92I/7W

i AIRBORNE GEOPHYSICAL SURVEY

MAGNETOMETER - ELECTROMAGNETIC

ii MM 1-16, 18, 20, 24-46
ORO 1-6, 25-26
ADD 3Fr-4Fr
ROB 1-14, 17, 19, 21, 23-27

Skuhun Creek Area, B.C.
Kamloops Mining Division

Lat. 51°19'N Long: 120°57'W

iii Harvey H. Cohen, P.Eng.

iv Oro Mines Ltd. NPL
Vancouver, B.C.

v April 14-May 7, 1972

9677

3633

92I/7W

i AIRBORNE GEOPHYSICAL SURVEY

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Vancouver, B.C.

v April 14-May 7, 1972

HARVEY H. COHEN ENGINEERING LTD.
CONSULTING ENGINEERS

TELEPHONE: BUS.: 684-6711
RES.: 266-8169

1264 WEST PENDER STREET
VANCOUVER 1, B. C.

May 7th, 1972

Oro Mines Ltd. NPL,
707 - 475 Howe Street,
Vancouver 1, B. C.

Dear Sirs;

RE: MM, ORO, ADD, ROB Mineral Claims
Roscoe Lake Area, B. C. Skuhun Creek
Kamloops Mining Division

AIRBORNE GEOPHYSICAL SURVEY

Pursuant to your request, the writer has conducted a combined Airborne Geophysical Survey employing magnetometer, electromagnetic, and radioactivity instrumentation over the subject mineral claims in the Kamloops Mining Division during the period April - May 1972. The following report and maps are based on the results of that survey.

Respectfully submitted,

Harvey H. Cohen, P. Eng.

HHC/ip
encl.

REPORT ON THE

AIRBORNE GEOPHYSICAL SURVEY

ORO SOUTH GROUP

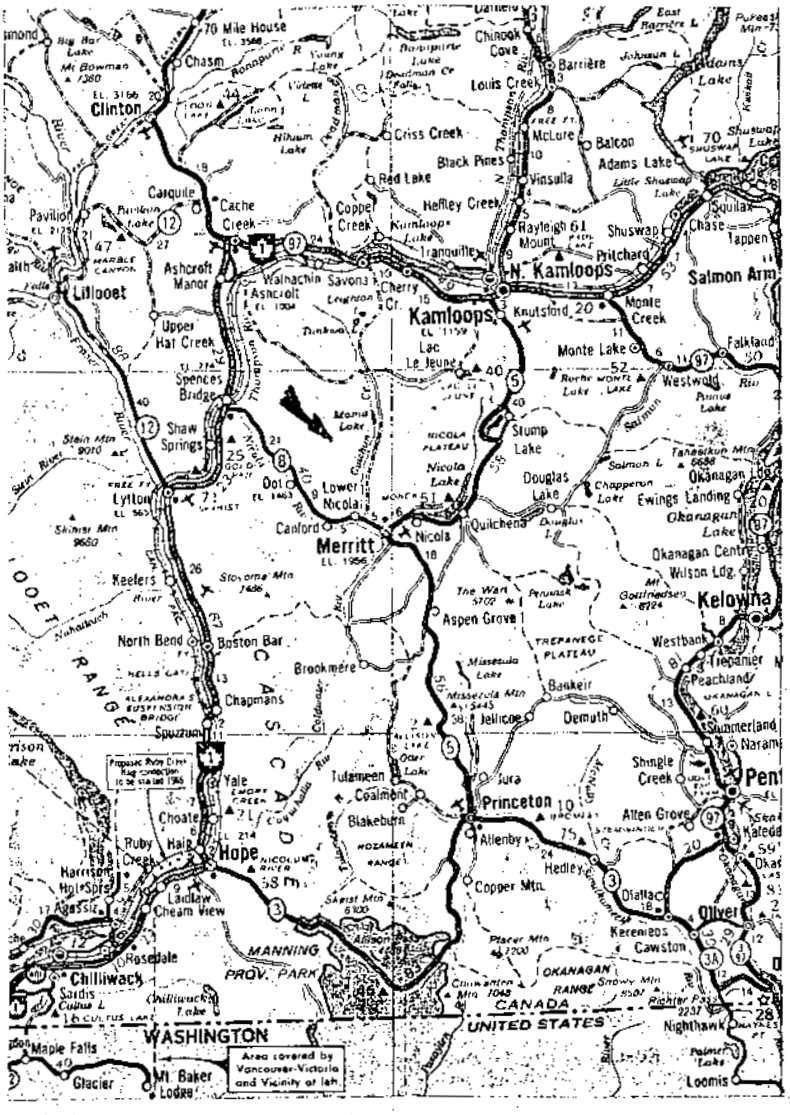
SKUHUN CREEK AREA, B. C.

KAMLOOPS MINING DIVISION

* * * * * * *

ORO MINES LTD. NPL
VANCOUVER, B. C.

HARVEY H. COHEN, P.ENG.



Department of

Mines and Petroleum Resources

ASSESSMENT REPORT

NO. 3633 MAP #1

KEY MAP SHOWING LOCATION OF SKUHUN CREEK AREA, B.C. 189-O-1

HARVEY H. COHEN, P.ENG.

