

80 #898 - #8594

WITCH CLAIMS, B.C.
GEOCHEMISTRY, PROSPECTING & GEOLOGY
1980

Omineca M.D. N.T.S. 94B/5W
56°22'N 123°47'W

G. D. Hodgson October 1980

Owner and Operator: Riocanex Ltd.

Work performed on:	Record No.	Expiry Date
Witch 1 - 3	2297-2299	15 Nov 81

MINERAL RESOURCES BRANCH

ASSESSMENT REPORT

8594

WITCH CLAIMS, B.C.

GEOCHEMISTRY, PROSPECTING & GEOLOGY 1980

OMINECA M.D.

N.T.S. 94B/5W

56°22'N 123°47'W

SUMMARY

The Witch claims were staked in the fall of 1979 to cover streams anomalous for lead and zinc. The claims are underlain by lower Paleozoic carbonates, thrust from the southwest.

Silt sampling in 1980 confirmed the high lead values, but the source of the lead remains unknown. Prospecting was unsuccessful and, lithologically, the country rock carbonates do not appear to be suitable host rocks for mineralization.

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LIST OF ILLUSTRATIONS

Dwg. No.

L-6663	Location Map	After page 2
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G-8811	Geology & Silt Sample Locations	In Pocket
G-8812	Ag, Cu, Pb, Zn ppm	In Pocket

APPENDICES

I	GEOCHEMISTRY
II	COST STATEMENT
III	CERTIFICATE

1. INTRODUCTION

Riocanex was approached in the fall of 1979 with information that led to the Witch claims being staked. The area of interest included ground drained by creeks apparently highly anomalous for lead and zinc.

The 1980 Riocanex reconnaissance programme comprised check silt sampling and prospecting as a precursor to a larger programme of exploration at some later time.

.../2

2. LOCATION & ACCESS

The claims are situated west of Gauvreau Peak in the northern Rocky Mountains, north of the Peace Arm of Williston Lake and east of the Ospika River (Dwg. L- 6663).

Latitude $56^{\circ}22'N$

Longitude $123^{\circ}47'W$

N.T.S. 94B/5W

Omineca M.D.

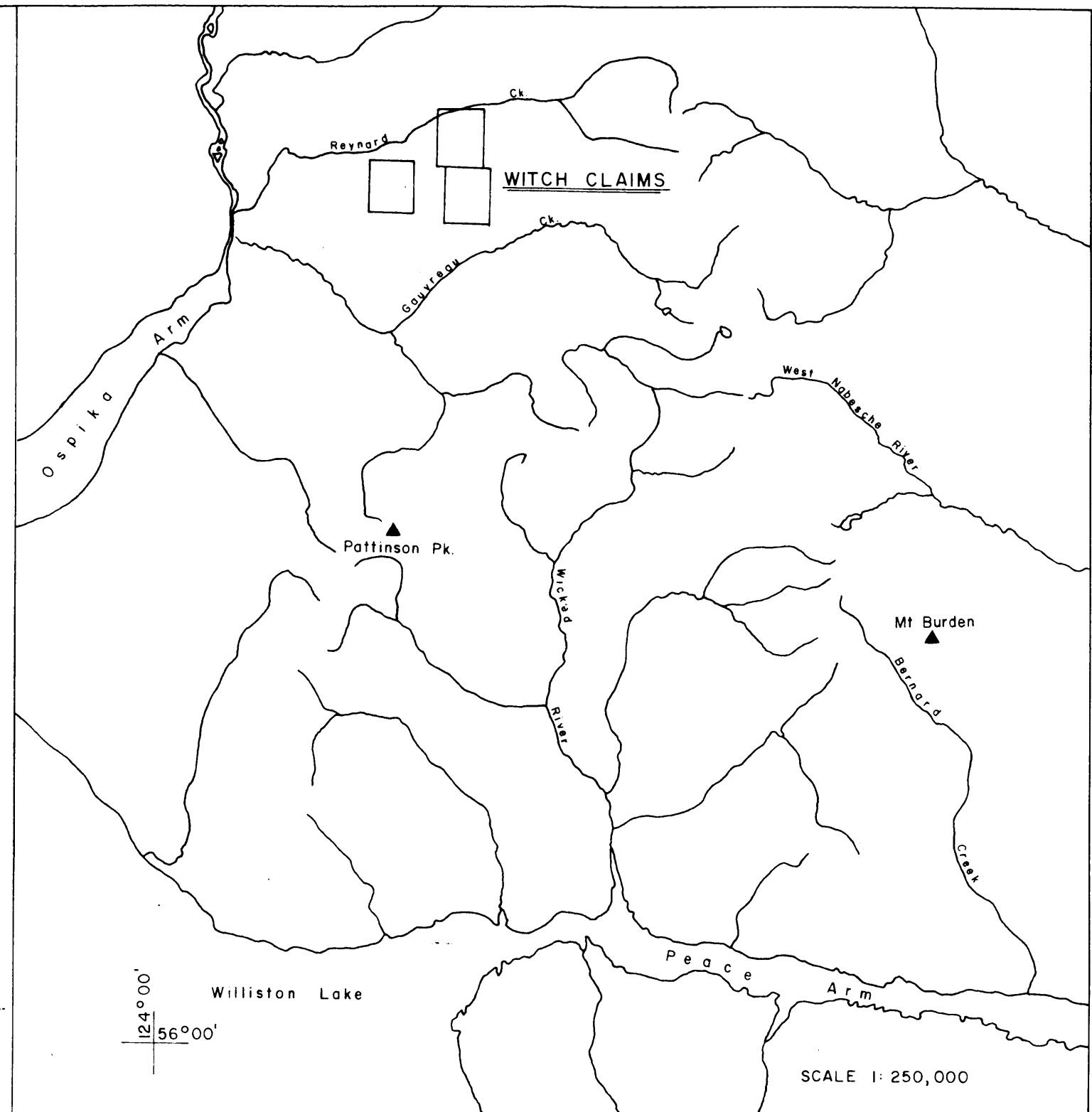
The nearest major centres are Mackenzie, B.C., 120km to the south, and Fort St. John, B.C., 180km to the east. Gravel roads run to Finlay Forks, at the junction of the Peace Arm and the Parsnip Arm, and to Mesilinka, a large logging camp on the west side of Williston Lake, 50km to the southwest.

