

URANERZ EXPLORATION AND MINING LTD.

REPORT ON

CHINOOK CONSTRUCTION, B.C.

71-31

FRITZ HOPFENGAERTNER

| | |
|------------------------------------------------|-----------|
| Department of Mines and Petroleum Resources | |
| ASSESSMENT REPORT | |
| NO. 5585 | MAP _____ |

1. INTRODUCTION1.1 AREA OF INVESTIGATION

The properties of Chinook Construction Ltd. , Vancouver are located in the Similkameen District[?] of south central British Columbia, Canada, north of Grand Forks in the Christina Range of the Monashee Mountains.

1.2 PURPOSE OF INVESTIGATION

The properties were investigated to determine the extent of several known radioactive occurrences in pegmatites and evaluate their potential as possible economic sources of uranium.

1.3 TIME OF INVESTIGATION

May 21st to June 4th, 1975.

1.4 PERSONNEL

The geological party consisted of:

| | |
|-------------------|-----------------|
| F. Hopfengaertner | Field Geologist |
| R. Loewer | Field Assistant |
| J. Skinner | Field Assistant |

1.5 INSTRUMENTS, VEHICLES USED

A four-wheel drive vehicle (GMC Jimmy owned by UEM) was used for transportation from Calgary , Alberta and for use in the field. Two SPP2 SRAT (Series 16, #1720; Series 11, #992) scintillometers were used for the radiometric survey.

2. GENERAL INFORMATION

2.1 LOCALITY

The properties are located about 13 kilometers north of Grand Forks, Longitude $118^{\circ} 23'$ west; Latitude $49^{\circ} 05'$ north.

2.2 COMMUNICATION AND ACCESS

Grand Forks is located near the Canada - U.S. border on Highway # 3, a hard surface, all weather road and also has rail freight service (C.P.R. & G.N.), daily bus connections to points east and west and an airport with 3 times a week scheduled air service to Kelowna and Castlegar, connecting from there with major domestic routes.

The mineral properties were accessible from Grand Forks by logging roads and trails. A four-wheel drive vehicle was necessary as the trails were quite wet and muddy with some rough sections due to spring run-off. In drier times of the year the trails could be negotiated with a sturdy two-wheel drive vehicle (eg. small truck).

2.3 TOPOGRAPHY

The Christina Range of the Monashee Mountains rises from an elevation of 520 meters in the broad open valley at Grand Forks to about 1450 meters, although the average elevation of smaller peaks in the prospect area is from 1060 meters to 1200 meters. The mineral properties are drained by westward flowing creeks which flow into the Granby River.

2.4 CLIMATE

A moderate climate prevails throughout southern B.C. and the Grand Forks Region. Prevailing winds from the west bring seasonal snow and rainfall. The best working seasons are late spring to fall, once the snow cover has melted.

2.5 VEGETATION

The mountains and smaller valleys in the prospect areas are covered by dense vegetation consisting of spruce, pine, larch, cedar, poplar and willows with occasional heavy underbrush. On well-drained slopes, bedrock is exposed or thinly covered with grass and mosses. At lower elevations and on south-facing slopes, grass predominates and tree cover is sparse.

2.6 POPULATION AND LAND USE

Grand Forks has a population of about 3,000 with a total valley population of about 7,000. Farming and ranching land use patterns prevail with some lumbering activity.

2.7 WATER RESOURCES

The Granby River flows along the west side of the claim group. A number of creeks cut across the property with Snowball Creek being the most central and nearest of these.

2.8 MAGNETIC DEVIATION

Deviation: will be 23° E for 1975.

Reference: 1966 topographic map 82 E/1W

3. PREVIOUS SURVEYS AND ACTIVITIES

3.1 TOPOGRAPHIC MAPPING

Sheet 82 E/1W, 1:50,000, 1966

Airphotos were not used - They were considered outdated, because they were taken in 1941.

3.2 GEOLOGICAL MAPPING

1. Mineral property of Cronus Minerals, 1:31,400, August 1970, - ~~by V.A. PRETO.~~ *incorrect*
2. G.S.C. maps in paper 69-22, scale 1:253,440, by - V.A. PRETO.
3. B.C. Department of Mines, 1973. Provides a short description of radioactive occurrences in B.C. including the SD claim group.

3.3. GEOPHYSICAL SURVEYS

Nothing to report.

4. TENURE POSSIBILITIES

4.1 MINERAL CLAIM

4.1.1 Mineral Claims/Mineral Claim Blocks Staked and Recorded

See Cronus Mineral Report by E. CHISHOLM (1970) p. 2 and 3 .

4.1.2 Mineral Claims Granted

See Cronus Mineral Report by E. CHISHOLM (1970) p. 2 and 3.

4.1.3 Mineral Claims Disputed, Lost, Lapsed

Chinook Construction (1975) controls claim group SD 1 to 36 and others but there apparently is an ownership dispute over some claims with Boundary Exploration Ltd. (personal communication; G. ADDIE, District Geologist, Nelson District, 1975).

4.2 LARGER CONCESSIONS (PERMITS, ETC.)

Nothing to report.

4.2.1 Concessions Applied For

Nothing to report.