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LIST OF ILLUSTRATIONS

REPORT ON THE

AIRBORNE GEOPHYSICAL SURVEY

ORO SOUTH GROUP

SKUHUN CREEK AREA, B. C.

KAMLOOPS MINING DIVISION

INTRODUCTION

LOCATION OF AREA:

The ORO SOUTH GROUP of mineral claims, held by location by Oro Mines Ltd. NPL of Vancouver, are situated two miles southwest of Chataway Lake and approximately 20 miles northwest of Merritt, B. C. in the vicinity of the Skuhun Creek, Kamloops Mining Division.

Access to the property is gained by following the Merritt - Spences Bridge highway westerly for 25 miles to the Chataway Lake Road turnoff. From there the Chataway Road is followed for 13 miles directly to the south border of the Oro South Group. Other roads including cat roads provide access to several areas of interest on the subject claims. During this survey, access was from Vancouver, B. C. via aircraft directly to the area for a preliminary reconnaisance. Kamloops airport was used as a base for refueling and instrument preparation.

The nearest supply centre is Merritt, B. C. which is located 25 road miles from the property and 240 road miles from Vancouver, B. C. Geographically, the southeast corner of the property is at:-

Longitude: $120^{\circ}57'$W by Latitude: $51^{\circ}19'$N

SUMMARY OF CLAIMS:

NAME	RECORD NO.	DATE
MM 1-16	49752-49767	May 7, 1972
MM 18	49769	May 7, 1972
MM 20	49771	May 7, 1972
MM 22	49773	May 7, 1972
MM 24-46	49775-49797	May 7, 1972
Oro 1-6	51037-51042	Aug. 2, 1972
Oro 25-26	51053-51054	Aug. 2, 1972
ADD 3-4 Fr.	80871-80872	Jun. 4, 1972
ROB 1-8	60261-60268	Sep. 7, 1972
ROB 9-14	60651-60656	Sep. 23, 1972
ROB 17	60659	Sep. 23, 1972
ROB 21	60663	Sep. 23, 1972
ROB 23-27	60665-60669	Sep. 23, 1972

A total of 74 full and fractional mineral claims.

GEOPHYSICAL INVESTIGATIONS

MAGNETOMETER SURVEY:

The purpose of the Magnetometer Survey was to detect the presence of any magnetic anomalies on the property and determine their size, magnetic intensity, and probable cause. An anomaly would result from the presence or absence of any magnetic accessory minerals in the underlying rock formations in detectable quantity. The Magnetic survey would differentiate between the volcanic, sedimentary, and intrusive members, and detect sulphides that have magnetic properties and that could possibly be associated with valuable minerals.

Using these factors as a guide, the geophysical survey was conducted over an area measuring 16,500 feet in length by 11,000 feet in width in order that the ORO South Group would be adequately covered. A total of 65 miles of survey was recorded together with approximately 30% over runs.

Factors which produce variations in the magnetic field are:-

1. A concentration of magnetic minerals, possibly associated with valuable minerals.

2. A variation in amount of accessory mineral magnetite in granitic, volcanic, or sedimentary bedrock.

3. A variation in amount of magnetite distributed through or connected with the overburden.

4. A variation in depth of non-magnetic overburden on caprock over bedrock having a constant vertical magnetic intensity.

5. Variation in amount of magnetic minerals in adjacent bands of volcanic and/or sedimentary rocks. These variations are not expected to be great, and they produce elongated highs and lows parallel to the strike of the formation.

6. Any combination between variations in magnetic minerals in the rock and variations in magnetic or non magnetic overburden or caprock thickness.

It will be seen from the above factors that the geophysical survey employing magnetometer produces information that would assist in providing a structural picture as well as indicating and defining areas of more favorable geologic significance for further exploration.

ELECTROMAGNETIC SURVEY:

The Electromagnetic Survey, conducted simultaneously with the Magnetometer Survey, measures the change in mutual impedance between a pair of coils as the impedance is affected by nearby conductors of electricity. The equipment employed during this survey transmits an electrical field through a 65 foot coil at a frequency of 1,000 cycles per second. The receiving coil is

housed in a "bird" that is drawn by the aircraft, and records any fields that are produced by the electrical field.

RADIOACTIVITY SURVEY:

The Radioactivity Survey measured continuously the radioactive properties of the subsurface rocks by means of a DR-229 Nucleometer constructed specifically for airborne work. It is a highly sensitive instrument of 24 tube construction.

This system was employed for the sake of completion, and to investigate the presence of any zones of radioactivity that may be caused by certain weathered products within rocks associated with mineralized zones.

PROCEDURE

The 74 claim group, the ORO SOUTH GROUP are oriented in a north-south direction with the south boundary near parallel to the Skuhun Creek. The east boundary lies parallel to and west of the Chataway Creek. The area selected to cover the property measured 16,500 feet by 11,000 feet. Due to the nature of the terrain and the configuration of the claim block, the flight lines were established at true headings of 0° and 180°. In this way, a near constant height above ground of 500 feet could best be maintained by the aircraft. The flight lines were plotted on Map 92I/2 Mamit Lake Sheet with base lines extrapolated to intersect prominent landmarks for visual control.

