

R. H. SERAPHIM ENGINEERING LIMITED
GEOLOGICAL ENGINEERING

Telephone: Office 685-2914
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4036

316 - 4700 GRANVILLE STREET
VANCOUVER 2, B.C.

MAGNETIC
and
INDUCED POLARIZATION SURVEYS
on
ROLLING HILLS and MINEX CLAIMS
near
JACKO LAKE, KAMLOOPS M.D.

by
R.H. SERAPHIM, Ph.D. P.Eng.
JANUARY 2, 1973.

CLAIMS

RECORD NUMBERS

PAM 12 to 24 incl.	41330 to 41342 incl.
PAM 28, 29, 32, 33	41346, 41347, 75885, 41351
FOX 4, FOX 13	56184, 41943
MAP 2 Fr., WADE 3	92948, 41625
DAVE 1B Fr., DON 2 Fr.	109972, 110691
DON 5 Fr., DON 6 Fr.	110694, 110695
DON 7, DON 8	123078, 123079
DON 9 Fr., DON 10 Fr.	123080, 123400
MAP 3 Fr., MAP 4 Fr., MAP 5 Fr.	123127, 123229, 123401

DATES: July 24 to August 2, 1972 (initial I.P.)
Nov. 17 to Nov. 26, 1972 (second I.P.)
Nov. 16 to Dec. 20, 1972 (magnetics)

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
No. 4036 MAP _____

R. H. SERAPHIM ENGINEERING LIMITED
GEOLOGICAL ENGINEERING

316 - 470 GRANVILLE STREET
VANCOUVER 2, B.C.

SUMMARY AND CONCLUSIONS

The control of claims near the south and east border of the old Ajax-Monte Carlo prospect near Jacko Lake was acquired in two stages. Property boundaries were determined in part by a claim survey. Induced polarization and magnetic surveys were conducted after each acquisition, and parts of these surveys are now combined into maps presented herewith.

The area providing I.P. anomaly extends over parts of claims PAM 21, 23, 28, 13, 18, MAP 2 and 4 Fractions, and WADE 3. A few outcrops and some old drill holes within the anomalous area showed that picrite underlies parts of the anomaly. A magnetic survey has been used to give more information on the extent of the picrite, which commonly contains abundant magnetite. It is assumed that areas which give high I.P. readings and low magnetic response may be underlain by the altered (bleached) rocks containing sulfides. These areas are recommended for a test with the percussion drill.

INTRODUCTION

Recent reports on the subject claims and neighboring claims which have been filed for assessment work include:

"Geological Report and Magnetic Survey on Rolling Hills claims, Jacko Lake" April 24, 1972 - R.H. Seraphim

"Geological Report on Map 2 Fr." Nov. 3, 1972 - R.H. Seraphim

"Geological Report on Rolling Hills and Dave claims, Jacko Lake Area" Dec. 28, 1972 - R.H. Seraphim

These reports provide geological maps and descriptions which should be reviewed and correlated with the information presented herein.

The copper mineralization near the 'Buda Shaft' has been the subject of sporadic exploration for many years, but very little work other than surficial surveys has been applied to the overburden covered areas further to the north and west. The subject surveys now provide a more reliable basis for drill testing the overburdened areas suspected to contain sulfides.

The report covering the I.P. surveys by R.E. Chaplin, P.Eng., is appended.

The magnetic survey was completed at intervals, partly by R.H. Seraphim, P.Eng., and partly by D. Burns, P.Eng. The area near the Buda Shaft was surveyed in more detail and has been replotted from a 100 ft = 1 inch map onto the 500 ft = 1 inch map presented herewith. The survey to the south and west of the Buda Shaft was reported previously (April 24, 1972).



L4036 M-1

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4036 MAP #1

1-M 0504

CLAIMS

The Rolling Hills claims were located at intervals over the past ten years, and had not been surveyed even by Brunton and tape. Most of the claims covered by the present work have now been surveyed in preliminary fashion by a B.C.L.S., and the indicated fractional claims are now staked for Minex.

LOCATION, ACCESS, TOPOGRAPHY

The claims are on rolling upland approximately eight miles southwest of Kamloops. Most of the area is open grazing land, with several small ponds and a few clumps of trees.


SURVEY METHOD

The magnetometer survey was completed with a Scintrex MF 1 magnetometer, Serial #901407. The baseline was laid out by tape and compass on an aerial photograph enlarged to 500 feet = 1 inch. The stations on cross-lines were located by pace and compass, with the positions corrected to fit the topographic features apparent on the photograph. Several base stations were used, and were rechecked at least several times daily to provide diurnal variation, for which the readings were corrected when necessary.