4.2.2 Concessions Granted

Nothing to report.

5. GENERAL GEOLOGY5.1 PETROLOGY/LITHOLOGY

The central part of the area, in which the property is situated, consists mostly of rocks of Precambrian age. Just north of Grand Forks these rocks consist mostly of metasediments, whereas the rocks north of Sand Creek are mostly intrusive and consist of grano-diorites, quartz monzonites and syenites of uncertain age (PRETO 1970).

The Granby River fault, which runs along the east side of the Granby River separates these Precambrian rocks from a series of Paleozoic to Mesozoic sediments with some Cretaceous-Tertiary intrusions.

The radioactivity occurs in pegmatite lenses within a series of biotite schists and gneisses with some intrusive quartz-monzonites.

5.2 STRUCTURE AND TECTONICS

The gneisses and schists are extremely folded. The strike is generally NE - SW, the axial planes of the folds strike about parallel to the foliation. Two major faults border the prospect area: the Granby River fault in the west and Kettle River fault in the east. The prospect area is considered to be an uplifted block between the younger sediments on both sides.

5.3 ECONOMIC GEOLOGY

In the prospect area there are no economic mineral deposits known yet, despite the fact, that there has been and still is considerable mining activity in the surrounding mountain ranges.

According to the report on the property of Cronus Minerals Ltd. by E.O. CHISHOLM (1970) there are 12 mineral showings in the prospect area. The showings, 1 - 6 and 10 are radioactive showings; the others show minor amounts of molybdenite, scheelite, chalcopyrite, pyrrhotite, sphalerite and pyrite.

6. PROSPECTIVE TARGETS AND AREAS

*No. 1 Showing: A small pegmatite lens (with readings up to 8000 cps) is exposed in a bulldozed area. The limits of the pegmatite lens are not completely known, but the radioactivity suggests an extent of about 5 x 2.5 m. The surrounding rock is a fine grained granite with an average reading of about 200 cps.

No. 2 Showing: This showing is considered to be the best showing in the prospect area. Radioactivity occurs in biotite rich parts of pegmatite lenses. There are several lenses in an area, measuring roughly 150 m x 80 m. However, the area showing strong radioactivity is much smaller, about 40 m x 40 m.

Readings up to 10,000 cps were recorded. A basic dyke, which is exposed in a bulldozed trench along the western limit of the showing, shows no radioactivity; the dyke material is strongly magnetic however, due to its magnetite content. Compass readings are not reliable in the vicinity of this dyke. Numerous quartz-monzonite dykes cut the gneisses and sometimes the pegmatites. They show background radioactivity.

No. 3 Showing: This showing is situated about 500 m east of the No. 2 showing. It is about 400 m long, striking E-W and between 80 m and 150 m wide. Its eastern part consists of several pegmatite lenses in biotite gneiss; the pegmatite lenses reading up to 4000 cps. In the western part of the showing the main mass of rocks is a fine grained granite with an average radioactivity of 180 - 200 cps.

* The location of the showings is marked on Map No. 1

No. 4 Showing: It is situated on the northern bank of Snowball Creek, south of the trail leading to the No. 2 showing. Only small pegmatite lenses with readings up to 1500 cps could be found.

No. 5 Showing: Could not be found, but is reported to consist of small outcrops in a heavily overburdened area.

No. 6 Showing: The showing is located on the top of a rounded hill on the west side of the Granby River fault. Radioactivity occurs in about a 7 m long rusty zone in the so called "sharpstone conglomerate", which actually is a volcanic breccia. The recorded readings are up to 2000 cps, while the rest of the "sharpstone conglomerate" shows background readings.

Most of the other showings have been checked during this field work but no significant mineralization has been observed.

7. INVESTIGATIONS

7.1 AIRBORNE SURVEY

Nothing to report.

7.2 CARBORNE SURVEY

Nothing to report.

7.3 GROUND SURVEY

A detailed ground survey including radiometrics, geological mapping and rock sampling has been done on the No. 2 showing with a radiometric ground survey on the No. 3 showing. The other showings have been checked, but no detailed survey was done on them.

7.3.1 Ground radiometric survey

On showing No. 2 a grid was laid out with north-south baseline 190 m long. The crosslines, at 10 m spacing, normally extend 50 m east and west.

At showing No. 3 a 400 m long baseline, running E-W was laid out, with the crosslines extending 50 m - 90 m north and south.

Readings with SRAT SPP 2 scintillometers were taken along the lines at 5 m intervals on grid No. 2 and at 10 m intervals on grid No. 3. The readings were taken waist high, to cover a larger area. The results of the radiometric ground survey are shown on maps No. 3 and No. 5.

7.3.2 Radon Survey

Nothing to report.

7.3.3 Geological Mapping

Geological mapping was carried out at a scale of 1:500 on showing No. 2. The geology of the No. 2 showing is shown in map No. 2.

7.3.4 Geochemical Survey

Nothing to report.

7.3.5 Sampling

Chip samples were taken from the outcrops of the No. 2

showing which showed increased radioactivity. The samples were taken along the lines of the grid in 2.5 intervals. An additional sample line was taken 5 m south of the blasted trench. A total of 73 samples were taken from the No. 2 showing. One sample was also taken from the No. 6 showing.

