4396

REPORT ON THE AIRBORNE MAGNETIC SURVEY PINE PROPERTY, THUTADE LAKE AREA OMINECA MINING DIVISION BRITISH COLUMBIA FOR KENNCO EXPLORATIONS (WESTERN) LTD.

94E/2E Pine

BY
PETER K. SMITH, B.Sc.
ASHTON W. MULLAN, P. Eng.

NAME AND LOCATION OF PROPERTY:
THUTADE LAKE AREA
PINE MINERAL CLAIMS
OMINECA MINING DIVISION, B.C.
NORTH CENTRAL B.C. 57° 13'N - 126° 43' W

DATE STARTED: APRIL 26, 1973.
DATE FINISHED: APRIL 28, 1973.

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GENERAL NOTES ON
AIRBORNE MAGNETIC SYSTEM

A. EQUIPMENT

The proton precession magnetometer was employed in this airborne magnetic survey. Ancillary equipment consists of an altimeter, a frame camera, an intervalometer-fiducial numbering system and a light beam recorder.

Proton Magnetometer

A Varian V4937-A airborne proton precession magnetometer is used to record the variations in the earth's total magnetic field.

The proton free precession magnetometer operates on the principle of nuclear magnetic resonance to produce a measurement of the earth's total magnetic intensity, i.e., the scalar magnitude of the ambient field. In the proton magnetometer sensor, a uniform magnetic field is created by passing a few amperes of current through a coil about a small volume of proton-rich (hydrogen nuclei) hydrocarbon fluid such as kerosene. The spinning protons act as small magnetic dipoles and align themselves with the applied field. When the field is removed, the protons precess in phase about the direction of the earth's field at a rate proportional to the total magnetic intensity. This rate, or Larmor precession frequency, is determined by the value of the gyromagnetic ratio of the proton (23.4874 gammas per Hz) which is an atomic constant known to an accuracy of 7.5 parts per million. The precession frequency is independent of the direction of the spins with respect to the earth's field; only the signal amplitude varies, being maximum when the spins are normal, and zero when they are parallel to the direction of the earth's magnetic field.

The precession signal is induced by the motion of the precessing protons in the same coil used for polarizing the sample. Thermal agitation causes the signal to decay in a few seconds from its peak value of a few tens of micro-volts. The frequency of the precession signal, as determined by the gyromagnetic ratio, is approximately 0.04 Hz per gamma, or between 1250 and 3400 Hz, corresponding to an approximate range of 30,000 to 80,000 gammas in the earth's magnetic field.

This instrument has a sensitivity of one gamma when pulsed at one second intervals. The proton magnetometer has the advantage of reading the absolute value of the earth's magnetic field and is almost completely free of drift or variations due to termperature or environmental changes.

B. DATA RECORDING & COMPILATION

A light-beam recorder employing a photo-sensitive paper is used to record the data. High-sensitivity galvanometers give almost instantaneous response to the incoming signals and the recorder time lag is essentially zero. The recorder normally employed is the 14 channel Honeywell Visicorder.

With the actual flight record oriented so that the fiducial numbers increase from left to right, the 5.7 inch trace width has been divided by 15 major grid lines with zero at the bottom and 15 at the top. These major divisions are in turn divided by five division lines which appear as lighter lines on the chart. Except where noted on the individual records, the traces are identified as follows:

1) Magnetometer

The magnitude of the earth's total magnetic field is recorded on both a fine scale (0 to 200 gammas) and a coarse scale (0 to 2000 gammas).

Each scale is adjusted to provide a full scale deflection of ten major units on the recording chart. The position of the fine scale zero line is usually centred on grid Line 3 while the coarse scale zero is also positioned on grid Line 3. The exact zero and full scale deflection positions can be checked from the flight calibrations. Since the value of the earth's magnetic field is a five digit number, the operator records the value of the first two digits on the flight report.

