

MAR 19690038: NORTHEASTERN ALBERTA

Received date: Dec 31, 1969

Public release date: Jan 01, 1971

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19690038

ECONOMIC MINERALS
FILE REPORT No.
<u>U-AF-073(1)</u>

REPORT ON PRELIMINARY GEOLOGICAL
EXPLORATION OF PERMIT 115 NORTHEASTERN ALBERTA

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DECEMBER 29, 1969

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REPORT ON PRELIMINARY GEOLOGICAL
EXPLORATION OF PERMIT 115 NORTHEASTERN ALBERTA

INTRODUCTION

Quartz Mineral Exploration Permit Number 115 containing an area of 19, 840 acres, more or less and consisting of the property listed in the schedule in Appendix 1 was acquired by the Geiger Syndicate on January 3, 1969. This acquisition was based on the knowledge that radioactive and base-metal mineralization is known to occur in the northeastern part of Alberta and that favorable conditions for concentration of radioactive mineralization occur in the area taken.

The location of the property held by the Geiger Syndicate is shown in figure 1 and figure 2.

The plan of examination proposed at the time of application for the permit area included scintillometer prospecting and geological checking and mapping of interesting radioactive anomalies. The proposal envisaged a three to four week exploration program costing approximately \$3,500.00.

ANALYSIS OF AREA

Beck (1967) in his report on the uranium deposits of the Athabasca Region of Saskatchewan divides the country into two basic types of areas; "stable blocks", which exhibit only minor faulting and little or no mylonitization of the bedrock and "linear belts", characterized by tight and isoclinal folding, intense faulting, brecciation and mylonitization. The linear belts consist of a higher proportion of metasedimentary and metavolcanic rocks than the stable blocks, which are largely underlain by granitic and migmatitic rocks.

Distribution of uranium deposits, Beck states, is controlled by regional structure. On comparing the distribution of the known radioactive deposits in the Athabasca area and the structural map of the region, Beck suggests that both the pitchblende and uraninite deposits are virtually restricted to the linear belts (Fig. 3).

Using the regional aeromagnetic maps as a rough guide to the general location of the linear belts, Beck's work in Saskatchewan can be extrapolated into northeastern Alberta immediately to the west. The property in question, Permit 115, is located partly across, and partly along the eastern margin of the narrow linear belt that is associated with the Warren fault zone (Fig. 4).

The western half of the concession straddles most of the Warren fault zone situated between the two distinct planes of

maximum shearing (Figs. 4 and 5).

The eastern half of the concession lies along or just east of the eastern plane of maximum shearing of the fault zone. The area includes part of the major regional fold structure lying east of the Warren fault zone. This portion of the western limb of the major fold seems to be dragged along the fault. A smaller fold structure and many cross faults and strong fractures are present.

Concession 115 is located within a few miles of the intersection of the Warren and Rutherford major fault systems at the Slave River. The river at this point marks the unconformity between the underlying Precambrian basement rocks which are exposed east of the river and the overlying Paleozonic rocks exposed to the west.

CONCLUSIONS BASED ON GEOLOGICAL SETTING

Permit 115 appears to be very favorably located for mineral exploration for the following reasons:

1. The property is located along a linear belt of northeastern Alberta.
2. The property is near the intersection of the Warren and Rutherford fault structures in northeastern Alberta and the unconformity representing the ancient erosion surface. This intersection has possibly been an important location for the accumulation and channeling of

mineral solutions.

3. The property overlies in part, a major regional fault, a potential major channelway for the movement of ore-forming solutions.
4. Many large secondary structures are present along the major fault within the property limits which provide potential loci for ore accumulation and concentration.
5. Radioactive and other metallic mineralization is known to occur within the general area both northeast and southeast of the property.

EXPLORATION PROGRAM

On August 9, 1969 a two-man prospecting camp was established on Camp Lake near the eastern boundary of Concession 115.

A geologist, the writer, worked in the field for the first three days in order to ensure that the prospectors were properly schooled on the use of the scintillometers and on the program to be carried out.

The two scintillometers used were: 1) a S.R.A.T. (Societe De Recherches et D' Applications Techniques) SPPZ N.F. type, which measures gamma radiation in counts per second (C.P.S.) 2) a W.I.T. (Western Instrumentation and Testing Ltd.) scintillometer of very similar characteristics.

The program of routine prospecting was completed from two base camps (Fig. 5c), the first on Camp Lake and the second

on Myers Lake, during the period August 9 to August 31 inclusive. Figure 5c shows the approximate traverses taken by the prospectors and the general rock-types encountered in different areas.

While prospecting, the men were checking visually for metallic mineralization as well as with the scintillometers, both of which had squeelers to warn them immediately of any increase in radioactivity above the normal background. Radioactive anomalies are considered to be readings of 500 counts per second (C.P.S.) or greater. Where anomalous readings were discovered they have been shown on figure 5c.

A written and un-edited summary of the prospectors' findings and impressions of the area are included as Appendix II.

It is important to note that the prospectors stress the considerable amount of overburden blanketing the property and the difficulty of traversing because of deadfall and muskeg.

