

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
No. 6375

GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT

KUTCHO 8, 9, 10 MINERAL CLAIMS

58° 10'

128° 28'

1041 1W & 2E

R.G. MacArthur and L.C. Bradish

NORANDA EXPLORATION COMPANY, LIMITED
(NO PERSONAL LIABILITY)
LIARD MINING DIVISION

August 15, 1977

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INTRODUCTION

The Kutcho 8, 9, 10 mineral claims referred to in this report are located approx. 95Km southeast of Dease Lake in northwestern B.C. A 3000' airstrip is located 3 miles north of the property in the Kutcho Creek Valley, providing the most practical access to the area.

The work described in this report covers the following claims:

<u>Claim</u>	<u>Units</u>	<u>Record Number</u>	<u>Record Date</u>	<u>Owner:</u>
Kutcho 8	20	192	Aug. 27, 1976	Noranda Exploration Company, Limited (No Personal Liability)
Kutcho 9	15	193	" " "	" "
Kutcho 10	15	194	" " "	" "

The claims were staked on the basis of favorable geology, similar to that on the Sumac-Imperial claim to the north, where a significant Cu - Zn discovery has recently been made.

The line cutting, geochemical survey and geological mapping was carried out under the supervision of R. MacArthur employed by Noranda.

The geophysical survey was carried out under the supervision of L. Bradish and T. Walker, both employed by Noranda.

The work was carried out between June 12 and August 4, 1977.

GENERAL GEOLOGY

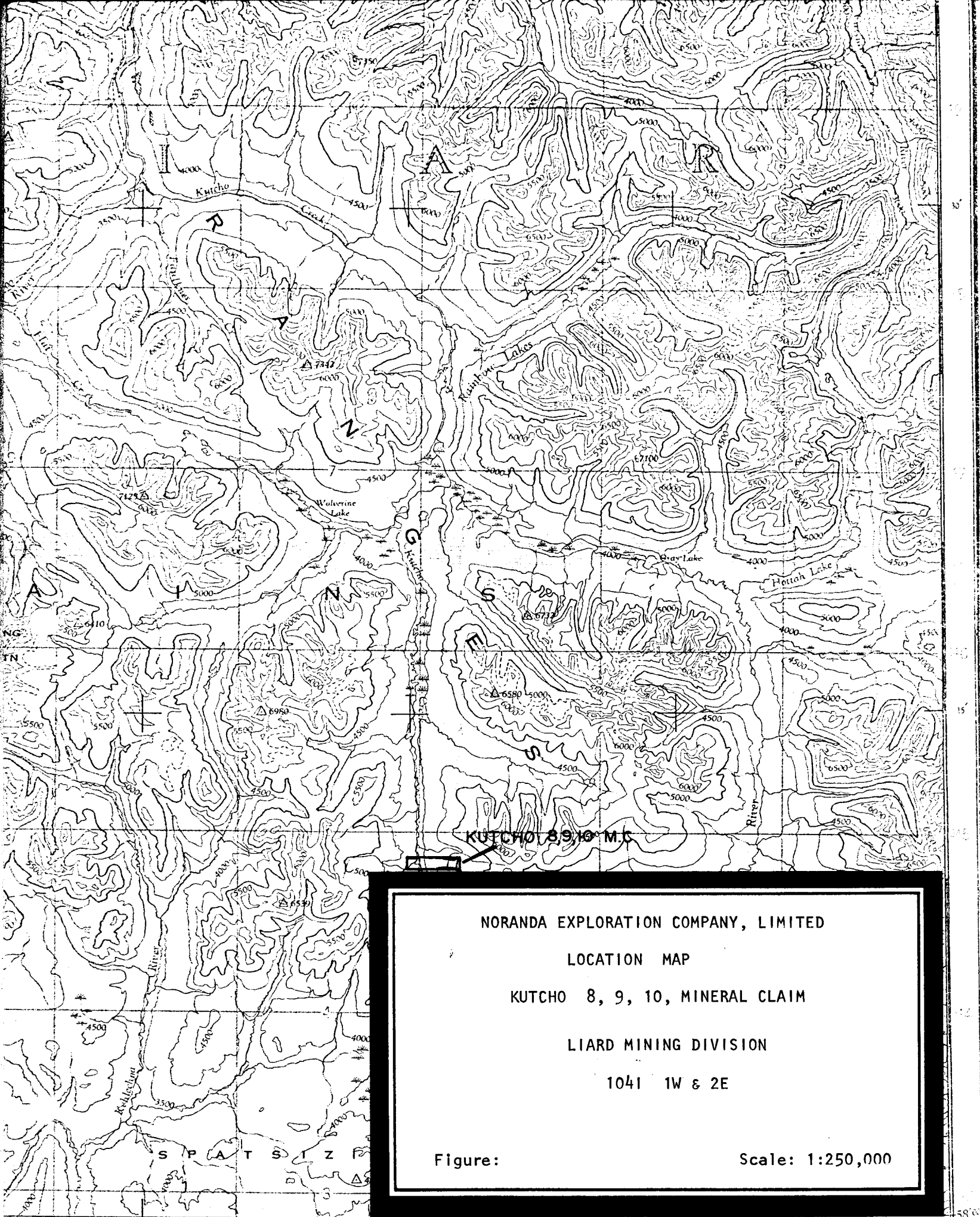
The area has been mapped regionally by the G.S.C. (Map #29 - 1962 1" = 4 miles) and they are currently up-dating their work. In addition A. Panteleyeve of the B.C. Dept. of Mines (See Geological Fieldwork 1975, B.C. Dept. of Mines and Petroleum Resources) has carried out mapping in the area.

Regional mapping indicates the claims cover part of a thick sequence of volcanic, volcanoclastic and sedimentary rocks of probable upper paleozoic age. Stikes are generally west-northwest with steep dips to the north.