RESULTS

Some of the highest readings, from approximately 200 up (2000 gammas), conform to localities known to be underlain by picrite. No high readings were obtained over other rock types, therefore the likelihood is that all high magnetic readings indicate areas underlain by picrite. The danger in this assumption is that one of the most important known copper deposits in the camp, namely Afton, does give high magnetic response, at least locally, because of the associated magnetite mineralization. A second problem in interpretation is that the magnetic response from sub-outcrop is decreased in areas of deep overburden and in topographic lows (melt water channels and creek bottoms). Therefore, although low readings are obtained over the areas of alteration and mineralization on the neighboring crown-granted claims, similar low readings on the Minex-Rolling Hills claims do not necessarily indicate similar alteration and mineralization.

January 2, 1973.


R.H. Seraphim, Ph.D. P.Eng.

Appendix 1

MINEX DEVELOPMENT LTD. (N.P.L.),
569 Howe Street,
Vancouver, B.C.

INDUCED POLARIZATION SURVEY

ON THE

PAM 20, 21, 22, 23, 31, 32, and DAVE AND R.H. MINERAL CLAIMS,
KAMLOOPS MINING DIVISION, BRITISH COLUMBIA.

Location: Near Jacko Lake and Peterson Creek, 8 miles
southwest of Kamloops, B.C., at 50° - 120° NE.

Survey Dates: July 24th to August 2nd, 1972, inclusive,
November 17th to November 26th, inclusive.

by

ROBERT E. CHAPLIN, P. ENG.,
1761 Drummond Drive,
Vancouver 8, B.C.
Phone: 224-6634

DECEMBER, 1972.

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INTRODUCTION

An Induced Polarization survey was performed on the "Minex" property for the purpose of locating a copper deposit of economic size in a geologically favourable contact zone between the Nicola volcanic rocks and intrusives of the Iron Mask batholith. A brief summary of previous work in this area is described by R.H. Seraphim, P. Eng., in his report to "Minex" dated April 24th, 1972.

A pole-dipole array was selected on a 300-foot spread to the first and second separations on lines trending NE, 400 feet apart. Eighteen (18) line miles of survey were completed, in two periods.

SUMMARY

Four induced polarization anomalies were detected using a 300-foot pole-dipole array to the first and second separations. The anomalies are probably caused by bedrock effects.

LOCATION, ACCESS AND TOPOGRAPHY

The claims are in rolling upland ranching country, eight miles southwest of Kamloops. The area is open grazing land drained by Peterson Creek. Very little outcrop occurs on the area surveyed.

SURVEY PROCEDURE

A Geoscience Induced Polarization unit, powered by a 2.75 kw generator, operated on a frequency range of 3.0 - 0.1 cycles per second. All percent frequency effects (PFE's) were obtained by deducting transmitter deviations and daily transmitter-receiver calibrations from the receiver percent deviations. Apparent resistivities are calculated in ohm-meters.

A three hundred foot pole-dipole array was used to the first and second separations on NE-trending lines, approximately 400 feet apart.

SURVEY RESULTS

Eighteen line miles of survey were completed. Percent frequency effects (PFE's) varied between 0.6 and 8.7, with background values up to 3.0. Apparent resistivities varied between 1400 to 7.0 ohm-meters.

Four areas of PFE's above background were located; the results of which are tabulated:

<u>Anomaly Location</u>	<u>Intensity (3.0 is background)</u>	<u>Trend</u>	<u>Average Apparent Resistivity (and depth below surface)</u>
<u>I</u> N=1 Line H 10N-32N	6.7	NE for about 2,000' by possibly 600' - open to SW	Average of approx. 300 ohm-meters (\approx 50')
Line G 24N-39N			
N=2 Line H 14N-33N	6.3	NE 1800' x 1100' - open to west	250 ohm-meters (\approx 50')
Line G 22N-35N			
Line B 29N-34N			

