

LEGEND

- MAGNETIC LINEAR
- MAGNETIC LOWS (Less than 4700 gammas)
- ASSUMED FAULT
- MAGNETIC HIGH OVER 5500 gammas
- " " " 6000 "
- AIRBORNE E.M. ANOMALY (50 ppm in phase)
- peak ΔEM IN PHASE TO QUADRATURE RESPONSE

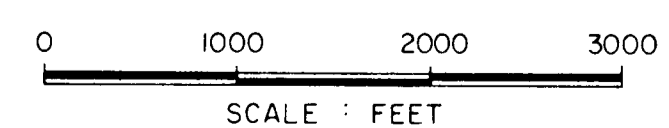
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **2272** MAP **#5**

OWEN LAKE AREA
OMENICA MINING DIVISION

J.T. WILLIAMSON
NAD GROUP MINERAL CLAIMS
GENERAL INTERPRETATION

2272

TO ACCOMPANY THE GEOPHYSICAL REPORT ON
THE NAD GROUP OF CLAIMS, DATED March 23, 1970.
BY D.R. COCHRANE, P. ENG.



DATE: March 23, 1970.

FIG. 5

J. T. WILLIAMSON
 (NAD GROUP MINERAL CLAIMS)
 AIRBORNE GEOPHYSICAL SURVEY



MEAN FLIGHT LINE SPACING 660 @ 1320 FEET
 MEAN TERRAIN CLEARANCE 200 FEET
 FIDUCIAL POINTS 3690
 FLIGHT LINES
 ELECTROMAGNETIC CONTOURS 50-100 etc
 10 - 20 etc
 THE CONTOURS REPRESENT THE ELECTROMAGNETIC RESPONSE
 OF THE IN PHASE COMPONENT OF THE SECONDARY FIELD IN
 UNITS OF 10 PARTS PER MILLION
 IN PHASE COMPONENT
 REPRESENTS OUT OF PHASE COMPONENT OF SECONDARY FIELD

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 2272 MAP #3

ELECTROMAGNETIC MAP
 OWEN LAKE AREA
 BRITISH COLUMBIA

SCALE: 1 Inch to 1000 Feet
 1000 0 1000 2000 3000 4000
 FEET FEET

Flown and Compiled by
 LOCKWOOD SURVEY CORPORATION LIMITED
 1969

TO ACCOMPANY THE GEOPHYSICAL REPORT ON
 THE NAD GROUP OF CLAIMS, DATED March 23, 1970
 BY D. R. COCHRANE, P. ENG.

