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GEOLOGICAL, GEOCHEMICAL & GEOPHYSICAL REPORT

on the

SEA 1 & SEA 2 CLAIMS

Situated in the LIARD Mining Division, B.C.
at coordinates: 58 deg. 15' N, 128 deg. 55' W

by: Lorne Warner & Lyndon Bradish

NORANDA EXPLORATION COMPANY, LIMITED
(No Personal Liability)

October, 1985

N.T.S. 104 I/7

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

SUMMARY:

The SEA 1 and SEA 2 claims are situated within the King Salmon assemblage of Mesozoic age. East of the property at Kutcho Creek, acid to basic volcanics (locally termed Kutcho sequence) of the King Salmon assemblage, host the Kutcho Creek massive sulphide deposits.

In 1984, the SEA 1 and SEA 2 claims were staked by Noranda Exploration Company, Limited, to cover airborne EM anomalies detected by Questor Surveys while under contract to Noranda. In 1984, a control grid was established for the purposes of geological mapping, soil geochemistry, and geophysical surveys.

INTRODUCTION:

The SEA 1 and SEA 2 claims were staked during July of 1984 by Tom Lewis, an employee of Noranda Exploration Company, Limited. The properties cover an airborne EM anomaly detected by Questor Surveys, while under contract to Noranda Exploration Company.

During July 1984, Noranda crews performed geological mapping, soil sampling and geophysical surveys over an established grid. This report describes the results of geological mapping, soil geochemistry and geophysics performed by Noranda crews under the supervision of Tom Lewis.

LOCATION AND ACCESS:

The claims are situated in the vicinity of Settea Lake. This is approximately 70 (air) kilometers at 111 degrees (true) from the village of Dease Lake, B.C.

The trail is very rough and swampy, and not suited to 4 X 4 truck travel. Also, helicopter services are offered at Dease Lake airport.

CLAIM STATISTICS:

The CH 2, CH 3 and CH 4 mineral claims were staked using the modified grid system. The claim is within the Liard Mining Division. Claim description follows:

Claim Name	# Units	Record #	Tag #	Record Date
SEA 1	12	3144	74334	July 18, 1984
SEA 2	15		74335	July 18, 1984

REGIONAL GEOLOGY:

According to the Geological Survey of Canada, the Area is underlain by Mesozoic volcanics and metasediments of the King Salmon assemblage (see Open File Map #510). This rock assemblage is subdivided into three lithological divisions, of which the lowest division is acidic to basic volcanics, middle division is carbonate, and the upper division is mainly phyllite (after Monger and Thorstad, G.S.C. paper 78-1A, 1978).

Of economic importance, is the lowest division, referred to as the "Kutcho" sequence. This unit consists of intermediate to dacite tuff, and hosts the massive sulphide deposits belonging to Esso Minerals and Sumac at Kutcho Creek.

LOCAL GEOLOGY:

The SEA 2 claim (Anomaly 294) occurs in a gently sloping valley with no outcrop in the immediate area. The SEA 1 claim (Anomaly 298B) occurs in a cirque basin and also contains no outcrop in the immediate area. However, talus which is on strike with the anomaly consists mainly of meta-volcanics. Several outcrops were encountered on the rim of the cirque, and south of the conductive axis. They consist of black phyllite striking 308 degrees (true) and dipping steeply towards the north and green meta-andesite tuff.

GRID WORK:

(i) Introduction

During July 1985, Noranda established a 10 man basecamp at Turnagain Lake. Transportation to and from the SEA 1 and SEA 2 properties, was obtained using a Hughes 500C helicopter contracted from Yukon Airways in Dease Lake. The pilot was Steve McNab.

(ii) Preparation

Two separate grids were established on the SEA 1 and SEA 2 mineral claims. The grids were assigned an identification number which corresponded to Questor's Input airborne anomaly numbers. A total of 9.4 km of grid line was completed over these two anomalies.

GEOCHEMISTRY:

(i) Introduction

Soil sampling was performed along each crossline at 50 meter intervals. A combined total of 82 soil samples were taken and analysed for copper, zinc, lead and silver. The results are plotted on 1:5,000 scale basemaps (in pocket).

(ii) Method

All samples were obtained by digging holes with a mattock to a depth of between 15 cm and 40 cm, where the visible "B" horizon, whenever possible was exposed. The samples were placed in "Hi" Wet Strength Kraft envelopes, the sample number was marked on the envelope with indelible ink and the station marked using coloured flagging. The samples were dried, shipped, and screened and sifted to obtain the -80 mesh fraction.

The determination procedure for total copper, lead, zinc, and silver is as follows:

0.200 grams of the -80 mesh material is digested in 2 ml of HC104 and 0.5 ml of HN03 for approximately 4 hours. Following digestion, each sample is diluted to 5 ml with demineralized H20. A Varian Techtron Model AA-5 Atomic Absorption Spectrophotometer is fully outlined in the literature and will not be described in this report.

(iii) Observations

ANOMALY 294F

Copper: The copper values range from 10 to 86 ppm. No high values were found on the grid and no anomalous trends were outlined.

Zinc: The zinc values range from 48 to 340 ppm. A narrow anomalous trend is outlined from Line 90400W, Station 90200N to Line 89400W and Station 89900N, this trend contains samples with anomalous values greater than 200 ppm zinc and is parallel to the conductor.

Lead/Silver: The lead values range from 2 to 10 ppm and show no anomalous trends on the grid. Silver is constant at 0.2 ppm, therefore, showing no anomalous trends on the grid.

ANOMALY 298B

Copper: The copper values range from 12 to 52 ppm. No high anomalous samples were found on the grid and no anomalous trends were outlined.

Zinc: The zinc values range from 66 to 160 ppm. No high anomalous samples were found on the grid and no anomalous trends were outlined.

Lead/Silver: The lead values range from 2 to 8 ppm. There are no high anomalous samples found on the grid and no anomalous trends were outlined. Silver values range from 0.2 to 0.4, therefore, no high anomalous values were found and no anomalous trends were outlined.

GEOPHYSICS:

(i) Introduction

During July of 1984, geophysical surveys including magnetometer and SE 80 HLEM were completed over the 294F and 298B grids. Noranda Exploration personnel completed 3.925 kilometers of HLEM and 4.5 kilometers of mag on the 294F and 298 grids. Results are plotted on 1:5,000 scale maps (in pockets).

(ii) Instrumentation

SE-88 E.M. System

The SE-88 unit differs from the normal HLEM systems such as the MaxMin II above in that it measures without regard to phase, the ratio of signal amplitude between two frequencies which are transmitted and received simultaneously. A low frequency of 112 Hz is used as a reference frequency. The signal difference is integrated or averaged over a period of time in order to improve the signal to noise ratio.

The survey parameters employed on the programme are as follows:

Coil separation	: 100 meters
Frequencies	: 3037, 1012, 337 Hz
Reference frequency	: 112 Hz
Integration period	: 16 seconds
Reading interval	: 25 meters
Measurement	: ratio of amplitude between reference and signal frequencies (%).

G.836 Magnetometer System

"UNIMAG" G.836 Proton Precession magnetometers manufactured by Exploranium Geometrics of Ontario were also utilized on this programme. The Total Field measurement is read with a resolution of 10 gammas and all values recorded on grids were corrected for diurnal and day to day variations while single reconn line data was generally left uncorrected. Correction values were determined from repeat readings taken by an automatic recording base station. All readings were recorded at 25 meter intervals.

