

MAR 19690012: NORTHEASTERN ALBERTA

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PRELIMINARY GEOLOGICAL REPORT

on

QUARTZ MINERAL EXPLORATION PERMIT NOS. 55 - 56 - & 57

of

NORTH-EASTERN ALBERTA

for

J. W. WROBEC

Calgary - Alberta

by

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Calgary, Alberta
June, 1969

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INTRODUCTION:

This report was prepared on the request of Mr. J. W. Worobac of [REDACTED], Calgary 2, Alberta for submittal to the Government of the Province of Alberta.

The object of this report was to determine the economic potential of possible Uranium and other mineral occurrences within the area covered by Permit Nos. 55 - 56 - and 57.

This geological report presents the results of an investigation of available published geological information relating to Permit Nos. 55 - 56 - and 57. The properties were not visited or examined in the field by the writer.

Occurrences of Uranium deposits and the presence of other mineralization has been confirmed in the permit areas through an investigation of the general area by J. D. Godfrey of the Research Council of Alberta.

DESCRIPTION OF PROPERTIES:

PERMIT
NO. 55

Township 118 - Range 1 - W4M
Sections 32 and 33

Township 119 - Range 1 - W4M
Sections 4 - 5 - 6 - 7 - 8 - 9 - 16 -
17 - and 18

Township 119 - Range 2 - W4M
Sections 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 -
9 - 10 - 11 - 12 - 13 - 14 - 22 -
23 - 24 - 25 - 26 - and 27

Containing an Area of approximately
19,840 acres.

PERMIT NO. 56

Township 120 - Range 1 - W4M
Sections 13 - 14 - 15 - 16 - 17 - 18 - 19 -
20 - 21 - 22 - 23 - 24 - 25 - 26 -
27 - 28 - 29 - 30 - 31 - 32 - 33 -
34 - 35 - and 36

Township 120 - Range 2 - W4M
Sections 23 - 24 - 25 - 26 - 35 - and 36

Containing an Area of approximately
19,200 Acres.

PERMIT NO. 57

Township 124 - Range 6 - W4M
Sections 7 - 18 - 19 - 30 - and 31

Township 125 - Range 6 - W4M
Section 6

Township 124 - Range 7 - W4M
Sections 11 - 12 - 13 - 14 - 19 - 20 -
21 - 22 - 23 - 24 - 25 - 26 -
27 - 28 - 29 - 32 - 33 - 34 -
35 - and 36

Township 125 - Range 7 - W4M
Sections 1 - 2 - 3 - 4 - 5 - 8 - 9 -
10 - 11 - 12 - 13 - 14 - 15 -
16 - 17 - 20 - 21 - 22 - 23 -
and 24

Containing an Area of approximately
29,440 Acres

ACCESSIBILITY:

Direct access to this region is available to Fort Chipewyan by air from Edmonton or by an all-weather road starting at Peace Point. Travel within the area itself is difficult, but can be accomplished by means of float-equipped fixed wing aircraft or helicopter. Boat or canoe travel is slow and difficult, with numerous portages required.

The topography of the Precambrian Shield east of the Slave River is generally a gentle undulating surface of low rounded hills. However, locally, deep valleys and fault scarps up to 200' high are encountered. The area is mainly Precambrian outcrop with numerous glacially-scoured lakes and small muskeg areas. Local relief up to 300' is probably maximum, with a general elevation increase from 700' on Lake Athabasca to 1370' in the northeast corner of the area.

The valleys are wooded with spruce, fir and poplar. Scrubby muskeg and open watery muskegs are generally confined to the lower areas.

GENERAL STATEMENT:

Metalliferous vein deposits are generally recognized to be genetically and spatially related to faulting. A large concentration of vein and related types of uranium deposits are known to occur along the north shore of Lake Athabasca in a belt exceeding 30 miles in width northward from Fort Chipewyan in Alberta, and extending eastward through Beaverlodge, Saskatchewan to Black Lake for a length of approximately 200 miles.

This belt lies within Athabasca geologic province of the Canadian Shield, and for ease of reference, this belt will be termed the Lake Athabasca metalogenic belt. Map 1045 - M1, Metalogenic Map - Uranium in Canada, indicates a favourable area extending north-easterly for an additional 500 miles to the west shore of Hudson's Bay.

In the Canadian Shield the uranium ores are classified into three general types: (1) conglomeratic, (2) vein and related types, and (3) the pegmatitic types. Almost all of the uranium deposits of the producing mines and known occurrences within the Lake Athabasca belt consist of veins, lenses, stringers and disseminations, and fall within the classification of vein and related types. This type of deposit or occurrence as previously stated is often related to faulting. Therefore, structural control can be used to delineate the most promising prospecting areas, as well as eliminating much of the unfavourable areas.

GENERAL GEOLOGY:

The rocks within the area under discussion are of Precambrian age. The geologic succession and distribution is poorly known, since most of the area has not been mapped. The strata have been intensely folded and faulted, generally along northerly or northeasterly trending axis.