GRID PREPARATION

For control purposes a cut and chained grid was laid out in areas of heavy bush. Where there was very little or no bush lines were chained and flagged.

The grid was "tied in" to our existing grid on the Kutcho 1 - 6 claims and the same numbering system was continued. The grid was laid out to cover only areas with extensive drift cover. Lines east of L126E are reconnaissance lines only. A total of 8.45 Km of line were cut under contract by T. McCrory of Whitehorse Yukon Territory. The remainder, 9.8 km were flagged and chained by Noranda personnel.



NORANDA EXPLORATION COMPANY, LIMITED

LOCATION MAP

KUTCHO 8, 9, 10, MINERAL CLAIM

LIARD MINING DIVISION

1041 1W & 2E

Figure:

Scale: 1:250,000

SOIL GEOCHEMISTRY

Sampling Method

Soil samples were collected at 50m intervals along the grid described above. Two samples were collected at each location where possible. One sample was from the "B" or upper horizon and one from the "C" or lower horizon. Where poor sampling conditions were encountered one sample of the best material available was collected. A total of 248 locations were sampled and 408 samples were collected.

Samples were collected by digging holes with a mattock and shovel. The sample material was placed in "Hi Wet Strength Kraft 3½ x 6 1/8" Open End" envelopes, on which grid locations were marked.

Laboratory Determination Method

The samples are first dried in a drying cabinet for a period of 24 - 48 hours. They are then screened and sifted to obtain a -80 mesh fraction.

To determine the amount of total extractable copper, molybdenum, lead and zinc in each sample, the following procedure is employed:

A small amount of the -80 mesh material, 0.200 grams, is digested in 2ml of HClO_4 and 0.5ml of HNO_3 for approximately four hours. Following digestion, each sample is diluted to 5ml with demineralized H_2O . A Varian Techtron Model AA-5 atomic absorption spectrophotometer is used to ascertain the content, in parts per million, of each element.

Presentation of Results

The results are presented in fig. 3 (Cu, Mo), 4(Zn), 5(Pb). Values are in parts per million. The following values are considered anomalous $\text{Cu} \geq 100$ ppm $\text{Zn} \geq 200$ ppm $\text{Mo} \geq 20$ ppm $\text{Pb} =$ not applicable. Because of the difficulty in identifying the actual "B" and "C" horizons in the field, anomalous values in either the "B" or "C" horizons were contoured together.

Discussion of Results

(i) Copper (figure #3)

Copper values range from 12 to 350 ppm. There are numerous, one sample anomalies scattered throughout the grid area. A significant area of anomalous Cu values occurs along the north end of lines 116E to 120E.

(ii) Molybdenum (figure #3)

No anomalous values were recorded for Mo.

(iii) Zinc (Figure #4)

There are a number of scattered one sample Zn anomalies throughout the grid area. An area of anomalous Zn values along the north end of lines 116E to 120E coincides well with a Cu anomaly.

(iv) Lead (drawing #5)

No anomalous values were recorded for lead.

GEOPHYSICAL SURVEYS

Introduction

An Electromagnetic survey was carried out over parts of the Kutcho 8, 9 and 10 mineral claims. The grid described above was used for control. The survey was carried out by G. Fenton and C. Harrison under the supervision of L.C. Bradish, all employed by Noranda.

C.E.M. transceivers, manufactured by Crone Geophysics Ltd. of Mississauga, Ontario were utilized for the C.E.M. Shootback Survey.

C.E.M. HORIZONTAL SHOOTBACK SURVEY

This survey was conducted over eleven lines for a total of 13.8 kilometers. Readings were taken at 25 meter intervals using a coil separation of 75 meters and a frequency of 1800 Hz.

Method

The two operators, in turn, transmit and receive at each 25 meter set up (coil separation 75M.) To take a reading operator No. 1 transmits with his coil in the horizontal plane while operator No. 2 detects the dip angle of null. The two operators reverse procedures (operator 2 transmits, operator 1 receives). The two dip angle of null readings are then added together with appropriate sign (\pm). This resultant dip angle constitutes a reading for the set up and this reading is plotted mid point between the two operator locations on the survey lines.

Presentation of Results

The C.E.M. results are plotted in profile form on a grid plan Map (Dwg. No. 6) at a scale of 1:5000. The vertical scale of the profiles is 1 centimeter equals 20 degrees.

Discussion of Results

The response on lines 116E to 126E show a slightly positive profile. This usually suggests the presence of magnetite, however little or no geological evidence of this exists.

The response on the extreme north ends of lines 132E and 150E are believed to be caused by a graphitic unit.

No further significant response are shown by these results.

GEOLOGICAL MAPPING

Geological mapping was carried out on the property, using the grid described above for control. The area covered by the grid is mainly drift covered, however sufficient outcrops are available to give a reasonable picture of the geology.

Most of the grid area is underlain by rocks of Unit 2, with narrow bands of Unit 3 interbedded. The following is a brief description of the rock types found on the property.

Unit 2 includes fine grained to medium grained quartz eye - chlorite - epidote schists, and fine grained chlorite schists. Narrow bands of rhyolitic material occur within Unit 2. These rocks are probably sheared intermediate to basic volcanic flows and tuffs.

Unit 3 includes fine to coarse grained quartz eye sericite schist, sericite schist, and massive pink to white rhyolite and quartz eye rhyolite porphyry. The massive rhyolite rocks may occur as dyke or sill bodies, but appear to grade into sericite schists.

Unit 4 consists of gray to black crystalline limestone. It outcrops along the creek northeast of the grid area.

Unit 5 consists of black slate and phyllite with graphitic beds. It outcrops along the creek north of the grid area.

Unit 6 is a gray feldspar - hornblende porphyry. The rock is only very weakly foliated and appears quite fresh. It probably occurs as dykes or sills. It was not observed as outcrop but occurs in talus and rubble piles in the northeast part of the grid area.