(iii) Discussion of Results

Two grids were established within the bounds of this property namely grids 294E and 298B.

GRID 294E

The HLEM survey defined a good conductor (average conductivity of 18 Siemens) over a distance of 500 meters. Associated with this zone is a broad (100-150 m) magnetic package of 400 to 600 gammas in amplitude. On Lines 90000W and 90200W a secondary zone flanks the main conductor 50 meters to the grid south. This flanking zone has some direct magnetic response whose source would appear to be the same that is causing the SE-88 response.

GRID 298B

The HLEM data recorded on this grid is somewhat noisy due to the conductive overburden (and/or bedrock ?). The highest conductivity determined from the ground geophysics is 7 Siemens at a current axis depth of 31 meters. The axis of the defined conductor is broken up as seen on the geophysical maps and it is suggested that the E.M. is defining the interface between a conductive unit (overburden or geological) to the north and a more resistive package to the south.

CONCLUSIONS:

On 294F a long geophysical target was outlined, however, no geology was located on the target and the geochemical response is weak. A narrow zinc trend does occur parallel to the HLEM conductor. This target warrants further work.

On 298B a weak HLEM conductor of only 500 meters length was outlined. This target is located near an extensive sedimentary package which contains black graphitic phyllites. Geochemistry reveals no high anomalous values or trends. Therefore, no further work is recommended on this property.

REFERENCES

Bridge, Dane A. Geology of the Kutcho Creek Massive Sulphide Deposits, Northern British Columbia; November 1979.

Monger, J.W.H.; Thorstad, L. Lower Mesozoic Stratigraphy, Cry Lake and Spatsizi Map-Areas, B.C., Part A, G.S.C. Paper 78-1A, p. 21-24, 1978.

Panteleyev, A. Kutcho Creek Map-Area, N.T.S. 104 I/1W; Ministry of Energy, Mines and Petroleum Res., Geological Fieldwork, 1977.

Pearson, D.E.; Panteleyev, A. Kutcho Creek Map-Area, N.T.S. 104 I/1W; Ministry of Energy, Mines and Petroleum Res., Geological Fieldwork, 1976.

APPENDIX I

STATEMENT OF QUALIFICATIONS
****

I, Lyndon Bradish of Vancouver, Province of British Columbia, do hereby certify that:

1. I am a Geophysicist residing at 1826 Trutch Street, Vancouver British Columbia.

2. I am a graduate of the University of British Columbia with a B.Sc. (geophysics).

3. I am a member in good standing of the Society of Exploration Geophysicists, Canadian Institute of Mining and the Prospector's and Developer's Association.

4. I presently hold the position of Division Geophysicist with Noranda Exploration Company, Limited and have been in their employ since 1973.

L. Bradish.

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Lorne Warner of Prince George, Province of British Columbia, do hereby certify that:

1. I am a Geologist residing at 111-1330 Foothills Blvd., Prince George, British Columbia.

2. I am a graduate of the University of Alberta with a B. Sc. (geology).

3. I presently hold the position of geologist with Noranda Exploration Company, Limited and have been in their employ since May, 1985.

Lorne Warner

L. Warner

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

"REVISED"

DATE: July 1985

PROJECT - KUTCHO CREEK - SEA 1 CLAIM
TYPE OF REPORT - GEOLOGICAL, GEOCHEMICAL & GEOPHYSICAL

a) **Wages:**

Geophysics	5 mandays @ $122.00/day	$ 610.00
Geology	2 mandays @ $130.00/day	$ 260.00
Soil Geochem	3 mandays @ $115.00/day	$ 345.00
Linecutting	3 mandays @ $115.00/day	$ 345.00
		$ 1560.00

b) **Food and Accommodation:**

13 mandays @ $ 25.00/day $ 325.00

c) **Transportation:** $ 1800.00

d) **Analysis:** 55 samples $ 187.00

e) **Cost of Preparation of Report**

Authors	$ 260.00
Drafting	$ 230.00
Typing	$ 110.00

TOTAL COST $ 4472.00

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

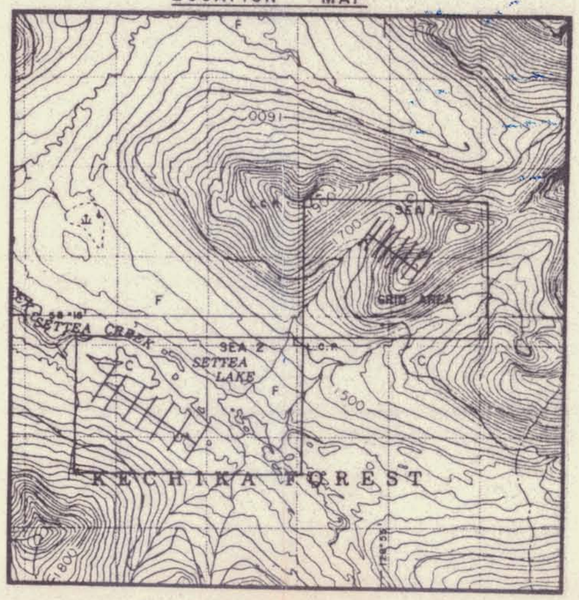
"REVISED"

