

Projects 92-H  
A & B Group  
Claims  
811727

GEOLOGICAL, GEOCHEMICAL

REPORT

ON THE

A & B GROUP OF CLAIMS

Princeton, British Columbia

Location: Approx.  $120^{\circ} 20'$  Long.,  
 $49^{\circ} 23'$  Lat.,

for

ARCAN MINING & SMELTING LTD. (N.P.L.)

Vancouver, B. C.

April 13, 1972.

James R. Glass, B. Sc.

Bill  
Pentland - Cenex  
Tom Smith.

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SUMMARY

Arcan Mining & Smelting Ltd. (N.P L.) owns the mineral rights to eighty full sized mining claims in the Princeton area of British Columbia.

Trenching, prospecting and geochemical soil sampling has shown the existence of coincidental copper and molybdenum soil anomalies over areas in which favourable bedrock formation contains copper and molybdenum.

One high grade copper vein has been found in the anomalous area. Copper float has been found roughly 1,000 feet from the main anomalous zone and additional copper showings have been located in other areas on the claim group.

The main copper, molybdenum mineralization is found in the granodiorite-monzonite? phase of the Coast Intrusion, both in fractures and as disseminations. Megascopically the rock at the Arcan property is very similar to the Brenda Mine host rock. The Brenda mine is located some thirty-six miles north of the property.

It is recommended that the following work be done on the property:

1. Line cutting
2. Induced Polarization Surveys
3. Magnetometer Survey
4. Trenching
5. Geochemical Surveys
6. Diamond Drilling

It is anticipated that the budget for the proposed program will be \$140,000.00, to be carried out in two phases.

## CONCLUSIONS

1. Sporadic copper and molybdenum has been found in bedrock over an area of approximately 2,200 feet by 1,600 feet. Copper has been found in other locations outside this main zone, so the limits of the zone are unknown.
  
2. Anomalous amounts of copper and molybdenum have been found in soil samples over the zone containing the known copper-molybdenum mineralization.  
  
The size of this anomalous area is undetermined to date.
  
3. High grade copper sections have been sampled in the zone containing the mineralization.  
  
Cannon Engineering reports an assay of 5.02% Cu from a chip sample over a width of five feet taken in one of the trenches.
  
4. The geological setting is similar to that of the Brenda Mine located some thirty-six miles to the north, i. e. chalcopyrite and molybdenite occurring in a granodiorite host. Alteration on this property is more intense than at the Brenda Mine but fracturing is less intense.
  
5. The results of the work performed to date show that a detailed geological-geophysical examination of the property is warranted.

### RECOMMENDATIONS

1. Cut chain and picket lines 800 feet apart with pickets placed at 200 foot intervals. Intermediate lines at 400 foot intervals should be flagged at 200 foot stations. These lines should be run in an east-west direction.
2. Perform an Induced Polarization Survey along the 800 foot lines using an electrode separation of 400 feet taking an  $n_1$ ,  $n_2$  and  $n_3$  reading to provide a depth profile.
3. Perform a magnetometer survey along the lines spaced 400 feet apart using a station interval of 100 feet.
4. A series of parallel trenches along the 400 foot lines should be cut with a bulldozer and ripper. These trenches should cut across the present anomalous area and extend both east and west of the known mineralization. Geochemical soil sampling should then be done in the trenches.
5. A reconnaissance geochemical soil survey should be done along the lines spaced 400 feet apart using a sample interval of 200 feet. These samples should be taken at a depth of four feet.
6. The bedrock under any coincidental geochemical-induced polarization anomalies should be sampled using a diamond drill. It is anticipated that 4,500 feet of diamond drilling would be sufficient to test any anomalies.