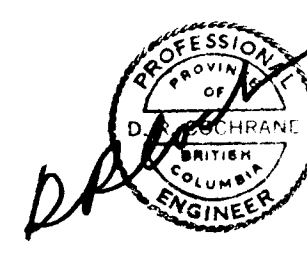
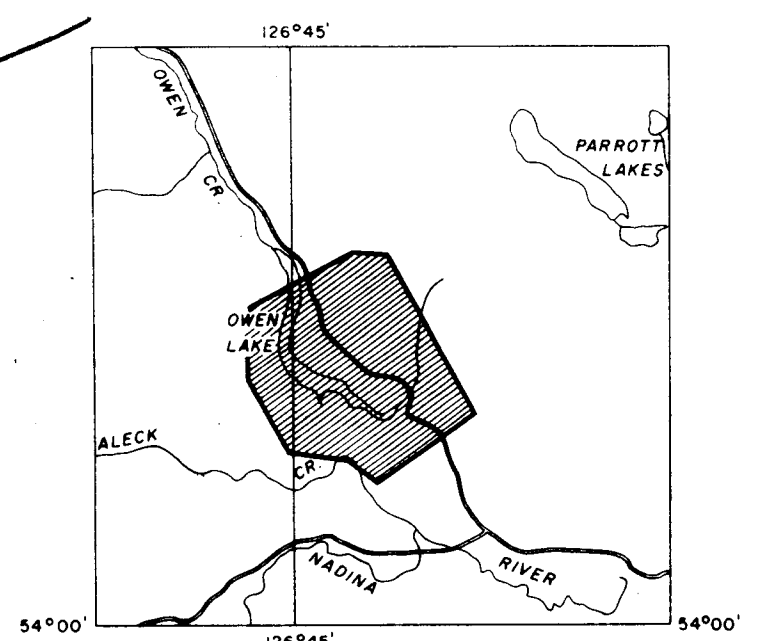
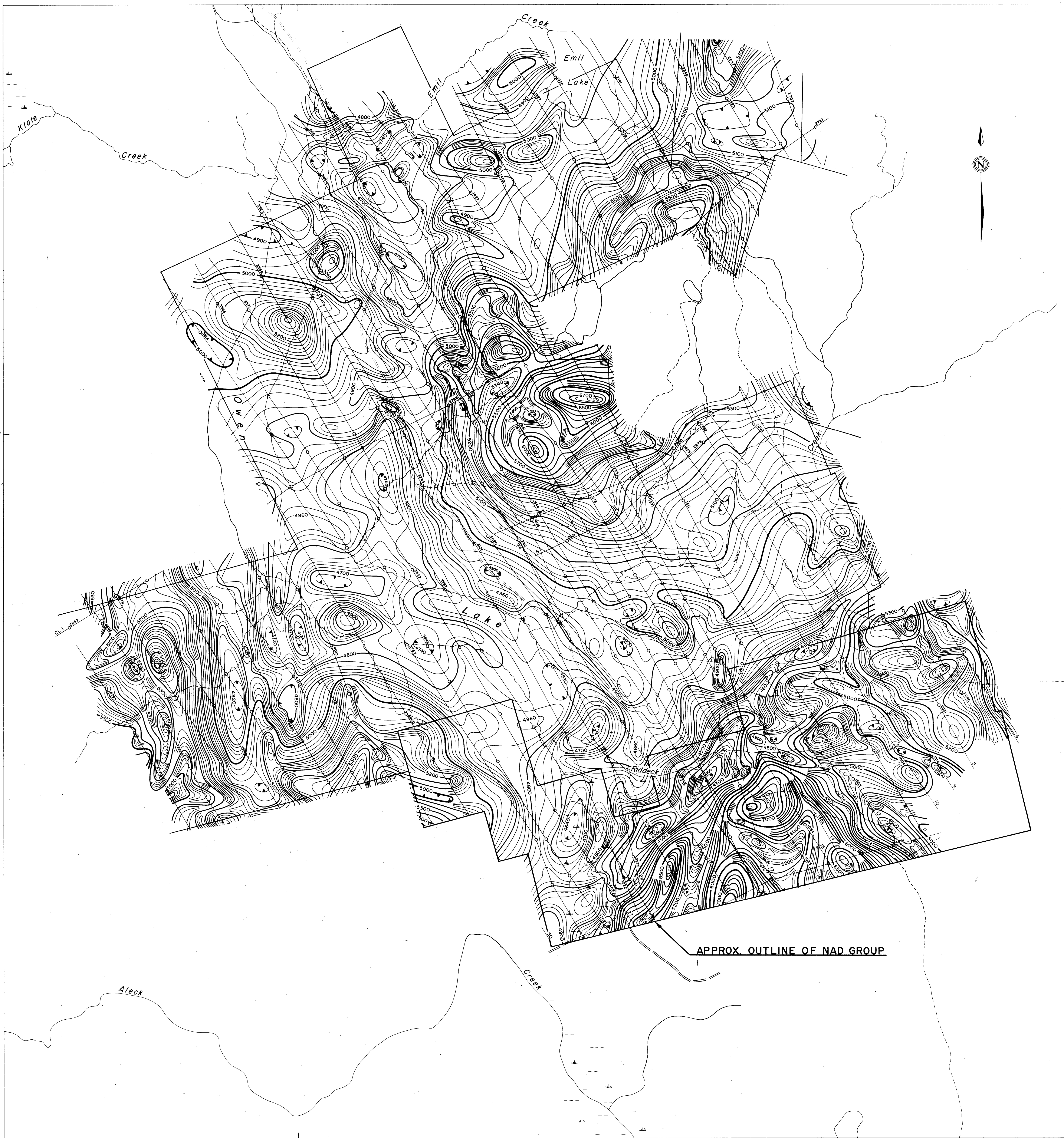


FIG. 3.
 2272



J. T. WILLIAMSON
 (NAD GROUP MINERAL CLAIMS)
 AIRBORNE GEOPHYSICAL SURVEY



54°05'

54°05'

126°45'

CONTOUR INTERVAL 20 GAMMA
 MEAN FLIGHT LINE SPACING 660 & 1320 FEET
 MEAN TERRAIN CLEARANCE 200 FEET
 500 GAMMA CONTOUR
 100 GAMMA CONTOUR
 20 GAMMA CONTOUR
 MAGNETIC LOW
 FIDUCIAL POINTS
 FLIGHT LINES 3690

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. **2272** MAP **#4**

TOTAL FIELD INTENSITY MAGNETIC MAP

OWEN LAKE AREA
 BRITISH COLUMBIA

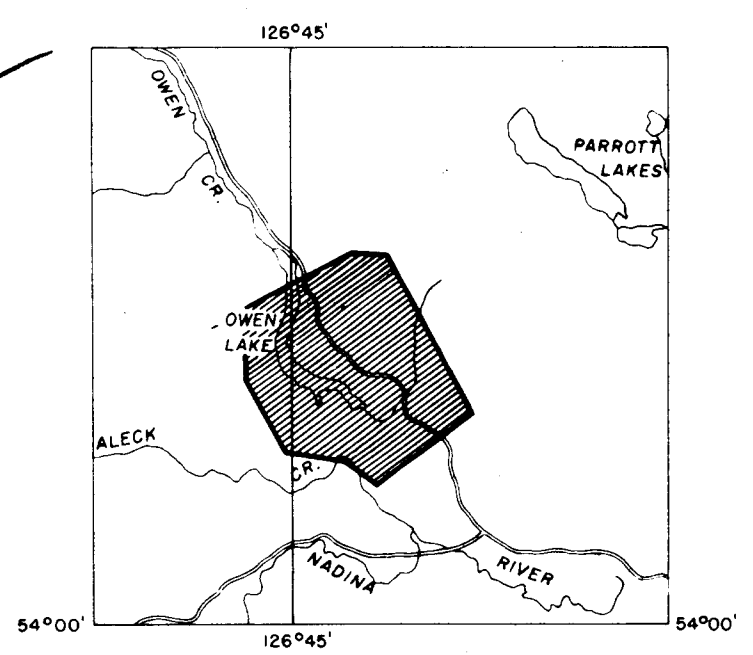
SCALE: 1 inch to 1000 Feet
 1000 0 1000 2000 3000 4000
 FEET FEET

Flown and Compiled by
 LOCKWOOD SURVEY CORPORATION LIMITED
 1969

TO ACCOMPANY THE GEOPHYSICAL REPORT ON
 THE NAD GROUP OF CLAIMS, DATED March 23, 1970
 BY D. R. COCHRANE, P. ENG.