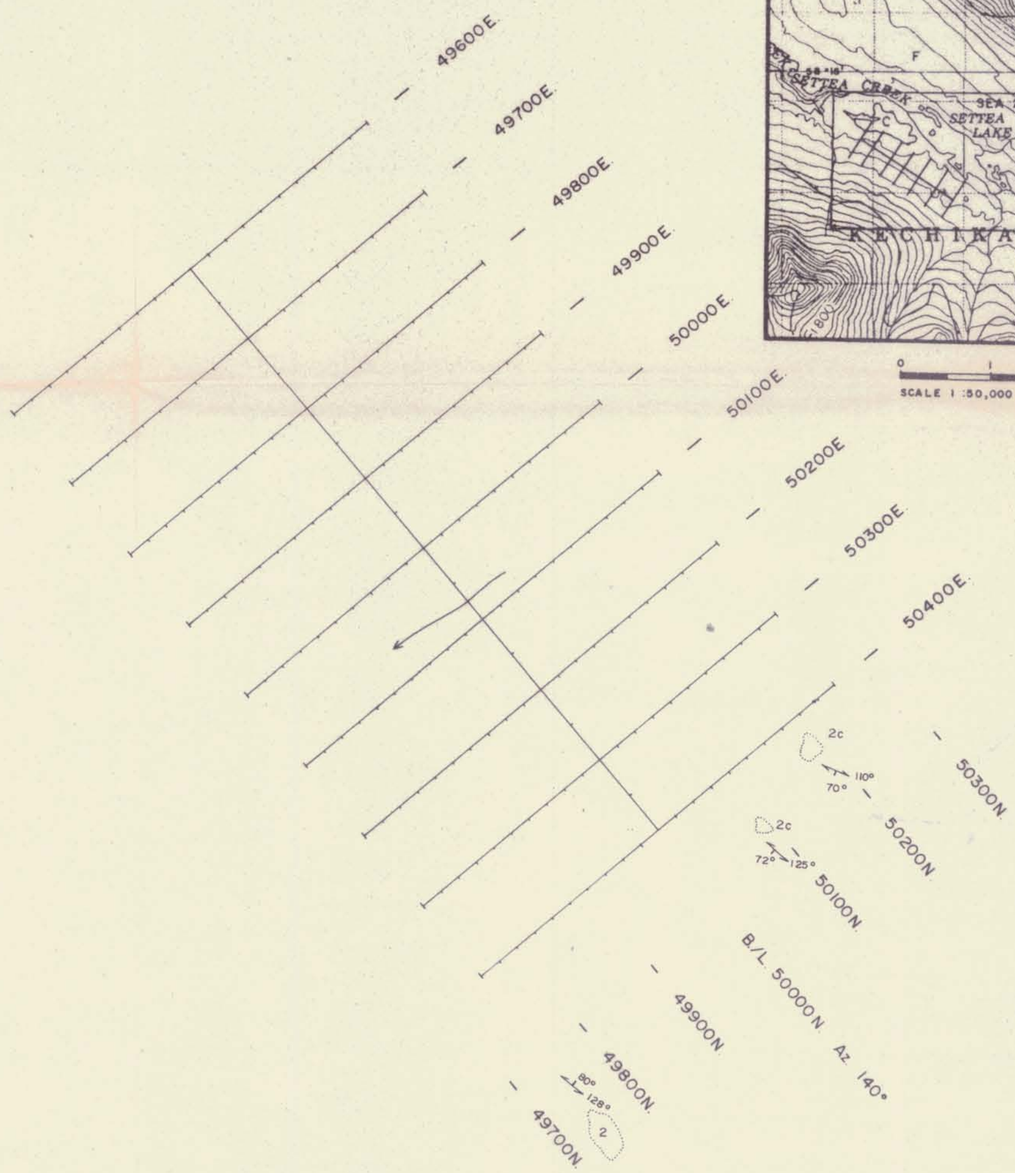
DATE: July 1985

PROJECT - KUTCHO CREEK - SEA 2 CLAIM
TYPE OF REPORT - GEOLOGICAL, GEOCHEMICAL & GEOPHYSICAL

a)	**Wages:**		
	Geophysics	3 mandays @ $122.00/day	$ 366.00
	Geology	2 mandays @ $130.00/day	$ 260.00
	Soil Geochem	3 mandays @ $115.00/day	$ 345.00
	Linecutting	4 mandays @ $115.00/day	$ 460.00
			$ 1431.00
b)	**Food and Accommodation:**		
	12 mandays @ $ 25.00/day		$ 300.00
c)	**Transportation:**		$ 1350.00
d)	**Analysis:** 91 samples		$ 309.00
e)	**Cost of Preparation of Report:**		
	Authors		$ 260.00
	Drafting		$ 230.00
	Typing		$ 110.00
			$ 600.00
TOTAL COST			$ 3990.00

LOCATION MAP





14,017

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LEGEND

ROCK TYPES

TERTIARY

1 — Volcanic basalt

JURASSIC OR OLDER

2 — Green chlorite schist; (2a) Pale green chlorite-epidote schist; (2b) Chlorite-quartz schist; (2c) meta-andesite

3 — Buff felsic schist; (3a) Felsic lapilli tuff (schistose); (3b) Monolithic felsic breccia; (3c) Rusty quartz-sericite schist.

4 — Limestone; (4a) Dolomite.

5 — Black phyllite; (5a) with limonite and/or graphite.

6 — Dark green ultramafics

SYMBOLS

- Outcrop
- Foliation
- Bedding
- Synform, Antiform
- Geologic contact
- py, po, cp, gal — Pyrite, pyrrhotite, chalcopyrite, galena
- bx — Breccia
- Cat Trail

Lorne Warner
OCT 1985

0 100 200 300 meters
SCALE 1:5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA-1
	ANOMALY 298B
	GEOLOGY
PROJ. No. 43	SURVEY BY: T. LEWIS DATE: JULY 1984
N.T.S. 1041/2	DRAWN BY: S.K.B. SCALE: 1:5000
DWG. No. FIG. 3	NORANDA EXPLORATION
	OFFICE: PRINCE GEORGE, B.C.

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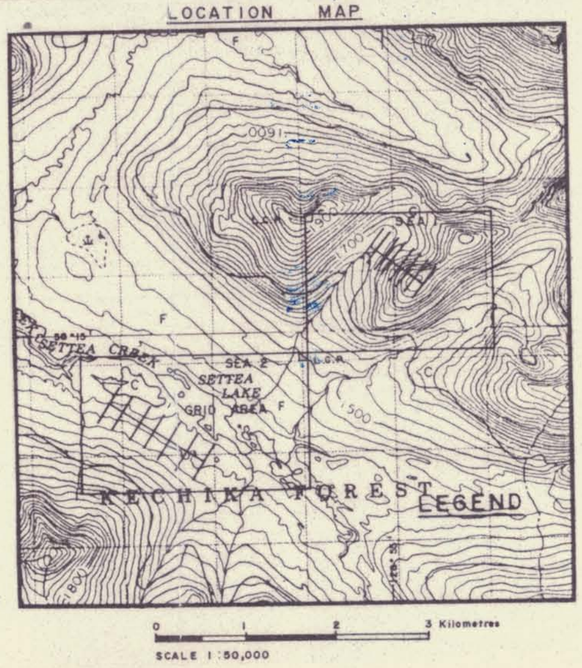
LOCATION MAP



LEGEND

28/140 GEOCHEM SAMPLE LOCATION
Cu, Zn (ppm)

0 100 200 300 meters
SCALE 1:5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA 2
	ANOMALY 294F
	GEOCHEM SURVEY
	Cu, Zn (ppm)
PROJ. No. 43	SURVEY BY: A.D., L.W., T.R. DATE: JULY 1984
N.T.S. 104I/2	DRAWN BY: S.K.B. SCALE: 1:5000
DWG. No. FIG. 4	NORANDA EXPLORATION
	OFFICE PRINCE GEORGE, B.C.

