for silver. The higher silver to lead ratios in the transported gossans are probably due to: (1) greater mobility of silver than lead in the surficial environment which tends to keep lead close to the source while silver is transported away in groundwaters; and, (2) the tendency for iron colloids to complex silver which results in silver concentrating in exotic limonites. Although the lead and zinc mineralization in the veins may be remobilized from exhalative, shale-hosted lead-zinc occurrences deeper in the section, the closest shales are approximately 100 m downdip and drilling on the nearby Riocanex shale-hosted occurrences returned discouraging grades of less than 2 per cent combined lead-zinc. The claims should be allowed to lapse on their expiry date.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED,



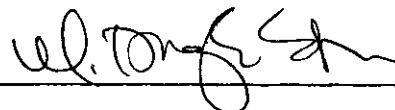
W. Douglas Eaton

/jm

STATEMENT OF QUALIFICATIONS

I, W. Douglas Eaton, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia, and residential address in Burnaby, British Columbia, do hereby declare:

1. I graduated from the University of British Columbia in 1980 with a B.Sc. and am currently enrolled in a M.Sc. majoring in Geological Sciences.
2. From 1971 to the present, I have been actively engaged in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981, became a partner in Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.



W. Douglas Eaton, B.A., B.Sc.

APPENDIX I

ANALYTICAL TECHNIQUES

ANALYTICAL TECHNIQUES

Preparation

All soil samples were dried and sieved through an ASTM 35 mesh screen (0.50 mm). The -35 mesh fraction was then pulverized and homogenized in a ring grinder to approximately -100 mesh (0.15 mm). For grab and chip samples from rocks, the entire sample was crushed and split. A subsample was then pulverized in a ring grinder to approximately -100 mesh.

Analytical Techniques

Gold was analyzed by a "combo technique" consisting of a fire assay followed by neutron activation, while copper, lead, zinc and silver were analyzed using a perchloric-nitric acid extraction followed by atomic absorption spectrometry.

ARCHER, CATHRO

AND ASSOCIATES LTD.

CONSULTING GEOLOGICAL ENGINEERS

BOX 4127, WHITEHORSE, Y.T. VIA 359 667-4415

STANDARD BUILDING, VANCOUVER, B.C. 688-2568



1016 STANDARD BUILDING
510 WEST HASTINGS STREET
VANCOUVER, B.C.
V6B 1L8

AFFIDAVIT

I, Joan Mariacher, of Vancouver, B.C. make oath and say:

That to the best of my knowledge the attached Statement of Expenditures for exploration work on the Jolly 1 - 10 mineral claims on Claim Sheet 106C/13 is accurate.


Joan Mariacher

Sworn before me at Vancouver, B.C.

this 7th day of

January, 1982



Notary, Yukon Territory

090966

Statement of Expenditures
Geological Mapping, Geochemistry and Geophysics
Jolly 1 - 10 Claims
January 4, 1982

Labour

D. Eaton - July 8 plus 1 day report preparation -
total 2 days at \$230/day \$460.00

Expenses

Helicopter - 0.5 hours Hughes 500D on contract from Viking Helicopter Ltd. at \$360/hour	\$180.00	
Helicopter fuel - 0.5 hours at 25 gal/hr = 12.5 gal at \$4.50 gal on site	56.00	
Geochem - 5 samples analyzed for one or more of Ag, Pb, Zn	20.00	
Room and board - 1 manday at \$40/day	<u>45.00</u>	<u>301.00</u>
Total		<u><u>\$761.00</u></u>



**White Pass
Petroleum
Services**

P.O. Box 4070
Whitehorse,
Yukon Y1A 3T1

DATE FEB 5 '81

ARCHER-CATHRO

ACCOUNT NUMBER

4718

Chevron



INVOICE

246800

TRUCK TRAILER

TRIP NO.

SHIP TO
STN. FROM

STN. CODE

109

ORDER NO.

WP NO.