<u>II</u>	<u>Anomaly Location</u>	<u>Intensity (3.0 is background)</u>	<u>Trend</u>	<u>Average Apparent Resistivity (and depth below surface)</u>
	<u>N=1</u>			
	Line D 34N-38N	6.8	Wedge-shaped 3000' x 1200' open and widening to east.	160 ohm-meters (> 100')
	Line E 33N-38N			
	Line F 24N-35N			
	Line I 27N-35N			
	Line K 30N-36N			
	Line L 26N-40N			
	Line M 20N-42N			
	<u>N=2</u>			
	Line D 36N-40N		Wedge-shaped north- easterly 2500' x 1300' widening and open to southeast towards Morrison's house.	150 ohm-meters (50'-75')
	Line E 31N-40N			
	Line F 25N-37N	6.8		
	Line I 27N-37N			
	Line K 27N-46N			
	Line L 21N-45N			
	Line M 20?-47N			

<u>Anomaly Location</u>	<u>Intensity (3.0 is background)</u>	<u>Trend</u>	<u>Average Apparent Resistivity (and Depth below surface)</u>
<u>III</u> N=1		(a) Three 1000'x500' zones in a series of N-N-W trends linking anomalies <u>II</u> and <u>III</u>	100 ohm-meters (50')
Line A 41N-44N			
Line C at 43N	8.7		
Line Z			
Line B to 58N			
Line C to 57N			
Line D 50N-65N		(b) W-N-W - low intensity PFE lobe 2500' x 800' flanking (a) portion of anomaly <u>III</u> .	100 ohm-meters (50')
Line E 56N-67N	4.3		
Line F 62N-67N			
Line I 66N-70N			
N=2			
Line B 44N-61N	(a) 7.3	(a) NW 2000' x 1500'	175 Ohm-meters (50')
Line C 46N-63N			
Line D 31N-67N	(b) 4.5	(b) Westerly 2500'x800'	
Line E 43-69N			
Line F 56N-63N			
Line I 62N-71N			
<u>IV</u> N=1			
Not anomalous	Background	N/A	85 ohm-meters
N=2			
Line B 18N-21N	4.5	Westerly subcircular 1300' x 900'	175 ohm-meters, but variations between 18 and 664 (\approx 100')
Line A 15N-22N			
Line C 16N-22N			

CONCLUSIONS

The apparent resistivity trend is west-north-west, probably due to the regional main geologic trend - this trend is interrupted on the N=1 separation by an apparent resistivity low that coincides with the location of Peterson Creek. The N=2 separation shows a similar apparent resistivity low pattern, but as a series of subcircular lows approximating the trend of Peterson Creek.

The resistivity lows imply that overburden cover is relatively deep (50' - 100'), in a channel confined to Peterson Creek. Elsewhere in the survey grid, the apparent resistivity probably reflects shallow overburden, except at the NE corner from Lines D to I, and from 16N to 23N on Lines E, F and I.

The anomalous PFE's are associated with apparent resistivity averages between 175 and 85 ohm-meters, indicating PFE's due to bedrock response.

Bedrock PFE zones are probably caused by a combination of disseminated magnetite and disseminated sulphides. The westerly part of II, III (b) and IV are more likely to contain sulphides.

RECOMMENDATIONS

1. Ground magnetics would be useful to evaluate the sulphide and/or disseminated magnetite possibilities of each I.P. anomaly.
2. Percussion drilling is recommended to determine the cause of the four PFE anomalies. The overburden is probably too deep for surface trenching by bulldozer.

PERSONNEL AND COST OF SURVEY

July 24th to August 2nd, 1972:

L. Altman	- Party Chief	9 days @ \$75/day	\$ 675.00
R. Jelfs	- Assistant	9 days @ \$30/day	270.00
A. Sandford	- "	9 days @ \$30/day	270.00
M. Smith	- "	9 days @ \$30/day	270.00
A. Smith	- "	9 days @ \$30/day	270.00
R. Chaplin	- P. Eng.	4 days @\$100/day	400.00
Equipment Rental		9 days @ \$60/day	540.00
Transportation & Living Costs			400.00
Map Printing, Report Typing & Photocopying			<u>20.00</u>
		SUB-TOTAL.....	<u>\$3,115.00</u>

November 17th to November 26th, 1972:


R. Chaplin	- P. Eng. & Party Chief	10 days @\$100/day	\$1,000.00
R. Pearson	- Assistant	10 days @ \$30/day	300.00
M. Pearson	- "	10 days @ \$30/day	300.00
L. Jones	- "	10 days @ \$30/day	300.00
B. Jackson	- "	10 days @ \$30/day	300.00
Equipment Rental		10 days @ \$60/day	600.00
Transportation & Living Costs			400.00
Map Printing, Report Typing, Preparation, etc.			<u>120.00</u>
		SUB-TOTAL.....	<u>\$3,320.00</u>
		GRAND TOTAL.....	<u>\$6,435.00</u>

QUALIFICATIONS OF WRITER

I, Robert E. Chaplin, Professional Engineer, with office and residence at 1761 Drummond Drive, Vancouver 8, British Columbia, hereby certify that:

1. I am a registered Professional Engineer of the Province of British Columbia.
2. I am a graduate Geological Engineer of the University of British Columbia, 1959.
3. I have owned and operated induced polarization equipment for seven years.
4. I have over 20 years' experience in mineral exploration.

