

EXPLORATION
NTS: 921/7

COMINCO LTD.

WESTERN DISTRICT

ASSESSMENT REPORT
PERCUSSION DRILLING

ON

HEL 4 MINERAL CLAIM (RECORD NO. 46)

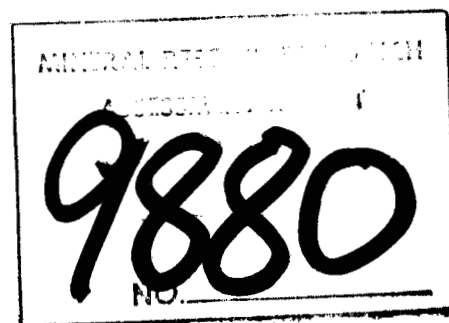
SWAKUM MOUNTAIN AREA

NICOLA M.D.

LATITUDE: 50°18'N; LONGITUDE: 120°42'

WORK PERFORMED

BETWEEN THE DATES AUGUST 14 AND AUGUST 20, 1981



NOVEMBER 1981

R.U. BRUASET

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* * *

ATTACHMENT

Drilling Plan

EXPLORATION
NTS: 92I/7

COMINCO LTD.

WESTERN DISTRICT
6 November 1981

ASSESSMENT REPORT
PERCUSSION DRILLING

ON

HEL 4 MINERAL CLAIM (RECORD NO. 46)

SWAKUM MOUNTAIN AREA

NICOLA M.D., B.C.

INTRODUCTION

This report describes a percussion drilling program consisting of two holes drilled in induced potential anomalies on the Helmer Group which is owned and operated by Cominco Ltd. The property adjoins the Rey calims on which Cu-Mo mineralization is found in association with the Tertiary Rey Lake stock. Occurrences of Cu-W-Ag skarn mineralization in the general Swakum Mountain area were explored in the early days by stripping, drilling and underground work.

LOCATION

The Helmer Group is situated approximately 25 km NNE of Merritt on the north flanks of Swakum Mountain. The claims are accessible by a series of little-used logging and mining roads extending northward from the community of Nicola situated on the Merritt-Kamloops Highway approximately 8 km east of Merritt. The distance by road from Nicola to the Last Chance shaft situated on the southern part of Hel 4 is 21 km. The approximate latitude and longitude of the claims are 50° 18' N and 120° 42' respectively. The shaft serves as tie-in with existing 1:50,000 topographic coverage and the enclosed drill plan. Drill holes and roads have been tied to the shaft by chain and compass traverses.

SUMMARY

Programs involving geological mapping, soil sampling (Cu, Mo) and I.P. have been carried out on the Helmer Group by Cominco Ltd. An I.P. survey carried out in 1978 (Scott) resulted in the I.P. anomaly which was tested by this percussion drilling program. The drilling indicates the probable cause of the anomalies tested, but mineralization encountered is sub-marginal.

GEOLOGY

The area tested is poorly exposed. The dominant rock types include crystal or crystal-lithic tuffs. Minor limestone is noted. Thermal metamorphism of the pyroclastics is widespread with prominent biotite development noted in PH 8101 and 8102. Local garnet skarn development is present. These rocks strike generally northeasterly and dip vertically. Sparse chalcopyrite is noted in association with pyrite in the pyroclastics.

PERCUSSION DRILLING

The attached drill logs contain brief descriptions of lithologies, alteration and mineralization encountered in the drilling. Drill cuttings were examined by hand lens. A few confirmatory thin sections were made from the drill cuttings.

Percussion samples were collected at 1/12th split for conventional ten-foot intervals. Sample material was collected in standard plastic refuse containers. With the aid of sludge cutter bags, the bulk of the water was drained.

The resulting samples were dried, crushed and split at Cominco's Exploration Research Laboratory in Vancouver. Geochemical determinations were made for Cu, Mo on ten-foot samples. Fifty-foot composites were run for Ag, Au and W.

The mean Cu level in holes PH 8101 and PH 8102 are 87 ppm over 185 feet (56.4 m) and 99 ppm over 270 feet (82.3 m), respectively. Values for Mo, Ag, Au and W are generally near the detections limits.

CONCLUSIONS

No mineralization of economic grade is indicated. It appears that finely disseminated pyrite is the principal cause for the anomalies tested.

REFERENCE

Scott, A.R., Induced polarization geophysical survey and line cutting on portions of the Helmer property (Cominco Assessment Report dated the 23 October 1978).

Report by:

R. U. Bruaset
R.U. Bruaset
Project Geologist

Endorsed by:

D. L. Cooke
D.L. Cooke
Senior Geologist

Approved for
Release by:

G. Harden for
G. Harden, Manager
Exploration
Western District

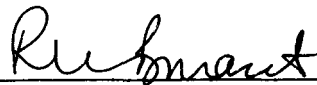
APPENDIX I

STATEMENT OF QUALIFICATIONS

I, RAGNAR U. BRUASET, resident of 5851 Halifax Street, Burnaby, B.C., V5B 2P4 do hereby certify that I have supervised the percussion drilling program on HEL 4 M.C.