11) Fiducials

Fiducials are indicated by vertical lines appearing at the bottom of the chart. These lines are interpreted by a reversed marker to indicate every tenth fiducial. Each fiducial marking corresponds with a camera frame, so that the tracking film can be correlated with the data recorded on the chart.

111) Altimeter

The trace appearing across the upper portion of the chart is a monitor of terrain clearance. The altimeter scale is non-linear. A calibration scale for this trace is recorded for each flight.

C. DATA PRESENTATION

Magnetometer Results

The magnetic data are presented in contour form. The contours represent lines of equal intensity of the earth's magnetic field. A contour interval of 20 gammas has been used where the gradient of the earth's magnetic field permits.

McPHAR GEOPHYSICS LIMITED

REPORT ON THE
AIRBORNE MAGNETIC SURVEY
PINE PROPERTY, THUTADE LAKE AREA
OMINECA MINING DIVISION
BRITISH COLUMBIA
FOR KENNCO EXPLORATIONS (WESTERN) LTD.

1. INTRODUCTION

During April 1973, an airborne magnetic survey was carried out over the Pine Property, Thutade Lake Area of British Columbia for Kennco Explorations (Western) Limited. This property lies within the Omineca Mining Division at 57° 13'N latitude and 126° 43W longitude.

The purpose of this survey was to outline broad geological features and to extend geologic information into the drift covered areas.

2. SURVEY DETAILS

The Pine Property is located approximately 13 miles northeast of Thutade Lake, British Columbia. The relative position of the claims are illustrated on Fig. 1. Survey coverage consisted of approximately 97 line miles of traverse along northeast-southwest flight lines at 1/8 mile intervals, of which 23 line miles lie within the property boundaries. The average length of the flight lines is about 4.5 miles. Continuous photography provided flight line location control and a mean terrain clearance of 350' was maintained wherever topographic conditions permitted. The survey was carried out utilizing a Bell Jet Ranger II helicopter, operating from the airstrip at Black Lake.

A description of the geophysical equipment employed in the survey may be found in the notes preceding this report.

The survey was carried out over the following claims which are owned or held under option by Kennco Explorations (Western) Limited.

Claim	No.
Pine	13 - 18
Pine	31 - 46
Pine	65
Pine	67 - 80
Pine	129
Pine	131
Pine	135 Fr. - 142 Fr.

The approximate boundary of the above claim group is outlined on the accompanying maps.

3. PRESENTATION OF RESULTS

The results of the airborne magnetic survey have been contoured at a 20 gamma contour interval wherever the gradient of the total magnetic field permitted, and are presented on Map Sheet AM 7309.

4. GENERAL GEOLOGY

The survey area is underlain by intermediate volcanics of Upper Triassic age. These volcanics have been intruded by syenitic intrusives of probable Cretaceous age.

A report on the ground magnetometer survey by R. W. Stevenson P. Eng., points out that the syenitic intrusives have a magnetic intensity of about 800 to 1000 gammas, except in hybrid phases, where the magnetic intensity

may range up to 1200 gammas. The Takla andesite has a magnetic intensity of 2600 to 2200 gammas and displays more magnetic relief than the intrusives. Therefore magnetometer surveys can be usefully employed in extending geological information beneath drift cover.

5. DISCUSSION OF RESULTS

The low level magnetometer survey has provided good magnetic detail and definition on the 'Pine' claim group. Ground magnetometer surveying indicated that a distinct difference in the value of the magnetic field would be detected between intrusives and volcanic rocks underlying the area.

The contoured magnetic response has outlined a magnetic relief of approximately 1,100 gammas. The values of the total magnetic field recorded range from approximately 58,800 gammas to approximately 59,900 gammas.

On the basis of the ground survey it would seem reasonable to make the assumption that the volcanics are represented by those responses of greater intensity than 59,300 gammas. Based on this arbitrary datum, six areas which are underlain by volcanics can be interpreted. Two of these areas lie north of the Finlay River in the drift covered portion of the property.