2272



54°00' 126°45' 54°05'

APPENDIX (A)

1. HELICOPTER GULF MK III AIRBORNE MAGNETOMETER

This is a saturable core fluxgate magnetometer with an accuracy of approximately 1 gamma.

The magnetometer head consists of two saturable core orienting fluxgates whose axes are at right angles to one another. The axis of the measuring fluxgate is normal to the plane containing the two orienting fluxgates.

In operation with orienting fluxgates are maintained by servomotors in a position of minimum coupling with the earth's magnetic field; the measuring fluxgate is then in a position of maximum coupling with the earth's field.

The instrument was housed in the centre section of the towed bird, the controls and recorder being housed in the helicopter.

Output from the magnetometer was recorded in analogue form in red ink on a moving chart paper. Operating range was 1200 gammas across a chart width of 10 inches. Chart speed was 3 inches per minute.

2. THE HELICOPTER IN-PHASE/OUT-OF-PHASE E.M. SYSTEM

The helicopter-borne E.M. system used for this survey was developed by Lockwood Survey Corporation Limited. This system measures the in-phase and out-of-phase components of the secondary electromagnetic field, in terms of the primary field at the receiver, viz., in parts per million of the primary field. The frequency of the alternating electromagnetic field is 4,000 cycles per second. Receiving and transmitting coils are held vertical and coaxial in a towed "bird", a distance of 30 feet apart and 100 feet below the helicopter. The sensitivity of the measuring system is such that the minimum recognizable in-phase anomaly is about 8 parts per million. Noise on the in-phase profile is usually less than 5 parts per million.

This equipment is operated at a "bird" height of 100 feet. Full scale deflection on the data record is 400 parts per million across a 4 inch chart.

APPENDIX B
CERTIFICATE

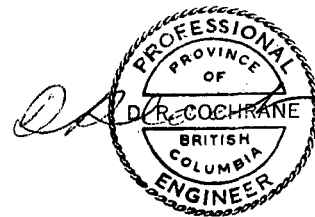
I, D. R. Cochrane, of the Municipality of Delta, Province of British Columbia, hereby certify that:

1. I am a geological engineer and reside at 4952 8A Avenue, Delta B.C.
2. I am a graduate of the University of Toronto (B.A.Sc., 1962), and a graduate of Queen's University (M.Sc. Eng., 1964).
3. I have practised my profession since 1962 while employed with U.S. Steel, Noranda Exploration, Meridian Syndicate, and Geo-X Surveys, Ltd.
4. I am a member in good standing of the Association of Professional Engineers of British Columbia and also the Association of Professional Engineers of Ontario and Saskatchewan.
5. I am a member of the C.I.M.M., G.A.C., E.I.C., and M.A.C.

D. R. Cochrane, P.Eng.

4952 8A Avenue,
Delta, B.C.

March 23, 1970.



APPENDIX (B)

Harold J. Sandau - Navigator, Electronic Technician

For the past twenty-two years, Mr. Sandau has been involved in the geophysical survey business. During that time he has installed, maintained and operated magnetometers, electromagnetometers and scintillation equipment based in Lockwood's survey aircraft. His experiences cover the whole of Canada, Alaska, the United States, Africa and the Far East. He has been employed on jobs totalling approximately 50,000 line miles of helicopter survey production.

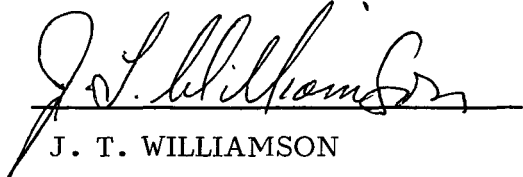
Douglas M. Webb - Data Technician

Mr. Webb has been employed as a Data Technician on geophysical surveys for the last three years. His responsibility is to ensure that the client's areas are completely covered by the geophysical flying. He has operated in Northern Ontario, British Columbia and the Arctic mainly on work for the Federal Government. He has been employed on jobs comprising an approximate total of 50,000 line miles of fixed wing and helicopter magnetometer, electromagnetometer and scintillation surveys.