Access to the claims is by helicopter. In 1980 Riocanex had a contract machine at their exploration base camp on Pretzel Lake, 145km to the northwest. Helicopters are permanently based at Mackenzie and Fort St. John.

3. TOPOGRAPHY & VEGETATION

The area is mountainous and elevations range from less than 1000m to more than 2000m above sea level. Much of the area is above tree-line and is covered by alpine meadow, or scree where the slopes are steeper. Lower slopes and valley bottoms are covered with spruce.

.../3



N.T.S. 94B / 5

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WITCH CLAIMS

LOCATION MAP

DATE	DRAWN BY	DWG.
OCT. 1980	GDH / sg	L - 6663

4. HISTORY & PREVIOUS WORK

Riocanex staked the ground in the fall of 1979 (Dwg. C- 6664). Prior to that the ground probably had a cursory examination by exploration companies in the late 60's and early 70's following the Robb Lake Pb-Zn discovery, 70km to the north.

Irish (1970) and Thompson (1979) have produced the only regional maps of the area.

5. WORK PERFORMED IN 1980

The Riocanex reconnaissance programme in 1980 comprised silt sampling and prospecting in anticipation of a larger programme in 1981.

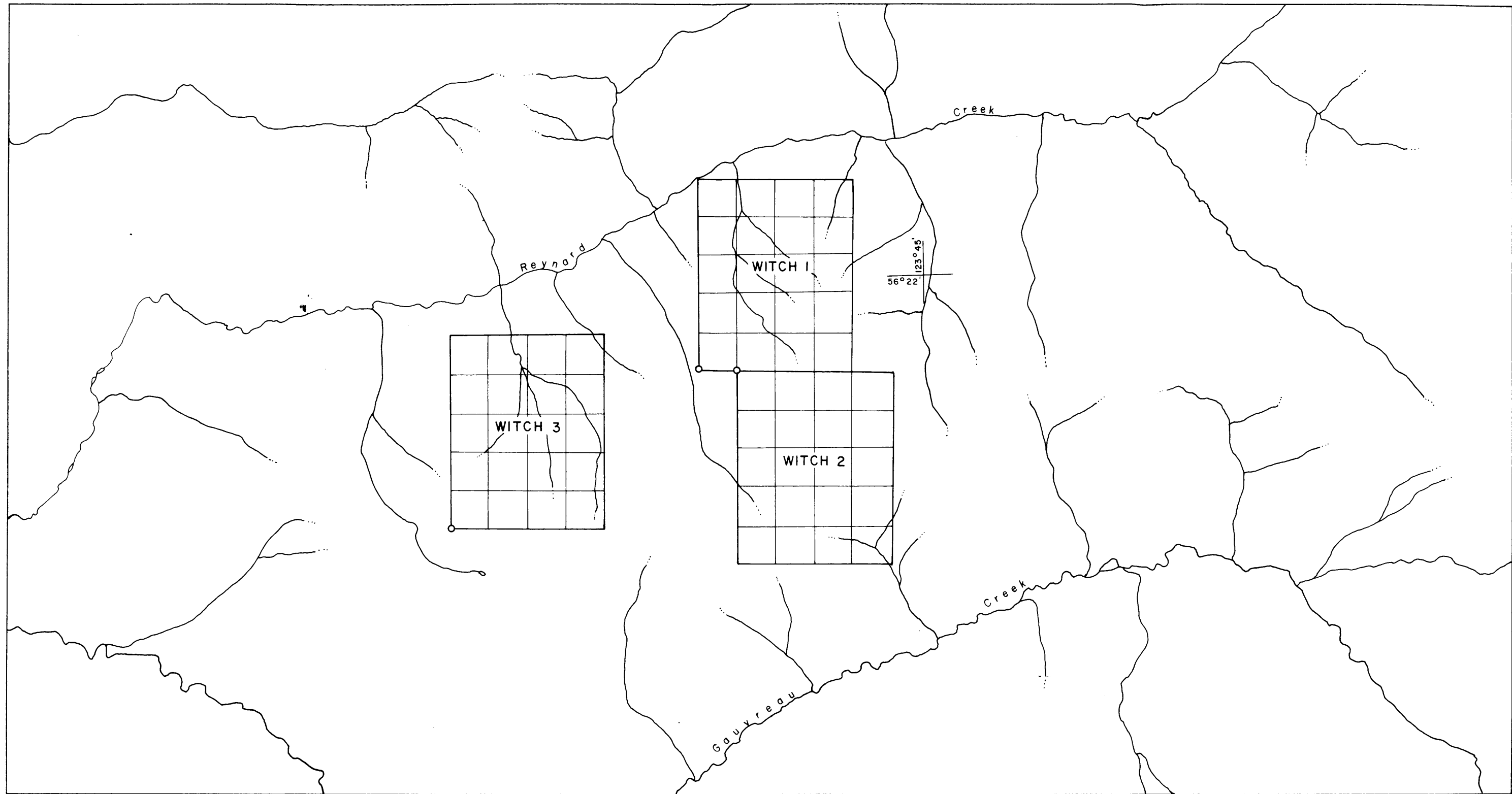
Geological mapping and prospecting was by G.D. Hodgson. P.D. McCarthy supervised the silt sampling. The contract helicopter was supplied by Northern Mountain Helicopters, Ltd., of Prince George, B.C.