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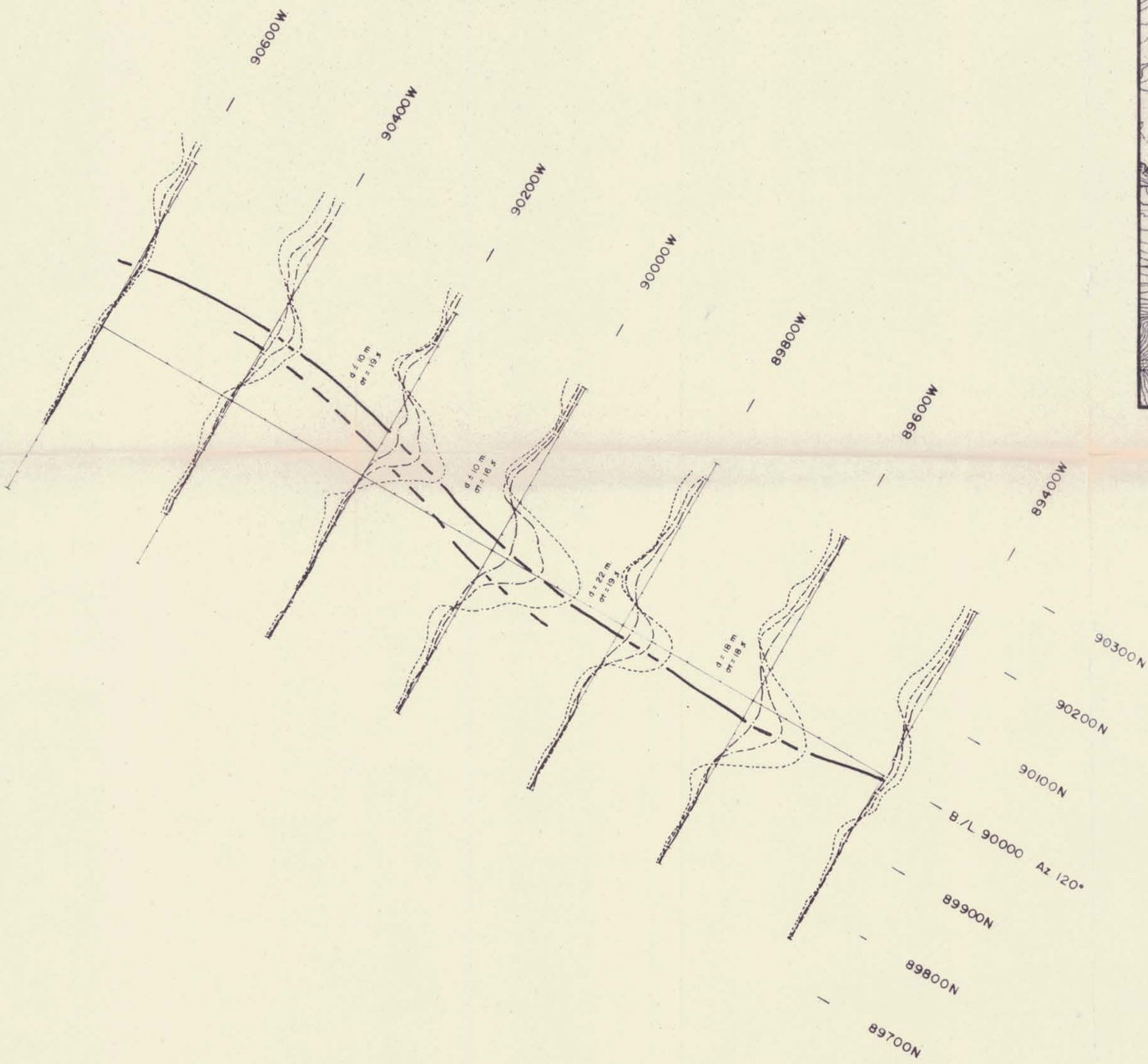
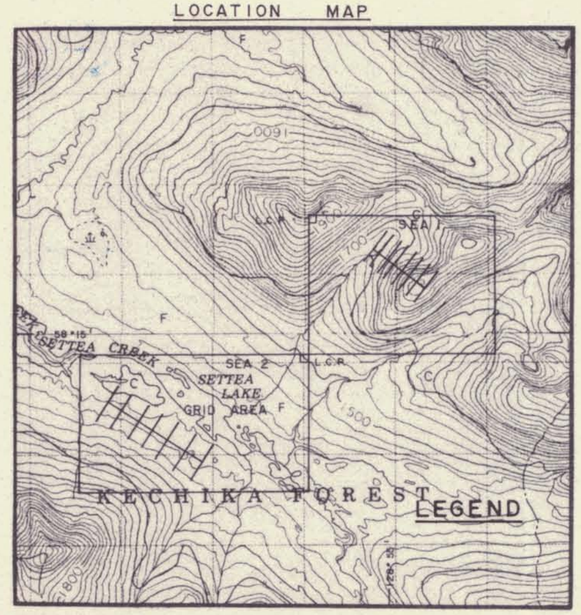


LOCATION MAP



0 1 2 3 Kilometres

SCALE 1:50,000

LEGEND

INSTRUMENT	:	SE-88
COIL SPACING	:	100 m.
FREQUENCY	:	Low —·— 337 Hz
		Med. —·— 1012 Hz
		High —·— 3037 Hz
INTEGRATION TIME	:	16 sec.
REF. FREQ.	:	112 Hz
PROFILE SCALE	:	1 cm. = 20 %
CONDUCTOR AXIS	:	——— - -
SURVEY DATE	:	July/84
OPERATOR	:	K.L., T.L.

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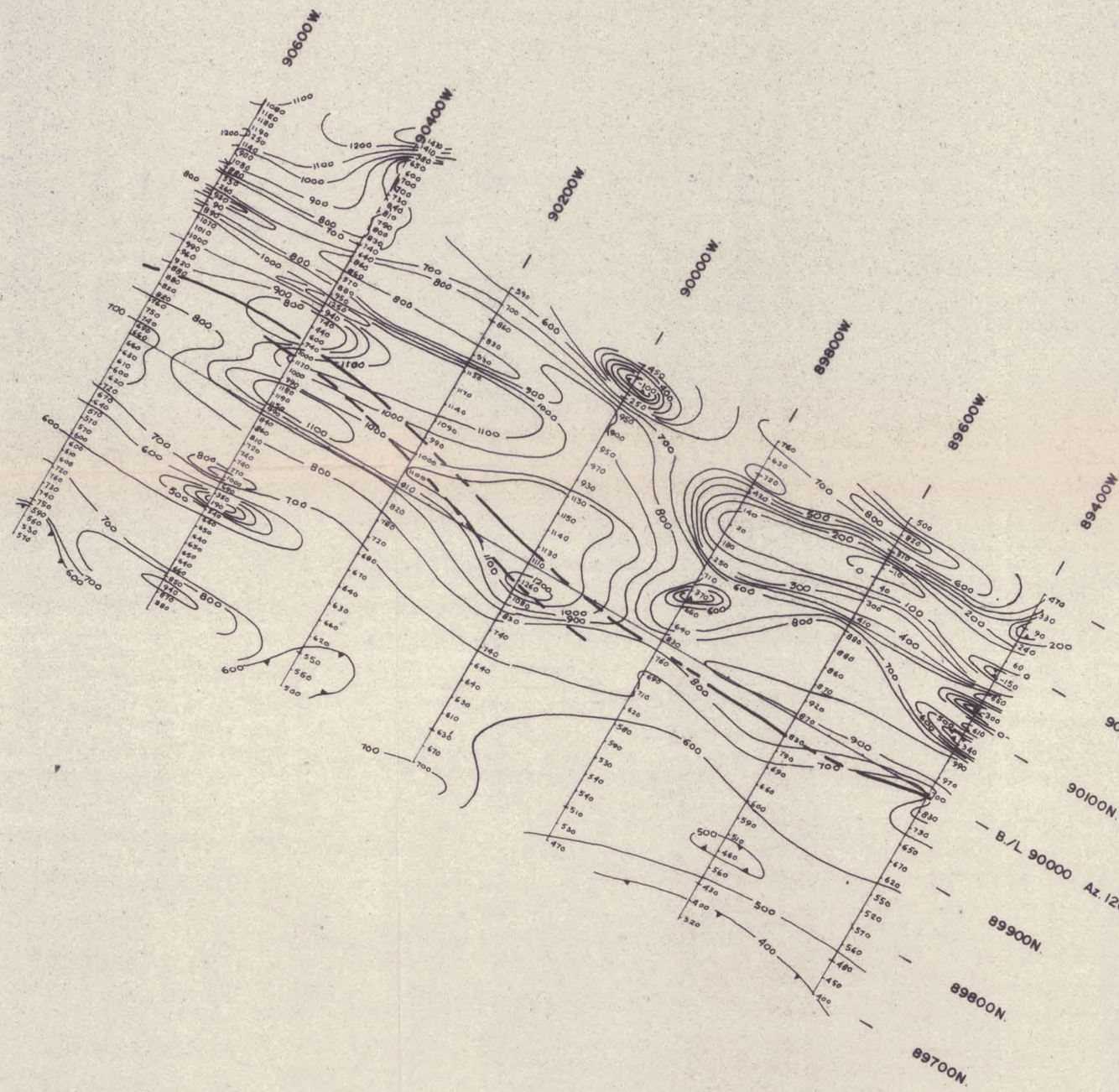
Oct 1985