7.3.6

Other surveys

Nothing to report.

7.4

TRENCHING

Some bulldozing and trenching was done in earlier times by the owner of the property. Along the west side of the No. 2 showing, a trench, about 200 m long was bulldozed, but didn't reach the bedrock. A 30 m long trench, running E - W was blasted in the central part of the No. 2 showing and a little bulldozing was done in the No. 1 and No. 6 showing.

7.5 DRILLING

Nothing to report.

7.6 MICROSCOPY

Nothing to report.

8. RESULTS8.1 ANOMALIES DISCOVERED8.1.1 Radiometric anomalies

In the No. 2 showing, 1 large and 3 small radiometric anomalies have been found. A large anomaly measuring about 40 m x 40 m, is located along the blasted trench in the central part of the No. 2 showing. In the central part of the anomaly, measuring 30 m x 25 m, the radioactivity is higher than 300 cps at waist level. The small anomalies are about 10 m - 15 m in diameter. All anomalies are within pegmatite lenses, mostly associated with concentrations of biotite.

In the No. 3 showing, 3 anomalies have been found in the eastern part of the grid, where pegmatites are exposed. The anomalies measure about 30 m x 10 m. The strength of the radioactivity however, does not suggest ore grade.

Besides the large anomaly in the No. 2 showing, all of the

aforementioned anomalies are too small or too low in radioactivity to be of any economic importance. This is also the case with the anomalies in the No. 1, No. 4, No. 5 and No. 6 showings.

8.1.2 Geochemical Anomalies/Chemical Analyses

The samples taken from the anomalies in the No. 2 showing have been analysed for U_3O_8 by Detectametal Laboratories Ltd., Calgary.

The results are plotted on Map No. 4. There is only a very slight correlation with the radiometric readings. Most of the chemical analyses are much lower than was to be expected from the radiometric survey. This discrepancy could be due to surface leaching, but which should not be very strong in a hard rock like the pegmatites. Another reason could be that most of the uranium has decayed into its radioactive daughter products. Whatever the reason, the results of the chemical analyses have been disappointing. The average uranium content of the 73 samples taken is 97.73 ppm U_3O_8 . Considering that these samples have been taken from the radiometric anomalies only, this average content is far too low to be of economic interest at the present time.

8.1.3 Radon Anomalies

Nothing to report.

8.1.4 Other Anomalies

Nothing to report.

8.2 DESCRIPTION OF MINERALIZATION

The uranium mineralization was seldom visible. In showing No. 1 a black seam around quartz grains at a hot spot could be discerned and was considered to be pitchblende. On fracture planes, pale yellow secondary uranium minerals, probably uranopilite were found. These were mostly associated with concentrations of biotite. Molybdenite, which was mentioned in the report by E.O. CHISHOLM (1970) could not be found in the pegmatites. However, some sillimanite garnet gneisses contained graphite.

8.3 CHEMICAL ANALYSES

Total Analyses of 73 Samples taken from No. 2 Showing
Chinook Property B.C.

| Sample | U ₃ O ₈ | Sample | U ₃ O ₈ | Sample | U ₃ O ₈ |
|--------|-------------------------------|--------|-------------------------------|--------|-------------------------------|
| 3100 | 0 | 3125 | 0 | 3150 | 6 |
| 3101 | 0 | 3126 | 0 | 3151 | 43 |
| 3102 | 0 | 3127 | 0 | 3152 | 5 |
| 3103 | 41 | 3128 | 5 | 3153 | 23 |
| 3104 | 1450 | 3129 | 0 | 3154 | 2 |
| 3105 | 35 | 3130 | 1 | 3155 | 145 |
| 3106 | 2 | 3131 | 190 | 3156 | 6 |
| 3107 | 41 | 3132 | 5 | 3157 | 4 |
| 3108 | 230 | 3133 | 1 | 3158 | 4 |
| 3109 | 220 | 3134 | 6 | 3159 | 10 |
| 3110 | 104 | 3135 | 110 | 3160 | 145 |
| 3111 | 182 | 3136 | 0 | 3161 | 1 |
| 3112 | 39 | 3137 | 97 | 3162 | 150 |
| 3113 | 9 | 3138 | 330 | 3163 | 70 |
| 3114 | 590 | 3139 | 170 | 3164 | 3 |
| 3115 | 3 | 3140 | 8 | 3165 | 220 |
| 3116 | 0 | 3141 | 37 | 3166 | 1500 |
| 3117 | 2 | 3142 | 99 | 3167 | 26 |
| 3118 | 0 | 3143 | 150 | 3168 | 31 |
| 3119 | 32 | 3144 | 0 | 3169 | 29 |
| 3120 | 11 | 3145 | 0 | 3170 | 3 |
| 3121 | 75 | 3146 | 1 | 3171 | 57 |
| 3122 | 55 | 3147 | 8 | 3172 | 9 |
| 3123 | 60 | 3148 | 91 | 3173 | 330 |
| 3124 | 8 | 3149 | 5 | | |

Average 97.73 ppm U₃O₈.