STN. CODE	PRODUCTS DELIVERED	SIZE OF PACKAGE	CODE	QUANTITY	PRICE	AMOUNT
	<u>JP4</u>	<u>176</u>	<u>DES</u>	<u>28</u> <u>1</u> <u>1</u>	<u>7920</u>	<u>1.882</u> <u>14905</u> <u>4</u>
				<u>961</u> <u>3</u> <u>1</u>	<u>✓</u>	<u>.032</u> <u>253</u> <u>4</u>
<u>DELIVERED TO MAYO AIRPORT</u>						

DELIVERED BY <u>Opeltton</u>		PAYMENTS RECEIVED		TAX					
PRODUCTS RECEIVED BY		CASH	CHEQUES	DRUM CHARGES	<u>910</u> <u>049</u> <u>176 HU</u>	<u>55.00</u>	<u>9680</u>	<u>0</u>	
APPROVED	CHECKED	EXCHANGE	TOTAL	DRUM CREDITS					
TERMS - NET CASH (NO DISCOUNT)						TOTAL	<u>24838</u>	<u>8</u>	



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: (604)984-0221
 TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

*** INVOICE ***

To : ARCHER, CATHRO & ASSOCIATES (1981) LTD.
 1016 - 510 W. HASTINGS ST.,
 VANCOUVER, B.C.
 V6B 1L8

Invoice # : 18114451
 Date : 27-OCT-81
 P.O. # : NONE
 Project WJV-81

Invoice for analytical work reported on certificate(s) A8114451-001

Quantity	Analysed for code description	unit price	amount
4	002 - Cu ppm 101 - Au NAA ppb	7.50	30.00
5	002 - Cu ppm 003 - Mo ppm 006 - Ag ppm 009 - Co ppm	4.00	20.00
3	014 - U fluor. ppm	3.00	9.00
1	002 - Cu ppm 003 - Mo ppm 009 - Co ppm 014 - U fluor. ppm	6.25	6.25
9	014 - U fluor. ppm 101 - Au NAA ppb	8.75	78.75
18	101 - Au NAA ppb	5.75	103.50

Sample preparation and other charges :

40	214 - Bag pulp	0.00	0.00
----	----------------	------	------

TOTAL \$ 247.50
 Discount (20 %) \$ 49.50

Please pay this amount ----> \$ 198.00

TERMS -- NET 30 DAYS
 2.0 % per month (24 % per annum) charged on overdue accounts





CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

*** INVOICE ***

To : ARCHER, CATHRO & ASSOCIATES (1981) LTD.
1016 - 510 W. HASTINGS ST.,
VANCOUVER, B.C.
V6S 1L8

Invoice # : 18114450
Date : 22-OCT-81
P.O. # : NONE
Project WJV

Invoice for analytical work reported on certificate(s) 48114450-001

Quantity	Analysed for code description	unit price	amount
2	316 - Zn %	5.00	10.00
Sample preparation and other charges :			
2	214 - Bag pulp	0.00	0.00

TOTAL \$ 10.00
Discount (20 %) \$ 2.00

Please pay this amount ----> \$ 8.00
=====

TERMS -- NET 30 DAYS
2.0 % per month (24 % per annum) charged on overdue accounts





CHEMEX LABS LTD.

212 BROOKSBANK AVE
NORTH VANCOUVER, B.C.
CANADA V7J 2C7
TELEPHONE: (604)984-0227
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

*** INVOICE ***

To : ARCHER, CATHRO & ASSOCIATES (1981) LTD.
1016 - 510 W. HASTINGS ST.,
VANCOUVER, B.C.
V6B 1L8

Invoice # : 18114562
Date : 21-OCT-81
P.O. # : NONE
Project WJV

Invoice for analytical work reported on certificate(s) AB114562-001

Quantity	Analysed for code	description	unit price	amount
2	004 - Pb	ppm		
	005 - Zn	ppm		
	006 - Ag	ppm	3.25	6.50
5	002 - Cu	ppm		
	003 - Mo	ppm		
	004 - Pb	ppm		
	009 - Co	ppm		
	006 - Ag	ppm	4.75	23.75
13	002 - Cu	ppm	1.75	22.75

Sample preparation and other charges :

20	214 - Bag pulp		0.00	0.00
----	----------------	--	------	------

TOTAL	\$	53.00
Discount (20 %)	\$	10.60

Please pay this amount ----> \$ 42.40
=====

TERMS -- NET 30 DAYS

2.0 % per month (24 % per annum) charged on overdue accounts



MEMBER
CANADIAN TESTING
ASSOCIATION

Project - WERNECKE JOINT VENTURE
 Date -- JULY 31, 1981

MANAGEMENT		Total
	July	2,250.