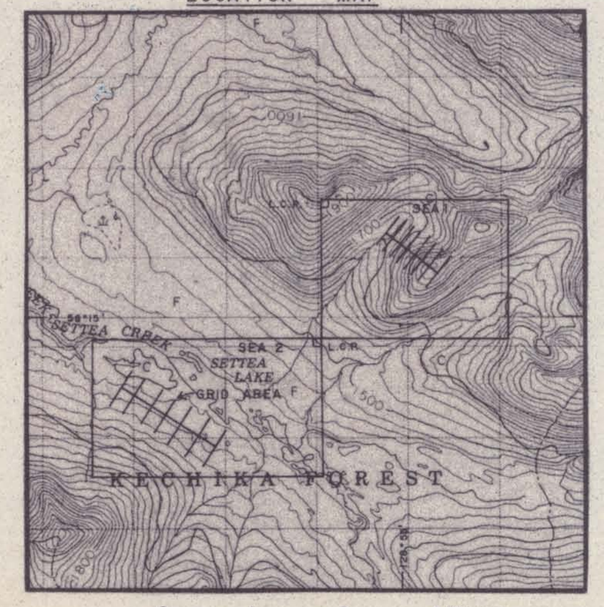
0 100 200 300 meters

SCALE 1 5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA 2
	ANOMALY 294F
	H.L.E.M. SURVEY
PROJ. No. 43	SURVEY BY K.L., T.L. DATE JULY 1984
N.T.S. 104I/2	DRAWN BY S.K.B., W.M.R. SCALE 1:5000
DWG. No FIG. 8	NORANDA EXPLORATION
	OFFICE PRINCE GEORGE, B.C.



LOCATION MAP



0 1 2 3 Kilometres

SCALE 1:50,000

LEGEND

INSTRUMENT	:	Unimag
FIELD MEASUREMENT	:	Total
DATUM	:	57,500γ
CONTOURS	:	At 100γ intervals
CONDUCTOR AXIS	:	
SURVEY DATE	:	July / 84
OPERATOR	:	T.L., A.D.

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ASSESSMENT REPORT

14,017

Lorne Warner
Oct 1985

0 100 200 300 meters

SCALE 1:5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA 2
	ANOMALY 294F
	MAGNETOMETER SURVEY
PROJ. No. 43	SURVEY BY: T.L., A.D. DATE: JULY 1984
N.T.S. 104 I/2	DRAWN BY: S.K.B., W.M.R. SCALE: 1:5000
DWG. No. FIG. 9	NORANDA EXPLORATION
	OFFICE PRINCE GEORGE, B.C.

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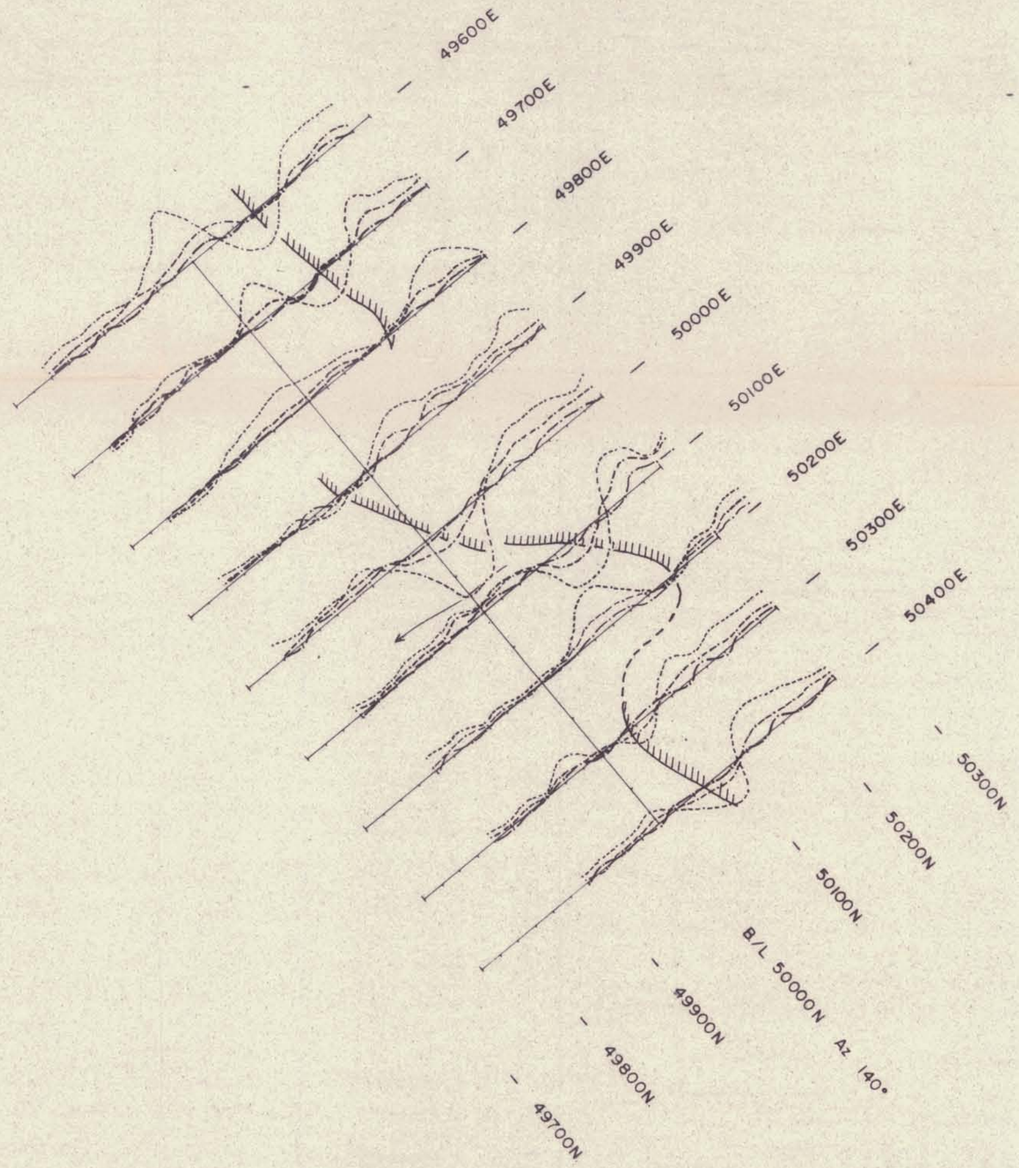
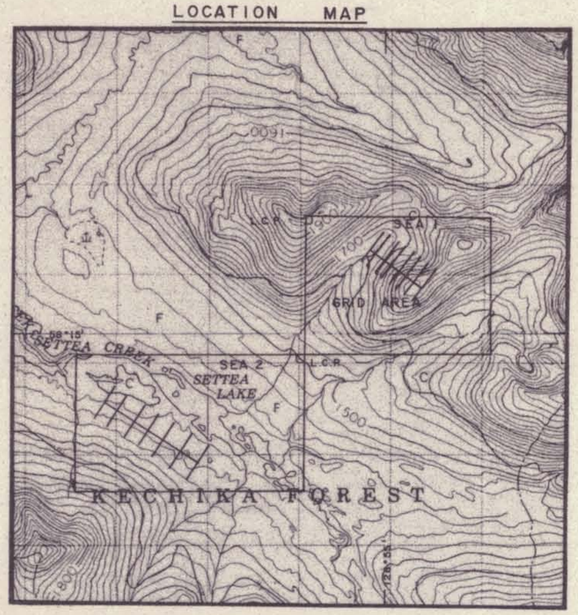