Structure

The most prominent foliation in units 2, 3, 4, 5 is the S_1 cleavage which consistently strikes west-northwest and dips steeply north. There is no indication of major folding or faulting on the property.

Mineralization

Pyrite mineralization is common throughout unit 2. Numerous boulders of chlorite schist with semi-massive pyrite were observed, but no Cu mineralization was associated.

The most interesting occurrence of pyrite mineralization occurs as small lenses and bands along a zone between L124E and L126E at 72+50N. Here semi massive pyrite occurs in a siliceous band within unit 2.

CONCLUSIONS AND RECOMMENDATIONS

Although the work to date on the property has not been encouraging, the property still warrants further attention.

The claims should be renewed, and the property held until a full assessment of the adjoining Kutcho 1 - 6 claims is made.

Respectfully Submitted

Ronald MacArthur

L.C. Bradish

STATEMENT OF QUALIFICATIONS

I, Ronald G. MacArthur of the town of Smithers, Province of British Columbia, do certify that:

- 1) I have been an employee of Noranda Exploration Company, Limited since May 1972.
- 2) I am a graduate of Dalhousie University with a Bachelor of Science Degree in Geology.
- 3) I am a member of the Canadian Institute of Mining and Metallurgy.
- 4) I am a member of the Geological Association of Canada.



R.G. MacArthur

Geologist
Noranda Exploration Company, Limited
(No Personal Liability)

STATEMENT OF QUALIFICATIONS

I, Lyndon C. Bradish of the City of Vancouver, Province of British Columbia, do certify that:

1. I have been an employee of Noranda Exploration Company, Limited since May 1973.
2. I am a graduate of the University of British Columbia with a Bachelor of Science Degree in Geophysics.
3. I am a member of the Canadian Institute of Mining and Metallurgy.
4. I am a member of the British Columbia Geophysical Society.
5. I have held the position of Geophysicist for Noranda Exploration Company, Limited since May 1973.



L.C. Bradish
Geophysicist
Noranda Exploration Company, Limited
(No Personal Liability)

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT: 8, 9, 10

TYPE OF REPORT: Geology

(a) Employees: R. MacArthur, B. Hughes, C. Harrison Number of days: 4 Dates worked: Between July 1 and August 4, 1977		
(b) Average cost per day \$ 40.39 Total cost \$40.39 X 4		\$ 161.56
(c) Cost of food & accomodation		\$ 74.48
(d) Cost of transportation		
i. During work period		
type:		
cost:		
ii. To and from Claims from within B.C. 4 (6.77)		
cost:	27.08	27.08
(e) Cost of aircraft		
i. Fixed wing:	612.50	
ii. Helicopter:	405.86	1,018.36
(f) Cost of instruments		
i. Rental:		
ii. Supplies		
(g) Cost of geochem analysis (details attached):		
(h) Cost of report preparation:		230.00
Supervision G.E. Dirom, P.Eng., R.C. Heim PhD, P.Eng.		336.00
(i) Other:		

TOTAL

1,847.48

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT: Kutcho 8, 9, 10

TYPE OF REPORT: Geochem Report

- (a) Employees: R. MacArthur, E. Sargent, R. Brise, F. Sivertz, C. Lee
Number of days: 8
Dates worked: Between June 14 and July 2, 1977
- (b) Average cost per day \$ 40.39
Total cost \$40.39 X 8 \$ 323.12
- (c) Cost of food & accomodation 8 (18.62) \$ 148.96
- (d) Cost of transportation
i. During work period
type:
cost:
- ii. To and from Claims from
within B.C.
cost: 299.06 299.06
- (e) Cost of aircraft
i. Fixed wing: 1,214.77
ii. Helicopter: 1,137.72 2,352.49
- (f) Cost of instruments
i. Rental:
ii. Supplies
- (g) Cost of geochem analysis
(details attached): 1,020.00
- (h) Cost of report preparation: 115.00
Supervision G.E. Dirom, P.Eng, R.C. Heim PhD, P.Eng. 168.00
- (i) Other:

TOTAL

4,426.63

NORANDA EXPLORATION COMPANY, LIMITED
(WESTERN DIVISION)

DETAILS OF ANALYSES COSTS

PROJECT: Kutcho 8, 9, 10

<u>ELEMENT</u>	<u>NO. OF DETERMINATIONS</u>	<u>COST PER DETERMINATION</u>	<u>TOTAL</u>
Cu	408	1.00	408.00
Zn	408	.50	204.00
Pb	408	.50	204.00
Mo	408	.50	204.00

1,020.00

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT: Kutcho 8, 9, 10

TYPE OF REPORT: Geophysics

(a) Employees: C. Harrison, G. Fenton

Number of days: 8

Dates worked: Between June 23 and July 2, 1977

(b) Average cost per day \$ 40.39

Total cost \$40.39 X 8 \$ 323.12

(c) Cost of food & accomodation \$ 148.96

(d) Cost of transportation

i. During work period

type:

cost:

ii. To and from Claims from
within B.C.

cost: 109.61 109.61

(e) Cost of aircraft

i. Fixed wing: 252.00

ii. Helicopter: 811.72 1,063.72

(f) Cost of instruments

i. Rental: 60.00

ii. Supplies 46.61 106.61

(g) Cost of geochem analysis
(details attached):

(h) Cost of report preparation: 115.00

(i) Supervision G.E. Dirom, P.Eng., R.C.Heim, PhD, P.Eng. 186.00
Other:

TOTAL

2,053.02

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT: Kutcho 8, 9, 10

TYPE OF REPORT: Line Cutting

(a) Employees: C. Lee, R. Brise, R. MacArthur, B. Hughes
Number of days: 5
Dates worked: Between June 30 and July 2, 1977