6. SUMMARY & CONCLUSIONS

The results of the airborne magnetic survey over the Pine Property correlate well with the ground magnetic results in the vicinity of Claims 33, 34, 35 and 36. On this basis five additional areas which are underlain by volcanics can be interpreted. Two of these areas lie north of the Finlay River in the drift covered region.

McPHAR GEOPHYSICS LIMITED.

Peter K. Smith
Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. W. MULLAN

Ashton W. Mullan
Geologist.

Dated: June 12, 1973.

ASSESSMENT DETAILS

PROPERTY: Pine Property

MINING DIVISION: Omineca

SPONSOR: Kennco Explorations (Western) Limited

PROVINCE: British Columbia

LOCATION: Thutade Lake

DATE STARTED: April 26, 1973

TYPE OF SURVEY: Airborne Magnetometer

DATE FINISHED: April 28, 1973

MEAN FLIGHT LINE DIRECTION: NE-SW

MILES OF LINE FLOWN: 97

MEAN FLIGHT LINE SPACING: 660 feet

MILES OF LINE INSIDE AREA: 23

MEAN TERRAIN CLEARANCE: 350 feet

NUMBER OF MINING CLAIMS: 47

AIRCRAFT: Jet Ranger II 206B (Helicopter)
CF-OAP Owned by Okanagan Helicopters Ltd.

CONSULTANTS:

Peter K. Smith, 650 Parliament Street, Apt. 2212, Toronto, Ontario.
Ashton W. Mullan, 1440 Sandhurst Place, West Vancouver, B.C.

TECHNICIANS:

M. Kimmerer, 15 Valleywoods Road, Unit 92, Don Mills, Ontario.
E. Ross, 41 Forbes Road, Scarborough, Ontario.
N. Talbot, 24 Amberdale Drive, Scarborough, Ontario.

DRAUGHTSMEN:

R. Koenig, 3125 Lawrence Ave. E., Apt. 702, Scarborough, Ontario.
D. Taylor, 13 Bowden Street, Toronto, Ontario.

McPHAR GEOPHYSICS LIMITED

Ashton W. Mullan

Ashton W. Mullan, P.Eng.
Geologist.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A.W. MULLAN

Dated: June 12, 1973

STATEMENT OF COST

Kennco Explorations (Western) Limited
Airborne Magnetic Survey
Pine Property, Thutade Lake, Omineca Mining Division,
British Columbia.

Period:- April 26th to April 28th, 1973

Technician: W. Magee

Consulting Geologist:- A.W. Mullan

Flying 97 Line Miles	@ $28.71 per mile		$2,784.87
Data Compilation - 97 Line Miles	@ $ 3.00 per line mile		291.00
Reporting - 1½ days	@ $150.00	=	225.00
			$3,300.87

McPHAR GEOPHYSICS LIMITED

A.W. Mullan, P.Eng.
Geologist

Dated: June 12, 1973

CERTIFICATE

I, Peter K. Smith, of the City of Toronto, in the Province of Ontario, hereby certify:

1. That I am a geologist/geophysicist with a business address at 139 Bond Avenue, Don Mills, Ontario.

2. I am a graduate of the University of British Columbia with a B.Sc. Degree in Honours Geology and Geophysics (1970).

3. I am a member of the Society of Exploration Geophysicists.

4. I have been practising my profession for 3 years.

5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Kennco Explorations (Western) Limited or any affiliate.

6. The statements made in this report are based on a study of published geological literature and unpublished private reports.

7. Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

Dated at Toronto

This 12th day of June 1973.

Peter K. Smith, B.Sc.

CERTIFICATE

I, Ashton W. Mullan, of the City of Vancouver, in the Province of British Columbia, hereby certify:

1. That I am a geologist and a fellow of the Geological Association of Canada with a business address at Suite 811, 837 West Hastings Street, Vancouver, B.C.