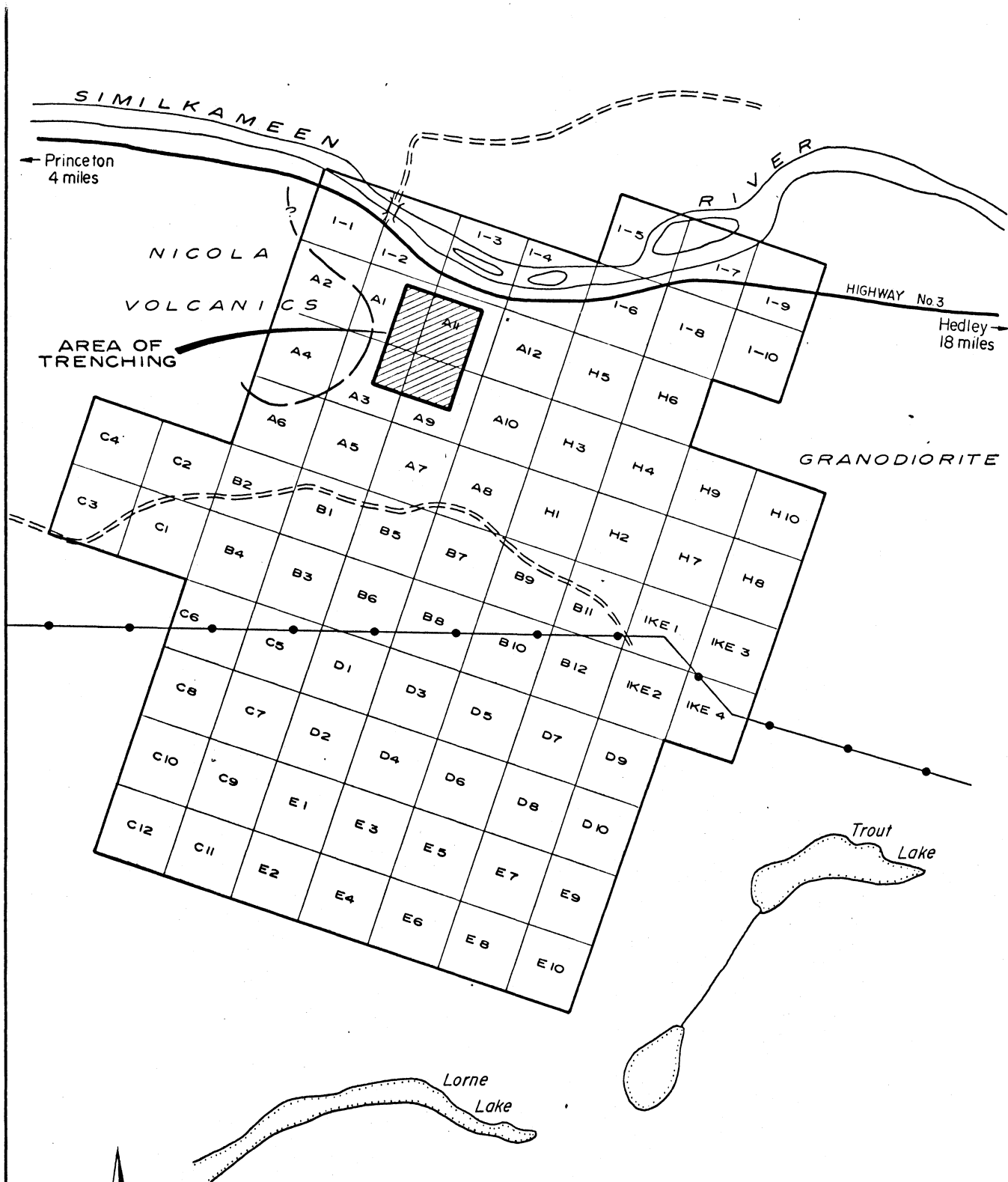
BUDGET FOR PROPOSED PROGRAMPHASE 1:

1.	Line cutting, chaining, picketing 36 lines, 12,000' long	\$ 8,000.00
2.	Induced Polarization Survey 9 lines, 12,000' long	10,000.00
3.	Magnetometer Survey, 36 lines, 12,000' long	4,000.00
4.	Trenching and Drill sites	10,000.00
5.	Geochemical sampling	6,000.00
6.	Diamond Drilling, Main showing, 700' @ \$10.00/ft.	7,000.00
	Engineering & Supervision	3,000.00
	Living & Accomodation	<u>2,000.00</u>
	TOTAL -	<u>\$ 50,000.00</u>

PHASE 11:

1.	Detailed Induced Polarization Surveys Reconnaissance Induced Polarization Surveys	\$ 11,000.00
2.	Diamond Drilling, 4,500' @ \$10.00/ft.	45,000.00
3.	Travelling & Drill sites	5,000.00
4.	Detailed Geochemical Surveys	3,000.00
	Engineering & Supervision	6,000.00
	Living & Accomodation	2,000.00
	Administration & Communications	5,000.00
	Surveying & Mapping	3,000.00
	Contingencies - 10%	<u>10,000.00</u>
	TOTAL -	<u>\$ 90,000.00</u>

TOTAL PHASE 1 and PHASE 11 - \$ 140,000.00



← Princeton  
4 miles

NICOLA  
VOLCANICS

AREA OF  
TRENCHING

HIGHWAY No. 3  
Hedley →  
18 miles

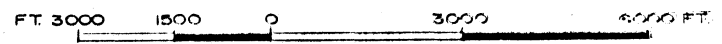
GRANODIORITE

Trout  
Lake

Lorne  
Lake



M. P. & H.R. CONSULTING LTD.  
 ARCAN MINING & SMELTING LTD. (N.P.L.)  
**CLAIM MAP**  
**SHOWING AREA OF TRENCHING**  
 PRINCETON, B. C.



INTRODUCTION

Arcan Mining & Smelting Ltd. (N.P.L.) is the beneficial owner of 80 full sized mining claims listed as follows:

A 1 to A 12	12 claims
B 1 to B 12	12 claims
C 1 to C 12	12 claims
D 1 to D 10	10 claims
E 1 to E 10	10 claims
H 1 to H 10	10 claims
I 1 to I 10	10 claims
Ike 1 to Ike 4	4 claims

These claims are located in the Similkameen Mining Division, near Princeton, British Columbia and are in good standing from June to October, 1972.

Three claims are in good standing until September, 1973.

Between August 1970 and November 1970, the writer spent approximately four days carrying out preliminary geological, field investigations and limited geochemical check work over part of the claim group, as well as reviewing all the previous work done by the claims owners.

In September 1971 the writer spent two days performing further field investigation.

The results and discussions which follow are based on work done by the writer, and the claim owners and by Cannon Engineering of Vancouver.



### LOCATION

The property is located five miles east of Princeton, British Columbia. The claims on D'Arcy Mountain can be reached by a logging road which runs up the south slope of the mountain or from the main highway between Princeton and Hedley which borders the northern portion of the claim group.

### TOPOGRAPHY

The topography is mountainous with elevations ranging from 2,000 feet to 4,100 feet. Slopes are fairly steep although outcrop is scarce.

### HISTORY

The property was acquired by the Atkabe Mining and Smelting Co. Ltd in the year 1968 when members of this company discovered copper mineralization and staked 108 mining claims in the area.

During that year a programme of trenching was carried out on a small area in the north-west portion of the claim group. This trenching was done over an area of 1,600 feet by 2,200 feet. Copper mineralization was found in all trenches.

During the summer Mr. Larry Trenholme (P. Eng) of Vancouver, carried out a geochemical soil survey along the trenches and the roads joining the trenches.

In November 1968, Cannong Engineering Ltd of Vancouver made a preliminary examination of the property, carried out some geochemical sampling and rock sampling and from the favourable results obtained, recommended a four-stage

programme consisting of Induced Polarization Surveys and diamond drilling. The budget for this programme was estimated at \$115,000.00.

The results of these two preliminary geochemical surveys and the rock sampling are included in the geochemical survey maps of scale 1 inch = 100 feet which is included with this report.