The survey was flown at a constant speed of 113.7 miles per hour at a flight line spacing of 500 feet. Instrumentation was continuous, but recording of data was accomplished by photographing the instrument panel at pre set intervals of time (depending upon the ground speed of the aircraft) to record readings at a space interval of 500 feet. Flight Lines, 21 in number, were flown 16,500 feet in length plus turning and reorienting distance. Th esurvey was conducted during periods of extreme calm weather. Prominent landmarks and physical features were used as visual reference points for flight control. The magnetometer was preset at 30 (3000 gammas) as the base reading for background. This eliminated any negative values and facilitated any possible errors due to arithmetic signs.

The resulting readings and their respective coordinates were key punched on cards for further transmission and processing by a Univac 1108 Computer stationed at Calgary, Alberta. The computer output including a statistical analysis was introduced to the CalComp Plotter utilizing our program. The accompanying maps are the results of this process.

ANALYSIS OF RESULTS AND CONCLUSIONS

The South Group is covered for the greater part by a series of intrusives with a magnetic variation averaging 524 gammas. The average magnetic intensity measured was found to be 3476 gammas or 476 gammas above the preset base of 3000. This background is indicative of intrusives, possibly granodiorite with a magnetite accessory content that is considered normal to intrusives. One structural trend is outlined by the magnetic measurements, and this

appears to be a contact between two intrusives. The contact extends from the west at Flight Line 1 North 12, 000 in an easterly direction to Flight Line 16 North 12, 000. Here the trends takes a turn to the north terminating at the northeast corner of the map area. The area to the north of the contact shows a lesser degree of magnetic content than that of the area to the south.

This contact zone is confirmed by the electromagnetic survey which outlines the markation as described above and indicates the intrusive mass to the north as generally having a higher degree of conductivity than that of the south area. The electromagnetic anomaly at Flight Line 7 North 11, 500 is probably due to a shear zone associated with the contact.

This structural trend separates the intrusive mass and the recorded influence of the mass to the south is of low conductivity gradually increasing to a measured 17 microamps. The isolated highs were not considered to be of significance. However, the recorded series of 10 microamps, outlines two distinct anomalous zones of significance. One, centering at Flight Line 12 North 6000, measures approximately 1500 feet in an east-west dircetion by 500 feet in a north-south direction. This particular area occupies the south slope of the land towards the Skuhun Creek. It is marked by an uneven almost rugged surface cut by sharp narrow valleys. The magnetic influene measured at this location is less than average, and it would indicate a zone of greater than average conductivity equivalent to disseminated sulphides, and the sulphides are of non-magnetic properties.

A second anomaly lies to the southeast of No. 1 at Flight Line 20 North 4000. It measures approximately 1500 feet by 500 feet and is oriented

with its major axis in an east-west direction. Again, the significant feature of this anomaly is its high conductivity and low magnetic susceptibility. The zone has strong indications of being related to the No. 1 anomaly but displaced by a north-south fault which would be indicated at Flight Line 14. The fault theory appears likely as, the surface representation of the fault zone is the sudden change in direction of the Skuhun Creek from south to west near this location.

The two apparantly related target areas provide a locus for further investigation in that the recorded influence of high conductivity which is indicative of sulphide content, together with the low magnetic properties which decreases the possibility that the conductors are of magnetite composition, a definite strike length of 1500 feet parallel to a second anomaly of similar dimension, all which indicate a suitable environment for possible ore deposition.

The Radioactivity Survey recorded mild influences in the two main anomalous zones described. Generally, mild radioactivity has been found to be associated with zones of alteration, oxidation, and ore deposition. This is sometimes caused by weathering of potassium, and often provides a valuable guide in the search of hidden deposits.

MAGNETOMETER FREQUENCY ANITS=S2 MAY 3,1972

NUMBER OF OBSERVATIONS = 693

MINIMUM VALUE = 15.00
MAXIMUM VALUE = 50.00

MEAN = 34.76
STANDARD DEVIATION = 5.24

Z-VALUE FREQUENCIES

INTERVAL		NUMBER	%	CULM.%
14.00 TO	15.99	1	.14	.14
16.00 TO	17.99	1	.14	.29
18.00 TO	19.99	0	.00	.29
20.00 TO	21.99	11	1.59	1.88
22.00 TO	23.99	6	.87	2.74
24.00 TO	25.99	15	2.16	4.91
26.00 TO	27.99	13	1.88	6.78
28.00 TO	29.99	26	3.75	10.53
30.00 TO	31.99	132	19.05	29.58
32.00 TO	33.99	66	9.52	39.11
34.00 TO	35.99	106	15.30	54.40
36.00 TO	37.99	95	13.71	68.11
38.00 TO	39.99	57	8.23	76.33
40.00 TO	41.99	113	16.31	92.64
42.00 TO	43.99	28	4.04	96.68
44.00 TO	45.99	19	2.74	99.42
46.00 TO	47.99	3	.43	99.86
48.00 TO	49.99	0	.00	99.86
50.00 TO	51.99	1	.14	100.00