LOCATION MAP



0 1 2 3 Kilometres

SCALE 1:50,000

LEGEND

INSTRUMENT	:	SE-88
COIL SPACING	:	100 m.
FREQUENCY	:	Low —·— 337 Hz Med. —·—· 1012 Hz High ····· 3037 Hz
INTEGRATION TIME	:	16 sec.
REF. FREQ.	:	112 Hz
PROFILE SCALE	:	1 cm. = 20 %
CONDUCTOR AXIS	:	Conductive background (≥0.01 s) Non-conductive background
SURVEY DATE	:	July/84
OPERATOR	:	K.L., T.L.

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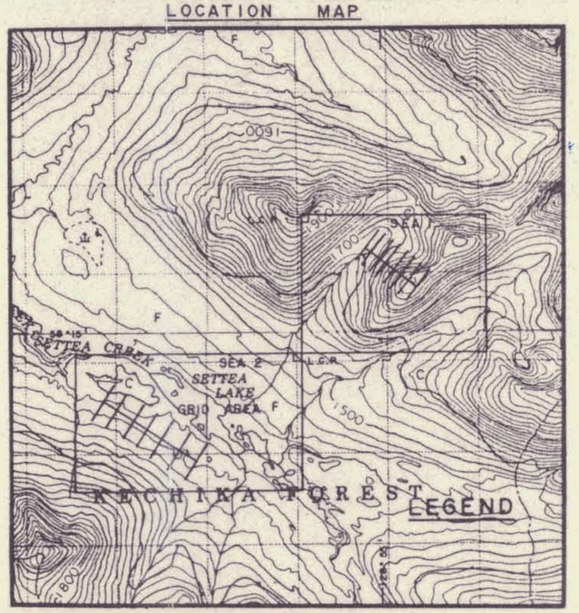
Oct 1985

0 100 200 300 meters

SCALE 1:5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA-1
	ANOMALY 298B
	H.L.E.M. SURVEY
PROJ. No. 43	SURVEY BY K.L., T.L. DATE JULY 1984
N.T.S. 1041/2	DRAWN BY S.K.B., W.M.R. SCALE 1:5000
DWG. No. FIG. 10	NORANDA EXPLORATION
	OFFICE PRINCE GEORGE, B.C.

LOCATION MAP



LEGEND

10/0.2 GEOCHEM SAMPLE LOCATION
Pb, Ag (ppm)

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0 100 200 300 meters
SCALE 1 5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA 2
	ANOMALY 294F
	GEOCHEM SURVEY
	Pb, Ag (ppm)
PROJ. No. 43	SURVEY BY: A.D., L.W., T.R. DATE: JULY 1984
N.T.S. 104I/2	DRAWN BY: S.K.B. SCALE: 1:5000
DWG. No FIG. 5	NORANDA EXPLORATION
	OFFICE: PRINCE GEORGE, B.C.

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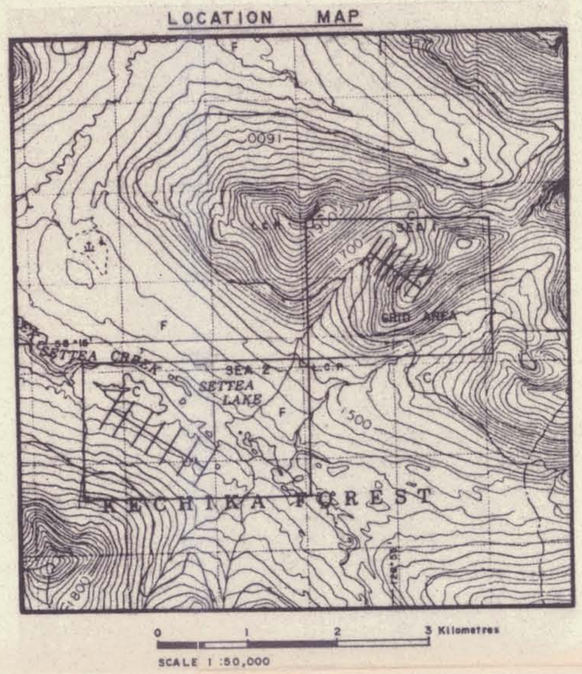
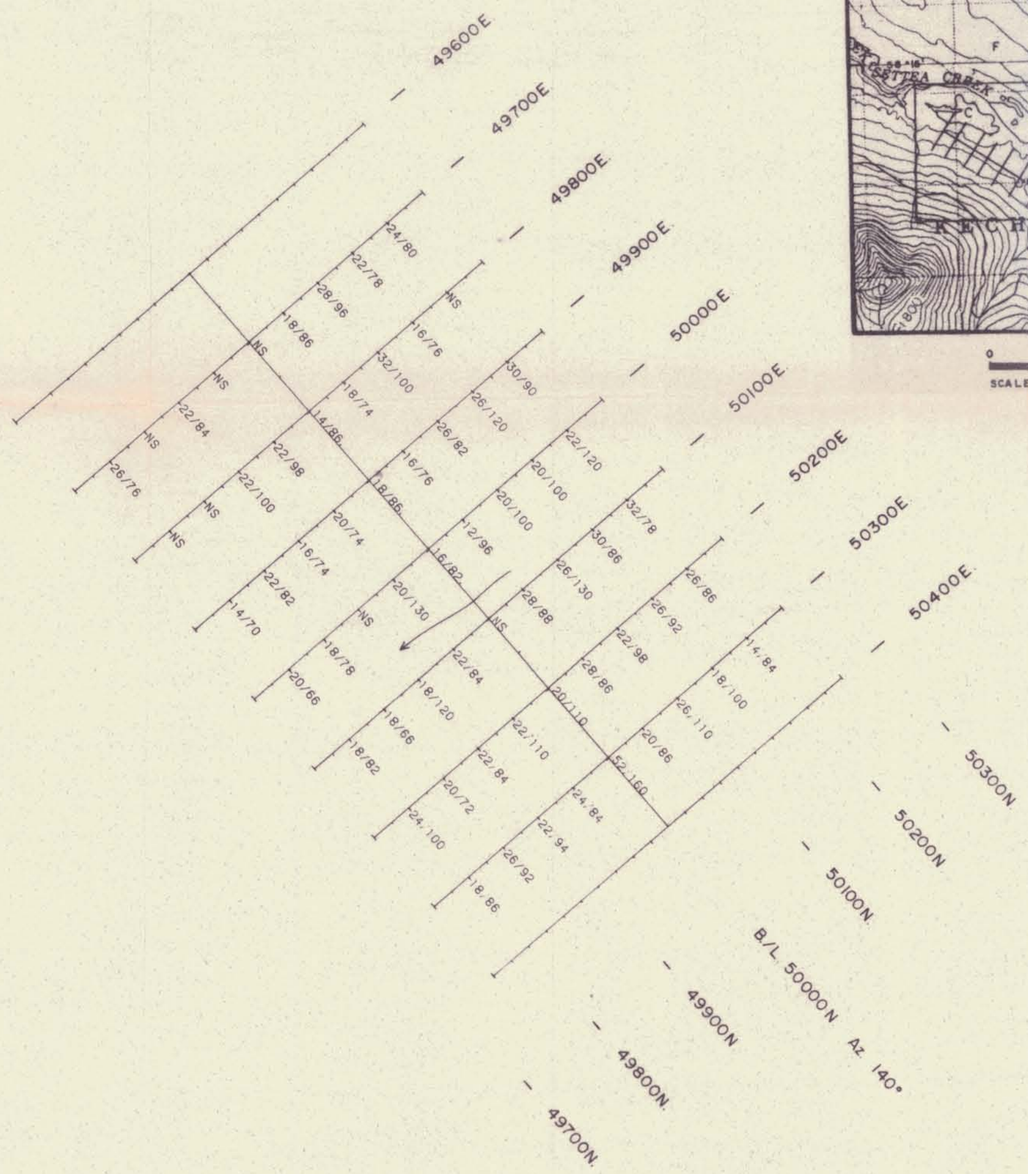
LOCATION MAP