Respectfully submitted,


Robert E. Chaplin, P.Eng.,
Vancouver, B.C.,
December, 1972.

STATEMENT OF PERSONNEL AND COSTSMagnetometer

D. Burns, P.Eng. - Dec. 7 to 20 inclusive 14 days @ \$65.00	\$ 910.00
R.H. Seraphim, P.Eng. - Nov. 17, 21 to 24 incl., & Dec. 1, 8, 18, 19, & 27 10 days @\$100.00	1,000.00
D. Tully - Dec. 8, Dec. 9 2 days @ \$100.00	200.00
	<u>2,110.00</u>
Equipment Rental, Living Expenses, Transportation	<u>495.00</u>
Total re magnetic survey	<u>\$2,605.00</u>
Induced Polarization per Page 6, Appendix 1	<u>6,435.00</u>
Total	<u>\$9,040.00</u>

Declared before me at the City
of Vancouver, in the
Province of British Columbia
Day of Jan 1973, A.D.

R.H. Seraphim
R.H. Seraphim, Ph.D. P.Eng.

Julius
Notary Public for
the Province of British Columbia,
Sub-mining Recorder

MINEX DEVELOPMENT LTD. (NPL)
PLAN OF CERTAIN MINERAL CLAIMS IN
JACKO LAKE - PETERSON CREEK AREA

KAMLOOPS MINING DISTRICT
MAP 92 I/9
Scale 1"=1000'

Bearings are astronomic and are derived from L 4117
 * Denotes standard iron post
 ** Denotes 1/2" iron
 • Denotes T/T traverse hub
 ○ Denotes claim post
 ⊙ Denotes old
 LL Denotes location line
 Denotes fence

Note: A hub driven in the ground, in a tree or stump has a disk tag attached to same by a nail. In all cases the head of the nail indicates the position of the station.

CLAIM	ACRES
PAM 8	0
PAM 9	0
PAM 10	0
PAM 11	0
PAM 12	0
PAM 13	4.3
PAM 14	10
PAM 15	10
PAM 16	22.5
PAM 17	21.5
PAM 18	31
PAM 19	1
PAM 20	22.5
WADE 3	45.5
MAP 3 FR.	31.65
B 30	51
B 31	51.65
B 32	10.5
B 33	10.5
PAM 29	1
FOX 9	25.5
MAP 3 FR.	17.5
MAP 4 FR.	17
MAP 5 FR.	25.5

Note: AT 12:00 noon 1972
This plan in no way guarantees the area allotted to the Mineral Claims as shown hereon.