ELECTROMAGNETIC FREQUENCY ANALYSIS MAY 3,1972

NUMBER OF OBSERVATIONS = 670

MINIMUM VALUE = .00
MAXIMUM VALUE = 17.00

MEAN = 3.77
STANDARD DEVIATION = 3.01

Z-VALUE FREQUENCIES

INTERVAL		NUMBER	%	CULM.%
-.00 TO	.99	87	12.99	12.99
1.00 TO	1.99	154	22.99	35.97
2.00 TO	2.99	97	14.48	50.45
3.00 TO	3.99	58	8.66	59.10
4.00 TO	4.99	80	11.94	71.04
5.00 TO	5.99	87	12.99	84.03
6.00 TO	6.99	67	10.00	94.03
7.00 TO	7.99	34	5.07	99.10
8.00 TO	8.99	15	2.24	101.34
9.00 TO	9.99	16	2.39	103.73
10.00 TO	10.99	19	2.84	106.57
11.00 TO	11.99	5	.75	107.31
12.00 TO	12.99	2	.30	107.61
13.00 TO	13.99	0	.00	107.61
14.00 TO	14.99	2	.30	107.91
15.00 TO	15.99	2	.30	108.21
16.00 TO	16.99	0	.00	108.21
17.00 TO	17.99	1	.15	108.36