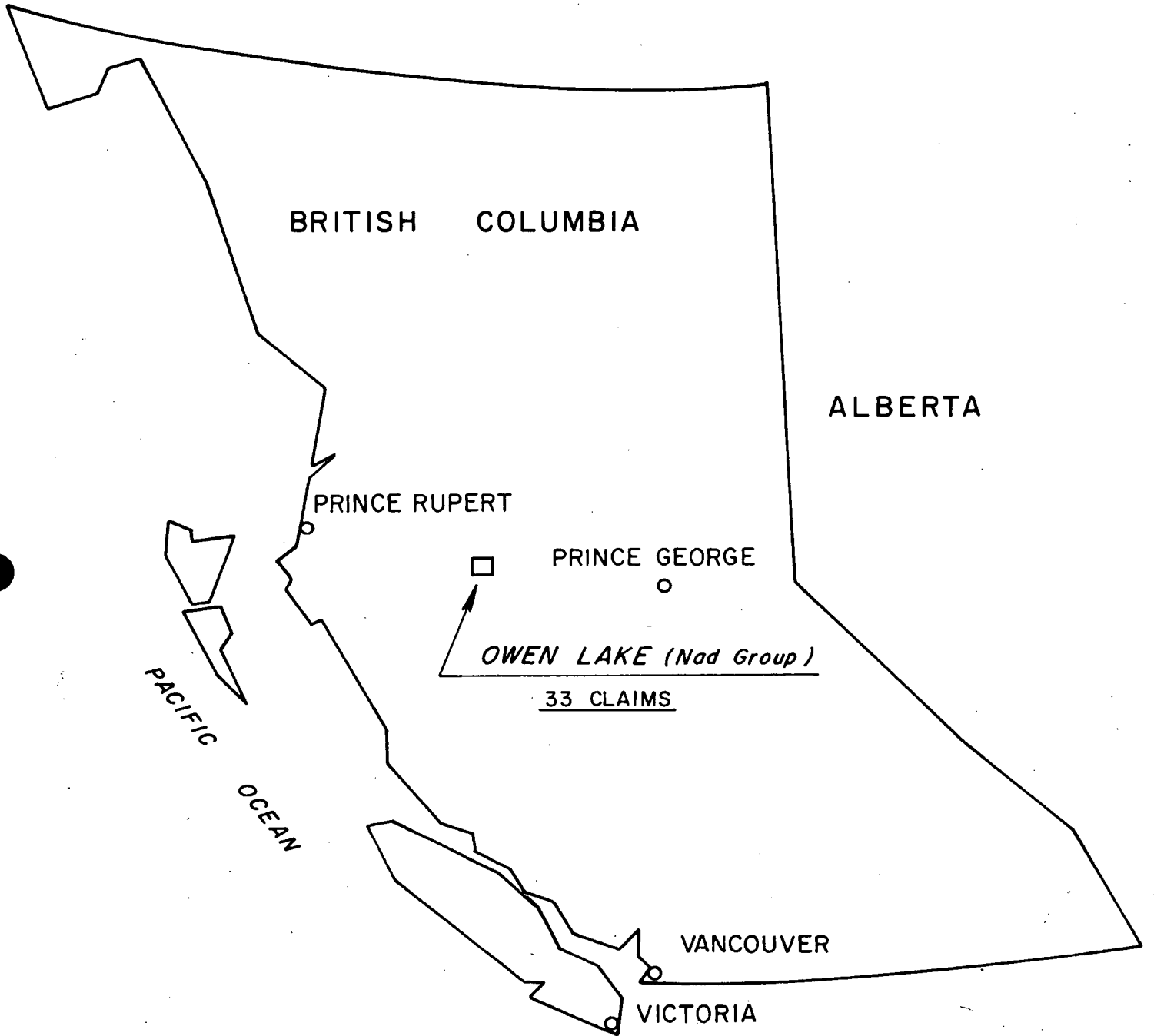
APPENDIX C

Dates Worked and Cost Breakdown

(a) August 1, 2, 3 Lockwood Aeromagnetic and Electromagnetic Survey	\$ 2,199.30
(b) Interpretation and report preparation D. R. Cochrane: March 12, 13, 21 and 22 Total	450.00
(c) Highland Helicopters, pilot, engineer and charter of FH 1100	602.68
(d) R. Key, Drafting, Data Reduction 9 hrs. @ \$5.50/hr.	<u>49.50</u>
TOTAL	<u><u>\$ 3,301.48</u></u>