LABOUR
 Supervisory

Field	D. EATON - JULY 1-27; 30-31 AT 3000/mo	2807.00	
	J. COCKELL - JULY 1-31 AT 1900/mo	1900.00	
	T. STOKES - JULY 1-31 AT 2050/mo	2050.00	
	L. CYMBALYSTY - JULY 1-31 AT 1700/mo	1700.00	
	B. HALLERAN - JULY 1-31 AT 1650/mo	1650.00	
	G. BROWN - JULY 1-31 AT 1400/mo	1400.00	
	K. COCKELL - JULY 1-31 AT 1250/mo	1250.00	
	M. WONG - JULY 1-31 AT 1250/mo	1250.00	
	S. BILAWICH - JULY 1-31 AT 1150/mo	1150.00	
	D. HEBERLEIN - JULY 1-31 AT 2200/mo	2200.00	17357.00

plus 50% 8678.50

Casual	K. Hackman - July 26	1	120.00
--------	----------------------	---	--------

EXPENSES

Accounting	July	400.00	C3
Expediting	July 1-31	900.00	D3
Room & Board in Whse	J. C. Hubel + day; D. Heberlein 30 day; Hackman 1 day		
	total 5 days at \$ 35 / day	280.00	DY
Field equipment from AC stock		17.00	D1
Xerox copies, 270 copies at 25¢ / copy		67.50	C1
Radio rental	5 BX 100 July; 5 BX 10 July; 5 BX 10 1/2 Mo.	575.00	ETD1
Rental AC truck	at \$ /mo.		
plus (to)	kms at /km		
Petty cash	44.80 + 9.25 + 1.75 D1	55.80	D1-11-10 Dr. x 10 P-10
Telephone			
Blueprinting,	sq. ft. Ozalid at - c/ft plus sq. ft. Dilar at \$ - /ft.		
Drafting,	1 1/2 hrs. at \$ 18 /hr.	27.00	C1
Honda generator,	June-July 30 @ 5/day	305.00	D1
Rental AC diamond saw,	July 1-31	60.00	D1
Rental AC Computer for Chemex data		150.00	D1
T. plots for crew		100.00	D1
Genie for log		14.70	DY
Air lock		263.30	H
Can freight charge		11.64	D3
Yukon Honda		1.50	D1
Whisper Generator - July, etc		80.00	F
2x 4x10 x 2 etc		50.00	DY
Whitehouse motor - June fuel - misc		49.70	DY

Total 31812.50

VIKING HELICOPTERS LIMITED FLIGHT REPORT

NR 008622

BOX 5104, STN. F, OTTAWA, ONTARIO, CANADA, K2C 3H4

613-257-4660

DATE July-08-81

PILOT <i>Harold Gourley</i>	HELICOPTER REGISTRATION <i>C-644A</i>	CTC ZONE <i>9.0</i>	CONTRACT No.	IF NO FLYING CHECK: <input type="checkbox"/> NIL ASSIGNMENT <input type="checkbox"/> WEATHER <input type="checkbox"/> UNSERVICEABLE
ENGINEER	HELICOPTER TYPE <i>500-0</i>	CLASS <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 7 TYPE	TOTAL A/F HOURS	