EVALUATION BASED ON RESULTS OF FIELD EXPLORATION

Preliminary prospecting and checking of the area during the past field season has established:

1. The geologic structure listed above that are potentially favorable targets in the search for mineralization are in all cases deeply filled with overburden, primarily muskeg which would effectively hide any mineralization in the structural valley lineaments.

2. Although meta-sedimentary rocks are present on the property, they are mostly quartzites which have been granitized to various degrees. Only a few outcrops of basic rocks were encountered and these appeared to be remnants of small dikes. Most of the rocks encountered were granitic.
3. Very little evidence of radioactive or other metallic mineralization was found on the property. Where radioactive anomalies were found they were localized in small fractures in granitic rocks. The overall impression is of very tight rocks with very little mineralization.

In general the potential of the permit has not been proved or disproved but the fieldwork to date has been discouraging. If the property is to be explored further the cost will be high and is not warranted by present knowledge.


RECOMMENDATIONS

Although many interesting geologic structures are present on the property no encouraging evidence of radioactive or metallic mineralization was indicated by the preliminary prospecting and checking done to date.

The same factors which made prospecting on the surface so difficult, principally the heavy overburden, would mask the radioactivity for an airborne survey.

Further exploration under the circumstances would be too costly and the property should be dropped.

Edmonton, Dec. 29, 1969


K. Warren Geiger, Ph. D., P. Geol.
Consulting Geologist

APPENDIX I

SCHEDULE OF LAND HELD BY THE GEIGER SYNDICATE IN QUARTZ MINERAL
EXPLORATION PERMIT 115

IN TOWNSHIP ONE HUNDRED AND TWENTY-TWO (122), RANGE SIX (6), WEST
OF THE FOURTH (4) MERIDIAN:

Section 31

IN TOWNSHIP ONE HUNDRED AND TWENTY-THREE (123), RANGE SIX (6), WEST
OF THE FOURTH (4) MERIDIAN:

Sections 6, 7, 18, 19 and 30

IN TOWNSHIP ONE HUNDRED AND TWENTY-TWO (122), RANGE SEVEN (7), WEST
OF THE FOURTH (4) MERIDIAN:

*Sections 28 and 29 and sections 31 to
36 inclusive*

IN TOWNSHIP ONE HUNDRED AND TWENTY-THREE (123), RANGE SEVEN (7),
WEST OF THE FOURTH (4) MERIDIAN:

Sections 1 to 13 inclusive

IN TOWNSHIP ONE HUNDRED AND TWENTY-TWO (122), RANGE EIGHT (8), WEST
OF THE FOURTH (4) MERIDIAN:

Sections 35 and 36

IN TOWNSHIP ONE HUNDRED AND TWENTY-THREE (123), RANGE EIGHT (8),
WEST OF THE FOURTH (4) MERIDIAN:

Sections 1 and 2

*containing an area of nineteen thousand, eight hundred and forty
(19,840) acres, more or less.*

APPENDIX II

Report on Permit 115 Alberta - Roy Myke, Prospector

The first place we picked up higher than background readings was on an outcrop north of Camp Lake, readings up to 200 C.P.S. were obtained along rock fracturing on an outcrop of granite gneiss, but further searching failed to turn up any higher readings. This was called #1 on map. Background readings in the area were about 80 C.P.S. Anomaly #2. On traversing west of camp just off the south end of a lake northwest of camp readings of 700 to 2000 were picked over a length of about 250 feet in rock fractures. It was noticed that 6 inches of overburden caused a 700 C.P.S. difference in readings. Individual samples gave no higher than background readings.

On traverse starting on extreme north of Camp Lake a small outcrop about 10 feet in diameter gave readings 700 in fracturing at water edge. The north side of outcrop disappeared in overburden. Country going north on this traverse was heavily covered with bush and overburden and depressions filled with wind-falls from an old fire making, travelling very difficult. About 1 mile north of Camp Lake outcrops become more sharply defined and walls in places almost cliff-like. Also rock showed evidence of shearing. The rock was still granitic, but was becoming a much redder color and some rust was evident. No mineralization was encountered. Higher readings from 100 to 200 C.P.S. were picked up in some of the fractures in the red colored rock which seemed to

be a fine grained pink silicia. It would seem at present that the closer we came to the magnetic anomaly shown on map that rust becomes more evident, but as yet have been unable to locate any mineralization. The country is showing a definite folding in this area. Traverses are slow, because of bush and windfalls and as we are attempting to cover this area as thoroughly as possible. We are traversing all outcrops and depressions. A detailed traverse on the northeast arm of the permit in the vicinity of the magnetic anomaly failed to disclose the reason for the magnetic lines. The rock is much darker red and some small narrow bodies of amphibolite were noticed. In one spot some metallic mineralization was seen which I feel is magnetite. The depressions in the area of the magnetic high lines are very heavily overburdened even on fairly high ground. The west walls of the depression are very sheer and the outcrops show evidence of more movement as the rock is more fractured and sheared. Along one outcrop marked as #4 readings of 650 C.P.S. 700 to 1500 C.P.S. were picked up along a fracture but no individual samples showed readings. A real detailed job of prospecting this area would take at least another week. My opinion is that if there is any basic intrusive rock type in this area, that either because of thick bush we missed them or that they are covered by the overburden. Traverses south of the lake failed to disclose anything in this area other than some minor quartzite inclusions on several outcrops. Anomaly #5 just west of Camp Lake showed readings of 700 C.P.S.

on small fractures in granite. Traverses in the centre area of property between creeks, the rock was still granite but one area showed background readings 150 to 200 in fracturing. On the west side of the permit one anomaly of 500 C.P.S. was picked up in small fractures. High background readings of 150 to 200 were picked up in most fracturing on west side. The rock type is still a granite gneiss and is very red.