RADIOACTIVITY FREQUENCY ANALYSIS MAY 3,1972

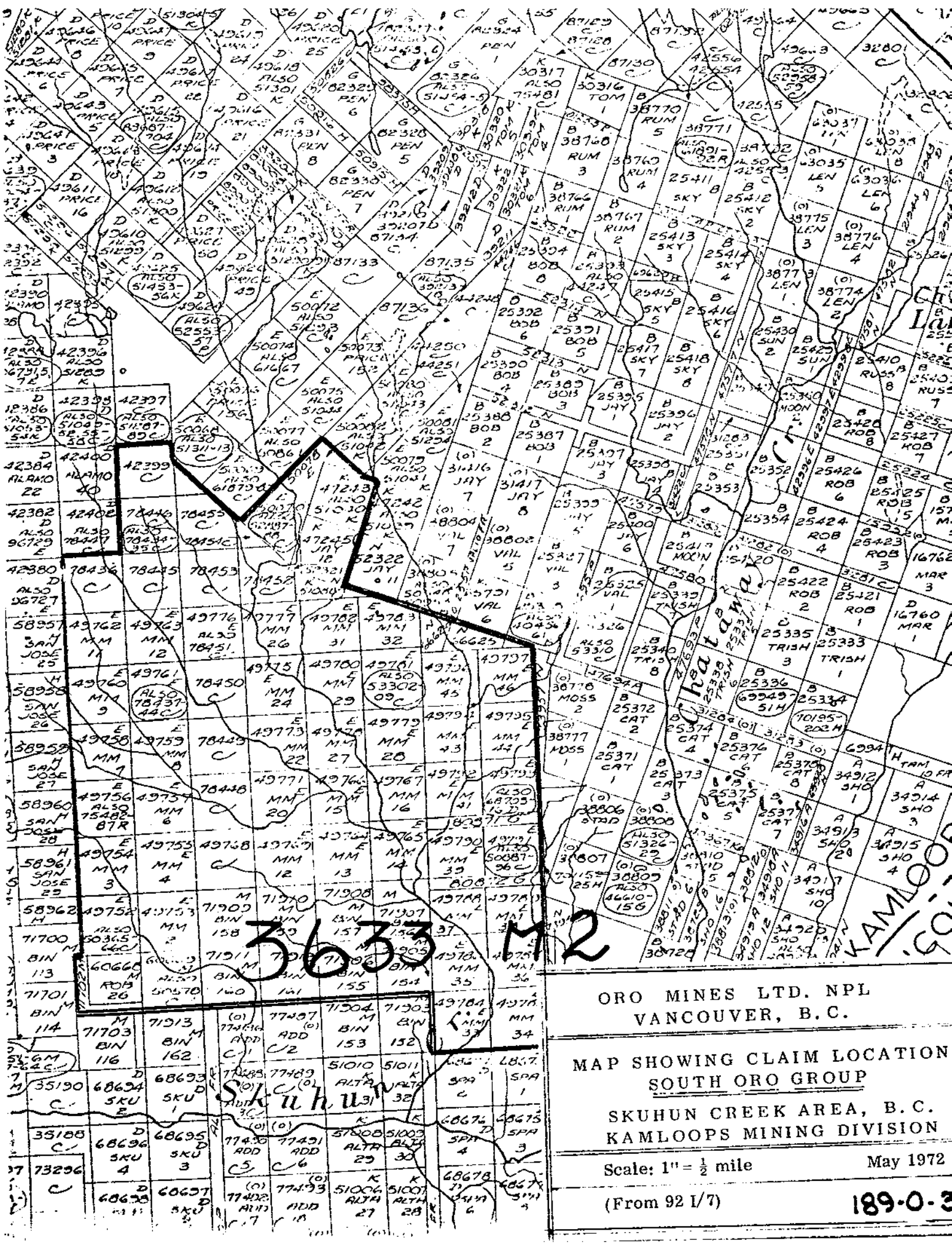
NUMBER OF OBSERVATIONS = 166

MINIMUM VALUE = 1.00
MAXIMUM VALUE = 2.00

MEAN = 1.08
STANDARD DEVIATION = .28

Z-VALUE FREQUENCIES

INTERVAL		NUMBER	%	CULM.%
1.00 TO	1.04	152	91.57	91.57
1.05 TO	1.09	0	.00	91.57
1.10 TO	1.14	0	.00	91.57
1.15 TO	1.19	0	.00	91.57
1.20 TO	1.24	0	.00	91.57
1.25 TO	1.29	0	.00	91.57
1.30 TO	1.34	0	.00	91.57
1.35 TO	1.39	0	.00	91.57
1.40 TO	1.44	0	.00	91.57
1.45 TO	1.49	0	.00	91.57
1.50 TO	1.54	0	.00	91.57
1.55 TO	1.59	0	.00	91.57
1.60 TO	1.64	0	.00	91.57
1.65 TO	1.69	0	.00	91.57
1.70 TO	1.74	0	.00	91.57
1.75 TO	1.79	0	.00	91.57
1.80 TO	1.84	0	.00	91.57
1.85 TO	1.89	0	.00	91.57
1.90 TO	1.94	0	.00	91.57
1.95 TO	1.99	0	.00	91.57
2.00 TO	2.04	14	8.43	100.00



ORO MINES LTD. NPL
VANCOUVER, B.C.

MAP SHOWING CLAIM LOCATION
SOUTH ORO GROUP

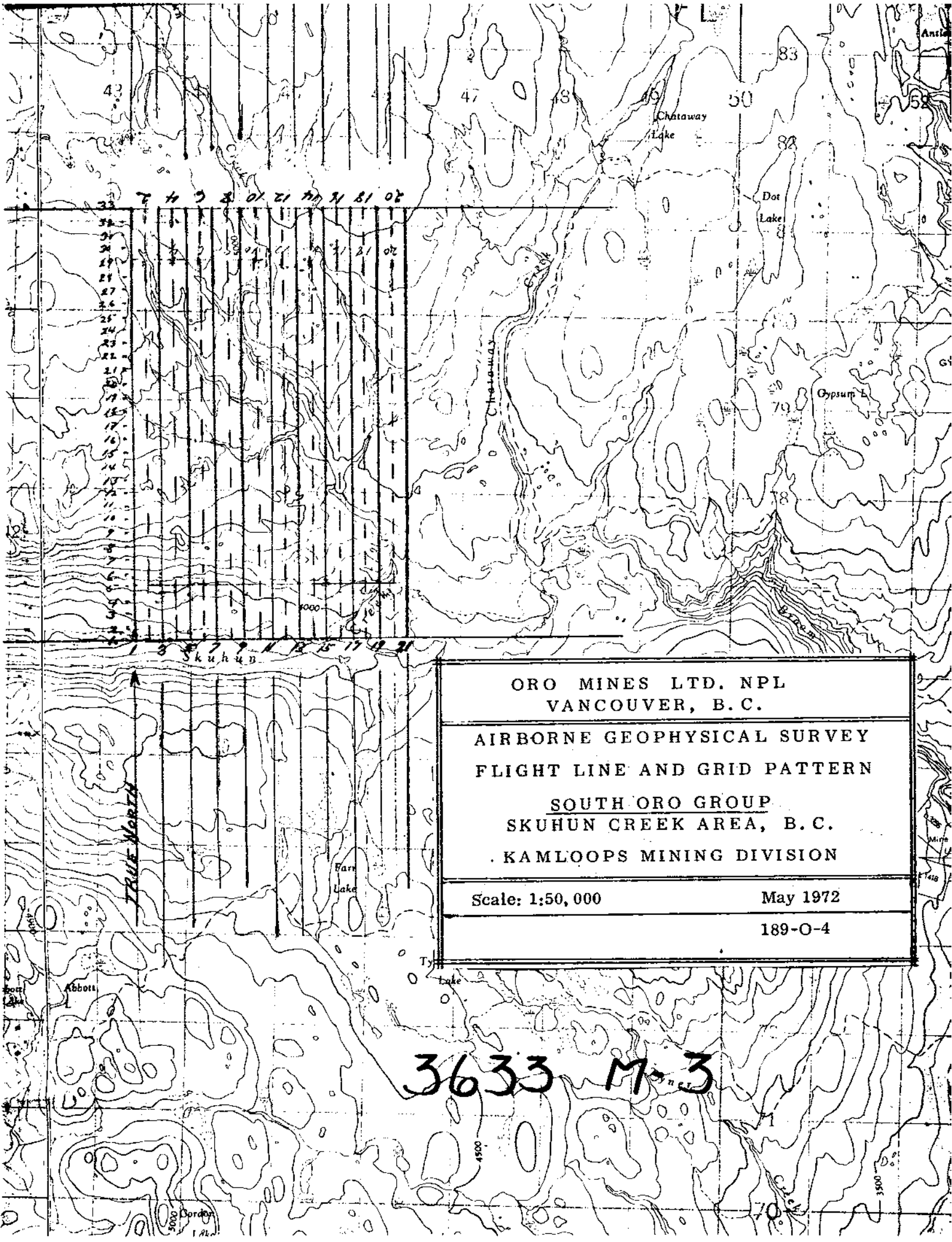
SKUHUN CREEK AREA, B.C.
KAMLOOPS MINING DIVISION