J. T. WILLIAMSON

J.T. WILLIAMSON



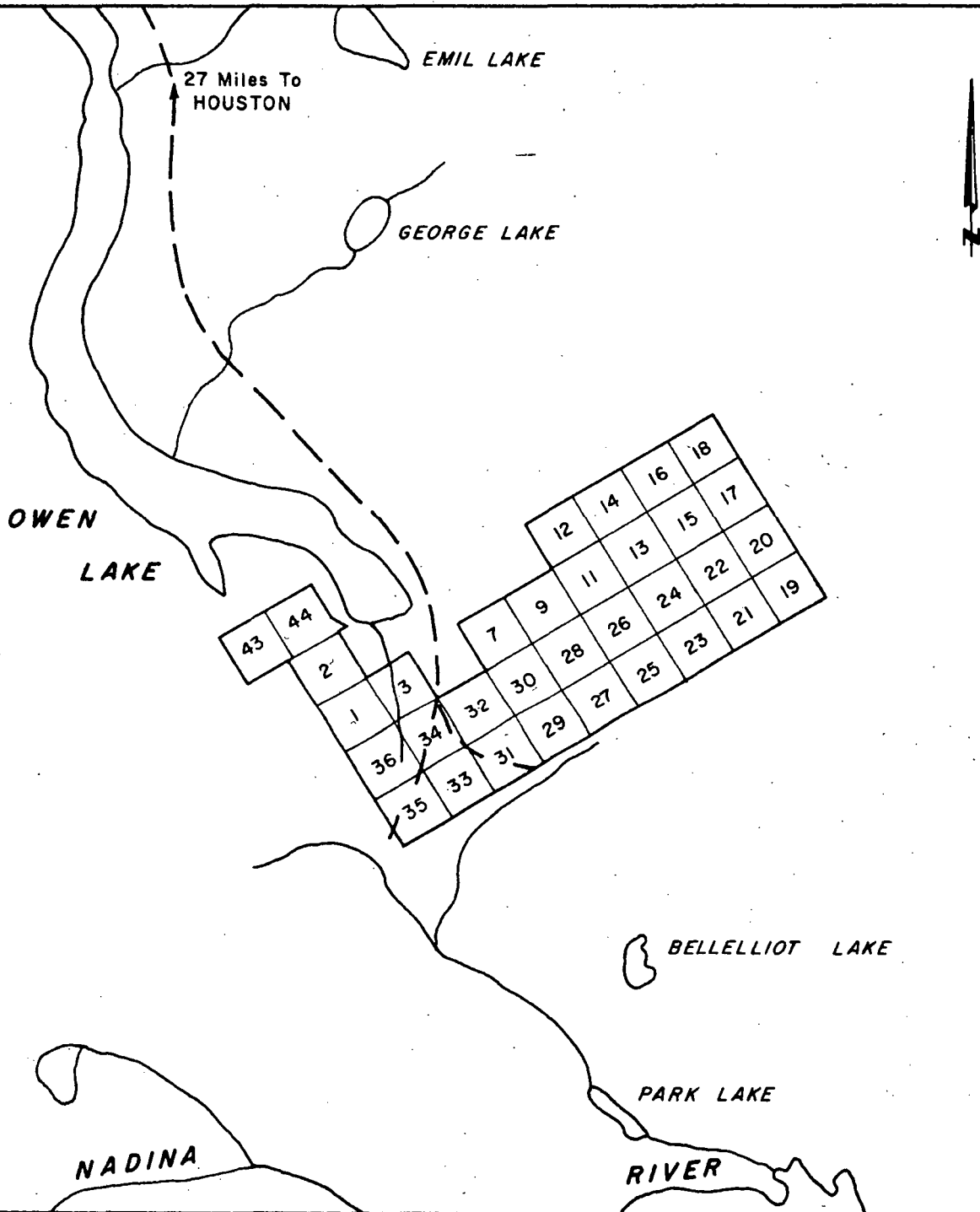
B.C. PROPERTY LOCATIONS

DATE : March 23, 1970.

FIG. I.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 2272 MAP #1



**J.T. WILLIAMSON
NAD GROUP MINERAL CLAIMS**

**OWEN LAKE - B.C.
OMENICA MINING DIVISION.**

DATE : March 23, 1970.

1" = 1 Mi. (Approx.)

FIG. 2

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. **2272** MAP **#2**

TABLE OF CONTENTS

2272

	<u>page</u>
SUMMARY AND CONCLUSIONS	i
INTRODUCTION	1
LOCATION AND ACCESS	1
CLAIMS AND OWNERSHIP	2
GENERAL SETTING	2
FIELD AND DATA PROCESSING PROCEDURES	4
DISCUSSION OF RESULTS	
A. EM DATA	8
B. MAGNETIC DATA	10

APPENDIX

- A. INSTRUMENT SPECIFICATIONS
- B. CERTIFICATES
- C. DATES WORKED AND COST BREAKDOWN

<u>FIGURES</u>	<u>Title</u>	<u>Location</u>
#1 1	Location Map	in report
#2 2	Claims Map	" "
#3 3	Electromagnetic Map	map pocket
#4 4	Magnetometer Map	" "
#5 5	General Interpretation	" "

2759

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **2272** MAP

GEOPHYSICAL REPORT

on the

AIRBORNE ELECTROMAGNETIC AND MAGNETIC SURVEY

of the

Nad Group of thirty-three claims
Nad 1-3, 7, 9, 11-36, 43/44

situated immediately South and West
of Owen Lake
28 road miles south of Houston

Omineca Mining Division

Latitude $54^{\circ}03'$ N; Longitude $126^{\circ}40'$ W

North Central B.C.

N.T.S. 93L/2

and owned by

J. T. Williamson of Vancouver, B.C.

Field Work August 1, 2, and 3, 1969 by

Lockwood Survey Corporation Ltd.

Report by:

D. R. Cochrane, P.Eng.
March 23, 1970
Delta, B.C.

SUMMARY AND CONCLUSIONS:

In March, 1970, the author was engaged by Mr. J. Thomas Williamson, to make a study of the airborne electromagnetic and magnetic data of the Owen Lake Area compiled by Lockwood Survey Corporation Ltd. in the summer of 1969. The survey area included a large number of claims owned by various companies and individuals, however this report is restricted to that portion of the surveys covering, (a) the Nad group of 33 claims owned by Mr. Williamson, and (b) a portion of Nadina's Silver Queen property currently under intensive investigation.

Magnetic response over Nadina's vein system was quite impressive and reached an amplitude of just over 6700 gammas within an overall background of about 5000 gammas. The electromagnetic response, however, was much more subtle, and peaked at 40 parts per million "in phase" and 110 ppm. "out of phase".