9. ASSESSMENT9.1 ASSESSMENT OF POTENTIAL

Despite the favourable report by E.O. CHISHOLM, not very many positive criteria could be found. The area is accessible by car at the present time, and trails could be easily improved to stand truck traffic. The pegmatite lenses, which are exposed in showing No. 2 are partly big enough to be mineable. The anomaly in the centre of showing No. 2 measures 40 m x 40 m at the surface. If one suggests an extent at depth of 20 m, the anomaly covers about 32,000 m³, which is equivalent to roughly 90,000 tons of ore. The uranium content in this anomaly is however, too low and too variable to make it an economic ore body. This same criteria is valid for all the other even smaller pegmatite lenses which have been found.

10. RECOMMENDATIONS

Based on the present knowledge of the Chinook property in the Grand Forks area, B.C., no further work is recommended.

11. APPENDIX

Map No. 1 : Location of Showings.

Map No. 2 : Showing No. 2, Geology

Map No. 3 : Showing No. 2, Radiometric survey.

Map No. 4 : Showing No. 2, Sample Location and Analysis.

Map No. 5 : Showing No. 3, Radiometric survey.

Lawrence F. [Signature]
Aug 15/75

URANERZ EXPLORATION & MINING LTD.

102, 140 - 1st AVENUE S.W., CALGARY, ALBERTA T2P 0A5

TEL.: (403) 265-3912

TELEX: 03-824874

Chinook Construction and Engineering Ltd.
Suite 301, 1201 West Pender Street
Vancouver, B.C. V6E 2V2

Attention: Terry Schorn

Your Ref.

Our Ref.

Your letter of

Date

3303/GK/ih

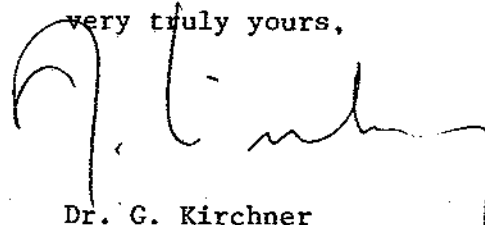
July 31, 75

Dear Terry:

Please find enclosed a detailed break-down on costs occurred during Follow-up Survey on your project.

Trusting this is the information you require

very truly yours,



Dr. G. Kirchner

Encl.: 1

AUG 4 1975

July 30, 1975

Cost on Ground Follow-up Project Greenwood, B.C.

| | | | | | |
|----------------------|-----------------------|-------------------|----------------|--------|------------------|
| <u>Salaries:</u> | 17 days | Project Geologist | \$ 76. per day | - | \$ 1,292. |
| | 17 days | Junior Geologist | \$ 30. per day | - | 510. |
| | 17 days | Field Assistant | \$ 30. per day | - | 510. |
| | 7 days | Driver | \$ 25. per day | - | 175. |
| | | | | | <u>\$ 2,487.</u> |
| <u>Field cost:</u> | 58 men/days | @ | \$ 25. per day | - | 1,450. |
| <u>Depreciation:</u> | Scintillometer | | | | 100. |
| | GMAC Truck | | | | 200. |
| <u>Travelcosts:</u> | To and from the field | | | | <u>350.</u> |
| | | | | Total: | \$ 4,587. |

Juan F. [Signature]
 Aug 15/75

URANERZ EXPLORATION & MINING, LTD.

102, 140 - 1st AVENUE S.W., CALGARY, ALBERTA T2P 0A5

TEL.: (403) 265-3912

TELEX: 03-824874

Chinook Construction and Engineering Ltd.
Suite 301, 1201 West Pender Street
Vancouver, B.C. V6E 2V2

Attention: Mr. Schorn

Your Ref.

Our Ref.
7131/GK/ih

Your letter of

Date
August 5, 1975

Re: F. Hopfengaertner

Dear Mr. Schorn:

Mr. Hopfengaertner is holding a "Diplom Geologist" degree from the University of Munich, West Germany. He submitted his work for Ph.D. to the same University earlier this year.

He has been employed by our parent company Uranerzbergbau GmbH & Co. KG, Koelnstrasse 367, Bonn/West Germany since April 1, 1975 and previously worked for Northern Mining Company, Lersoe Parkallee 112, Copenhagen/Denmark.