Scale: 1" = ½ mile

May 1972

(From 92 I/7)

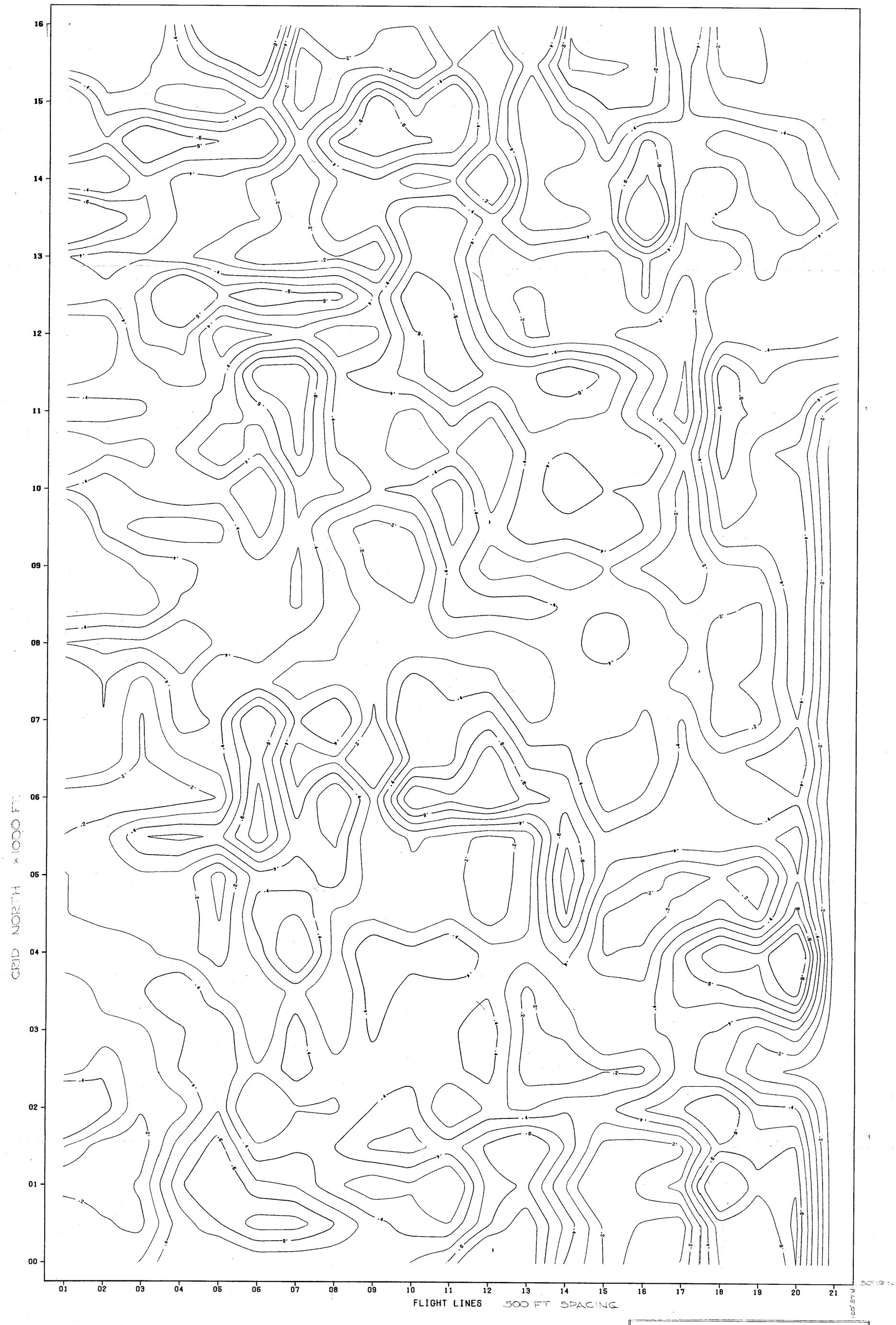
189-0-3


ORO MINES LTD. NPL
VANCOUVER, B.C.
AIRBORNE GEOPHYSICAL SURVEY
FLIGHT LINE AND GRID PATTERN
SOUTH ORO GROUP
SKUHUN CREEK AREA, B.C.
KAMLOOPS MINING DIVISION
Scale: 1:50,000
May 1972
189-O-4
TRUE NORTH
Skuhun
Chataway Lake
Dot Lake
Gypsum L.
Farr Lake
Abbott
Gordon
3633 M-3