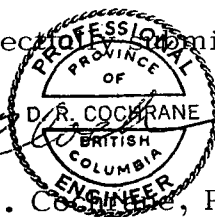

The Nad group is characterized by complex and high amplitude magnetic relief believed to be due, (at least in part) to a cover of tertiary volcanics. Several electromagnetic anomalies are coincident with a linear north-east trending magnetic low across the claims, and are thought to indicate the geological contact. This possibility should be investigated on the ground.

Airborne EM anomalies H and I lie within what is believed to be the older rock sequence and therefore are prime followup targets. Similarly, magnetic anomaly "C" lies north of the contact, and also along

the extension of the axis of the Nadina's magnetic high. It should be investigated as well since similar geological conditions may prevail here.

A followup program may be facilitated by use of a ground magnetometer and ground electromagnetic equipment, plus geochemical soil sampling if it appears applicable in the Owen Lake valley.

Respectfully submitted,



D. R. COCHRANE
PROFESSIONAL
ENGINEER
PROVINCE
OF
BRITISH
COLUMBIA

D. R. Cochrane, P.Eng.

March 23, 1970,
Delta, B.C.

d. r. cochrane, p. eng.

INTRODUCTION:

In the spring of 1969, a consortium of companies including Mr. J. T. Williamson, contracted with Lockwood Survey Corporation Ltd. to conduct an airborne EM and Magnetometer survey over various mineral claims in the Owen Lake area of North Central B.C. This field work was completed early in August. The data was reduced and two maps, an airborne magnetometer and an airborne EM were produced in the Toronto office of Lockwood. This report describes the field and data processing procedure as described by Lockwood, and the author's interpretation and discussion of the results of a portion of the survey area. The portion is that requested by Mr. Williamson and covers the Nad group of 33 claims and the immediate environs.

LOCATION AND ACCESS:

The Nad group is situated at the south end of Owen Lake, 28 road miles south of Houston (a town in North Central B.C. on Highway No. 16). Normal access is south from Houston on the Morice River gravel surface road, then onto the Owen Lake road past Nadina's camp to the Nad claims. This road traverses the Nad group. The latitude is $54^{\circ}03' N$, longitude $126^{\circ}40' W$ and NTS code for the area is 93 L/2. (see location map, Figure 1).

CLAIMS AND OWNERSHIP:

The Nad Group consists of a contiguous block of 33 full sized located claims owned outright by Mr. J. Thomas Williamson of Vancouver, B.C. They are located in the Omenica M.D. and are all grouped into the Nad Group. The following table lists claim names and record numbers.

<u>Claim Names</u>	<u>Record Numbers</u>	<u>Anniversary Date</u>
Nad 1 to 3 inclusive	67826 to 67828 inclusive	March 28
Nad 7/9/11	67829 to 67831 inclusive	"
Nad 12 to 36	67832 to 67856 inclusive	"
Nad 43 and 44	67857, 67858	"

GENERAL SETTING:

The Nad group is situated in the Nechaco plateau subdivision of the interior plateau physiographic division of B.C. It is an area characterized by relatively gentle upland relief, normally between 2500 and 5000 feet above sea level. The claims lie lengthways (NE, SW) and across the Owen Lake Valley (between 2400 and 2500 feet) and extend up the fairly steep west flank of the hill rising to just less than 3000 feet above sea level. It is a fairly gentle, rolling open country, only sparsely forested.

B. C. Department of Mines compilation map 69-1 (by N. C. Carter and R. V. Kirkham), show the claims area to be underlain by Lower Jurassic and (?) Middle Jurassic volcanics. This (Hazelton) series is intruded by Upper Cretaceous (?) acidic dikes, sills and plugs and the

entire complex capped, in some areas, by relatively flat lying tertiary andesites and basalts.

Main economic interest in the area stems from copper, zinc, lead, gold and silver mineralization in a complex vein system currently under intense investigation at Nadina Explorations Ltd. (Silver Queen property) which adjoins to the north of the Nad claims. The Silver Queen is described by S. S. Holland in the B.C. Department of Mines Annual Report for 1965 (pp. 81 to 84) as "the oldest rocks are massive grey to buff coarse fragmental volcanics, strongly altered with the introduction of a large amount of carbonate and the almost complete obliteration of the feldspar and pyroxene minerals. These rocks are intruded by massive dark-grey fine-grained porphyritic diorite designated microdiorite in early mapping..... The fragmental volcanics and, to a lesser degree, the microdiorite, are intruded by dikes and sills of brown weathering, lavender to grey porphyritic and amygdular felsite having a trachytic texture.... Several black fine-grained basalt dikes cut both the volcanics and the microdiorite..... The veins comprise sulphides and gangue replacing wallrock and in veins localized by northwesterly trending shear fractures. In addition to pyrite the sulphide mineralization is of two general types: chalcopyrite-sphalerite and sphalerite-galena with gradations between the two general types. Gangue minerals are rhodocrosite, quartz, chalcedony and barite."

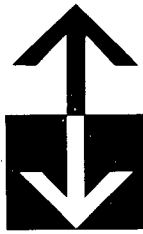
If some of the vein trends are extended, they cross the Nad group under discussion.