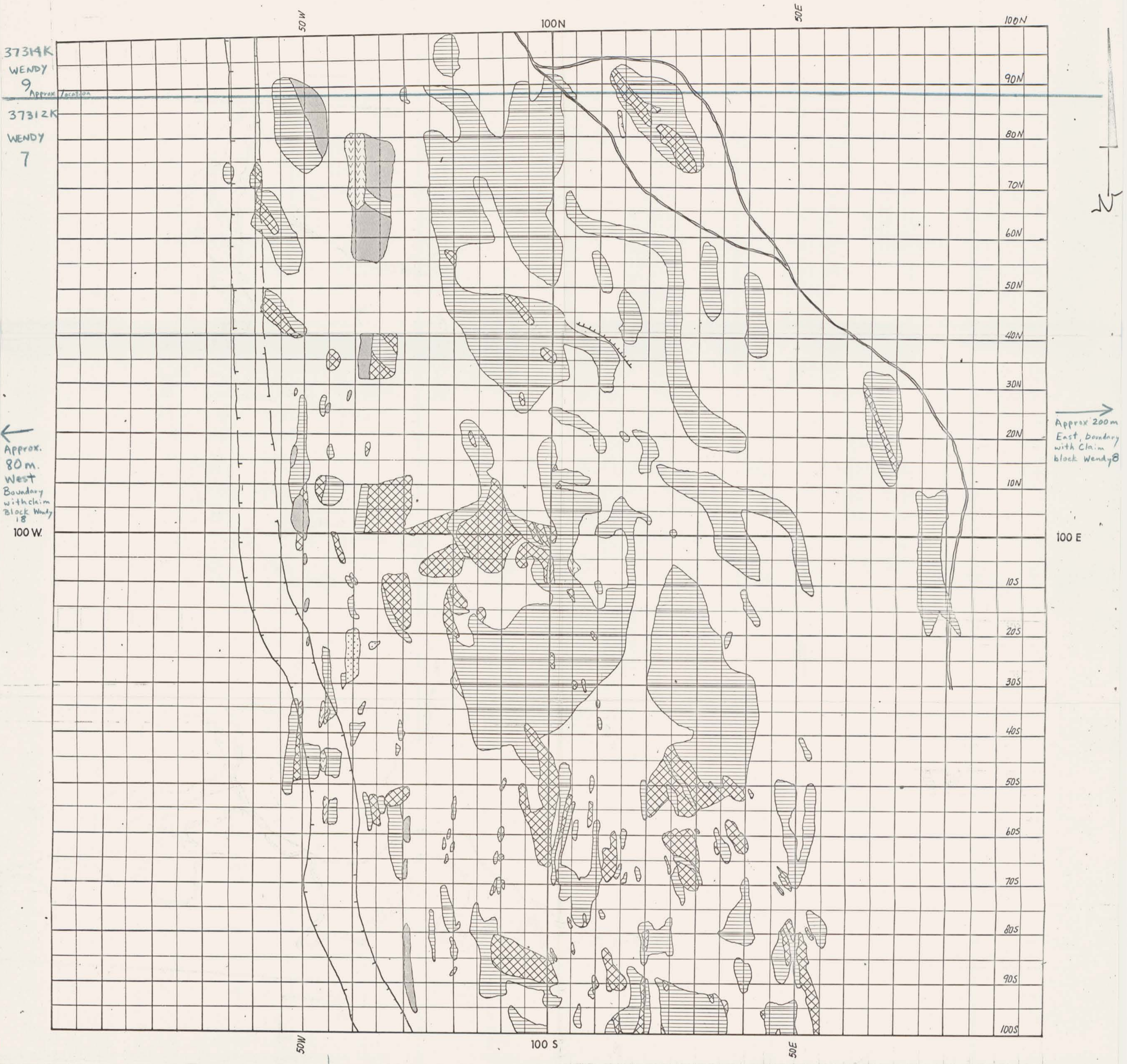
Trusting this information is of help to you

very truly yours,



per Dr. G. Kirchner

AUG 7 1975



37314K
WENDY
9
Approx. location

37312K
WENDY
7

←
Approx.
80m.
West
Boundary
with claim
Block Wendy
18
100 W.