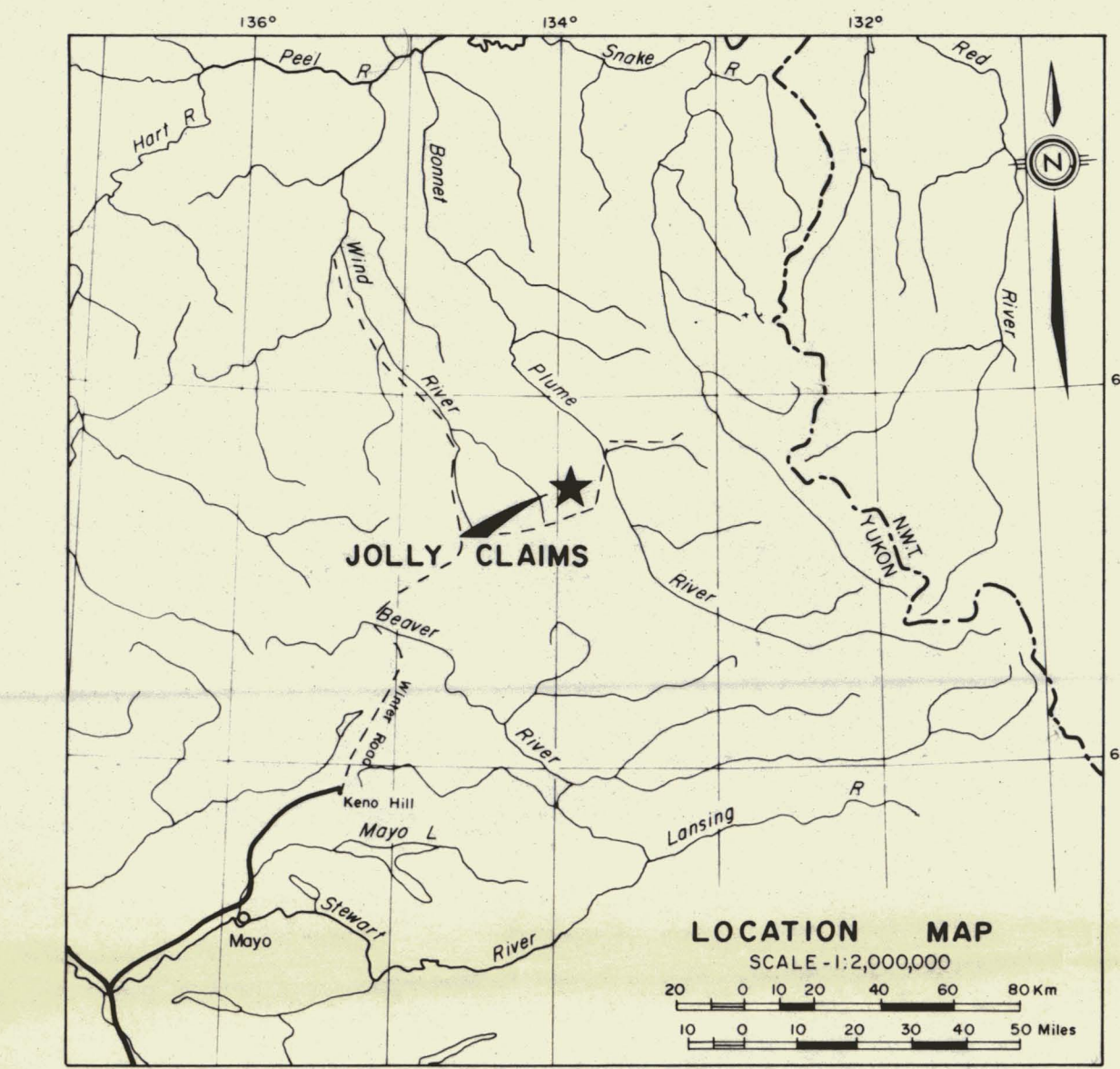
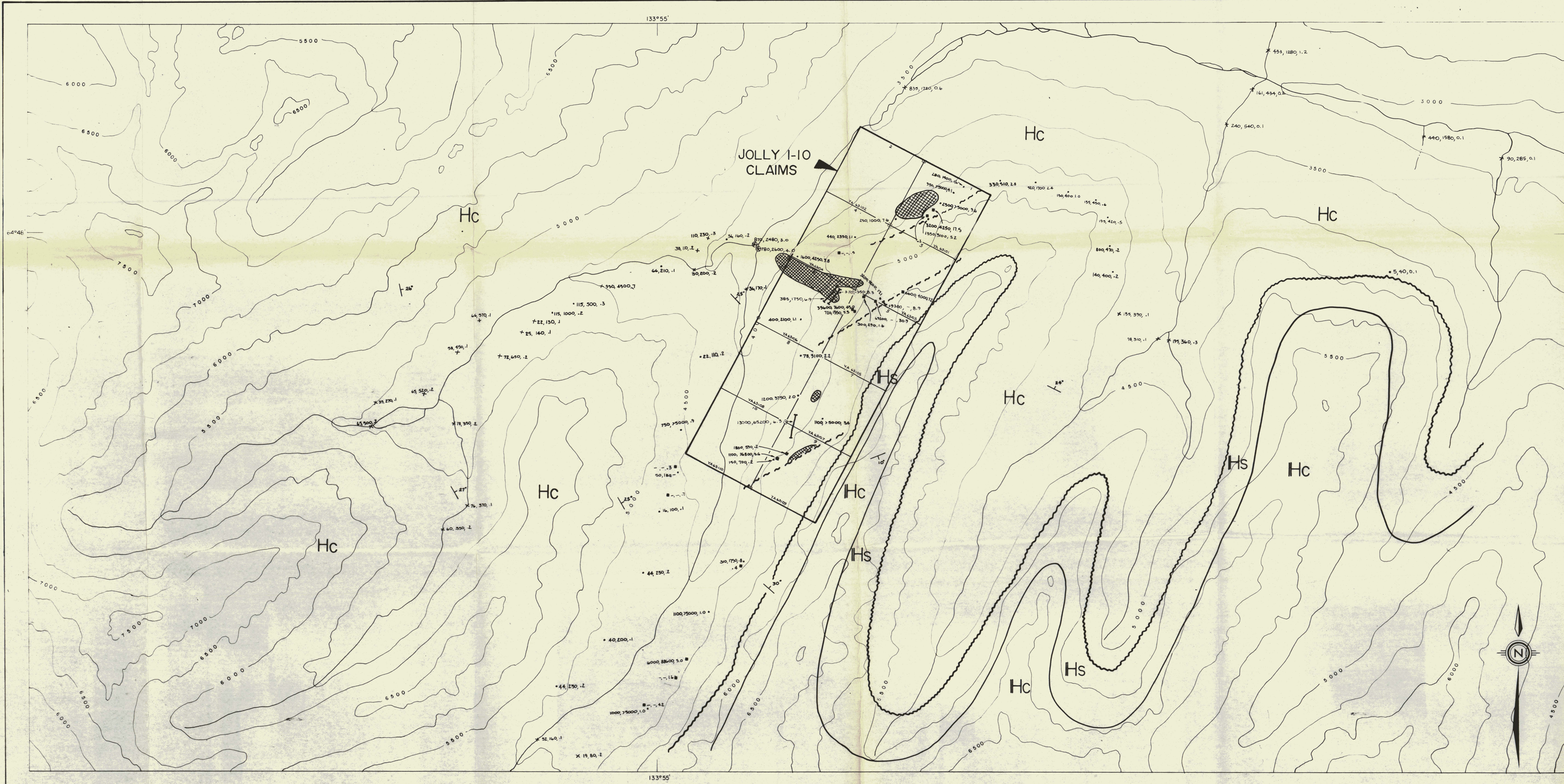
FLT. NO.	JOURNEY FROM PREVIOUS LINE TO	PASSENGERS	TIME UP	TIME DOWN	AIR TIME	FUEL GALS. REFUNDABLE	REMARKS
1	<i>Igor</i>	<i>Geo phy</i>	<i>8:00</i>	<i>8:30</i>	<i>:30</i>		
2	<i>Pike</i>	<i>Bill & Mike</i>	<i>8:30</i>	<i>9:55</i>	<i>:25</i>		
3	<i>Bond</i>	<i>Doug & Neil</i>	<i>9:50</i>	<i>10:10</i>	<i>:20</i>		
4	<i>Finewood</i>	<i>Doug</i>	<i>10:15</i>	<i>10:20</i>	<i>:05</i>		
5	<i>Finewood Bond - this Doug</i>	<i>Doug</i>	<i>10:55</i>	<i>11:30</i>	<i>:35</i>		
6	<i>Sally Bond - this Dill</i>	<i>Doug, Neil</i>	<i>12:30</i>	<i>12:50</i>	<i>:20</i>		
7	<i>Dill</i>	<i>-</i>	<i>13:20</i>	<i>14:05</i>	<i>:45</i>		
8	<i>Sally</i>	<i>Doug, Neil</i>	<i>12:50</i>	<i>12:45</i>	<i>:15</i>		
9	<i>Pike</i>	<i>Bill & Mike</i>	<i>12:55</i>	<i>13:25</i>	<i>:30</i>		
10	<i>Geo phy Igor</i>	<i>-</i>	<i>13:25</i>	<i>13:55</i>	<i>:30</i>		
11							
12							
13							CONDITIONS OF CARRIAGE
14							