6. GEOLOGY

6.1 Regional

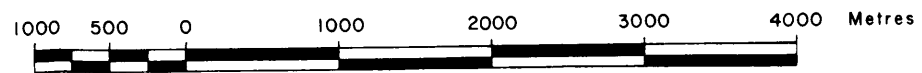
The area is dominated by a series of north-south trending, west-dipping thrust faults (Irish, 1970). Units are therefore exposed in linear belts between the thrust faults. Lower Paleozoic carbonates underlie the area west of Gauvreau Peak, and Thompson (1979) recognized three major stratigraphic divisions, namely, (i) Cambro-Ordovician Kechika Group, comprising cleaved phyllitic, calcareous siltstone-shale, silty limestone, wavy banded

.../4



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SCALE 1:50,000



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WITCH CLAIMS

CLAIM MAP

DATE	DRAWN BY	DWG.
OCT. 1980	GDH / sg	C-6664

limestone, sandstone and minor greenstone; (ii) Ordovician Skoki Formation of massive dolostone, carbonaceous and argillaceous dolostone, argillaceous limestone and dolomitic siltstone; and (iii) Ordovician-Silurian Road River Group, which includes calcareous shale, argillaceous limestone and siltstone.

6.2 Property (Dwg. G- 8811)

Witch 1 and Witch 2 are staked over flat lying to gently southwest dipping Kechika Group rocks. Locally these include grey to brown weathering thinly bedded dolostones and limestones, and also limy phyllites.

Witch 3 is underlain by an overturned anticline-syncline couple, with Kechika carbonates exposed in the core of the anticline and Skoki Formation, thick to massively bedded grey dolostones, above.

High angle thrust faults have cut the rocks into linear belts.

6.3 Mineralization

Minor hydrozincite occurs in fractures in dolostone on the ridge west of Butt Creek and in brecciated dolostone at the head of Butt Creek (Woodcock 1975). Disseminated pyrite occurs in a silicified dolostone in outcrops along the creek bed of Butt Creek.

.../5

7. PROSPECTING

Several creeks and ridges were prospected but no additional mineralization was discovered. The high lead geochemistry in silts remains unexplained.

8. GEOCHEMISTRY

Silt samples were taken at 500m intervals along the creeks draining the Witch claims. Coarse detritus and organic material were avoided where possible. Samples were collected in kraft paper bags and sent to the Riocanex Laboratory in North Vancouver for analysis for Ag, Cu, Pb and Zn.

The samples were prepared by drying and sieving -80 mesh. 0.6 gm of each sample was placed in a test tube to which was added 2 ml concentrated nitric acid. The solution was heated in a hot water bath at 95°C for ½ hour and then allowed to cool. 1 ml concentrated hydrochloric acid was then added, and the solution heated in a hot water bath at 95°C for 1½ hours. After being cooled each sample solution was diluted with deionized water to a final volume of 12 ml. The sample solutions were then analyzed by atomic absorption.