I also certify:

- 1) That I am a graduate of the University of British Columbia with a degree of B.Sc. in Geology 1967.
- 2) That I have been involved in exploration work for Cominco Ltd. for the past 13 years.
- 3) That I have been closely involved with the exploration work on the HELMER property since 1978.



R.U. Bruaset
Project Geologist

Dated this 2nd day of December, 1981,
at Vancouver, British Columbia.

EXPLORATION

COMINCO LTD.

WESTERN DISTRICT

APPENDIX II

COST STATEMENT

Percussion drilling contract 485 feet (\$7.26/foot)	\$3,522.15
Bulldozer contract	2,558.60
Salaries: R.U. Bruaset, 4 days @ \$232/day	928.00
R. Grant, 3 days @ \$82/day	246.00
Domicile	636.10
Transportation	280.96
Assaying	<u>362.85</u>
	<u>\$8,616.66</u>

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WESTERN DISTRICT
6 November 1981

APPENDIX III

PERCUSSION DRILL LOGS

HELMER PROPERTY

PH 8101

Depth (feet)

Description

0 - 10

Overburden

10 - 190

Pyroclastic rocks containing microphenocrysts set in finer grain ground mass. Actinolite common with abundant fine grained biotite.

Calcite filled fractures common. No garnet development noted. Felsic material common. Pyrite is ubiquitous; about ½%. Traces of chalcopryrite and molybdenite.

Minor quartz veining.

END

PH 8102

Depth (feet)

0 - 20

Overburden

20 - 290

Pyroclastic rock as above containing actinolite and biotite. Also some chips of amygdaloidal material with quartz amygdales. Biotite seems more abundant than in the first hole. Quartz veins noted locally. Traces of molybdenite with quartz vein material. About ½% pyrite. Traces of chalcopryrite.

REPORTING DATE 12 NOV 1981

SAMPLE NUMBER	DDH NUMBER	DRILL INTERVAL FROM TO	Cu		Mo	
			PPM		PPM	
R81 15345	B1-0B1-01 PH81-	10.0 20.0	65.0		4.0	
R81 15346	B1-01 PH81-01	20.0 30.0	77.0		2.0	
R81 15347	B1-01 PH81-01	30.0 40.0	81.0		2.0	
R81 15348	B1-01 PH81-01	40.0 50.0	48.0		2.0	
R81 15349	B1-01 PH81-01	50.0 60.0	62.0		3.0	
R81 15350	B1-01 PH81-01	60.0 70.0	183.0		<2	
R81 15351	B1-01 PH81-01	70.0 80.0	76.0		2.0	
R81 15352	B1-01 PH81-01	80.0 90.0	123.0		<2	
R81 15353	B1-01 PH81-01	90.0 100.0	71.0		<2	
R81 15354	B1-01 PH81-01	100.0 110.0	57.0		<2	
R81 15355	B1-01 PH81-01	110.0 120.0	53.0		3.0	
R81 15356	B1-01 PH81-01	120.0 130.0	66.0		<2	
R81 15357	B1-01 PH81-01	130.0 140.0	75.0		<2	
R81 15358	B1-01 PH81-01	140.0 150.0	104.0		<2	
R81 15359	B1-01 PH81-01	150.0 160.0	126.0		3.0	
R81 15360	B1-01 PH81-01	160.0 170.0	102.0		<2	
R81 15361	B1-01 PH81-01	170.0 180.0	120.0		3.0	
R81 15362	B1-01 PH81-01	180.0 190.0	102.0		3.0	
R81 15363	B1-01 PH81-01	190.0 195.0	70.0		3.0	
R81 15364	B1-02 PH81-02	20.0 30.0	15.0		2.0	
R81 15365	B1-02 PH81-02	30.0 40.0	37.0		<2	
R81 15366	B1-02 PH81-02	40.0 50.0	121.0		<2	
R81 15367	B1-02 PH81-02	50.0 60.0	56.0		<2	
R81 15368	B1-02 PH81-02	60.0 70.0	55.0		3.0	
R81 15369	B1-02 PH81-02	70.0 80.0	64.0		2.0	
R81 15370	B1-02 PH81-02	80.0 90.0	29.0		2.0	
R81 15371	B1-02 PH81-02	90.0 100.0	17.0		<2	
R81 15372	B1-02 PH81-02	100.0 110.0	62.0		<2	
R81 15373	B1-02 PH81-02	110.0 120.0	68.0		<2	
R81 15374	B1-02 PH81-02	120.0 130.0	72.0		2.0	
R81 15375	B1-02 PH81-02	130.0 140.0	66.0		<2	
R81 15376	B1-02 PH81-02	140.0 150.0	26.0		<2	
R81 15377	B1-02 PH81-02	150.0 160.0	37.0		<2	
R81 15378	B1-02 PH81-02	160.0 170.0	102.0		2.0	
R81 15379	B1-02 PH81-02	170.0 180.0	213.0		2.0	
R81 15380	B1-02 PH81-02	180.0 190.0	216.0		4.0	
R81 15381	B1-02 PH81-02	190.0 200.0	38.0		<2	
R81 15382	B1-02 PH81-02	200.0 210.0	134.0		3.0	