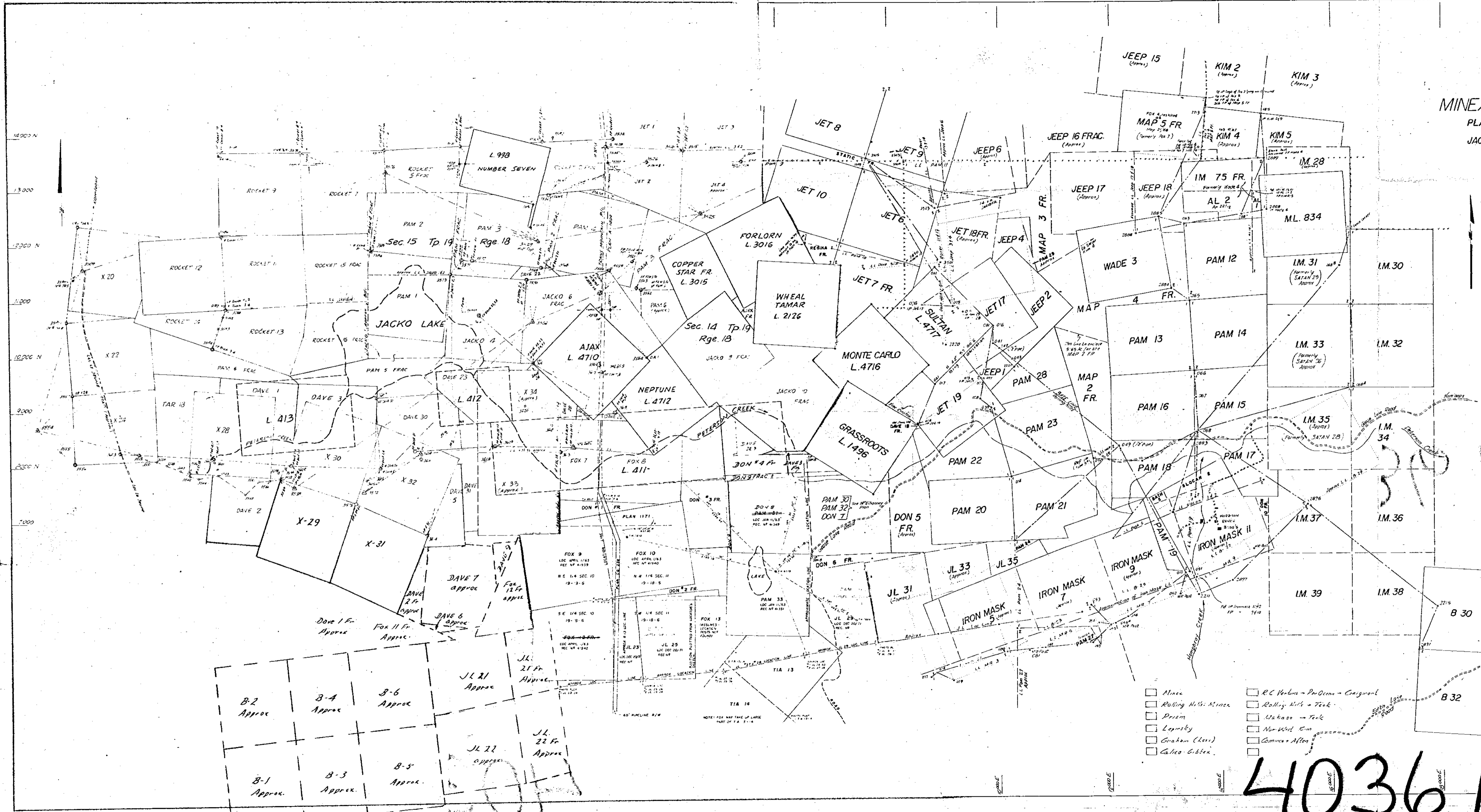
Confidential

Note: This map remains
subject to revision

Amended Dec 19, 1972
Nov. 1972

Revised by Josephine
Gruetz

M. W. Tom + Whyte + Gable Associates
B.C. Land Surveyors
Kamloops + Prince George + Smithers
Job 72-879 FB Model File # MC-84