(b) Average cost per day \$ 40.39
Total cost \$40.39 X 5 \$ 201.95

(c) Cost of food & accomodation \$ 93.10

(d) Cost of transportation
i. During work period
type:
cost:

ii. To and from Claims from
within B.C.
cost: 33.85 33.85

(e) Cost of aircraft
i. Fixed wing: 439.50
ii. Helicopter: 1,510.08 1,949.58

(f) Cost of instruments
i. Rental:
ii. Supplies

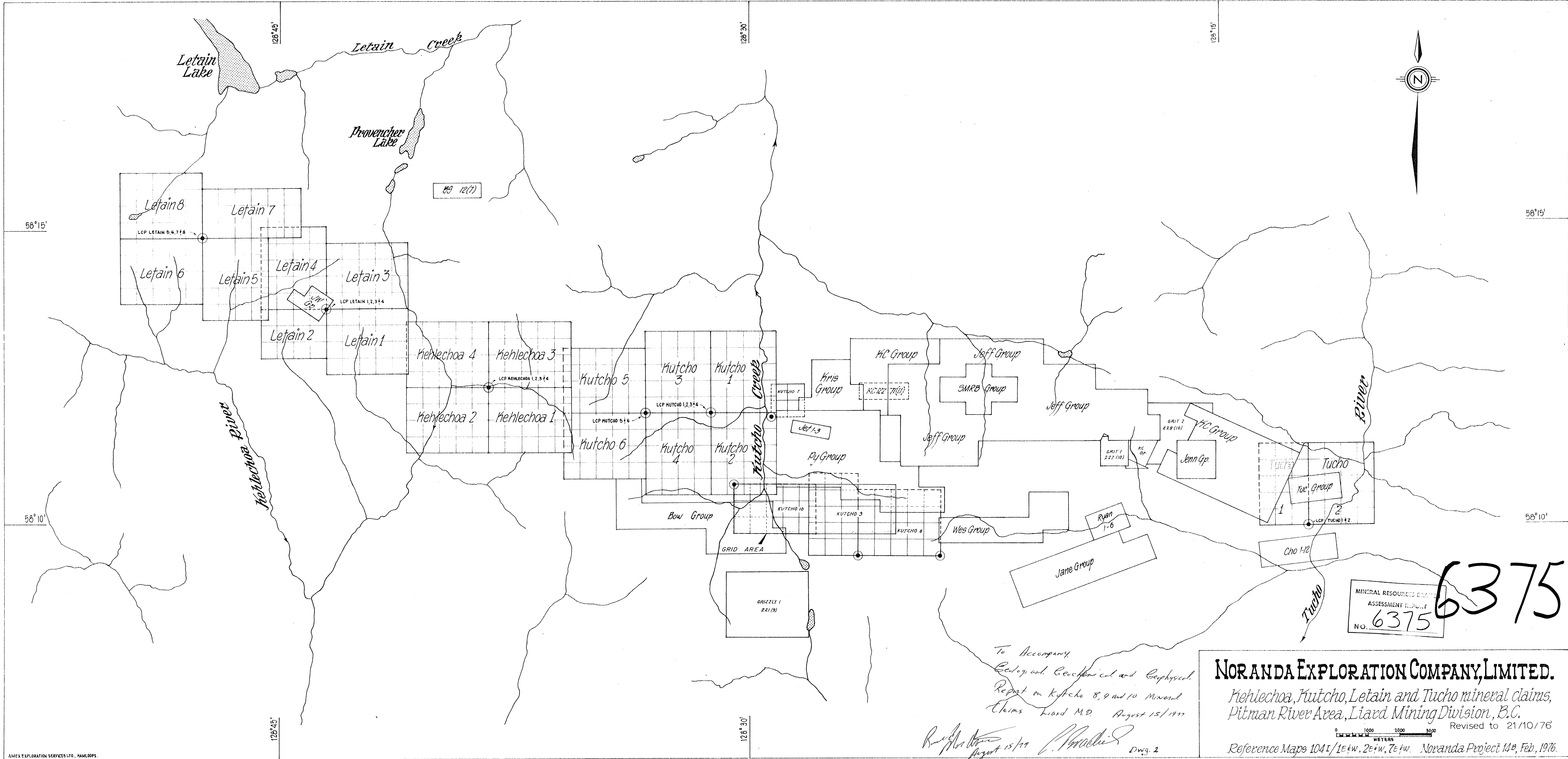
(g) Cost of geochem analysis
(details attached):

(h) Cost of report preparation:

(i) Other:
Contractor: McCory Holings Ltd. 1,797.00

TOTAL

4,075.48



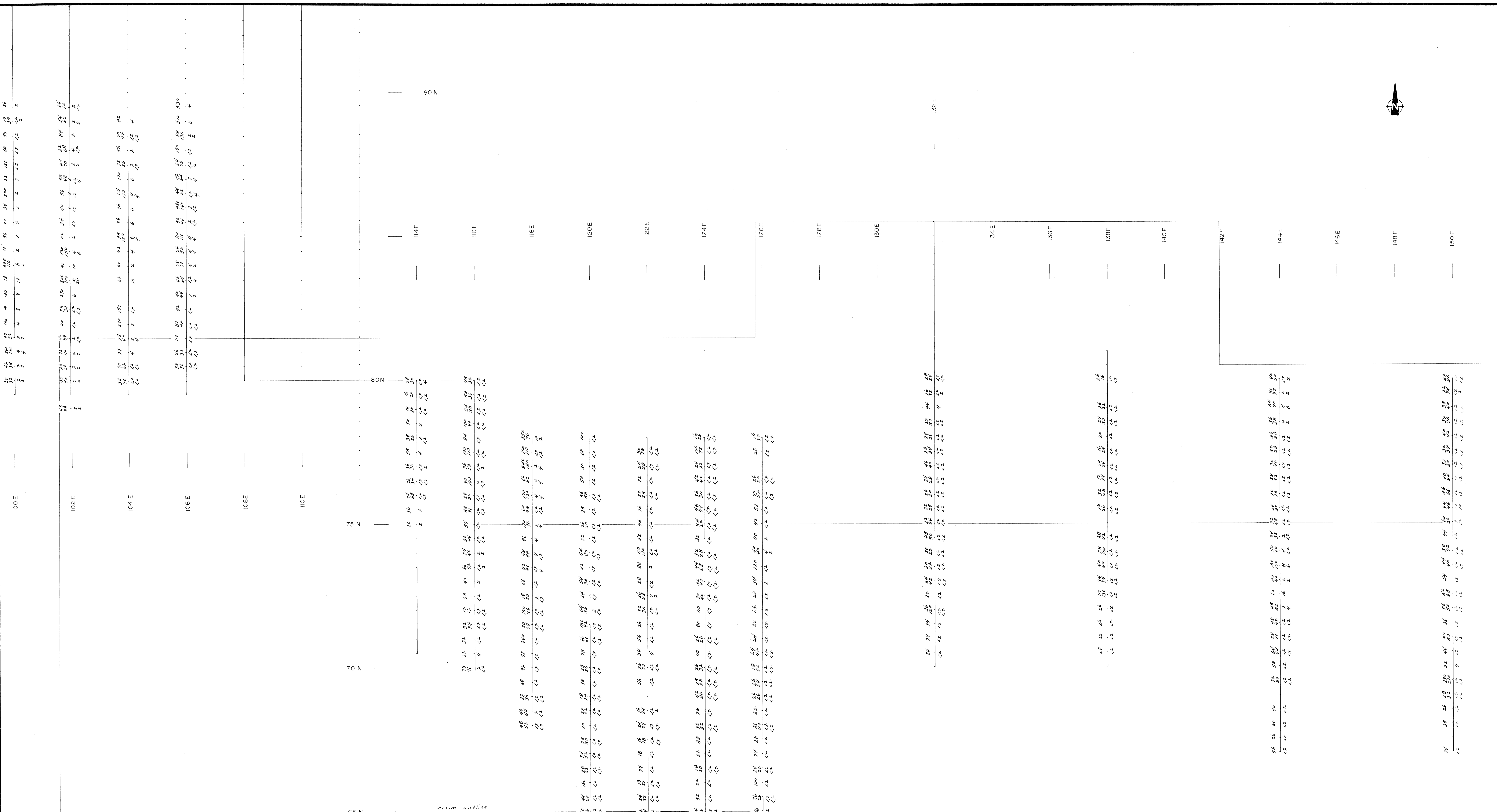
MINERAL RESOURCES GRANTS
ASSESSMENT REPORT
NO. 6375

6375

To Accompany
Geological, Geochemical and Geophysical
Report on Kutcho 8, 9 and 10 Mineral
Claims Liard M.D. August 15/1977

R. J. ...
August 15/77 *[Signature]* Dwg. 2

NORANDA EXPLORATION COMPANY, LIMITED.
Kehlechoa, Kutcho, Letain and Tucho mineral claims,
Pitman River Area, Liard Mining Division, B.C.
Revised to 21/10/76
Reference Maps 1041/1E+W, 2E+W, 7E+W. Noranda Project 148, Feb. 1976.



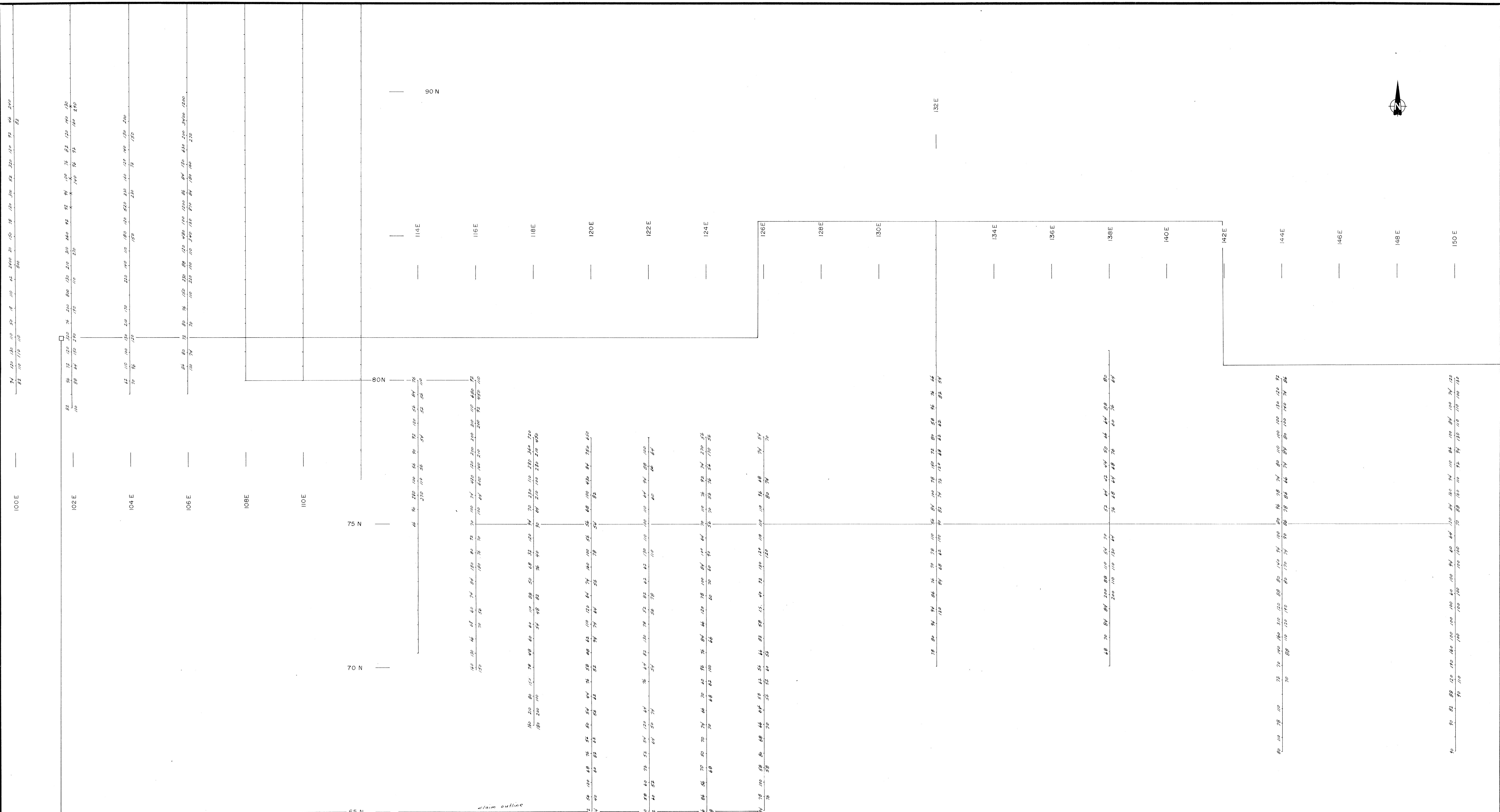
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
No. **6375**