SUGGESTIONS

The bush is so dense on this permit that the only way showings would probably be found would be by airborne survey but in my opinion what I have seen of the ground it would be just a shot in the dark, as I don't believe this area warrants much further expense.

Original report signed by R. Myke

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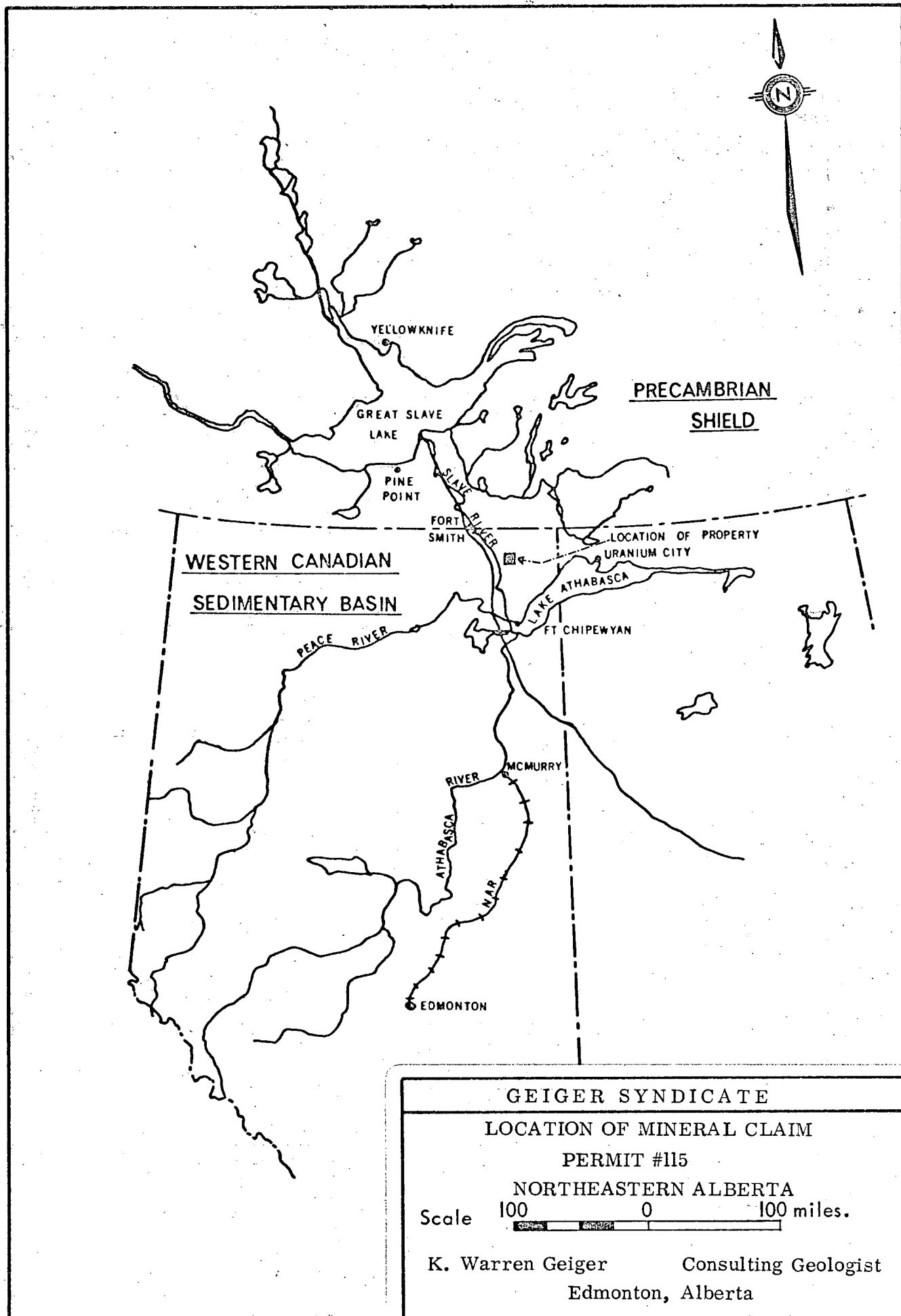