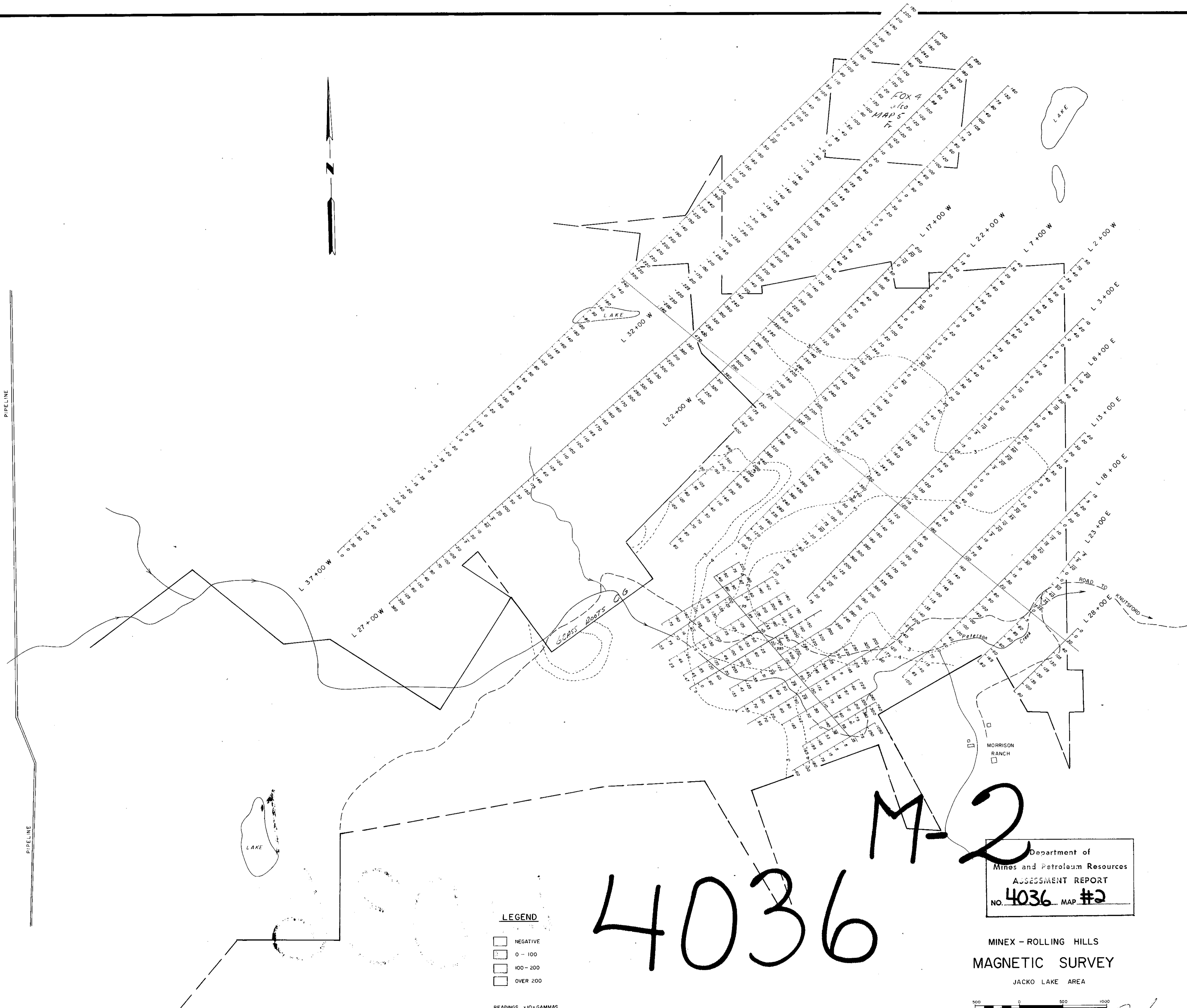


- Mine
- Rolling Hills Mine
- Prism
- Legrosby
- Graham (Levi)
- Calico-Gibber
- RC Verbus - De Ocon - Cairnwood
- Rolling Hills - Teak
- Makoo - Teak
- Nor-Welt - Kim
- Comma - Allen
- [Symbol] [Symbol]