During the month of May, 1970, Mr. T. Takeda (P. Eng) of Vancouver, visited the property and performed some preliminary geological mapping on parts of the claims. Mr. Takeda recommended that geological prospecting be done on the property.

Arcan Mining & Smelting acquired 28 of the claims in 1969 and acquired the remaining 52 claims in September, 1970. All claims are now recorded in the name of Arcan Mining & Smelting Ltd (N. P. L.)

### REGIONAL GEOLOGY

The rock formations of the region consist mainly of Triassic volcanics of the Nicola Group which were intruded by granite, granodiorite, and gabbro of the Coast Intrusions. These formations were later intruded by rocks of the Copper Mountain Intrusion which consist of gabbro, diorite and pegmatite. All of these were, in turn, intruded by granite and granodiorite of the Otter Intrusion, which is thought to be Upper Cretaceous or later.

Large tonnage deposits of copper have been found by Newmont Mining Corporation of Canada at Copper Mountain in the Nicola Volcanics, directly in contact with the Copper Mountain Intrusion, Other copper deposits have been found in the Nicola volcanics associated with either shearing or with one of the intrusive formations.

The large "porphyry-type" copper deposit at the Brenda Mine has been found in a fractured granodiorite phase of the Coast Intrusion, a similar geological setting to the Arcan property.

Precious metals have been found in a limestone member of the Nicola Group near Hedley, B. C. Minor amounts of base metals have been found in the Nicola Group and in the granodiorites of the Coast Intrusion.

### LOCAL GEOLOGY

The rocks underlying the claim group consist of Upper Triassic Nicola Volcanics and Middle Jurassic to Upper Cretaceous granodiorite, quartz diorite and quartz-monzonite? of the Coast Intrusion. Both rock types are cut by later dykes, both acidic and basic. The acidic or felsite dykes may be associated with the mineralization.

Fairly large shear zones striking in a general NE-SW direction and a number of sets of fractures have been noted in the granodiorite. The shearing appears to be associated with the monzonite? phase of the intrusive, while the alteration of the granodiorite appears to be associated with both fracturing and shearing. Locally, the alteration can be so intense that reasonably fresh rock cannot be seen in the shallow trenches. In other portions of the trenches, however, the rock appears to be reasonably fresh.

### MINERALIZATION

Minor amounts of chalcopyrite and molybdenum can be seen over a very wide spread area of the granodiorite. A high-grade shear controlled section has been sampled. Copper has been noted at the contact between the volcanics and the granodiorite both on the Arcan property and on the

adjacent property to the west.

The work to date has revealed sporadic copper mineralization over a distance of some 2,200 feet and over a width of some 1,500 feet but copper mineralization has been found in other locations so the size of any ultimate zone is presently unknown.

A map showing the trenches and the locations of copper mineralization of scale 1 inch = 100 feet is included with this report.

The economic minerals found to date are chalcopyrite, both in fractures and as disseminations, malachite, azurite, molybdenite and very minor bornite. Magnetite, a fairly common accessory mineral found in the granodiorite may be associated in some way with the copper mineralization.

#### GEOCHEMICAL SAMPLING

Geochemical soil sampling was done on this property by Mr. Larry Trenholme, (P. Eng) as reported by Cannon Engineering, November, 1968. Some check work was done by the writer. All results to date are discussed in the following paragraphs.

The "A" soil horizon appears to be highly leached as exemplified in the soil profiles and the near surface soil samples taken by the writer. The "B" soil horizon contains anomalous amounts of copper in areas where mineralization is noted in the bedrock. The "B" soil horizon which is sometimes over four feet deep is therefore the logical target for future soil sampling.

Background value in copper seems to be around 30 parts per million. Any value over 100 parts per million is considered to be anomalous.