To Accompany
Geological, Biochemical and Biophysical
Report on Kutch 8, 9 and 10 mineral Claims
Kand M.D. Aug 15 1977

Ronald H. ...
Aug 15/77

6375

REVISED	KUTCHO PROPERTY	
	GEOCHEMICAL SURVEY	
	Cu, Mo. in PPM.	
PROJ. No. 15	SURVEY BY: H.C.	DATE: JULY 1977
N.T.S. 10" x 11" W.A. 2E	DRAWN BY: H.C.	SCALE: 1:5,000
DWG. No. 3	NORANDA EXPLORATION	
	OFFICE: VANCOUVER	



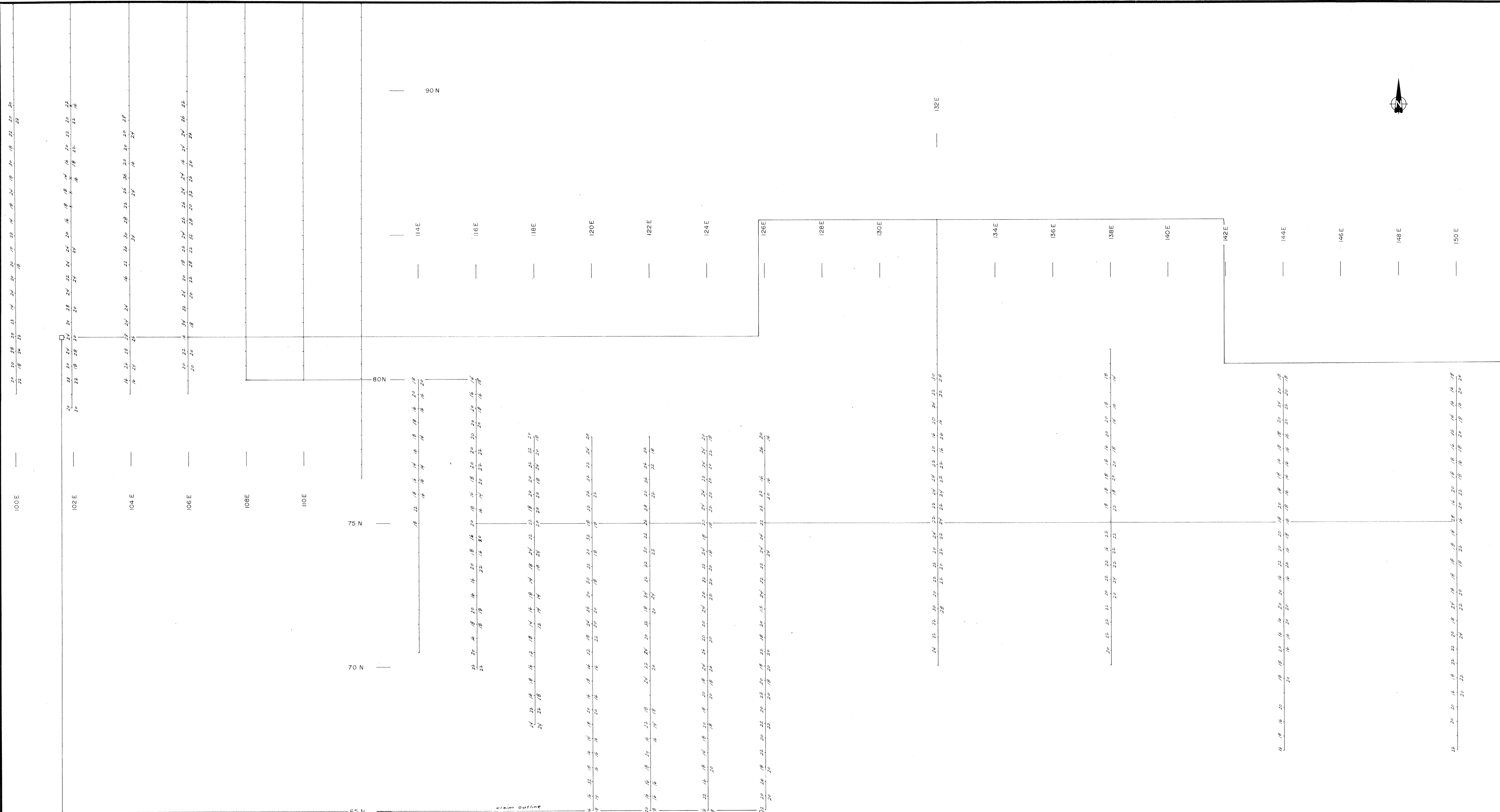
6375

MINERAL RIGHTS CHANGE
 ACCOUNTING SERVICE
 No. 6375

To accompany
 Geological, Geochemical and Geophysical
 Report on Kutchu 8, 9 and 10 Laird M.D.
 August 15, 1977