CLIENT NAME & ADDRESS
Archer - Cathers & Assoc.

DAILY TOTAL HOURS	<i>4:15</i>
BROUGHT FORWARD	<i>72:20</i>
TOTAL CONTRACT HOURS	<i>76:35</i>

The Charter Tariff of Viking Helicopters Limited (the Carrier), which is available for examination (at any office of the Carrier upon request), is deemed to form a part of this and all contracts for the carriage of the Charter and/or his servants, agents and/or goods. In particular, the Charterer is advised that the liability of the Carrier for loss or damage to the goods of the Charterer is limited to the sum of 10¢ per lb., pursuant to Rule 13 of its said Charter Tariff.

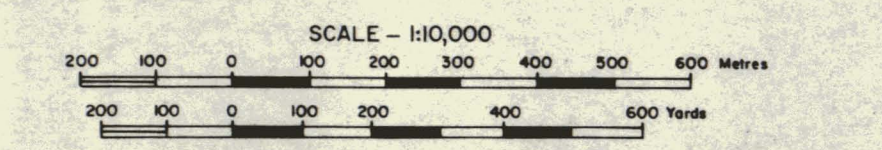
[Signature]
APPROVAL AUTHORIZED COMPANY REPRESENTATIVE.

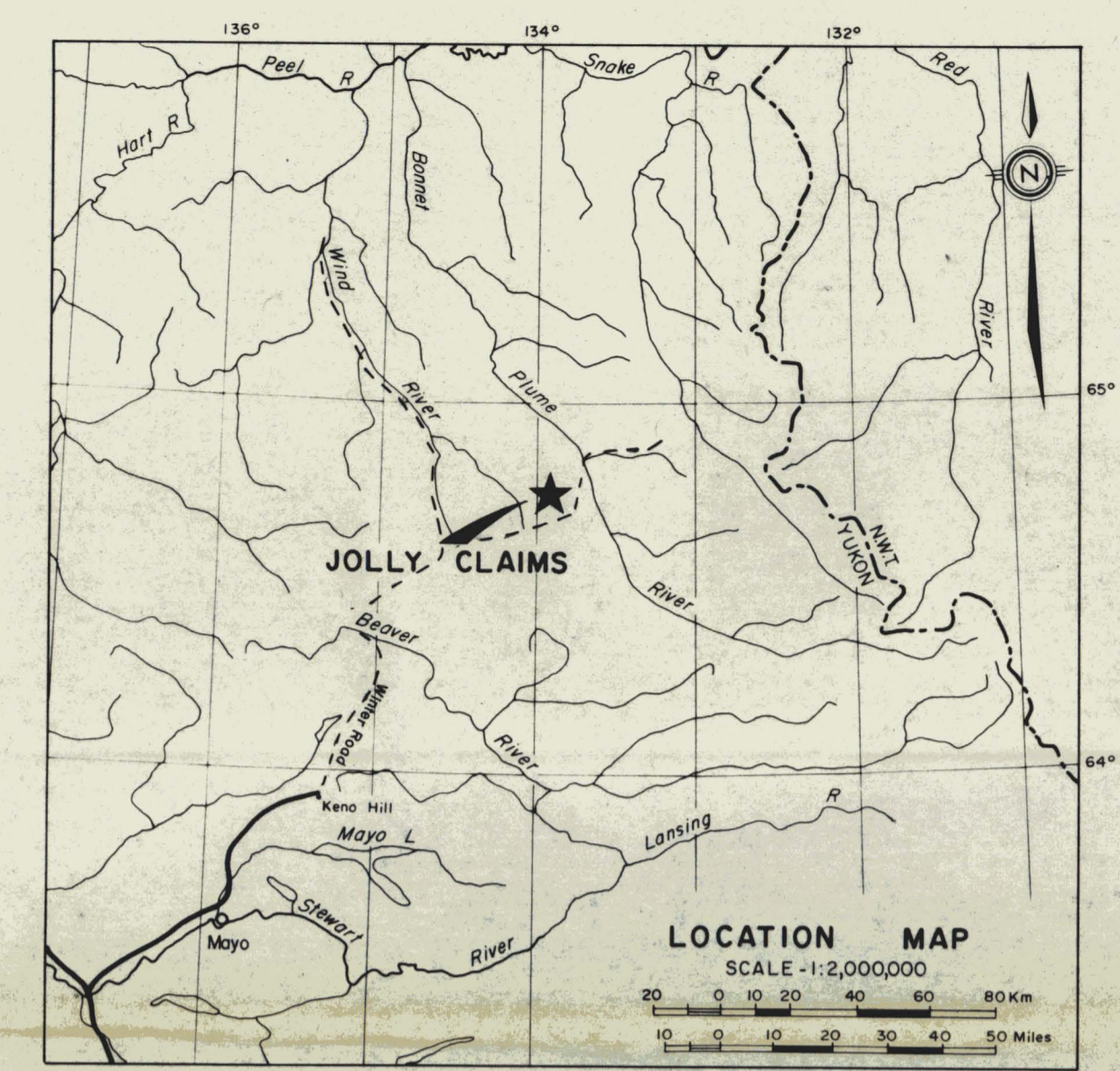
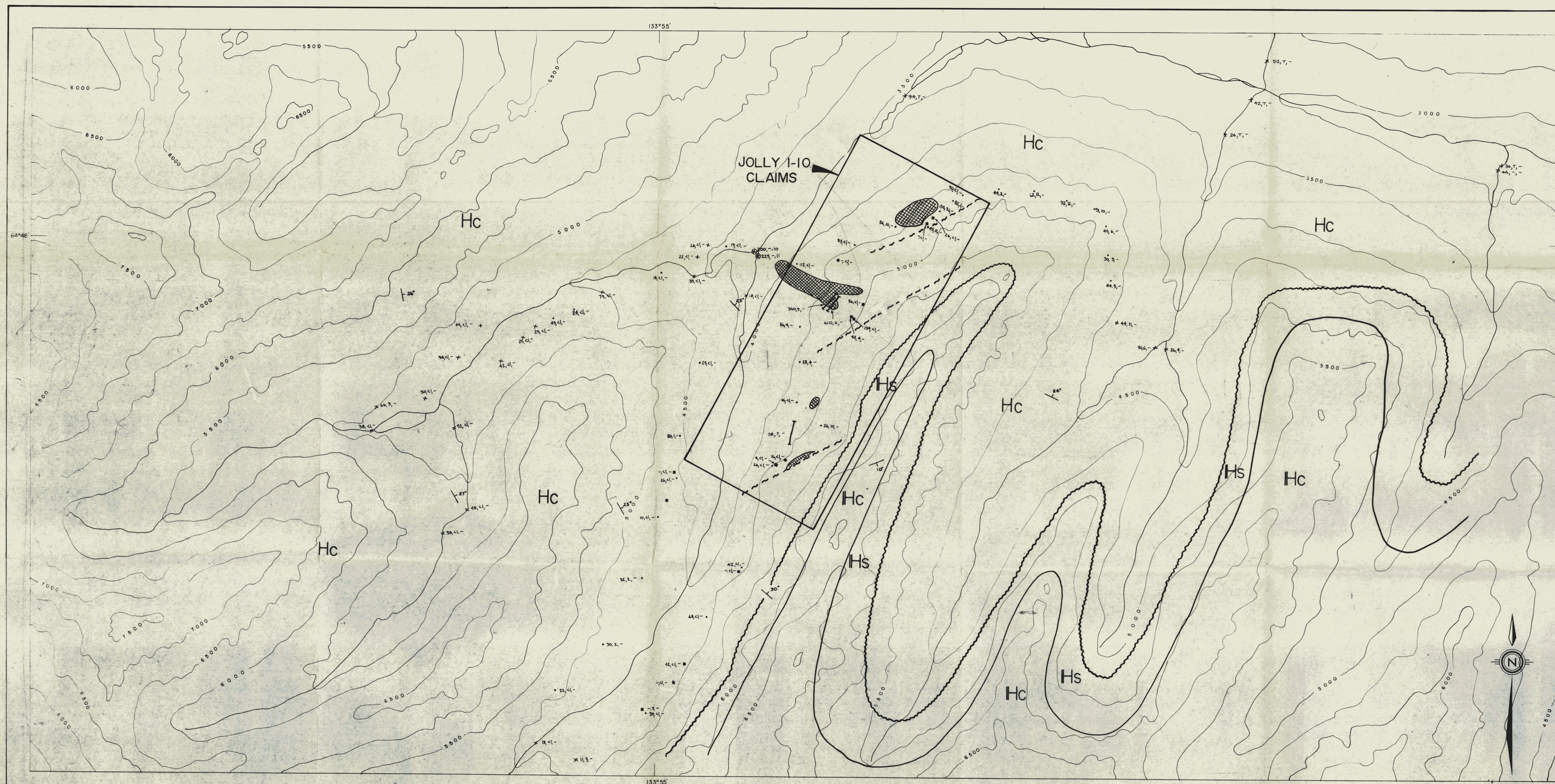