4036 M-5

PIPELINE

PIPELINE



LEGEND

- NEGATIVE
- 0 - 100
- 100 - 200
- OVER 200

READINGS x10=GAMMAS

----- I.P. ANOMALY OUTLINE

M-2
4036

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4036 MAP #2

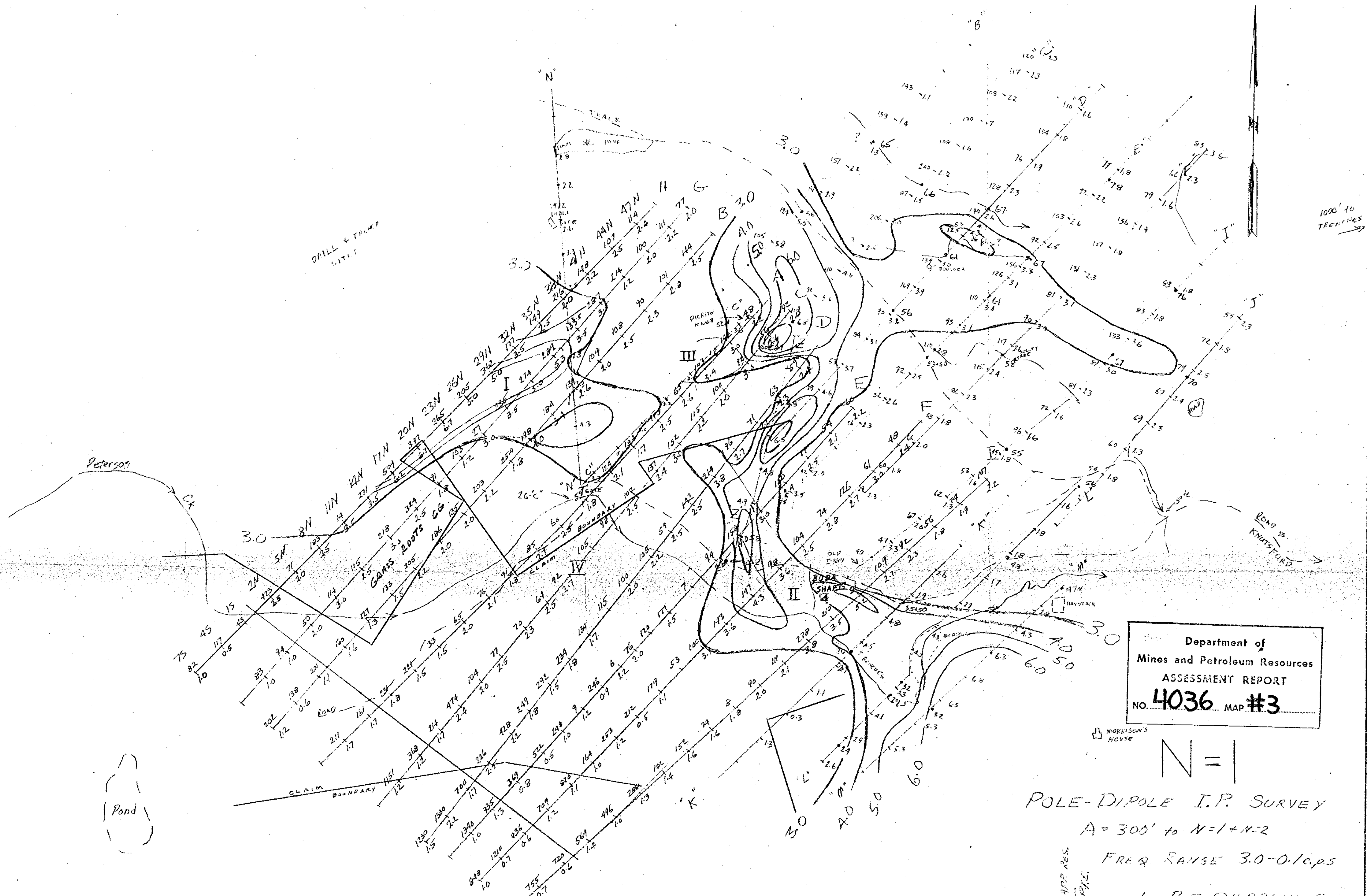
MINEX - ROLLING HILLS
MAGNETIC SURVEY
JACKO LAKE AREA



DECEMBER, 1972

R.H. Seraphim
R.H.S.

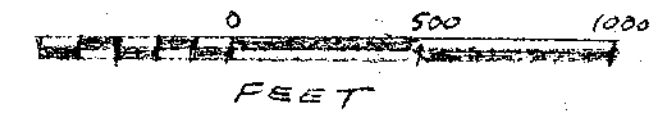
TO ACCOMPANY REPORT ON MAGNETICS AND
INDUCED POLARIZATION SURVEYS, ROLLING HILLS
AND MINEX CLAIMS, JACKO LAKE, KAMLOOPS M.D.
DATED: JANUARY 2, 1973 R.H. SERAPHIM