2. That I am registered as a member of the Association of Professional Engineers of the Provinces of Ontario and British Columbia.

3. That I hold a B.Sc. degree from McGill University.

4. That I have been practising my profession as a geologist for about twenty years.

5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Kennco Explorations (Western) Limited or any affiliate.

6. The statements made in this report are based on a study of published geological literature and unpublished private reports.

7. Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

Dated at Toronto

This 12th day of June 1973.

A.W. Mullan, P.Geol., P.Eng.

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
TO WIT:

In the Matter of an airborne magnetic survey done on the Pine No 6 and 7 Groups of mineral claims in April of 1973.

I, R.W. Stevenson for Kennco Explorations (Western) Limited

of Vancouver, B.C.

in the Province of British Columbia, do solemnly declare that the cost incurred on assessment work on the Pine No 6 and 7 Groups were as follows:

Geophysical Survey:

Preparation of airphoto mosaic map for flight control and data plotting, by staff of Kennco Explorations:

- wages: D.A. Yeager - April 12, ½ of 13 @ $32.00/d = $48.00
  R.W. Stevenson - April 14, 15 @ $65.00/d = 130.00
- Reproduction: Cronaflex & field prints = 94.28

Airborne magnetic survey by MePhar Geophysics, April 26, 27 = 3300.00

Total = $3,572.28

Portion of survey relative to Pine No 6 Group = $1330.00
Portion of survey relative to Pine No 7 Group = $2242.28
$3572.28

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the
of , in the
Province of British Columbia, this
day of MAY 31 1973, A.D.

VANCOUVER, B. C.

R.W. Stevenson

Sub-Mining Recorder

A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.

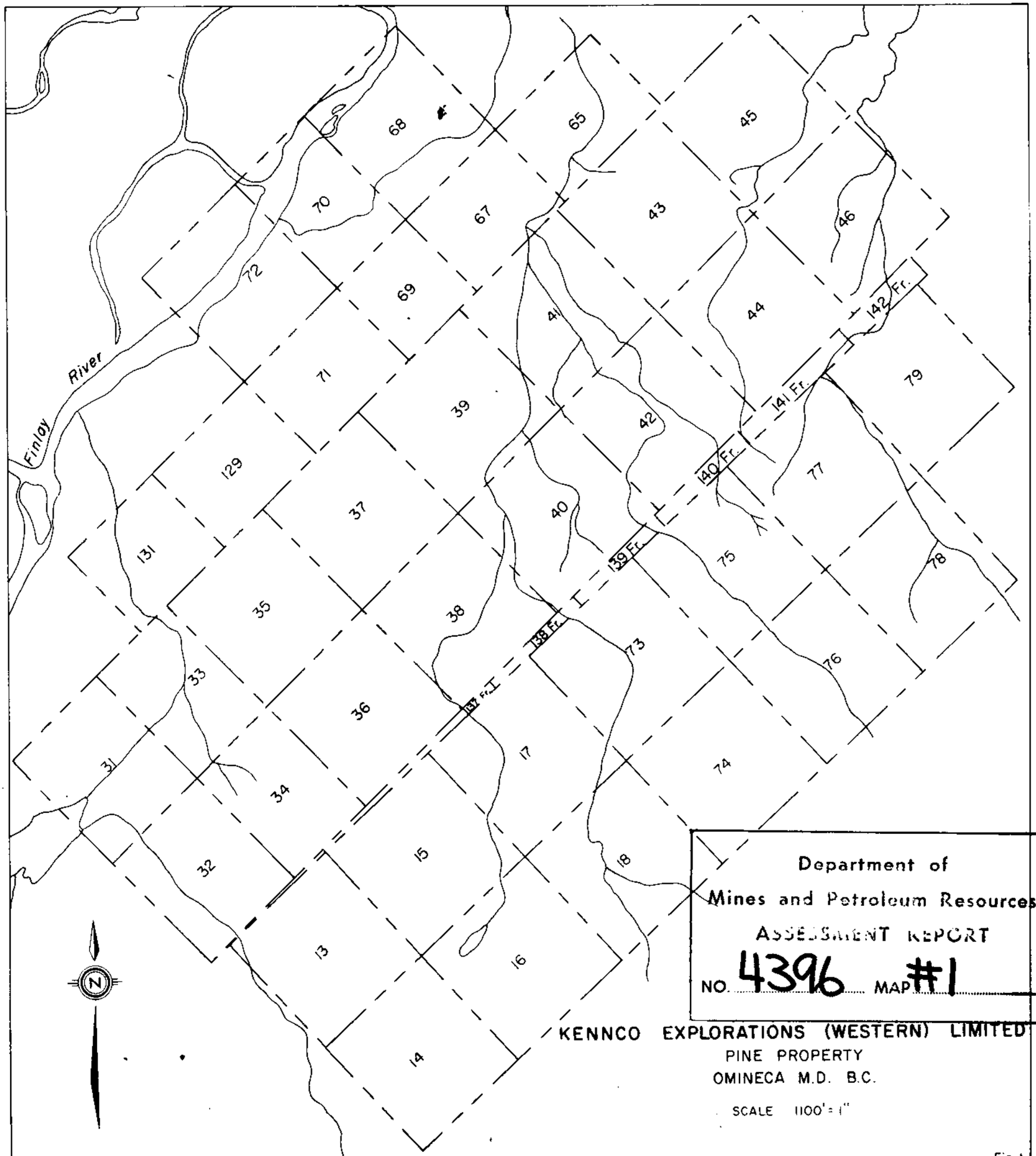
Finlay River
68
65
45
70
67
43
46
72
69
41
44
142 Fr.
71
39
42
141 Fr.
79
129
140 Fr.
77
37
40
131
139 Fr.
75
78
35
38
138 Fr.
73
33
76
36
137 Fr.
17
31
74
34
32
15
18
13
16
14
N
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4396 MAP #1
KENNCO EXPLORATIONS (WESTERN) LIMITED
PINE PROPERTY
OMINECA M.D. B.C.
SCALE 1100' = 1"