FIG. 1

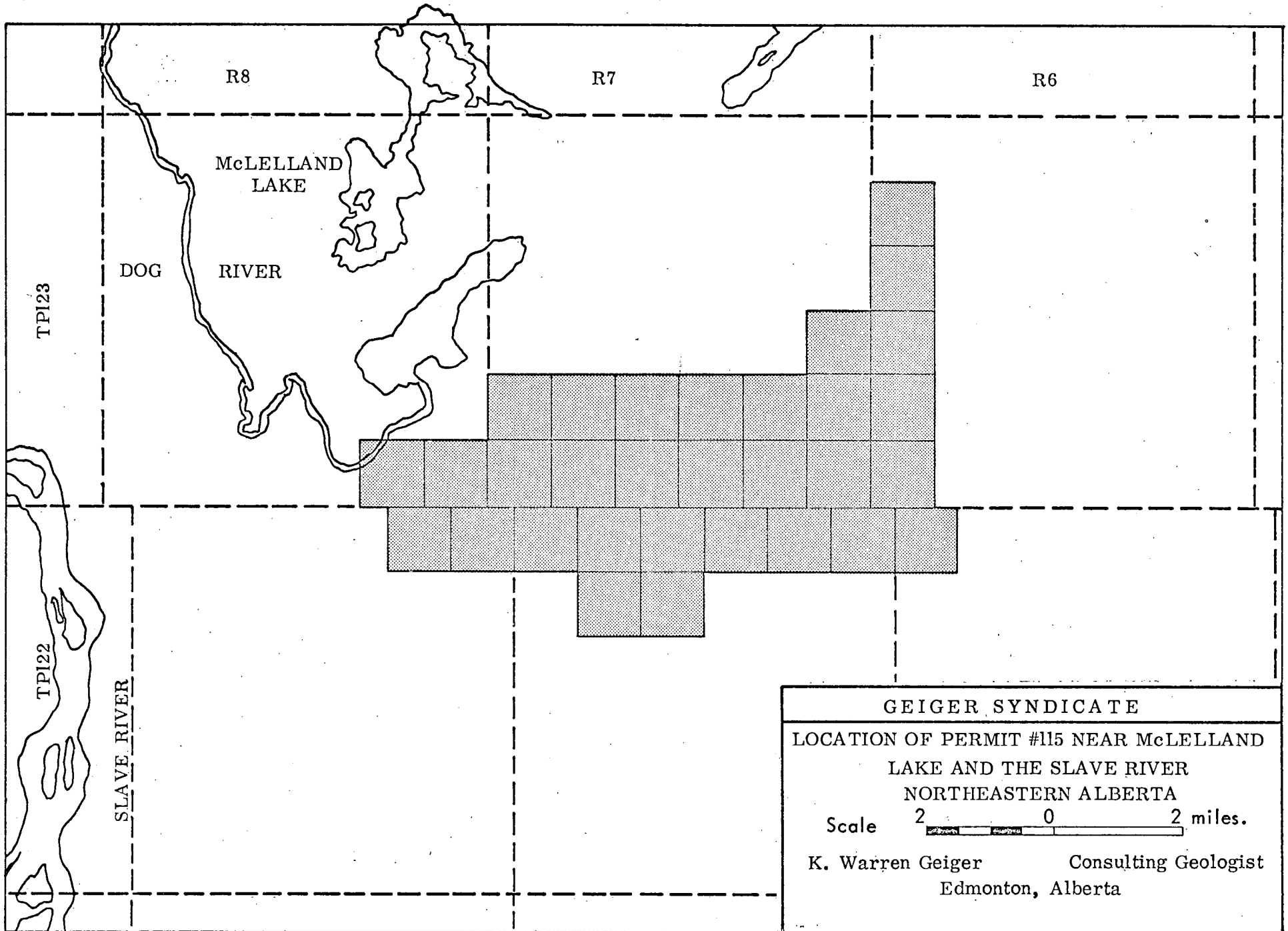


Fig. 2

FIGURE #3

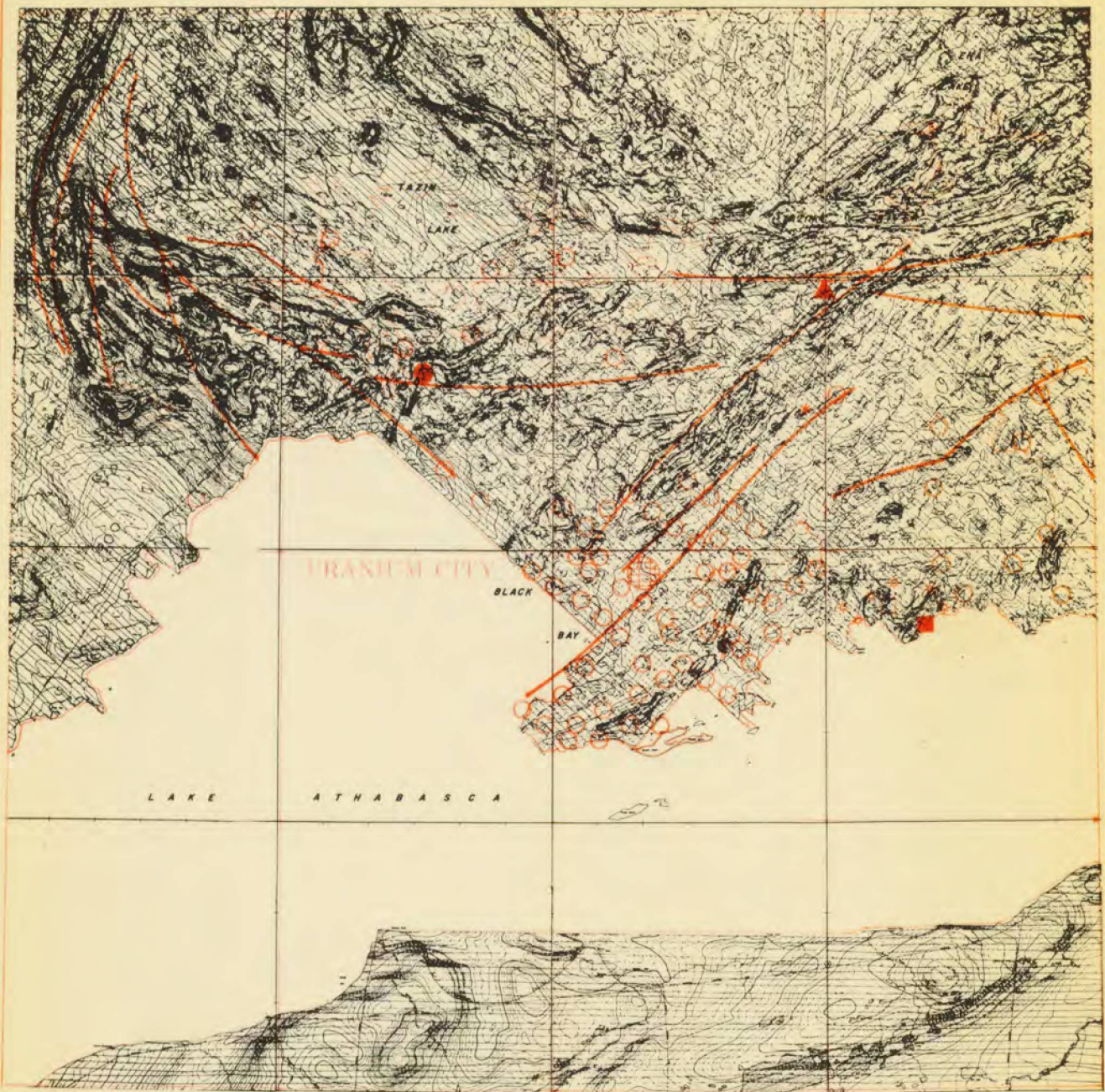
Showing the Uranium City area of North Western Saskatchewan

Scale 1 inch. = 20.7 miles

Underlay Aeromagnetic map taken from Aeromagnetic Map #7020G Tazin Lake Saskatchewan.

Overlay Shows structural features and approximate locations of known mineral showings. Taken from Beck, L. S. (1967): A preliminary report of uranium deposits in the Athabaska Region. Saskatchewan Report No. 112, Dept. Min. Res. Saskatchewan.

The stable blocks are indicated by the absence of major faulting and by the gradual geomagnetic contours. (light appearance on the Aeromagnetic map).



- ▲ RARE-EARTH PEGMATITE

● COPPER IN SEDIMENTARY GNEISSES

* GOLD-BEARING QUARTZ VEINS

■ SEDIMENTARY IRON-FORMATION

◻ LEAD-ZINC IN CALCAREOUS ROCKS

— FAULT LINES
- URANIUM SHOWINGS

FIG. 3

FIGURE #4

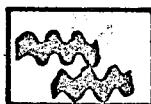
Shows the Precambrian Region of North Eastern Alberta.

Scale 1 inch. = 6.4 miles

Underlay Aeromagnetic Map taken from Aeromagnetic Map #7161G Fitzgerald Alberta.

Overlay Shows structural features of North Eastern Alberta. Taken from Godfrey, J. D. (1958a): Aerial photographic interpretation of Precambrian structures, north of Lake Athabasca; Res. Coun. Alberta Bull. 1, 19 pages.

The stable blocks are indicated by the absence of major and minor faulting and by the gradual geomagnetic contours (light appearing areas) to the North, South and to the North West of the linear belt across the center of the area.