Sample locations are shown in Dwg. G-8811 and results are given in Dwg. GC-8812. Anomalous values were not returned with respect to Ag, Cu or Zn. Pb values confirm an earlier report (Woodcock 1975).

A number of samples were taken of iron-rich gossanous material. These were sent to Chemex Labs of North Vancouver for multispectral analysis. No encouraging results were returned.

.../6

9. CONCLUSIONS

- 9.1 The source of the high Pb values in stream silts remains undetected.
- 9.2 The carbonate country rock appeared unsuitable as a host for lead-zinc mineralization. The predominant lithology is a grey to brown weathering, fine-grained, thinly bedded dolostone.

10. REFERENCES

- IRISH, E. J. W., 1970: Halfway River Map-Area, British Columbia, Geol. Surv. Can., Paper 69-11 and Map 1232A
- THOMPSON, R.I., 1979: Halfway River Map-Area, British Columbia, Geol. Surv. Can., O. F. 536
- WOODCOCK, J.R., 1975: Untitled internal M.S.

APPENDIX I

GEOCHEMISTRY

SAMPLE NO.	AG, PPM	CU, PPM	PB, PPM	ZN, PPM	COMMENTS
8000250	.4	15.0	471.0	215.0	SOIL
8000251	.2	19.0	201.0	885.0	SOIL
8000252	.3	17.0	361.0	327.0	SOIL
8000253	.2	15.0	220.0	327.0	SOIL
8000254	.1	11.0	49.0	301.0	SOIL
8000255	.2	17.0	137.0	649.0	SOIL
8000256	.0	11.0	107.0	684.0	SOIL
8000257	.4	15.0	161.0	815.0	SOIL
8000258	.4	15.0	169.0	703.0	SOIL
8000259	.1	11.0	27.0	251.0	SOIL
8000260	.1	10.0	28.0	223.0	SOIL
STD 1	.1	29.0	28.0	941.0	CONTROL
8000261	.2	13.0	96.0	172.0	SOIL
8000262	.0	13.0	31.0	88.0	SOIL
8000263	.0	12.0	25.0	77.0	SOIL
8000264	.0	12.0	33.0	70.0	SOIL
8000265	.0	7.0	39.0	117.0	SOIL
8000266	.1	14.0	16.0	197.0	SOIL
8000267	.4	22.0	18.0	333.0	SOIL
8000268	.3	36.0	219.0	409.0	SOIL
8000269	.1	30.0	121.0	454.0	SOIL
BLANK	.0	.0	.0	.0	BLANK
8000270	.2	21.0	71.0	275.0	SOIL
8000271	.1	15.0	37.0	242.0	SOIL
8000272	.2	21.0	96.0	310.0	SOIL
8000273	.2	17.0	69.0	260.0	SOIL
8000274	.1	19.0	34.0	355.0	SOIL
8000275	.0	13.0	29.0	322.0	SOIL
8000276	.0	13.0	24.0	232.0	SOIL
8000277	.0	9.0	24.0	129.0	SOIL
8000278	.1	8.0	47.0	179.0	SOIL
8000253	.2	15.0	223.0	336.0	REPEAT
8000256	.0	11.0	110.0	665.0	REPEAT
8000265	.0	7.0	40.0	120.0	REPEAT
8000271	.1	14.0	36.0	232.0	REPEAT
8000278	.0	9.0	48.0	177.0	REPEAT



CHEMEX LABS LTD.

21 ROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: [REDACTED] 984-0221
 AREA CODE: 604
 TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Riocanex Ltd.
 Ste. 520 - 800 W. Pender St.
 Vancouver, B.C.
 V6C 2V6

ATTN: G.D. Hodgson

CC: Mackenzie, B.C.