Fig. 1

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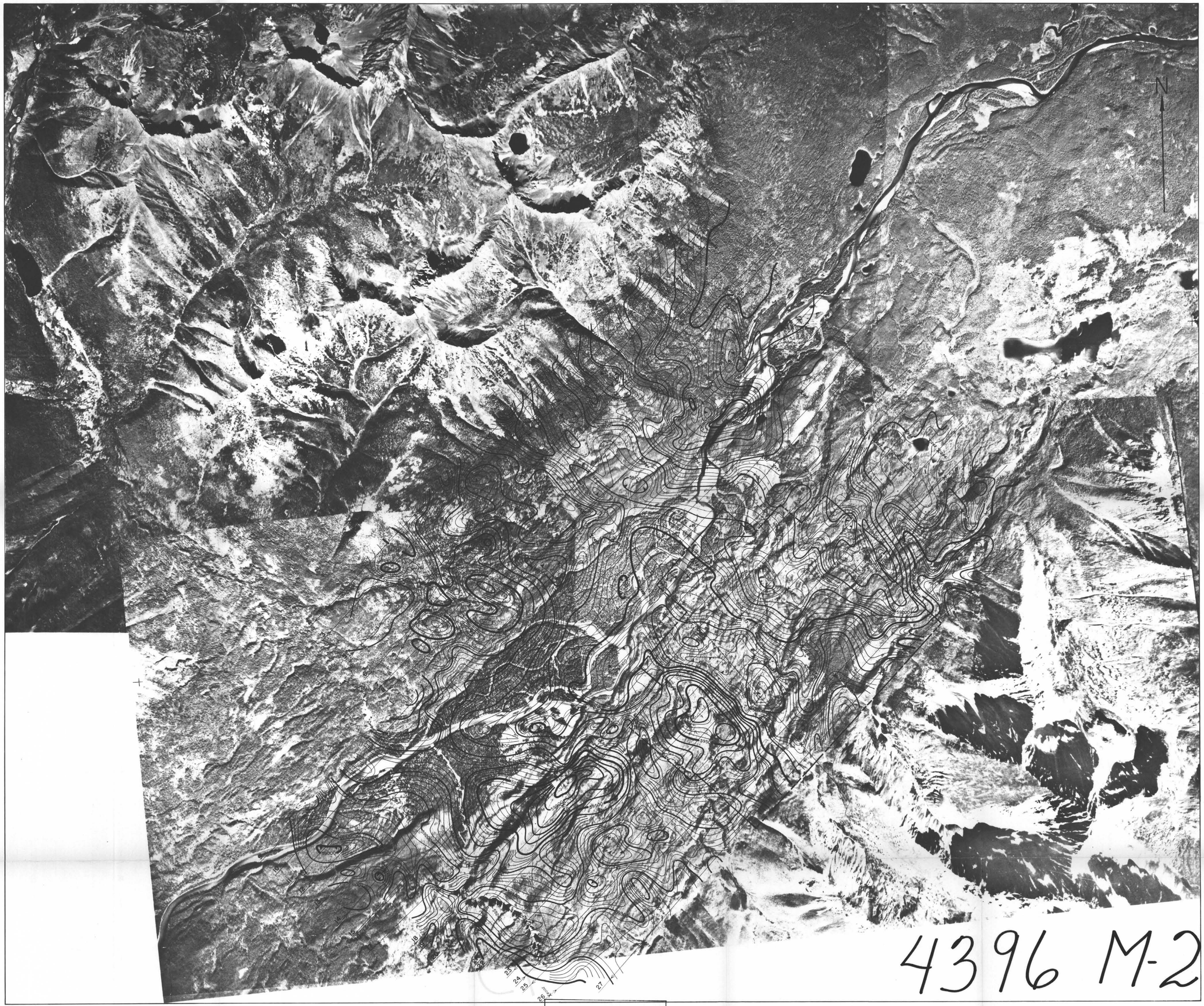
AIRBORNE MAGNETIC SURVEY



4396 M-2

LEGEND

CONTOUR INTERVAL _ _ _ _ _ _ _ 20 gammas
20 GAMMA CONTOUR _ _ _ _ _ _
100 GAMMA CONTOUR _ _ _ _ _ _
500 & 1000 GAMMA CONTOUR _ _
MAGNETIC LOW _ _ _ _ _ _ _ _ _

MEAN FLIGHT LINE SPACING _ _ _ 660 FEET
MEAN TERRAIN CLEARANCE _ _ _ 350 FEET
FLOWN AND COMPILED: APRIL TO JUNE 1973

KENNCO EXPLORATIONS (WESTERN) LIMITED

PINE PROPERTY

OMINECA MINING DIVISION, BRITISH COLUMBIA

1000' 0' 1000' 2000' 3000' 4000' 5000' 6000'

SCALE 1:15,840 (Approx.)

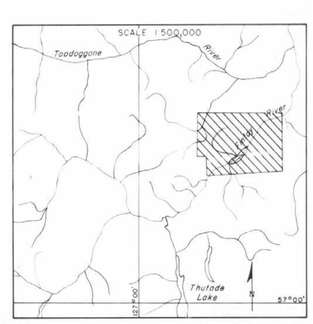
NOTE: TO ACCOMPANY GEOPHYSICAL REPORT FOR KENNCO EXPLORATIONS (WESTERN) LIMITED, PINE PROPERTY, OMINECA MINING DIVISION, B.C. BY A.W. MULLAN (P.ENG.) AND P.K. SMITH, GEOPHYSICIST.

DATED: JUNE [illegible]

APPROVED: [illegible]

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. W. MULLAN

SCALE 1:500,000



AM 7309