LEGEND

28/140 GEOCHEM SAMPLE LOCATION
Cu, Zn (ppm)

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0 100 200 300 meters
SCALE 1:5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA-1
	ANOMALY 298B GEOCHEM SURVEY Cu, Zn (ppm)
PROJ. No. 43 N.T.S. 1041/2 DWG. No. FIG. 6	SURVEY BY: A.D., L.W., T.R. DATE: JULY 1984 DRAWN BY: S.K.B SCALE: 1:5000 NORANDA EXPLORATION OFFICE PRINCE GEORGE, B.C.

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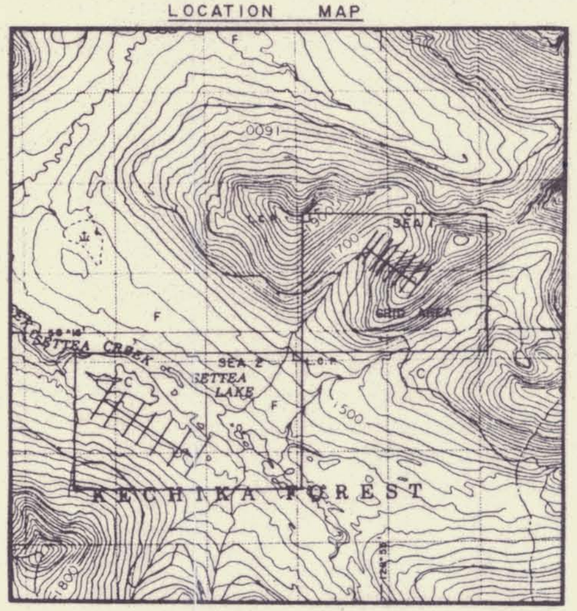
LOCATION MAP



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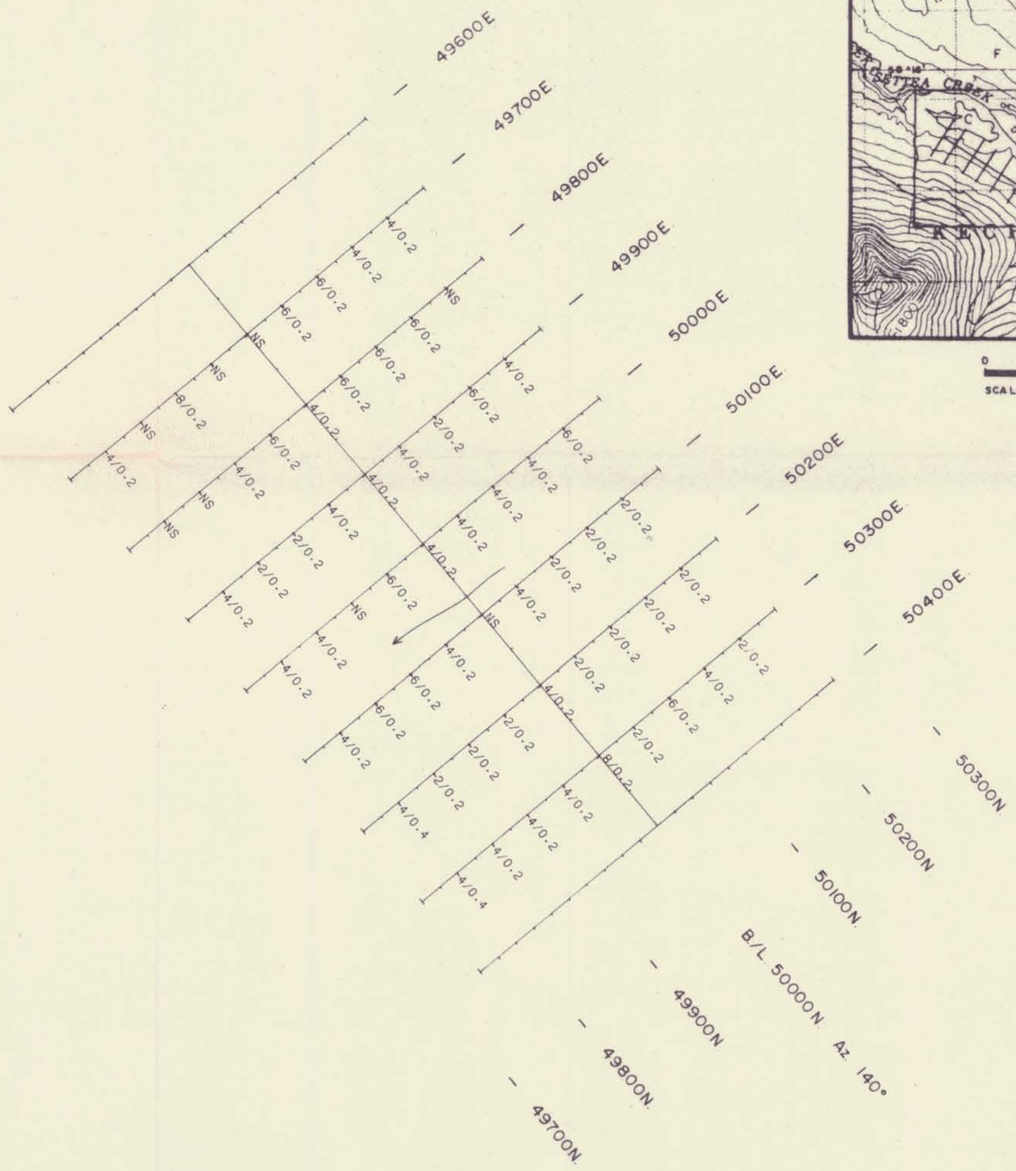
14,017