Richard M. [Signature]

REVISED	KUTCHO PROPERTY	
	GEOCHEMICAL SURVEY Zn in PPM.	
PROJ. No. 15	SURVEY BY: H.C.	DATE: JULY 1977
N.T.S. 10x11/16" RE	DRAWN BY: H.C.	SCALE: 1:5,000
DWG. No. 4	NORANDA EXPLORATION	
	OFFICE: VANCOUVER	



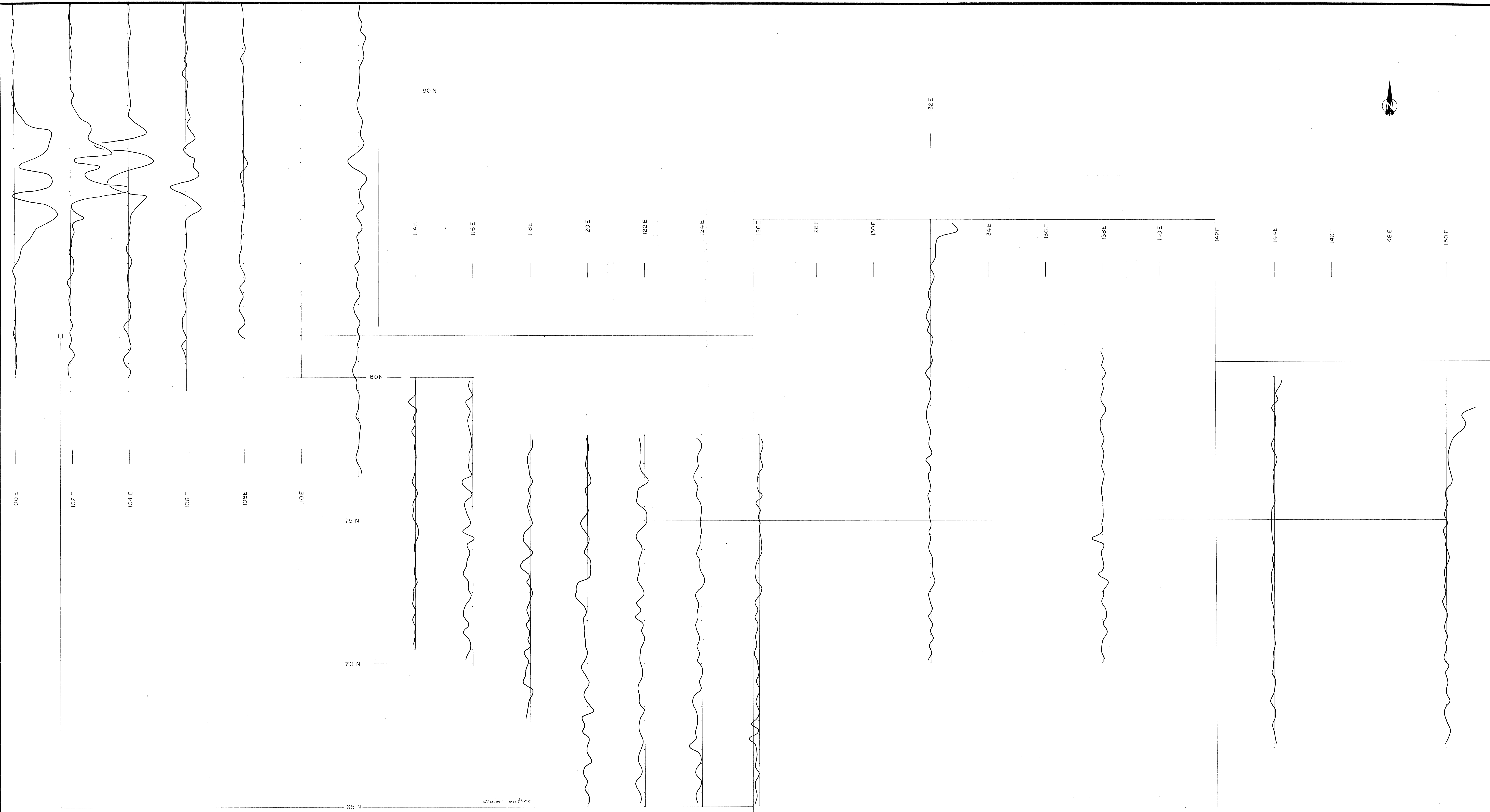
MINERAL INDUSTRIES BRANCH
 ANALYTICAL REPORT
 NO. 6375

To Accompany:
 Geological, Biochemical and Biophysical
 Report on Ketchu 8, 9 and 10 Mineral Claims
 Liard M.D. August 15, 1977

Rud. M. Chetko
 Aug 1977

6375

REVISED	KUTCHO PROPERTY	
	GEOCHEMICAL SURVEY Pb in P.P.M.	
PROJ. No. 15	SURVEY BY: H.C.	DATE: JULY 1977
N.T.S. 104.1/1 W.P.E.	DRAWN BY: H.C.	SCALE: 1" = 5,000'
DWG. No. 5	NORANDA EXPLORATION OFFICE: VANCOUVER	