REPORTING DATE 12 NOV 1981

SAMPLE NUMBER	DDH NUMBER	DRILL INTERVAL FROM TO	Cu		Mo	
			PPM	PPM	PPM	PPM
R81 15383	81-02 PH81-02	210.0 220.0	176.0	4.0		
R81 15384	81-02 PH81-02	220.0 230.0	303.0	5.0		
R81 15385	81-02 PH81-02	230.0 240.0	132.0	3.0		
R81 15386	81-02 PH81-02	240.0 250.0	76.0	4.0		
R81 15387	81-02 PH81-02	250.0 260.0	166.0	4.0		
R81 15388	81-02 PH81-02	260.0 270.0	153.0	2.0		
R81 15389	81-02 PH81-02	270.0 280.0	114.0	2.0		
R81 15390	81-02 PH81-02	280.0 290.0	128.0	3.0		

WHERE ANALYSIS REQUESTED BUT NO VALUES SHOWN, RESULTS ARE TO FOLLOW

ANALYTICAL METHODS

Mo HNO3 - HClO4 DIGESTION / COLORIMETRIC
 Cu AQUA REGIA DIGESTION / AA

MOORE WEEB/FLO 4

REPORTING DATE 12 NOV 1981

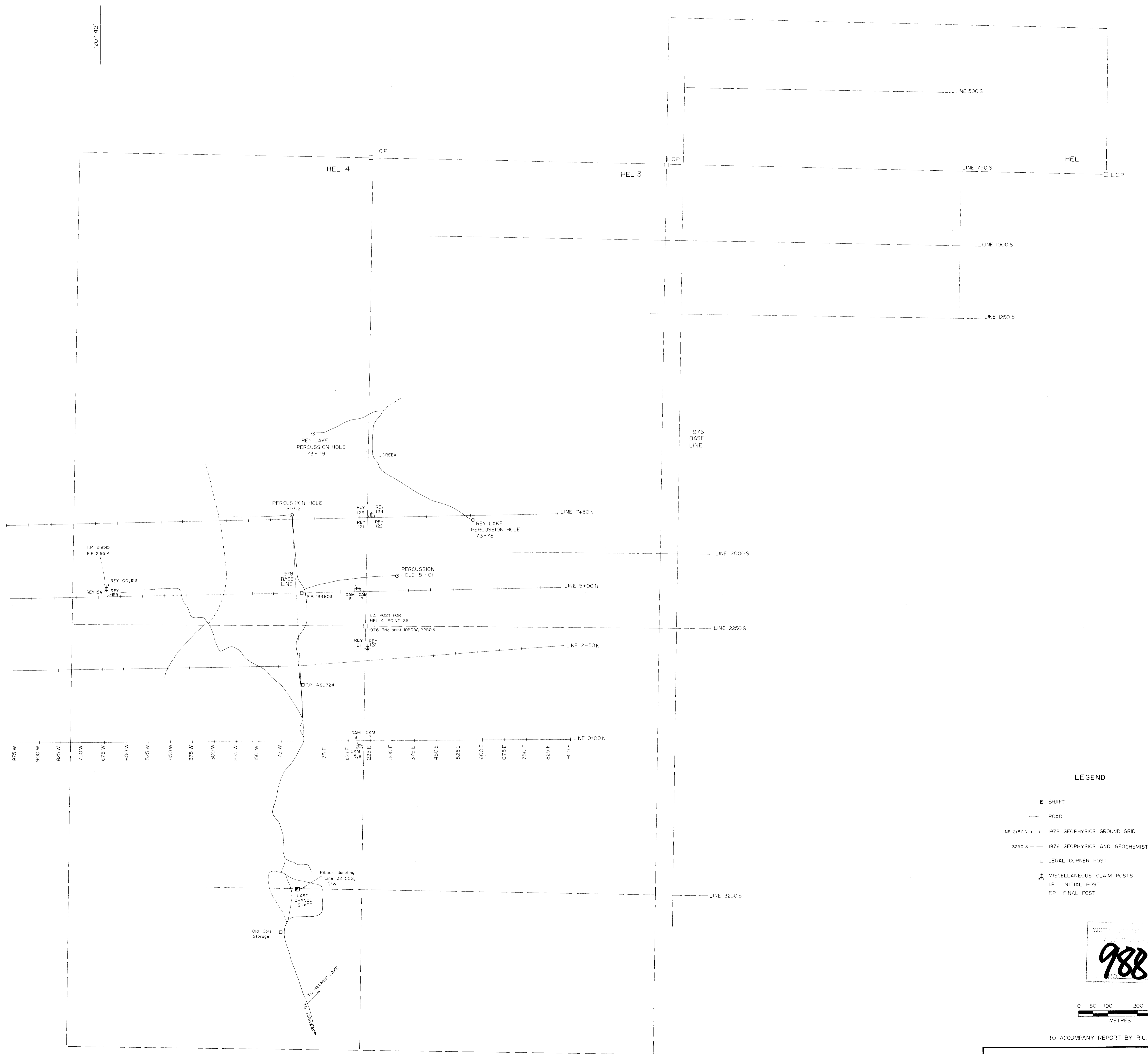
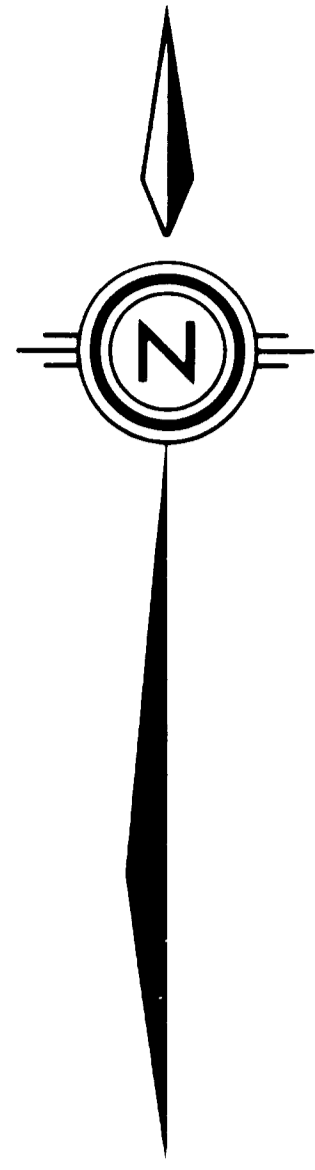
SAMPLE NUMBER	DDH NUMBER	DRILL INTERVAL FROM	DRILL INTERVAL TO	Ag	Au	W
				PPM	PPB	PPM
R81 15391	01 81-01 PH81-0	10.0	60.0	<.4	<10	4.0
R81 15392	01 81-01 PH81-0	60.0	110.0	<.4	<10	6.0