Anomalous amounts of copper are found in all five separate trenches dug over an area of approximately 1,600 feet by 2,200 feet. It is impossible to develop any positive correlation between these trenches under present conditions, but at this time it appears as though there are three main anomalous zones, with individual readings as high as 4,200 ppm and most readings in the 100-300 ppm range.

It is felt by the writer that parts of the roads between the trenches were not cut deep enough to penetrate the "A" horizon so some of the samples were taken in the leached zone.

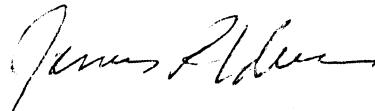
Future work will be directed towards filling in the anomalous areas and developing any correlation of the known zones.

Background value in molybdenum seems to be around 2 ppm. Any value over 5 ppm is considered to be anomalous.

Anomalous amounts of molybdenum are found in all the trenches and seem to be more widespread than the anomalous copper values. At this time an irregular area, which includes the trenches, i. e. 1,600 feet by 2,200 feet, seems to contain anomalous amounts of molybdenum in the soil, although every sample taken in the area is not anomalous. Again, it must be noted that only a minimal amount of work has been done on the zone.

In general, the geochemical results in this area of altered and sheared granodiorite are extremely encouraging. The geochemical expression appears to correlate well with bedrock mineralization, and so will be a very useful tool in outlining any possible ore zones which may develop on this promising property.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "James R. Glass".

James R. Glass, B. Sc.

CERTIFICATE

I, James R. Glass of 910 Ash Street, Richmond, British Columbia, certify that:-

1. I graduated from McGill University in Montreal in 1961 and hold a Bachelor of Science in Geology.
2. I am a Fellow of the Geological Association of Canada, a member of the American Institute of Engineers and have practised my profession continuously for nine years.
3. I have based the Conclusions and Recommendations for this report on experience and knowledge gained during my work on the property between August, 1970 and September, 1971 and on the results and discussions with the claim owners and by the Report written by Cannon Engineering of Vancouver.
4. I hold no interest directly or indirectly in this property or the Companies mentioned in this Report and do not expect to receive any such interest.



James R. Glass, B. Sc.

Vancouver, B. C.

April 13th, 1972.

## APPENDIX "A"

### References



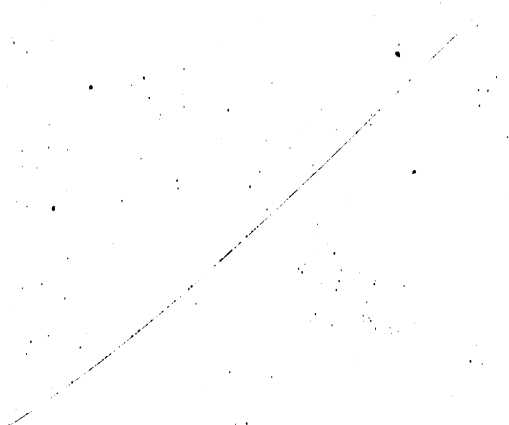
REFERENCES

G. S. C. Memoir 243

Geology and Mineral Deposits of the  
Princeton Map Area, British Columbia  
by H. M. A. Rice.

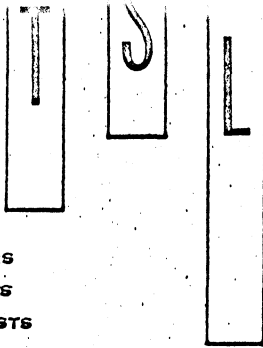
C. H. Donaldson of  
Cannon Engineering

Report on the A & B Group of Claims  
in the Princeton Area, B. C.  
November, 1968.



APPENDIX "C"

Sketch Map = Scale 1" = 100'



# Laboratories Limited

325 HOWE STREET - VANCOUVER 1, B.C.

TELEPHONE 688-3504

ASSAYERS  
CHEMISTS  
GEOCHEMISTS

## CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM M.P. & H.R. CONSULTING

REPORT NO.