FIELD AND DATA PROCESSING PROCEDURES:

The following is a reproduction of the letter prepared by Mr. E. M. Turner, General Manager, Airborne Geophysical Division of Lockwood Survey Corporation.

It describes the field and data processing procedures of the entire flight area. The author was concerned, however, with a portion of this survey and additional data processing on the portion under discussion consisted of elementary statistical analysis of the airborne data, and the preparation of a composite map in order to facilitate discussion and ground follow-up work.

Lockwood Survey Corporation Limited



1450 O'Connor Drive, Toronto 16, Ontario, Telephone 755-1141, Cables: Canlock

A-4468

March 18, 1970.

Mr. D. R. Cochrane, P.Eng.,
4952 8A Avenue,
Delta, B.C.

Dear Mr. Cochrane:

Re: Helicopter Geophysical Survey -
Owen Lake, B.C.

Following our telephone conversation of March 11, 1970, we received on March 12th authorization by telegram from Mr. W. F. McGowan, President, Nadina Explorations Limited, to release the information you require. The specifications of the survey follow.

The survey was flown on August 1, 2 and 3 of 1969, and consisted of 124 line miles of magnetometer and electro-magnetometer survey. The following equipment was installed in a helicopter FH-1100 with the registration of CF-XDF operated by Highland Helicopters Limited of Vancouver, B.C.

Basic geophysical equipment consisted of the following:

- (a) Gulf Mk.III Fluxgate Magnetometer
- (b) Lockwood In-Phase/Out-of-Phase EM System operating at 4000 hertz.

The above equipment is described in Appendix (A) to this letter.

Ancillary equipment consisted of the following:

- (a) Radio Altimeter - APN 1
- (b) Camera - C.A.R.L. Mk.VIII
- (c) Magnetic Storm Monitor- Gulf Mk.I Fluxgate Magnetometer.

.../2

The airborne survey was carried out by the following personnel:

R.H. Biggs	- Pilot
D. Steele	- Engineer
H. Sandau	- Instrument Operator/Navigator
D. Webb	- Field Data Editor

The experience and performance record of Messrs. Sandau and Webb is contained in Appendix (B).

The business address of the pilot and engineer is 1409 West Pender Street, Vancouver, B.C. The business address of H. Sandau and D. Webb is 1450 O'Connor Drive, Toronto 16, Ontario.

The compilation and final presentation was carried out under the supervision of Mr. J. R. Gray, Data Supervisor, who has 20 years of ground survey and geophysical compilation experience with Lockwood Survey Corporation Limited, and; Mr. A.G. Palmer, Drafting Supervisor, who has 16 years of geophysical drafting experience, also with Lockwood Survey. The compilation was carried out in our Toronto office from August 1969 to October 1969. The magnetic data is presented as contours of the earth's total magnetic field intensity at a basic contour interval of 20 gammas. The horizontal scale of the map is 1" = 1320 feet.

Magnetic Data

In the reduction of the magnetic data diurnal variation was compensated for by tying traverse line data to the data measured along the control lines at the intersections. A linear datum was extended along each traverse line. Magnetic field contours based on this datum were then intercepted and transferred to the base map, using the camera exposures or fiducials for positioning control.

Electromagnetic Data

Electromagnetic data includes instrumental drift and the response due to regional variations in ground conductivity. These components were corrected by fitting to both the in-phase and out-of-phase records a series of linear segments or datum lines no longer than 1 mile in length to approximate the broad or regional variations in the records. The contours of the in-phase component record was then intercepted at

Page 3.

intervals of 10 parts per million above the assumed datum lines. In addition amplitudes of peak in-phase anomalies and corresponding out-of-phase anomalies were measured. The intercepted in-phase contours and measured in-phase and out-of-phase peak amplitudes were then transferred to the base map along the recovered flight path, using the photographic fiducials for positioning control.

The electromagnetic data is presented as contours of the in-phase component relative to the assumed local background level at an interval of 10 parts per million of the primary field, with values of both in-phase and out-of-phase components annotated at the location of anomaly peaks along survey flight lines.

The scale of the presentation is 1" = 1320 feet.

We trust that the above information will meet your requirements, however, should you have any further questions please do not hesitate to contact us.

Yours very truly,

LOCKWOOD SURVEY CORPORATION LIMITED



E. M. Turner,
General Manager,
Airborne Geophysical Division.

/mk

cc Mr. W.F.McGowan,
President,
Nadina Explorations Ltd.

DISCUSSION OF RESULTS:

A. ELECTROMAGNETIC SURVEY

In general, the electromagnetic response is fairly simple and of moderate to low amplitude in the center map area, and increases in amplitude and complexity towards the south and east. In addition, there is a slight change in the preferred iso-EM response trends, from that of north bias on the NE sector of the Nad Group(and to the north of this position) to a tendency of more randomness elsewhere. This suggests a change in rock types, and presumably reflects the EM homogeneity of the microdiorite and andesite porphyry in the center (Nadina) map area, to the complexity of the (directionally biased) contact zone to the south and east, and then into the birds eye pattern in the south, typical of volcanics (presumably the tertiary basalts, etc.).