MAJOR FAULTS



MINOR FAULTS



SEDIMENTARY AND METAMORPHIC STRUCTURES

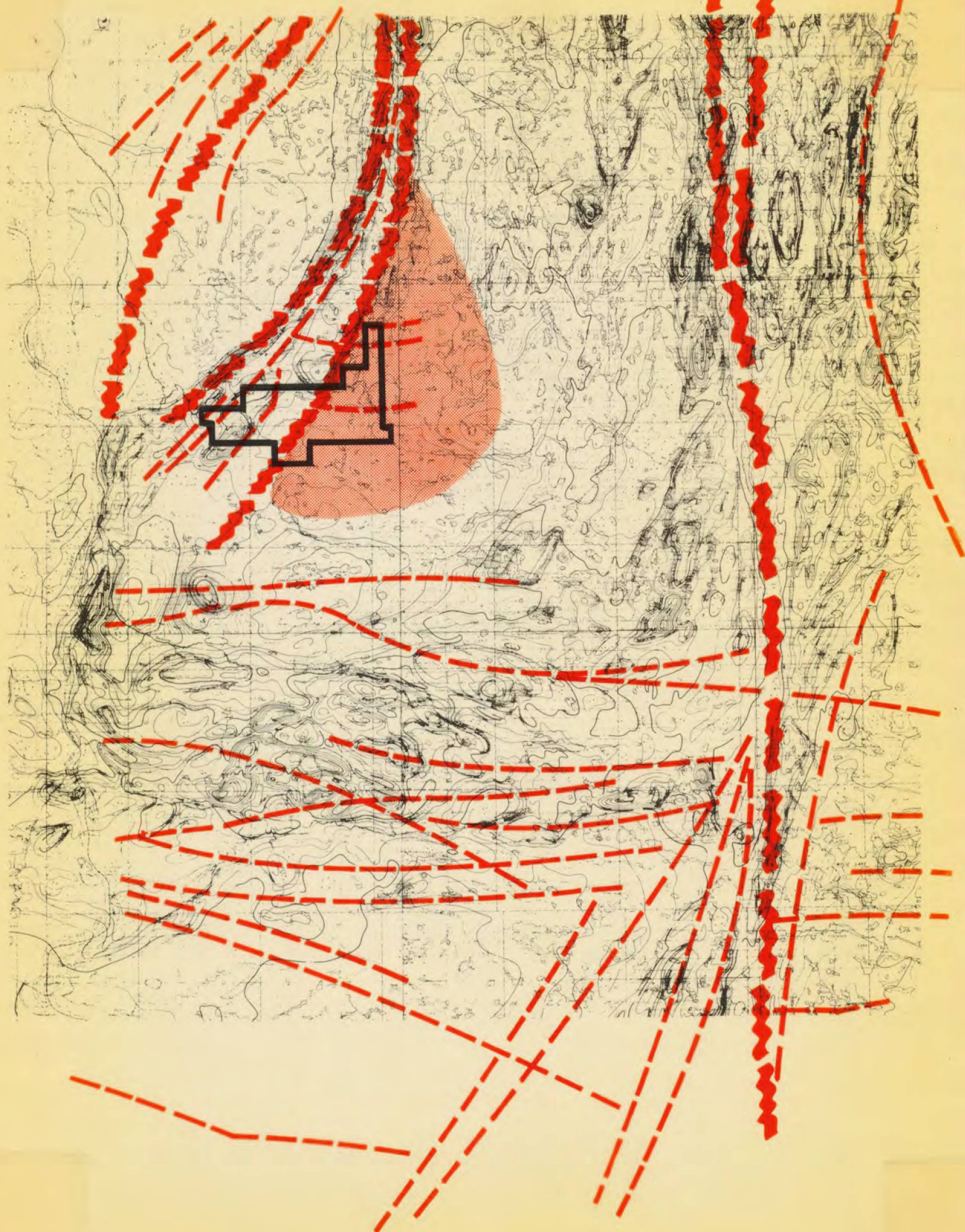


FIGURE # 5

Showing Claim Block Permit 115

Scale

1 inch = 1 mile

Underlay

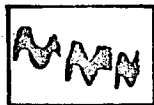
Airphoto Mosaic taken from Department of Lands
and Forests Map 74 $\frac{M}{11}$

First Overlay

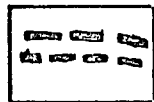
Structural features of the area. Taken from Godfrey,
J. D. (1958a): Aerial photographic interpretation of
Precambrian structures, north of Lake Athabasca;
Res. Coun. Alberta Bull. 1, 19 pages.

Second Overlay

Aeromagnetic map taken from Map #2894G of
Geophysics Paper Myers Lake.