SAMPLE(S) OF ROCK

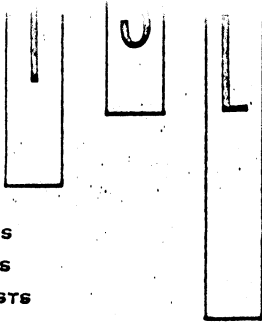
V 8296

Sample No.	Gold (Au)oz:ton	Silver (Ag)oz:ton	Copper (Cu)%	Molybdenum (Mo)%
65059	0.01	0.96	2.75	0.02

oz:ton - Troy ounces per 2,000 lbs.

DATE November 19, 1970.

SIGNED *R.B. Litcher*



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CODE NAME: TSL-LABS-VCR.

TELEPHONE 688-3504  
AREA CODE 604

ASSAYERS  
CHEMISTS  
GEOCHEMISTS

## CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM *Metals Petroleum & Hydraulic Resources*

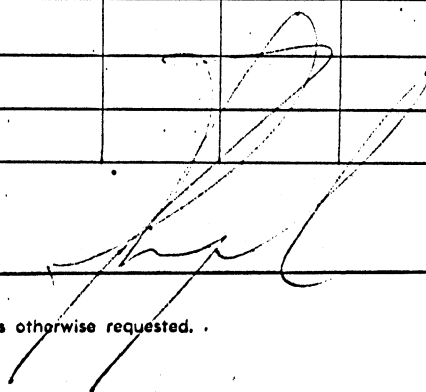
REPORT NO.  
*12307-C2*

SAMPLE(S) OF *soil*

RESULTS IN PARTS PER MILLION

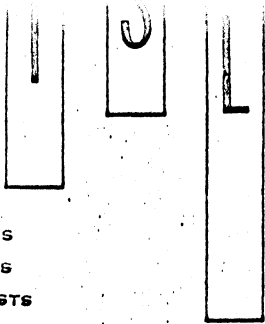
	SAMPLE No	Cu	Pb	Zn	Ag	Ni	Mo	Co
1	<i>J.R. 21</i>	<i>8</i>					<i>2.0</i>	
2	<i>22</i>	<i>14</i>					<i>1.0</i>	
3	<i>23</i>	<i>9</i>					<i>1.0</i>	
4	<i>24</i>	<i>6</i>					<i>3.0</i>	
5	<i>25</i>	<i>10</i>					<i>2.5</i>	
6	<i>26</i>	<i>8</i>					<i>3.0</i>	
7	<i>27</i>	<i>11</i>					<i>10.0</i>	
8	<i>28</i>	<i>19</i>					<i>1.5</i>	
9	<i>29</i>	<i>20</i>					<i>6.0</i>	
0	<i>J.R. 30</i>	<i>218</i>					<i>0.5</i>	
1	<i>LOBO</i>	<i>5</i>					<i>3.0</i>	
2								
3								
4								
5								
6								
7								
8								
9								
0								

DATE *Oct 6/70*

SIGNED 

N.B. Samples discarded after 3 months unless otherwise requested.





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CODE NAME: TSL-LABS-VCR.

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AREA CODE 604

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CHEMISTS  
GEOCHEMISTS

## CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM *Metals Petroleum & Hydraulic Resources*

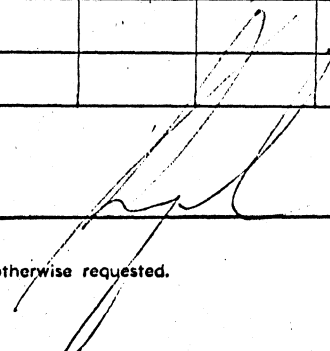
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*V8307-01*