→
Approx. 200m
East boundary
with Claim
block Wendy 8

↓
Boundary with
Claim Block
37310 K
Wendy 5
Approx 250 m south

BASELINE 2

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
No. 5585 MAP 2

5585
MAP 2

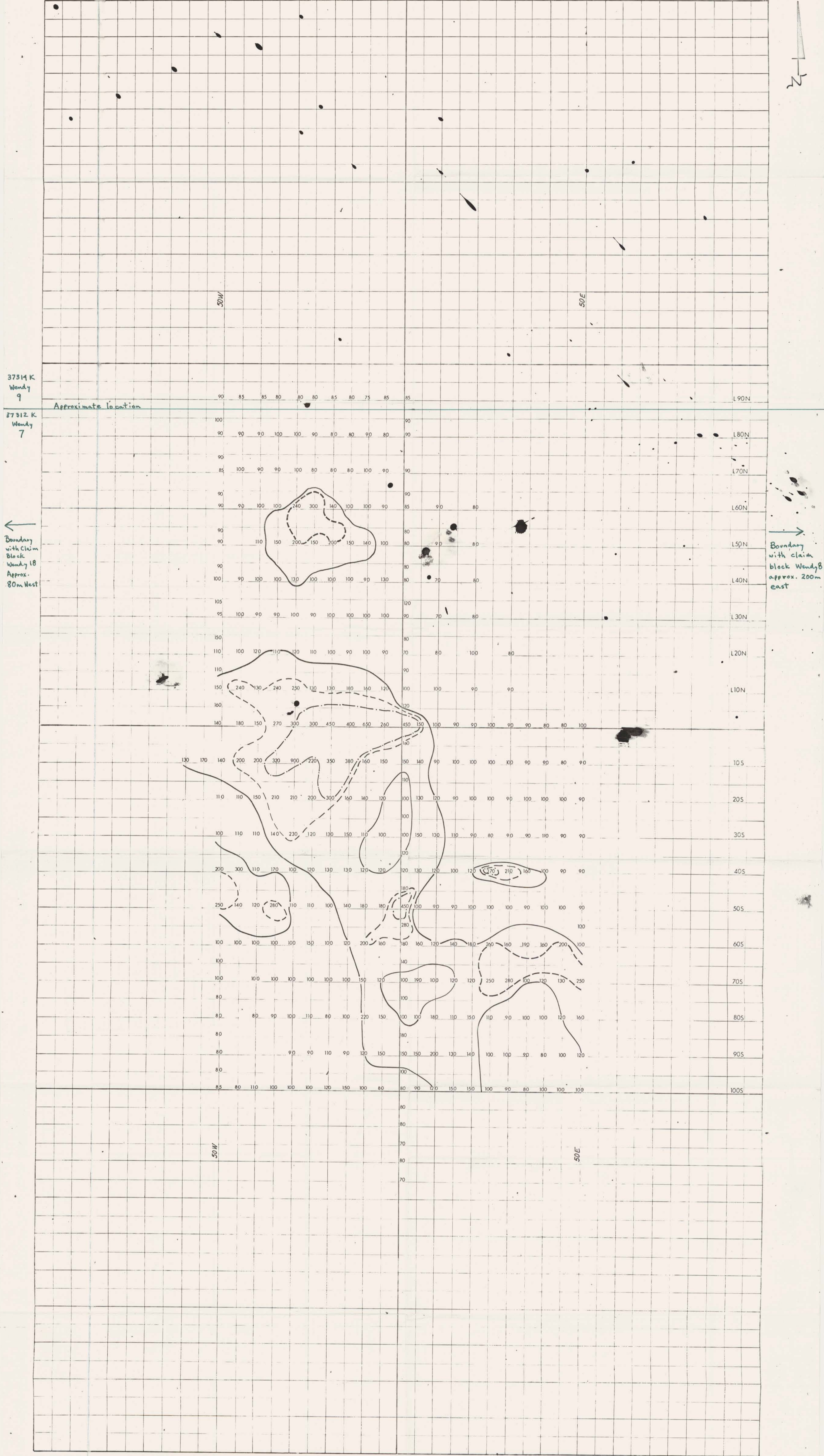
URANERZ EXPLORATION & MINING LTD.

- LEGEND
- BIOTITE GNEISS
 - PEGMATITE
 - QUARTZ MONZONITE
 - HORNBLLENDE DIORITE
 - BASIC DYKES

J. Jones
1/15/75

U.E.M. CROSS SURVEY
CHINOOK PROPERTY
GRAND FORKS AREA - B.C.
SHOWING No. 2 - GEOLOGY
MAP No. 2

| | | | |
|-------------------------|----------------------------------------|------------------------|------------------|
| COMPILED Loewer/Skinner | DATE May, 1975 | TENEMENT | MAP No. 2 |
| DRAWN T. JONES | DATE June, 1975 | PLAN No. | REPORT No. |
| LAST REVISION | | SCALE 1:500 (1cm = 5m) | PROJECT No. 7131 |
| T.C. TO BONN | REF. REPORT ON CHINOOK PROPERTY - B.C. | | FILE No. |



37314 K
Wendy
9

37312 K
Wendy
7

← Boundary with claim block Wendy 8 approx. 80m West

→ Boundary with claim block Wendy 8 approx. 200m east

↓ Boundary with claim block 37310 K, Wendy 5 approx. 150m south

SHOWING No. 2

Department of
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NO. 5585 MAP 3

LEGEND
CONTOUR LINES
— 120 cps
- - - 200 cps
- · - · - 300 cps

*James F. S.L.
Aug 15/75*

URANERZ EXPLORATION & MINING LTD.

U.E.M. CROSS SURVEY
CHINOOK PROPERTY
GRAND FORKS AREA-B.C.
RADIOMETRIC SURVEY
MAP No 3

| | | | |
|-------------------------------------|------------------|--------------------------|------------|
| COMPILED: F. Hopfgartner | DATE: May, 1975 | SCALE: 1:5000 (1cm = 5m) | MAP No: 3 |
| DRAWN: F. del Val | DATE: June, 1975 | PROJECT No: 7131 | REPORT No: |
| LAST REVISION: | | | |
| REF: REPORT ON CHINOOK CONSTR. B.C. | | | |