ELECTROMAGNETICS

SCALE = 500 FEET/INCH

CONTOUR INTERVAL = .2 MICROAMPS



LEGEND

INSTRUMENT	RECEIVER MERC CELL POWERED TRAILING 55 FT BELOW A/C
	XMTTR: FREQ. 1000 CPS UNITS @ 90° CONFIG.
FLIGHT ALT	500 FT ABOVE GROUND
SPEED	113.7 MPH
AIRCRAFT	CHEROKEE 235
UNIT RECORDED	0.1 MICROAMP
CONTOUR INT	0.2 MICROAMP

AIRBORNE GEOPHYSICAL SURVEY

ELECTROMAGNETIC

ORO SOUTH GROUP

SKUHUN CREEK AREA, B.C.

KAMLOOPS MINING DIVISION

250 0 500 1000

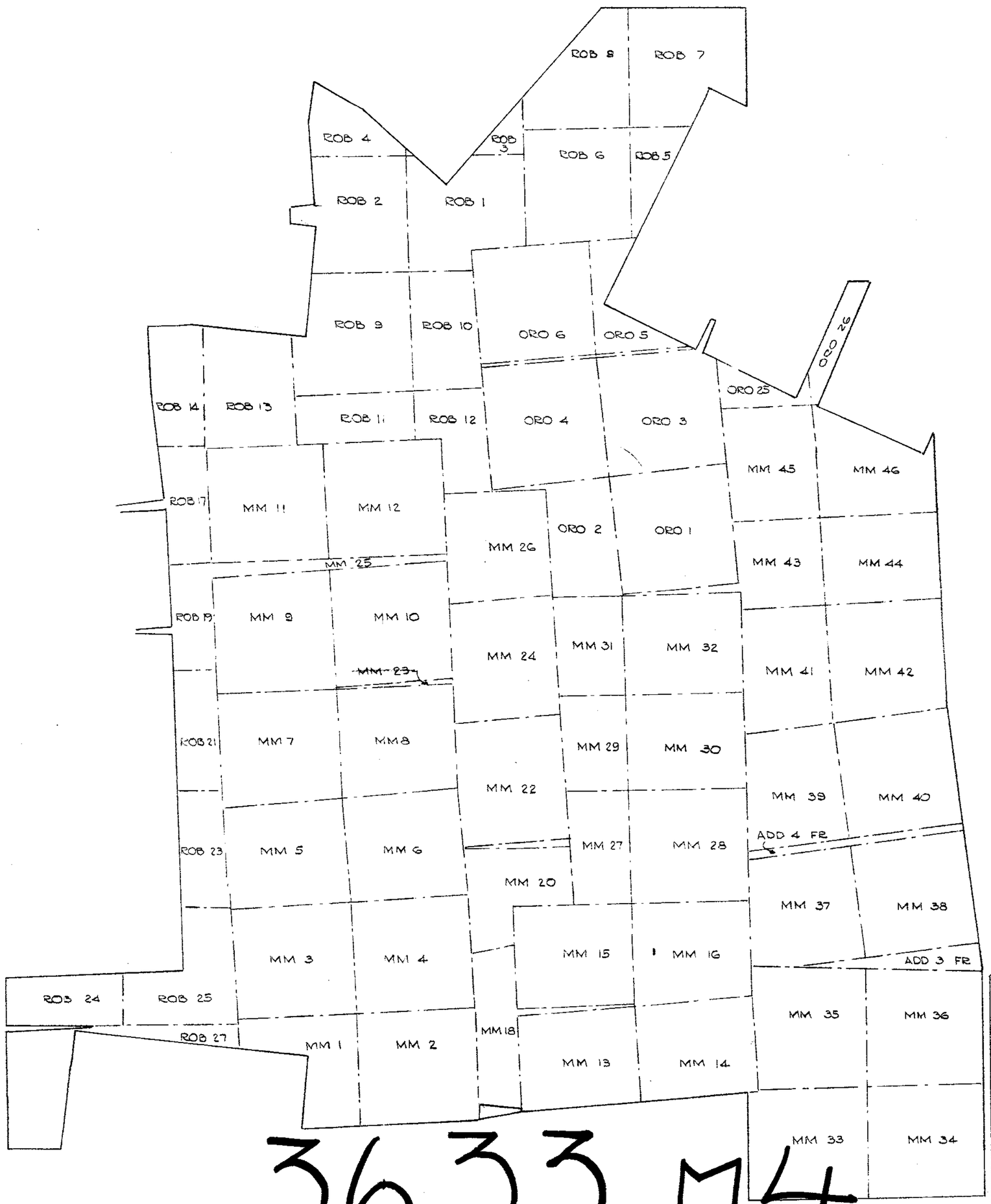
FEET

MAY 1972	Nº 189-0-6
ORO MINES LTD NPL VANCOUVER, B.C.	HARVEY H. COHEN ENGINEERING LTD. 1264 WEST PENDER STREET, VANCOUVER 1, B.C.

Department of Mines and Petroleum Resources

ASSESSMENT REPORT

NO. 3633 MAP #6



Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3633 MAP #4

ORO MINES LTD NPL
VANCOUVER, B.C.