CERTIFICATE NO. SP 706
 INVOICE NO. 38479
 RECEIVED Aug. 14/80
 ANALYSED Aug. 29/80

SAMPLE NO. :	Lower Concentration Limit (PPM)	8001025	8001075	8001076	8001079	8001080	8001081
Antimony	50	bcl	bcl	bcl	bcl	bcl	bcl
Arsenic	50	bcl	bcl	bcl	bcl	bcl	bcl
Barium	5	300	200	1000	15	10	15
Beryllium	5	bcl	bcl	bcl	bcl	bcl	bcl
Bismuth	5	bcl	bcl	bcl	bcl	bcl	bcl
Boron	20	bcl	bcl	bcl	bcl	bcl	bcl
Cadmium	20	bcl	bcl	bcl	bcl	bcl	bcl
Calcium	0.05%	0.05%	1.5%	0.2%	15%	15%	15%
Chromium	10	100	100	50	bcl	bcl	bcl
Cobalt	10	bcl	bcl	bcl	bcl	bcl	bcl
Copper	1	7	10	5	7	5	3
Gallium	5	10	15	7	bcl	bcl	bcl
Germanium	20	bcl	bcl	bcl	bcl	bcl	bcl
Indium	50	bcl	bcl	bcl	bcl	bcl	bcl
Iron	0.05%	0.7%	2%	20%	2%	1.5%	0.7%
Lead	5	20	30	300	50	100	10
Magnesium	0.02%	0.5%	1%	0.15%	10%	10%	10%
Manganese	5	15	100	50	100	150	200
Molybdenum	10	<100	<100	<100	<100	<100	<100
Nickel	5	bcl	15	10	bcl	bcl	bcl
Niobium	50	bcl	bcl	bcl	bcl	bcl	bcl
Silver	1	15	20	10	20	30	20
Strontium	2	bcl	bcl	bcl	bcl	bcl	bcl
Tellurium	200	bcl	bcl	bcl	bcl	bcl	bcl
Thorium	200	bcl	bcl	bcl	bcl	bcl	bcl
Tin	10	2000	5000	500	20	20	200
Titanium	5	20	200	bcl	100	70	100
Vanadium	20	bcl	70	50	bcl	bcl	bcl
Zinc	50	300	200	20	bcl	bcl	bcl
Zirconium	20	bcl	bcl	bcl	bcl	bcl	bcl

SEMI QUANTITATIVE SPECTROGRAPHIC ANALYSES

>5000 ppm => 5000 ppm 50 ppm = 25-100 ppm
 5000 ppm = 2500-10000 ppm 20 ppm = 10-50 ppm
 2000 ppm = 1000-4000 ppm 10 ppm = 5-20 ppm
 1000 ppm = 500-2000 ppm 5 ppm = 2-10 ppm

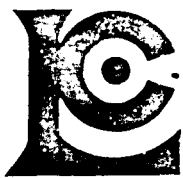
500 ppm = 250-1000 ppm 2 ppm = 1-4 ppm
 200 ppm = 100-400 ppm 1 ppm = 0.5-2 ppm
 100 ppm = 50-200 ppm bcl = below concentration limit

Ranges for Iron, Calcium & Magnesium are reported in %



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY: *[Signature]*



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 Ste. 520 - 800 W. Pender St.
 Vancouver, B.C.
 V6C 2V6

ATTN: G.D. Hodgson

CC: Mackenzie, B.C. *WITCO*

CERTIFICATE NO. SP 706
 INVOICE NO. 38479
 RECEIVED Aug. 14/80
 ANALYSED Aug. 29/80

SAMPLE NO. :	Lower Concentration Limit (PPM)	8001089	8001083
Antimony	50	bcl	bcl
Arsenic	50	bcl	bcl
Barium	5	20	50
Beryllium	5	bcl	bcl
Bismuth	5	bcl	bcl
Boron	20	bcl	bcl
Cadmium	20	bcl	bcl
Calcium	0.05%	0.2%	15%
Chromium	10	50	bcl
Cobalt	10	bcl	bcl
Copper	1	20	2
Gallium	5	10	bcl
Germanium	20	bcl	bcl
Indium	50	bcl	bcl
Iron	0.05%	>20%	2%
Lead	5	50	50
Magnesium	0.02%	0.1%	7%
Manganese	5	10	150
Molybdenum	10	<100	<100
Nickel	5	bcl	bcl
Niobium	50	bcl	bcl
Silver	1	bcl	20
Strontium	2	bcl	bcl
Tellurium	200	bcl	bcl
Thorium	200	bcl	bcl
Tin	10	200	500
Titanium	5	100	100
Vanadium	20	200	bcl
Zinc	50	30	20
Zirconium	20		

SEMI QUANTITATIVE SPECTROGRAPHIC ANALYSES

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 5000 ppm = 2500-10000 ppm 20 ppm = 10-50 ppm
 2000 ppm = 1000-4000 ppm 10 ppm = 5-20 ppm
 1000 ppm = 500-2000 ppm 5 ppm = 2-10 ppm

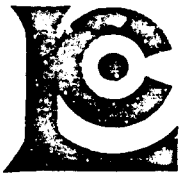
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 ASSOCIATION

CERTIFIED BY: *[Signature]*



CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Riocanex Ltd.,
 Ste 520 - 800 W. Pender St.,
 Vancouver, B.C. V6C 2V6

CERTIFICATE NO. SP707

INVOICE NO. 38479

RECEIVED Aug. 29/80

ATTN:

CC: MacKenzie

ANALYSED Sept. 4/80

SAMPLE NO.	Lower Concentration Limit (PPM)	8001084	8001085	8001086	8001087
Antimony	50	bcl	bcl	bcl	bcl
Arsenic	50	bcl	50	bcl	bcl
Barium	5	20	30	20	20
Beryllium	5	bcl	bcl	bcl	bcl
Bismuth	5	bcl	bcl	bcl	bcl
Boron	20	bcl	bcl	bcl	bcl
Cadmium	20	bcl	bcl	bcl	bcl
Calcium	0.05%	0.07%	0.07%	15%	15%
Chromium	10	50	50	20	bcl
Cobalt	10	bcl	bcl	bcl	bcl
Copper	1	30	70	10	5
Gallium	5	10	10	bcl	bcl
Germanium	20	bcl	bcl	bcl	bcl
Indium	50	bcl	bcl	bcl	bcl
Iron	0.05%	>= 20%	20%	2%	1.5%
Lead	5	300	200	70	20
Magnesium	0.02%	0.15%	0.15%	10%	10%
Manganese	5	20	70	100	150
Molybdenum	10	<100	<100	<100	<100
Nickel	5	bcl	5	5	bcl
Niobium	50	bcl	bcl	bcl	bcl
Silver	1	bcl	bcl	bcl	bcl
Strontium	2	bcl	bcl	50	50
Tellurium	200	bcl	bcl	bcl	bcl
Thorium	200	bcl	bcl	bcl	bcl
Tin	10	bcl	bcl	bcl	bcl
Titanium	5	70	300	300	200
Vanadium	20	70	70	50	70
Zinc	50	500	100	bcl	bcl
Zirconium	20	30	50	bcl	bcl

SEMI QUANTITATIVE SPECTROGRAPHIC ANALYSES

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 100 ppm = 50-200 ppm bcl = below concentration limit
 Ranges for Iron, Calcium & Magnesium are reported in %



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY: *AP Harper*

APPENDIX II

COST STATEMENT

COSTS STATEMENT

B.C. Witch & Evil Claims

11 May - 21 September 1980

General Costs

Food & Accommodation

9 Men, 11 May-29 Sep, 52 Man Days @ \$20 \$ 1,040

Supplies

1,490

Fixed Wing

Northern Thunderbird Air, Otter, 4 trips @ \$322 \$1,288
 Universal Travel, 3 P.G./Rtns @ \$360 1,080 2,368

Helicopter

Northern Mountain, 206B, 18.4 Hrs @ \$305 5,624

Fuel

1,627

Rental Equipment

Riocanex Field Equipment, 52 Man Days @ \$3 \$ 156
 Traeger, SSB50C Radio, 22 Days @ \$7 154
 5X5SSB Radio, 22 Days @ \$7 154
 Repairs 190 654

Report Preparation

970

TOTAL GENERAL COSTS

\$13,773

Geochemistry Costs

Salary & Wages

5 Men, 11 May-29 Sep, 18 Man Days @ \$50 \$ 900

Benefits @ 20%

180

Geochemical Analysis

Chemex Labs
 9 30-Element Sepctrographs @ \$25 \$ 225
 Freight 25 250

Riocanex Lab

29 Soils For Ag, Cu, Pb, Zn @ \$4	\$ 116	
21 Soils for Ag, Pb, Zn @ \$3.35	<u>70</u>	186

General Costs

18/52 X \$13,773		<u>4,768</u>
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<u>TOTAL GEOCHEMISTRY COSTS</u>		<u>\$ 6,284</u>
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Geology CostsSalaries & Wages

4 Men, 11 May-29 Sep, 15 Man Days @ \$50	\$ 750	
------------------------------------------	--------	--

<u>Benefits @ 20%</u>		150
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General Costs

15/52 X \$13,773		<u>3,973</u>
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<u>TOTAL GEOLOGY COSTS</u>		<u>\$ 4,873</u>
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PROSPECTING COSTSSalaries & Wages

4 Men, 11 May-29 Sep, 19 Man Days @ \$50	\$ 950	
------------------------------------------	--------	--

<u>Benefits @ 20%</u>		190
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General Costs

19/52 X \$13,773		<u>5,032</u>
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<u>TOTAL PROSPECTING COSTS</u>		<u>\$ 6,172</u>
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Costs Apportioned
To Claims

<u>Claim</u>	<u>Unit</u>	<u>Geochemistry</u>	<u>Geology</u>	<u>Prospecting</u>	<u>Total</u>
EVIL 1	18	959	895	1,134	\$ 2,988
EVIL 2	20	852	994	1,260	3,106
WITCH 1	20	1,065	995	1,259	3,319
WITCH 2	20	1,917	994	1,260	4,171
WITCH 3	20	<u>1,065</u>	<u>995</u>	<u>1,259</u>	<u>3,319</u>
		\$5,858*	4,873	6,172	16,903

* 4 Samples Not Included (4 X \$106.51= \$ 426)