It is most fortunate that within the map sheet, there is a known geological situation, that being Nadina's vein system, and from this response example, extrapolation to similar response areas can be made. The EM pattern over the No. 1, 2 and 3 vein systems at Nadina is relatively simple, being a fairly small + 10 ppm in phase bump within a background of "less than" 10 parts.

The anomaly is designated EM-A. Maximum response was 40/110 (in phase to out of phase) having a ratio of 0.36. This rather modest

anomaly indicates that the EM targets of areas geologically similar to No. 1, 2 and 3 vein systems are characterized by a conductivity-size product of such a nature that the out of phase component still predominates. It also suggests that the small, rather inconspicuous EM bumps are most important and should not be ignored.

It is interesting to note the presence of a very impressive EM anomaly about 1400 feet due north of No. 3 vein; has maximum response 70/130 and is subparallel with the vein system. A second and third, both of quite different character are located between the road and Owen Lake. In both instances, the peak in phase response is greater than the out of phase (110/60 and 105/75) suggesting the causative bodies are characterized by fairly large conductivity-size products.

A large, north trending EM anomaly immediately north of the Nad 14 claim contains a peak in phase/out of phase response of 110/80 and lies close to and is probably a manifestation of the monzonite (micro-diorite)-breccia contact, which may also contain sulphides.

On the Nad group, the EM terrain is quite complex and precipitous. The highest peak in phase/quadrature is 110/107 and is located on the south center claims section. It is a part of a large plus 50 ppm in phase response anomaly lying close to the southern claims group boundary, and is believed to lie within, and possibly is a response from tertiary volcanics. It is designated EM anomaly "B". A northward extension of this

anomalous zone lies on and north of Nad No. 9. Peak response is 60/80. This anomaly, designated EM - "E" is part of a series of anomalies, designated EM - C to F inclusive, which lie along the assumed contact of the Tertiary contact with the older geological complex. They are presumably due to the contrast in conductivity across this contact.

EM anomaly "G" lies close to the common corner of claims Nad 9, 11, 26 and 28. It lies along a presumed fault zone, observable on airphotographs and airborne isomagnetic plan.

Airborne anomalies H and I lie within what is believed to be the older rock sequence and are characterized by peaks of 62/90 and 60/45 respectively. Geologically then, these latter anomalies are the highest priority, although they are, geophysically speaking, less anomalous than the aforementioned.

DISCUSSION OF RESULTS:

B. AIRBORNE MAGNETOMETER RESULTS

The airborne isomagnetic plan is presented as Figure 4 (map pocket) and the highlights and interpretation as Figure 5 (map pocket).

The airborne magnetics is a "textbook" example of patterns, trends and anomalies.

The survey area may be divided into three magnetic divisions:
(a) a relatively gentle relief but high amplitude magnetic anomaly centered

over the Nadina showings (Mag anomaly "A"); (b) a relatively flat magnetic plain surrounding magnetic anomaly "A"; (c) a magnetic complex with steep gradients and high amplitudes situated on the south portion of the Nad Group.

These three distinct magnetic divisions are believed to indicate different bedrock conditions and lithology. Anomaly A, the northeast trending magnetic high at Nadina is presumably caused by a bedrock complex including andesite porphyry and monzonite. The magnetic plain surrounding anomaly "A" may be due to relatively small magnetic susceptibility and contrast within rock types such as monzonite, dacite and breccia. The background within this subdivision is approximately 5000 gammas.

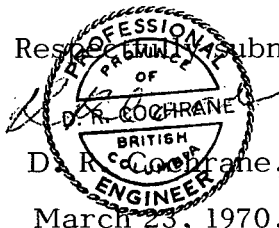
The third subdivision, centered over the Nad group is presumably due to a blanket of Tertiary volcanics. This latter subdivision may be further subdivided into a west sector (designated mag anomaly "B") of high magnetic response (up to over 8000 gammas), and east sector characterized by smaller amplitude. The dividing line is an assumed fault. The change in susceptibility from east to west within magnetic division 3 may be due to varying thickness of the volcanic blanket, or to a change in volcanic lithology (basalts to andesite from west to east for example).

A very interesting magnetic anomaly (designated "C" over 5500 gammas on Figure 5) lies along the same general projected axis as magnetic anomaly "A", and thus similar geological conditions may prevail in this (northwest) corner of the Nad group as prevail at Nadina. A small 45/20 EM anomaly is coincident with magnetic anomaly "C".

There is a very impressive spacial correlation of air-borne EM anomaly "B" and Magnetic anomaly B. This suggests that the causative conductive body is ferromagnetic (perhaps magnetite). In addition there is a positive correlation between EM anomalies C, D, E and F with a throughgoing northeast trending magnetic low (less than 4700 gammas). The Tertiary volcanic -- Hazelton sequence contact is believed to be responsible for these geophysical features.

Several magnetic linears of unknown causes (perhaps faults or shear zones) are displayed in Figure 5.

Resubmitted,

A circular professional seal for D. R. Cochrane, a British Columbia Professional Engineer. The seal contains the text: "PROFESSIONAL ENGINEER OF BRITISH COLUMBIA". The name "D. R. COCHRANE" is written across the center of the seal. A handwritten signature is visible over the seal.

D. R. COCHRANE,
ENGINEER

March 23, 1970,

Delta, B.C.

d. r. cochrane, p. eng.