SAMPLE(S) OF *soil*

RESULTS IN PARTS PER MILLION

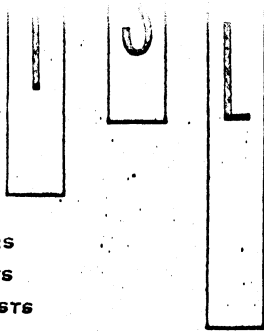
	SAMPLE No	Cu	Pb	Zn	Ag	Ni	Mo	Co
1	J.R. 1	18					2.5	
2	2	9					2.5	
3	3	8					1.0	
4	4	9					8.0	
5	5	7					3.5	
6	6	6					2.0	
7	7	13					1.0	
8	8	14					1.5	
9	9	10					2.0	
0	J.R. 10	11					0.5	
1	J.R. 11	8					2.5	
2	12	7					0.5	
3	13	14					2.0	
4	14	25					1.5	
5	15	16					4.0	
6	16	91					0.5	
7	17	24					12.0	
8	18	17					4.0	
9	19	7					7.0	
0	20	13					2.0	

DATE Oct 6/70

SIGNED 

N.B. Samples discarded after 3 months unless otherwise requested.





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CODE NAME: TSL-LABS-VCR.

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AREA CODE 604

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GEOCHEMISTS

## CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM *MP + H.R.*

REPORT NO.  
*V8384-02*

SAMPLE(S) OF

RESULTS IN PARTS PER MILLION

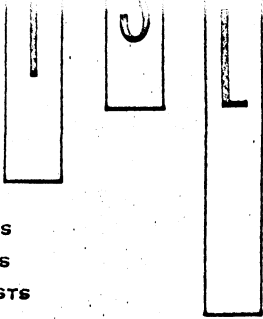
	SAMPLE No	(Cu)	Pb	Zn	Ag	Ni	(Mo)	Co
2 <sup>1</sup>	<i>G 5080</i>	<i>18</i>					<i>&lt;.5</i>	
2	<i>81</i>	<i>107</i>					<i>.5</i>	
3	<i>82</i>	<i>205</i>					<i>.5</i>	
4	<i>G 50-83</i>	<i>398</i>					<i>1.5</i>	
5								
6								
7								
8								
9								
0	<i>Cu-Mo - Hot Aqua Regia Extraction</i>							
1	<i>Determined by A.P.</i>							
2								
3	<i>&lt; - Less than</i>							
4								
5								
6								
7								
8								
9								
0								

DATE *November 19, 1970*

SIGNED *R.B. Ditcher*

N.B. Samples discarded after 3 months unless otherwise requested.





# Laboratories Limited.

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TELEX: 04-50613  
CODE NAME: TSL-LABS-VCR.

TELEPHONE 688-3504  
AREA CODE 604

ASSAYERS  
CHEMISTS  
GEOCHEMISTS

## CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM *MD + HR*

REPORT NO.  
*V8384-01*

SAMPLE(S) OF *soils*

RESULTS IN PARTS PER MILLION

	SAMPLE No	(Cu)	Pb	Zn	Ag	Ni	(Mo)	Co
	1 <i>G 5060 6"</i>	32					2.5	
<i>2.0</i>	2 <i>61</i>	49					.5	
	3 <i>2</i>	131					.5	
	4 <i>3</i>	243					.5	
	5 <i>4</i>	206					1	
	6 <i>5</i>	1110					9	
	7 <i>6</i>	225					15	
	8 <i>7</i>	315					4.5	
	9 <i>8</i>	1260					.5	
	0 <i>G 5069 5'</i>	420					.5	
<i>P.L.</i>	1 <i>G 5070 10'</i>	139,000					.5	
	2 <i>1 9</i>	33,500					.5	
	3 <i>2 6</i>	4050					.5	
	4 <i>3 7</i>	425					.5	
	5 <i>4 6</i>	550					.5	
	6 <i>5 5</i>	512					.5	
	7 <i>6 4</i>	1440					1	
	8 <i>7 3</i>	3600					1	
	9 <i>8 2</i>	720					1	
	0 <i>G 5079 1'</i>	135					.5	

DATE November 19, 1970

SIGNED R. B. Ditcher

N.B. Samples discarded after 3 months unless otherwise requested.



APPENDIX "B"

Geochemical Assays