APPENDIX III

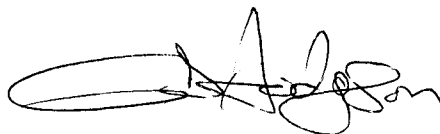
CERTIFICATE

CERTIFICATE

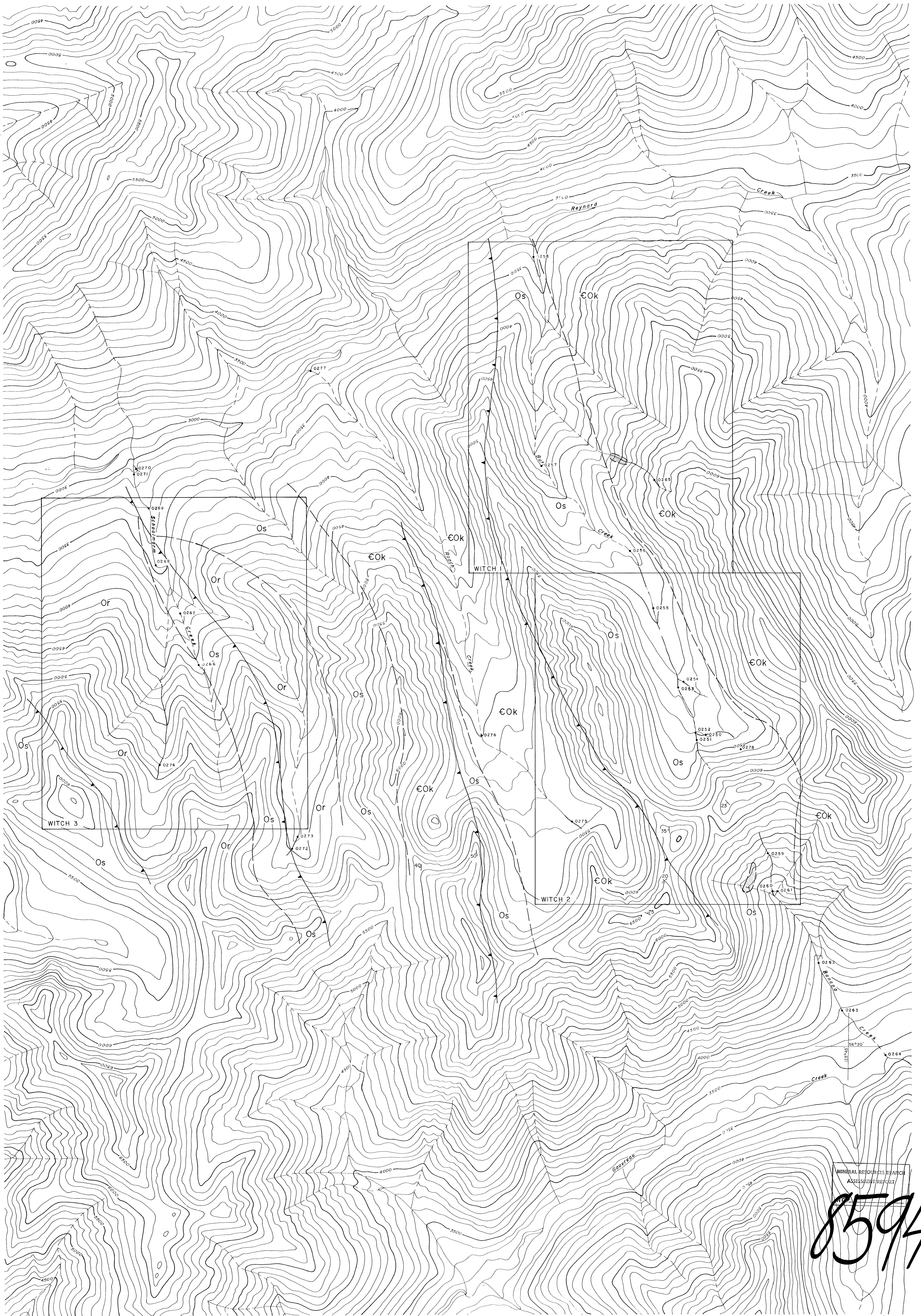
I, Geoffrey David Hodgson, with business address in Vancouver, British Columbia, and residential address in North Vancouver, British Columbia, do hereby declare

1. I am a geologist employed by Rio Tinto Canadian Exploration Limited.
2. I graduated from Exeter University, U.K., in 1972 with a BSc (Hons.) degree in geology.
3. I graduated from the University of Alberta in 1976 with an MSc degree in geology.
4. I am a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
5. From 1970 to 1980 I have been employed on both a temporary and full-time basis by the Geological Survey of Greenland, Research Council of Alberta, University of Alberta, Cominco Ltd., and Riocanex Ltd.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'G.D. Hodgson', written over a horizontal line.