37314 K
Wendy
9

37312 K
Wendy
7

Approximate Position

← Boundary with claim block Wendy 18 approx. 80m west

→ Boundary with claim block Wendy 8, approx. 200m east

↓ Boundary with claim block 37310 K, Wendy 5 approx 250m south

SHOWING No.2

James F. Sh
Aug 15/75
5585
MAP 4

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5585 MAP 4

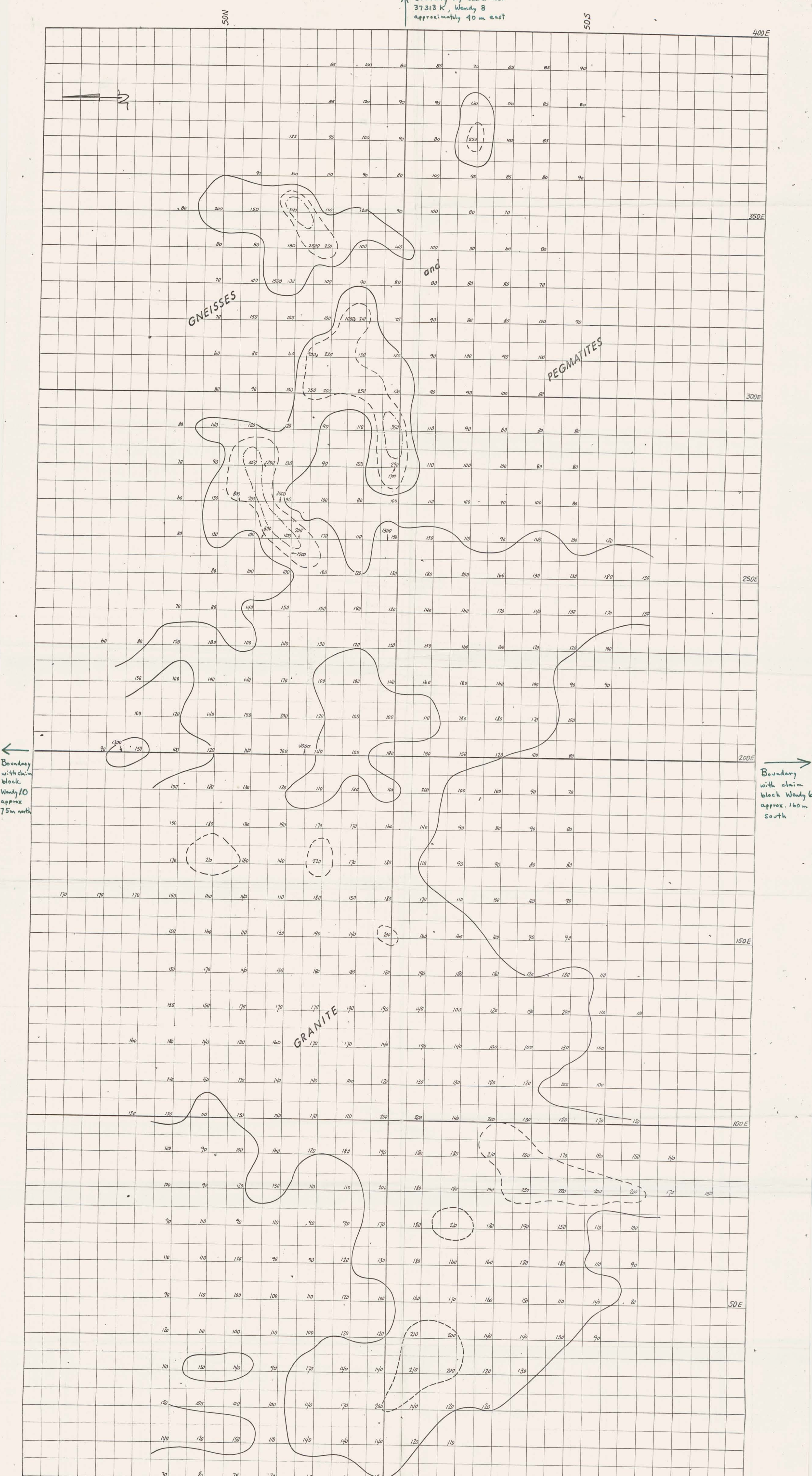
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U.E.M. CROSS SURVEY
GRAND FORKS AREA - B.C.
CHINOOK PROP.

SAMPLE LOCATION & ANALYSIS (ppm U_3O_8)
MAP No. 4

| | | | |
|---------------------------|------------------------------------|------------------|------------|
| COMPILED F. Hopfengärtner | DATE June, 1975 | TENEMENT | MAP No. 4 |
| DRAWN F. del Val | DATE June, 1975 | PLAN No. | REPORT No. |
| LAST REVISION: | SCALE: 1:500 (1cm = 5m) | PROJECT No. 7131 | |
| T.C. TO BONN: | REF. REPORT ON CHINOOK CONST. B.C. | FILE No. | |