GEOLOGY

- HADRYNIAN**
- Hc orange weathering banded dolomite and minor limestone overlain by grey weathering dolomitized limestone
 - Hs thin bedded, dark grey to grey-green shales
- HELIKIAN**
- Hc orange weathering, stromatolitic dolomite with cherty horizons
- fault trace
 - observed geological contacts
 - ~ angular unconformity
 - ⊗ ferricrete gossan
 - ⊙ bedding attitude
 - soil sample location
 - rock sample location
 - ⊥ chip sample location
 - ⊕ claim posts
 - ⊙ GSC silt sample location

FIG. WJV81- J1
 ARCHER, CATHRO & ASSOCIATES (1981) LTD.
LEAD, ZINC & SILVER GEOCHEMISTRY
 JOLLY PROPERTY
 WERNECKE JOINT VENTURE



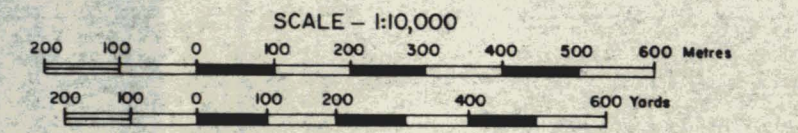


GEOLOGY

- HADRYNIAN**
- Hc** orange weathering banded dolomite and minor limestone overlain by grey weathering dolomitized limestone
 - Hs** thin bedded, dark grey to grey-green shales
- HELIKIAN**
- Hc** orange weathering, stromatolitic dolomite with cherty horizons
- - - - - fault trace
 ———— observed geological contacts
 ~~~~~ angular unconformity  
 ⊗ ferricrete gossan  
 — bedding attitude  
 • soil sample location  
 ■ rock sample location  
 — chip sample location  
 ⊕ claim posts  
 ⊙ GSC silt sample location
- Cu in ppm, Au in ppb, Co in ppm

FIG. WJV81- J2  
 ARCHER, CATHRO & ASSOCIATES (1981) LTD.  
**COPPER, GOLD & COBALT GEOCHEMISTRY**

JOLLY PROPERTY  
 WERNECKE JOINT VENTURE



090966

January 20, 1982