G.D. Hodgson



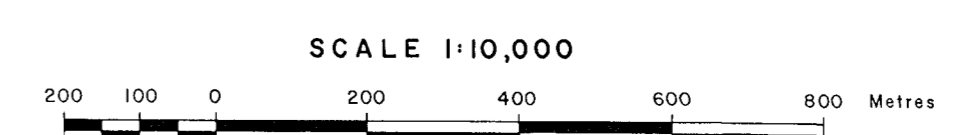
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

8594

LEGEND

- Or ... Road River Group
- Os ... Skoki Formation
- €Ok ... Kechika Group
- Gassan

N.T.S. 948 / 5W

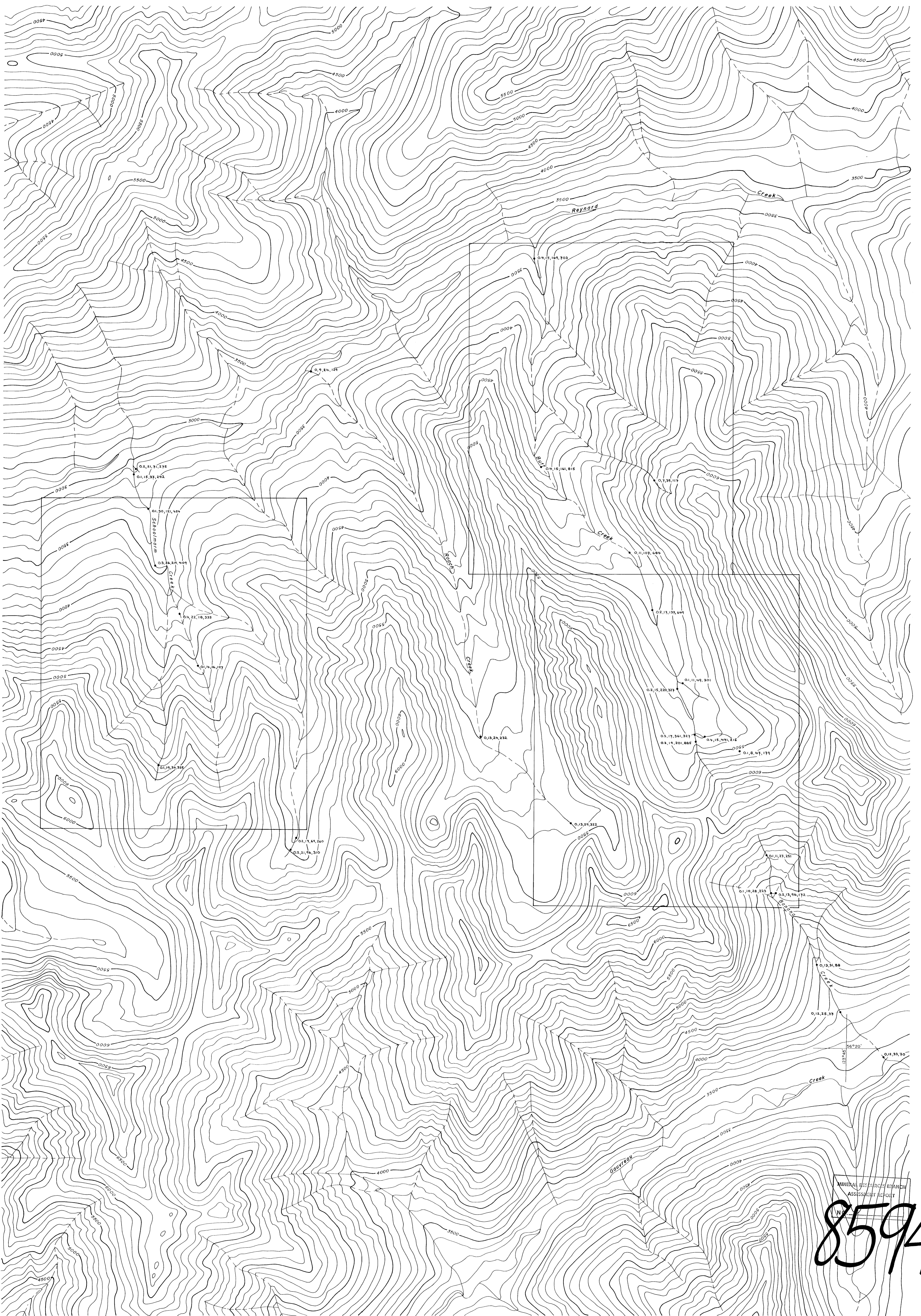


RIO TINTO CANADIAN EXPLORATION LTD.

WITCH CLAIMS

SILT SAMPLE LOCATIONS
AND GEOLOGY

DATE: OCT. 1980 DRAWN BY: PMC [initials] [initials] 6-8811



8594

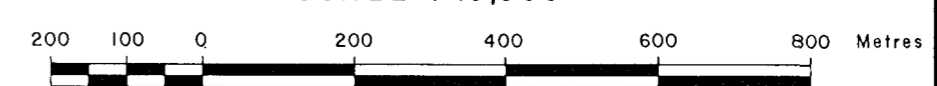
N.T.S. 948/5W

RIO TINTO CANADIAN EXPLORATION LTD.

WITCH CLAIMS

SILT SAMPLE RESULTS
Ag, Cu, Pb, Zn ppm

SCALE 1:10,000



DATE | DRAWN BY | DWG.
OCT. 1980 | PMC | GC - 8812