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4036 MAP #3

N=1
POLE-DIPOLE I.P. SURVEY
A = 300' to N=1+N-2
FREQ RANGE 3.0-0.1 c.p.s

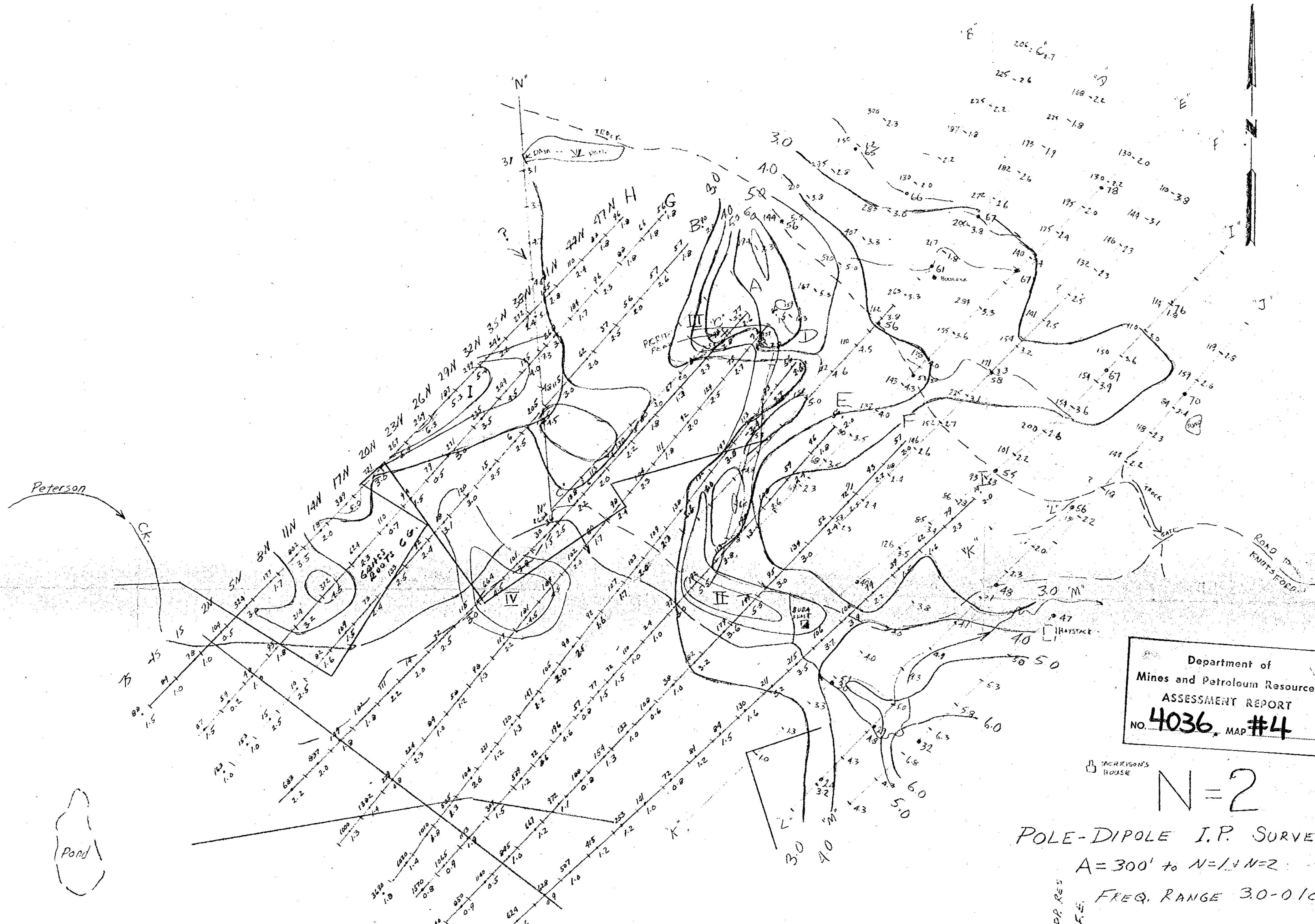
By R.E. CHAPLIN, P.ENG
FIG. 1
for
MINEX DEVELOPMENT LTD.
DAVE & R.H. CLAIMS
R.E. Chaplin, P. Eng, Aug/72
JACKO LAKE AREA, KAMLOOPS MINING DIVISION, B.C.



JOHN 4036
EM M-3

To accompany report on
Magnetic and Induced Polarization
Surveys, Rolling Hills and Mine Claims
Jacko Lake, Kamloops M.D.
dated January 2, 1973 by R.H. [Signature]
AUG, 1972
NOV, 1972 - REVISED - REC

REC



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4036, MAP #4

N=2

POLE-DIPOLE I.P. SURVEY
A=300' to N=1/4 N=2

FREQ. RANGE 30-01 CPS

BY R.E. CHAPLIN, P.E.

FIG. 2

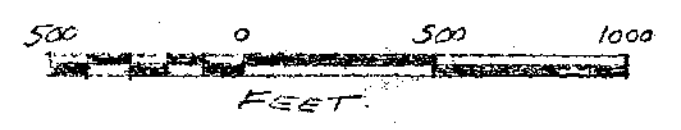
FOR

MINEX DEVELOPMENT LTD.

DAVE & R.H. CLAIMS

R.E. Chaplin, P. Eng. Aug/72

JACKO LAKE AREA, KAMLOOPS MINING DIVISION, B.C.



0804
4036
M-4

To accompany report on:
Magnetic and Induced Polarization Surveys,
Milling Hills and Mine Claims
Jacko Lake, Kamloops M.D.

done January 3, 1973 by R.E. Chaplin
AUG. 1972
NOV. 1972. REVISED REC

REC