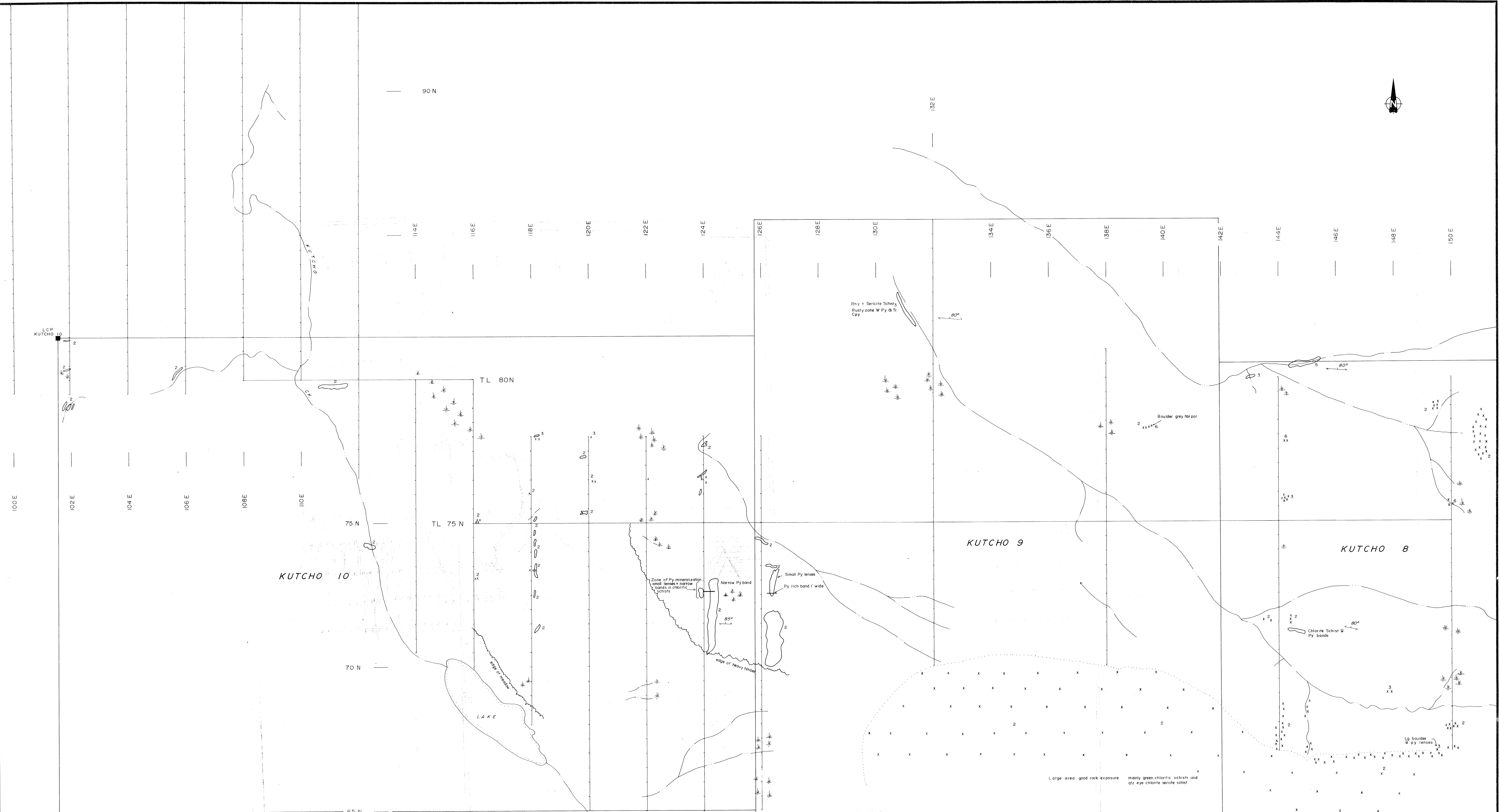


MINERAL RIGHTS OF THE CROWN
 Accession No. 6375
 No. 6375

6375

To Accompany:
 Biological, Geochemical and Geophysical
 Report on Kitch 8, 9 and 10 Mineral
 Claims, Lead M.D. Aug 15, 1977
L. Fenton
 Dated Aug 15/77

REVISED	KUTCHO PROPERTY	
	CEM SURVEY HORIZONTAL SHOOTBACK RESULTANT NULL ANGLE PROFILES	
	VERTICAL SCALE 1 cm = 20° COIL SPACING 75m FREQUENCY 1800 Hz	
PROJ. No.	SURVEY BY: G. FENTON	DATE: JUNE, JULY, 1977
N.T.S. (10" x 11 1/2")	DRAWN BY: L.G.B.	SCALE: 1:5000
DWG. No. 6	NORANDA EXPLORATION	
	OFFICE: VANCOUVER	



LEGEND

- 6 GREY TO BROWN HORNBLENDE PORPHYRY
- 5 SLATE
- 4 LIMESTONE
- 3 QUARTZ EYE SERICITE SCHIST, RHYOLITE, RHYOLITE PORPHYRY
- 2 QUARTZ EYE CHLORITE - EPIDOITE SCHIST, CHLORITE SCHIST

SYMBOLS

- OUTCROP
- TALUS AREA - RUBBLE
- FLOAT
- MINERALIZED ZONE
- SWAMPY AREA
- STREAM

Large area good rock exposure mainly green chloritic schist and qtz eye chlorite sericite schist

6375

MINERAL RESOURCES CANADA
ASSESSMENT REPORT
NO. 6375

To accompany
Geological, Geochemical and Biogeochemical
Report on Kutchos 8, 9 and 10 Mineral
Claims Land M.D. August 15/1977

Robert MacArthur
Aug 15/1977

REVISED		KUTCHO PROPERTY	
		KUTCHO 8,9,10	
		GEOLOGICAL PLAN	
PROJ. No. _____	SURVEY BY: R. MacArthur	DATE: AUG 1977	
N.T.S. 1:50,000	DRAWN BY: J. V. VOORST	SCALE: 1:50,000	
DWG. No. 7	NORANDA EXPLORATION		OFFICE: _____