Boundary of claim block
37313 K, Wendy 8
approximately 40 m east



Boundary with claim block Wendy 10 approx 75m north

Boundary with claim block Wendy 6 approx. 160m south

37313 K Wendy 8
37312 K Wendy 7
Approximate position

BASELINE # 3

SHOWING No. 3

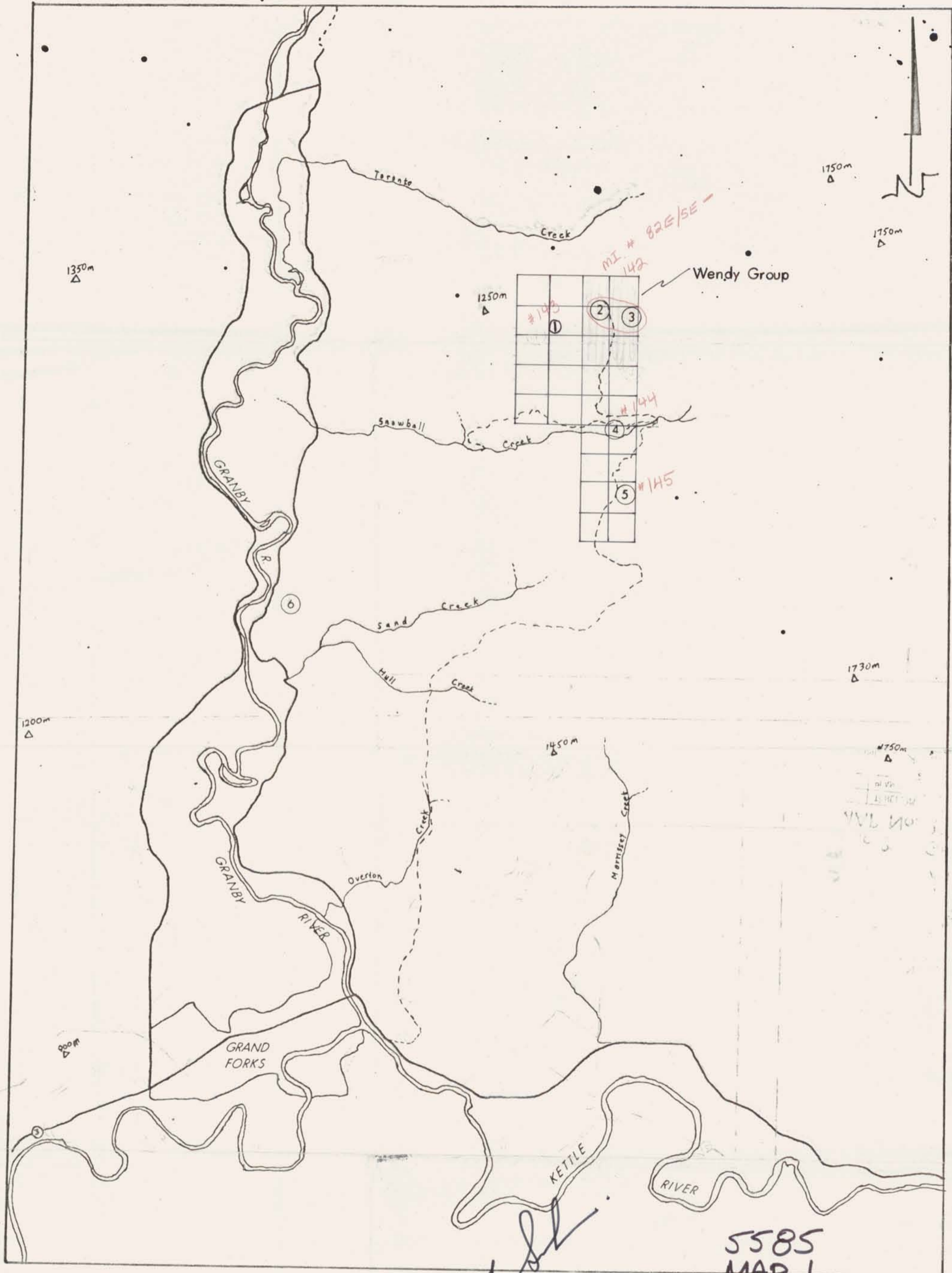
5585
MAPS

Jessica Y. Sh
Aug 15/75

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NO. 5585 MAP 5

LEGEND
CONTOUR LINES
— 120 cps
- - - 200 cps
- - - 300 cps
→ Readings on the ground

| URANERZ EXPLORATION & MINING LTD. | | | |
|------------------------------------------------------------------|------------------------------------|------------------|------------|
| U.E.M. CROSS SURVEY GRAND FORKS AREA-B.C. CHINOOK PROPERTY | | | |
| RADIOMETRIC SURVEY MAP No. 5 | | | |
| COMPILED: H. Hopfengartner | DATE: May 1975 | TENEMENT | MAP No. 5 |
| DRAWN: F. del Val | DATE: June, 1975 | PLAN No. | REPORT No. |
| LAST REVISION | SCALE: 1:500 (1cm = 5m.) | PROJECT No. 7131 | FILE No. |
| T.C. TO BONN | REF. REPORT ON CHINOOK CONST. B.C. | | |



5585
MAP 1

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NO. 5585 MAP 1

*James J. [Signature]
Aug 15 1975*

| | | | |
|-----------------------------------|--------------------------------------|--------------------|------------------|
| FRANERZ EXPLORATION & MINING LTD. | | | |
| GRAND FORKS AREA - B.C. | | | |
| LOCATION OF SHOWINGS MAP No. 1 | | | |
| COMPILED: F. Hopfengartner | DATE: May, 1975 | TENEMENT: | MAP No. 1 |
| DRAWN: J. Skinner | DATE: June, 1975 | PLAN No. | REPORT No. |
| LAST REVISION | | SCALE: 1 = 250,000 | PROJECT No. 7131 |
| T.C. TO BONN: | REF. REPORT ON CHINOOK PROPERTY B.C. | | FILE No. |