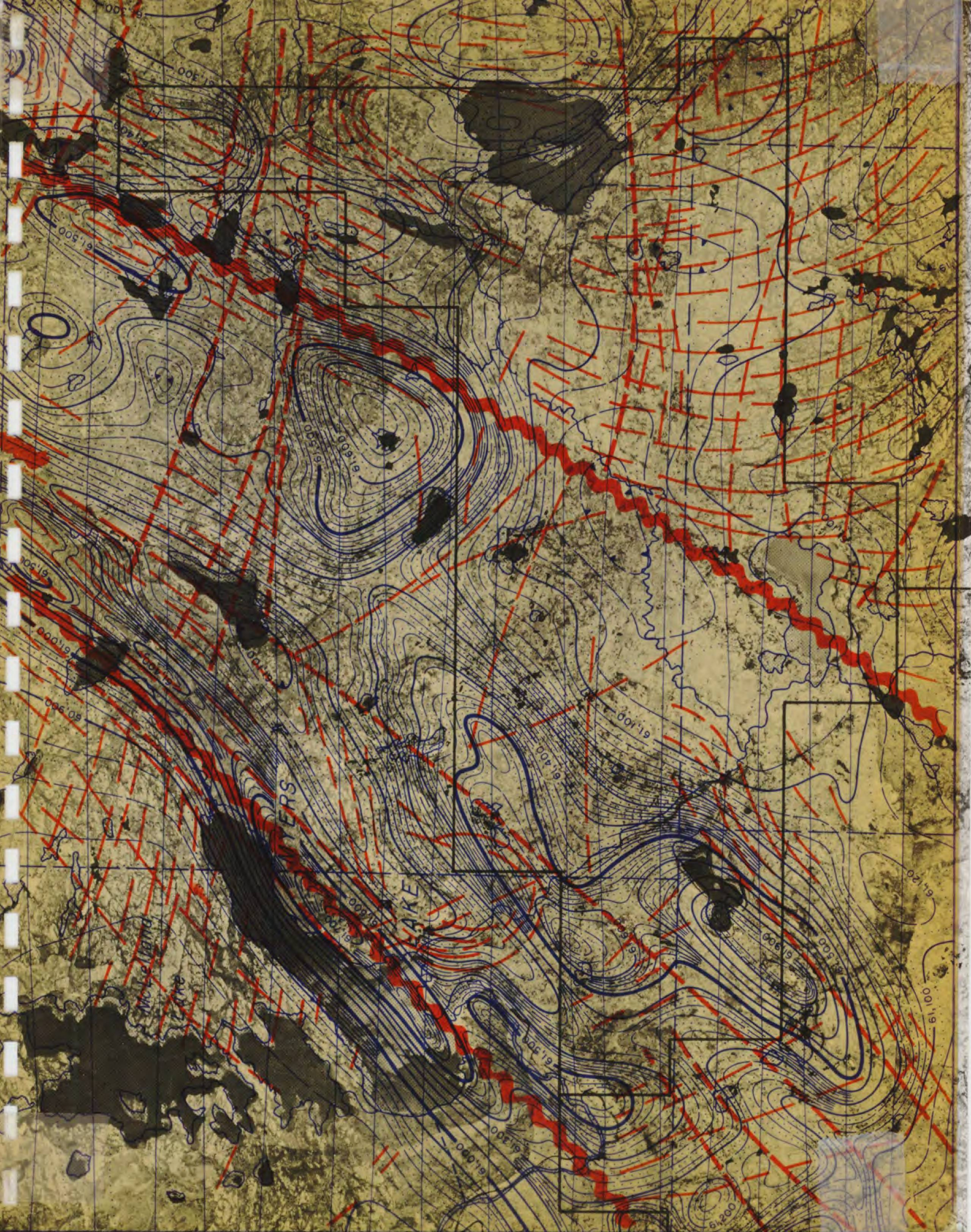
MAJOR FAULTS



MINOR FAULTS



SEDIMENTARY AND METAMORPHIC STRUCTURES



MOUNTAIN
LAKE

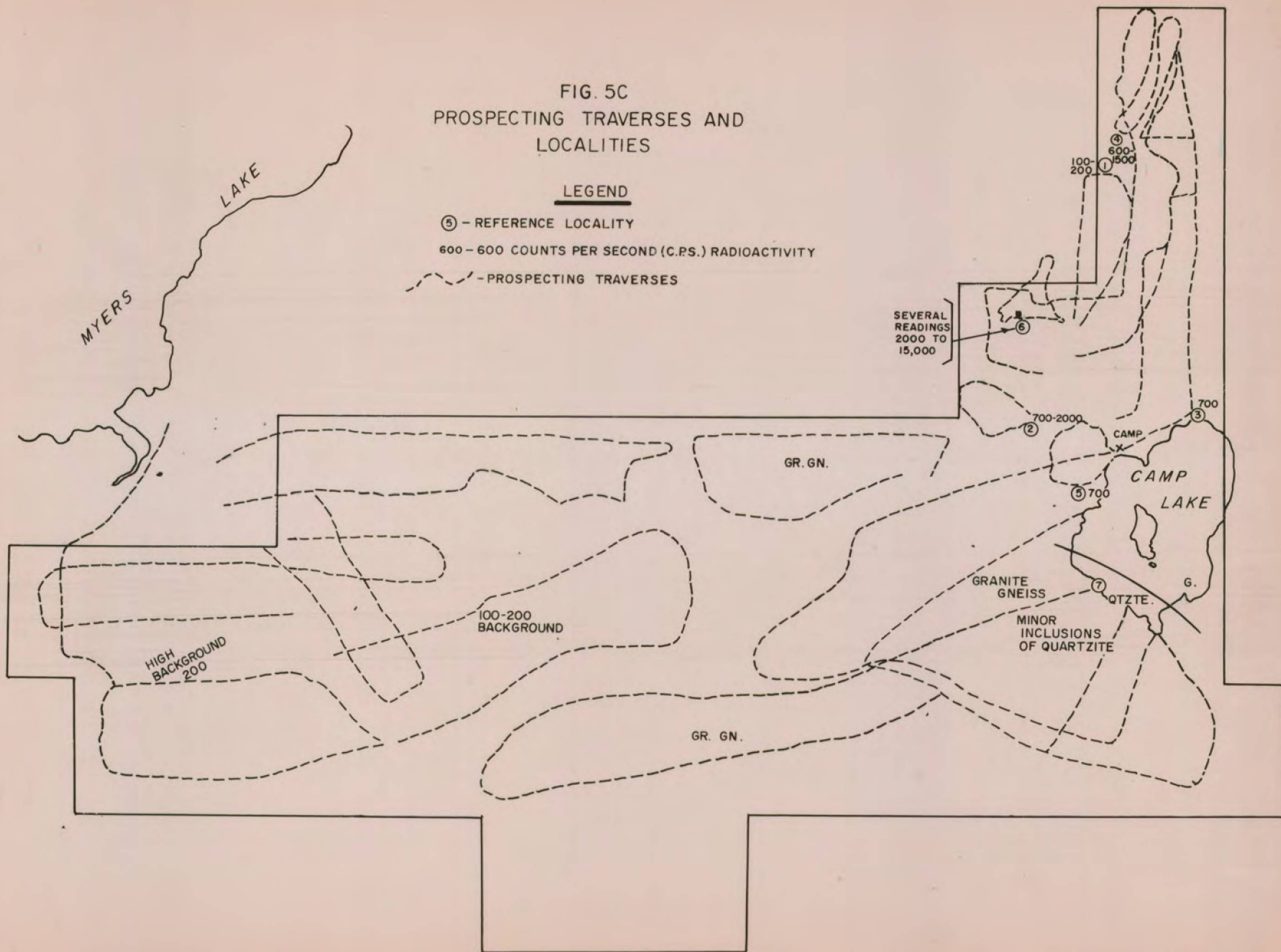
FIG. 5C
PROSPECTING TRAVERSES AND
LOCALITIES