LEGEND

10/0.2 GEOCHEM SAMPLE LOCATION
Pb, Ag (ppm)



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0 100 200 300 meters
SCALE 1:5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA-1
	ANOMALY 298B GEOCHEM SURVEY Pb, Ag (ppm)
PROJ. No. 43 N.T.S. 104I/2 DWG. No. FIG. 7	SURVEY BY: A.D., L.W., T.R. DATE: JULY 1984 DRAWN BY: S.K.B. SCALE: 1:5000 **NORANDA EXPLORATION** OFFICE: PRINCE GEORGE, B.C.

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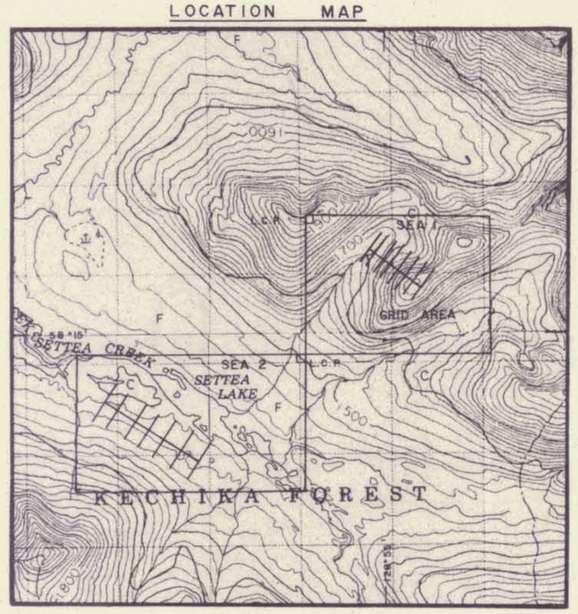
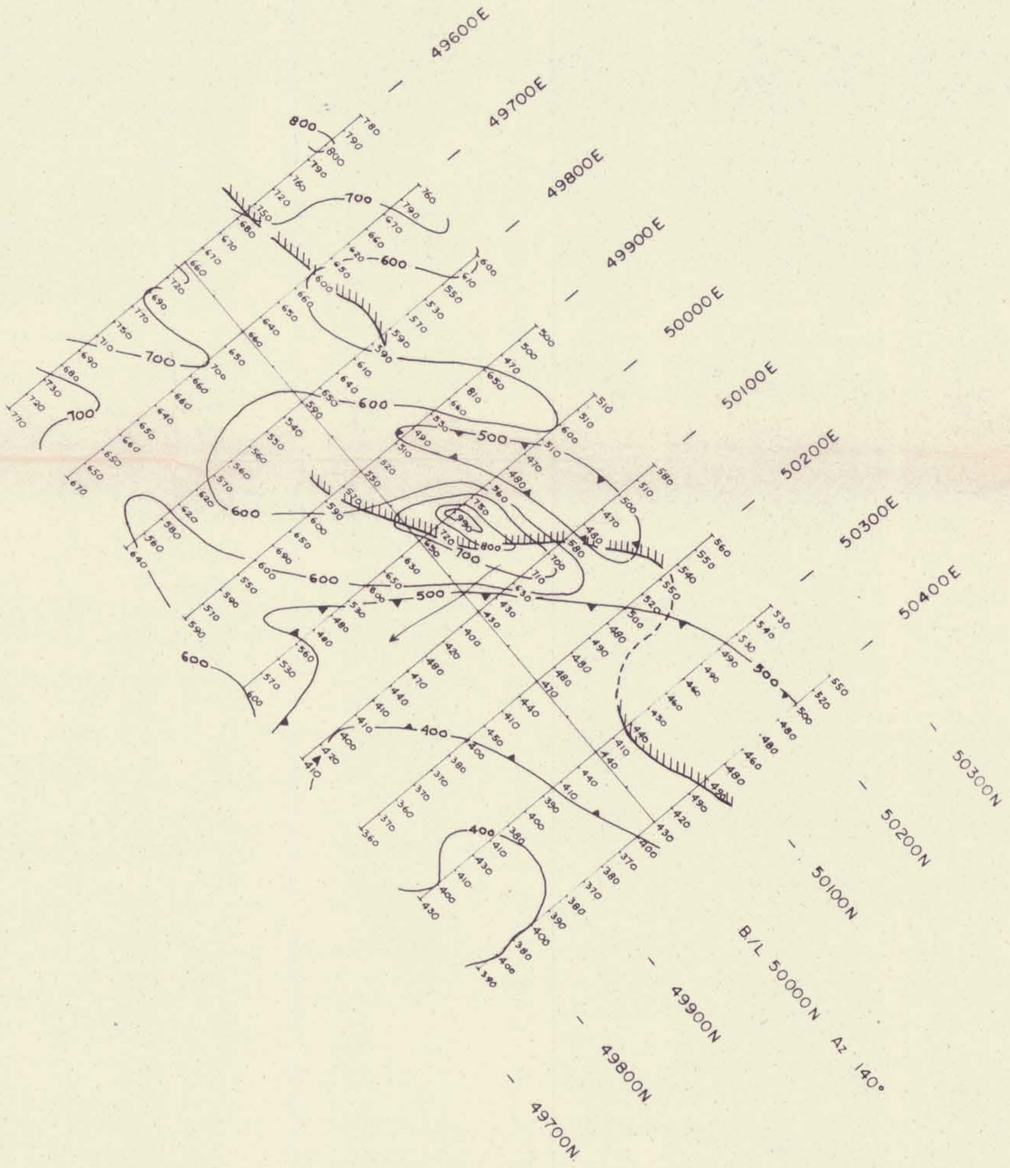
LOCATION MAP



0 1 2 3 Kilometres

SCALE 1 :50,000



LEGEND

INSTRUMENT	:	Unimag
FIELD MEASUREMENT	:	Total
DATUM	:	57,500γ
CONTOURS	:	100γ intervals
CONDUCTOR AXIS	:	↑ Conductive background (≈ 0.01 s) / Non-conductive background
SURVEY DATE	:	July / 84
OPERATOR	:	K.L., T.L.

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oct 1985

0 100 200 300 meters

SCALE 1 5,000

REVISED	TURNAGAIN LAKE AREA - CLAIM SEA - 1
	ANOMALY 298B
	MAGNETOMETER SURVEY
PROJ No. 43	SURVEY BY K.L., T.L. DATE JULY 1984
N.T.S. 1041/2	DRAWN BY S.K.B., W.M.R. SCALE 1 5000
DWG No. FIG. 11	NORANDA EXPLORATION
	OFFICE PRINCE GEORGE, B.C.