SURVEY OF CLAIM LOCATION
ORO SOUTH GROUP
SKUHUN CREEK AREA, B.C.
KAMLOOPS MINING DIVISION

SCALE 1" = 1000' MAY 1972

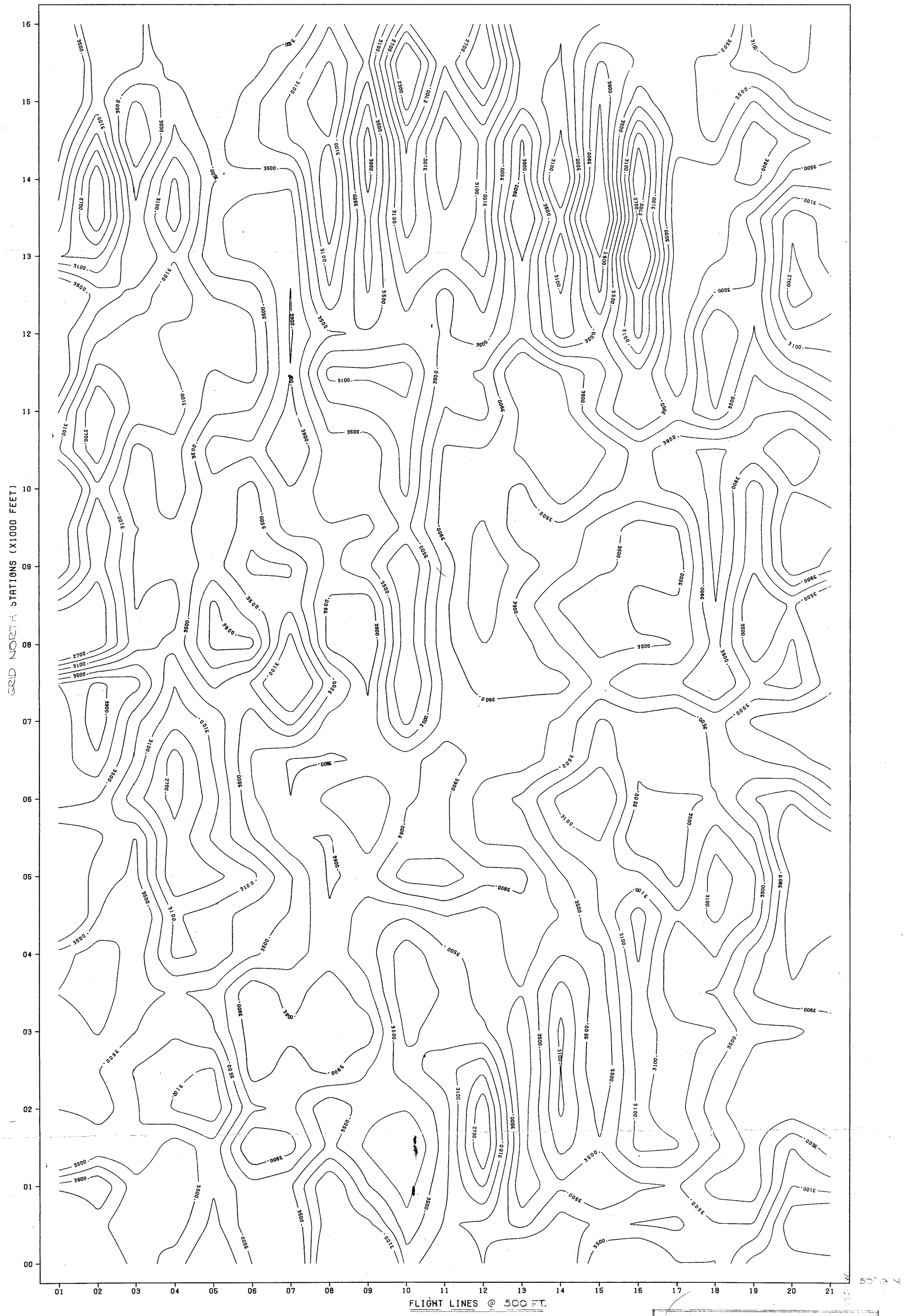
189-0-2

3633 M4

MAGNETICS

SCALE = 500 FEET/INCH

CONTOUR INTERVAL = 200 GAMMA



LEGEND

INSTRUMENT	SHARPE PMP 3
FLIGHT ALTITUDE	500 FT ABOVE GROUND
SPEED	113.7 MPH
AIRCRAFT	CHEROKEE 235
UNIT RESPONSE	100 GAMMA
CONTOUR INTERVAL	200 GAMMA

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER
ORO SOUTH GROUP
SKUHUN CREEK AREA, B.C
KAMLOOPS MINING DIVISION

250 0 500 1000
FEET

MAY 1972 | No 30-0-5

ORO MINES LTD. NPL
VANCOUVER, B.C

HARVEY H. COHEN ENGINEERING LTD
1264 WEST PENDER STREET, VANCOUVER 1, B.C

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3633 MAP #5