LEGEND

⑤ - REFERENCE LOCALITY

600 - 600 COUNTS PER SECOND (C.P.S.) RADIOACTIVITY

- - - - - PROSPECTING TRAVERSES



QUARTZ MINERAL EXPLORATION PERMIT No. 115

(74m/11)

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EDMONTON, ALBERTA

DATE OF ISSUE — JANUARY 3, 1969
AREA — 19,840 ACRES

TP. 123

TP. 122

R. 8

R. 7

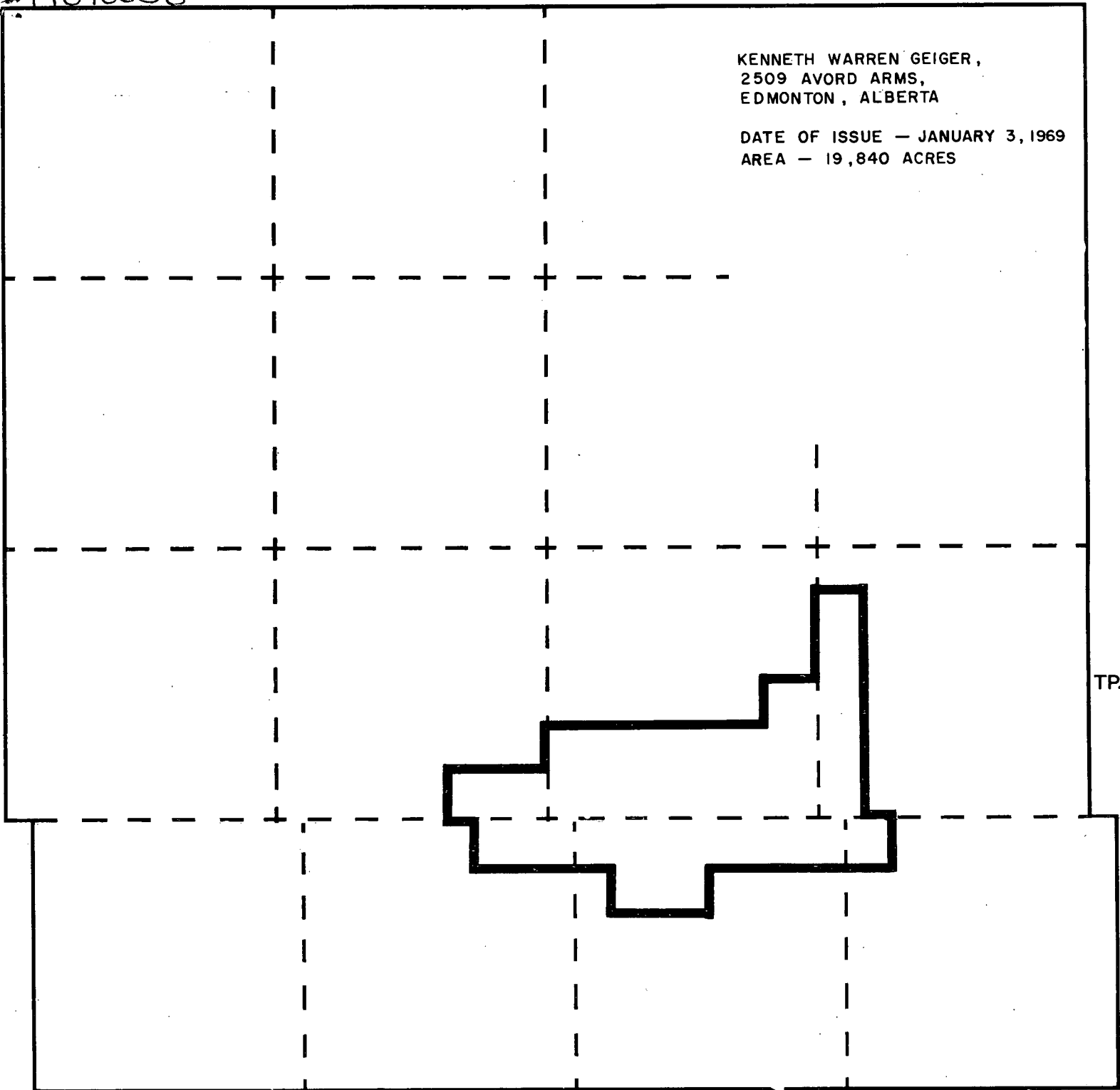
R. 6 W. 4 M.

QUARTZ MINERAL EXPLORATION PERMIT No. 115

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R. 7

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TP. 123

TP. 122