R81 15393	01 81-01 PH81-0	110.0	160.0	<.4	<10	<2
R81 15394	01 81-01 PH81-0	160.0	195.0	<.4	20.0	2.0
R81 15395	02 81-02 PH81-0	20.0	70.0	<.4	<10	20.0
R81 15396	02 81-02 PH81-0	70.0	120.0	<.4	10.0	2.0
R81 15397	02 81-02 PH81-0	120.0	170.0	<.4	<10	2.0
R81 15398	02 81-02 PH81-0	170.0	230.0	0.4	<10	2.0
R81 15399	02 81-02 PH81-0	230.0	290.0	<.4	<10	2.0

WHERE ANALYSIS REQUESTED BUT NO VALUES SHOWN, RESULTS ARE TO FOLLOW

ANALYTICAL METHODS

AU AQUA REGIA DIGESTION / SOLVENT EXTRACTION / AA
 W PYROSULPHATE FUSION / COLORIMETRIC
 AG AQUA REGIA DIGESTION / AA

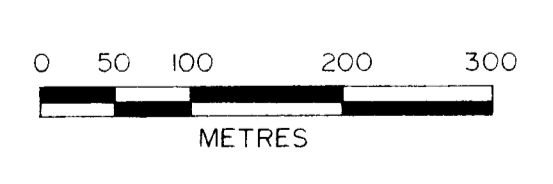
MOORE SPEEDFIELD 4



LEGEND

- SHAFT
- ROAD
- LINE 2450 N — 1978 GEOPHYSICS GROUND GRID
- LINE 3250 S — 1976 GEOPHYSICS AND GEOCHEMISTRY GRID (SHOWN IN PART)
- LEGAL CORNER POST
- MISCELLANEOUS CLAIM POSTS
- IP INITIAL POST
- FP FINAL POST

9880



TO ACCOMPANY REPORT BY R.J. BRUASET

HELMER GROUP		92 11/78	
Drawn by:	Traced by:	DRILLING PLAN	
Checked by:	Revised by:	Scale: 1:5,000	Date: NOV 10 1981