The oldest exposed strata are sedimentary and volcanic rocks, exhibiting various degrees of metamorphism and are referred to as the Tazin Group. However, much of the terrain is composed of granites and related rocks, and of complexes made up of gneisses, migmatites and granitized rocks. The intense deformation resulted in brecciation fracturing and mylonitization of these rocks, which are prime areas to

prospect for mineral occurrences, particularly those of the meta-sediments.

The principal structural elements of the Precambrian north of Lake Athabasca on the Alberta side consist of three major fault structures termed the Allan Fault, the Warren Fault, and the Rutherford Fault by J. D. Godfrey. Belts of folded and faulted rocks exist between the three named fault zones.

The aerial photographic analysis and surface examination by J. D. Godfrey of the Research Council of Alberta (Geological Division - Bulletin I) was used as a guide to select the above permits in areas most favourably located structurally wherein mineralization related to faults and fault zones could occur.

STRUCTURAL GEOLOGY AND URANIUM OCCURRENCES:

The Allan Fault is the major structural element in the western part of the Lake Athabasca belt. This fault system, more than 100 miles in length, with a northerly strike, is expressed as a sheer zone varying from one to five miles in width, with a great number of minor faults and shears. North of Woodman Lake, the Allan Fault consists of several parallel fault planes, with intervening fault blocks. Belts of meta sediments within granites and granite gneiss provide the structurally weak zones. Southward, the Allan Fault meets the shore of Lake Athabasca at Fidler Point. The strong north-easterly faults northeast of Fort Chipewyan are believed to be a drag effect of the Allan Fault.

At Fidler Point a pitchblende strike has been recorded and a uraninite strike at Fort Chipewyan. Two radioactive areas and molybdenite occurrences associated with chalcopyrite were noted in the Potts Lake area (Ref. - Research Council of Alberta Preliminary Report, 65-6).

Along the Allan Fault, the occurrences of pitchblende and uraninite to the south and radioactive areas, molybdenite and chalcopyrite occurrences to the north, categorizes these permits as highly prospective areas in which uranium and other mineral deposits are likely to occur.

SUMMARY:

The acquired permits are in an area which forms the westerly margin of the Athabasca province of the Canadian Shield. Within this geologic province, a belt of meta-sedimentary, volcanic, granite and related rocks, about 200 miles long and at least 40 miles wide, extends from Black Lake, Saskatchewan westwards to the Shield area of Alberta. Within this belt, numerous occurrences and concentration of uranium deposits are known. The deposits found in this belt are mainly vein and related types that often are genetically and spatially related to fault and shear zones.

The Research Council of Alberta, under the direction of J. D. Godfrey, conducted a detailed study of surface geology over part of the Shield area in Alberta. The prime purpose of this work was to map the detail geology of this region. In many cases, areas of anomalously high radioactivity were encountered and noted, as well as other metalliferous occurrences. These occurrences, although secondary objectives, were very numerous, and discussing them individually is beyond the scope of this report.

Brief mention, however, is made of two important occurrences noted by the Research Council of Alberta (Preliminary Report #58-4).

- 1) At an outcrop 200' by 75', southwest of Andrew Lake, three grab samples assayed as follows:

<u>U₃O₈ %</u>	<u>MO %</u>
1.03	0.69
3.93	1.03
3.29	1.40

- 2) Spider Lake - a zone containing high radioactive bands, with molybdenite was followed for over half a mile along the strike. Geiger counter readings indicate that this radioactive zone extends for a distance of at least two miles.

The most recent discovery (Northern Miner, February 1st, 1968) in the area of the Permit blocks, was found by McIntyre-Porcupine Mines. Apparently five strikes were found, of which at least two, reported grade ore running as high as 0.7% U₃O₈. Detailed exploratory work is currently being carried out.

On the basis of proven mineralization under similar geological conditions in Saskatchewan and other parts of the Shield, the numerous occurrences found in an otherwise unexplored area, it seems reasonable to state that the Alberta portion of the Lake Athabasca Metallogenic belt is a highly promising area wherein economic deposits of uranium-bearing minerals can be found. Molybdenite-bearing deposits must be considered as an important secondary objective.

The permits are strategically located from the structural aspect, as well as proximity to known occurrences, and therefore must be considered as highly prospective.

A D D E N D A

During the 1968 season Mr. R. O. McKenzie and J. W. Worobec spent two weeks in the field between August 28th to September 13th. The purpose of this work was a field check of certain structural and geological features ascertained from aerial photographs. Because of our inexperience in this area we assumed that a foot and canoe traverse could accomplish our preliminary program. Canoe travel required numerous long portages and in conjunction with bad weather very little meaningful work could be done.

When we returned to Calgary our recommendation to our principals was an airborne radiometric survey as the fastest and most economical means of preliminary investigation.


J. W. Worobec

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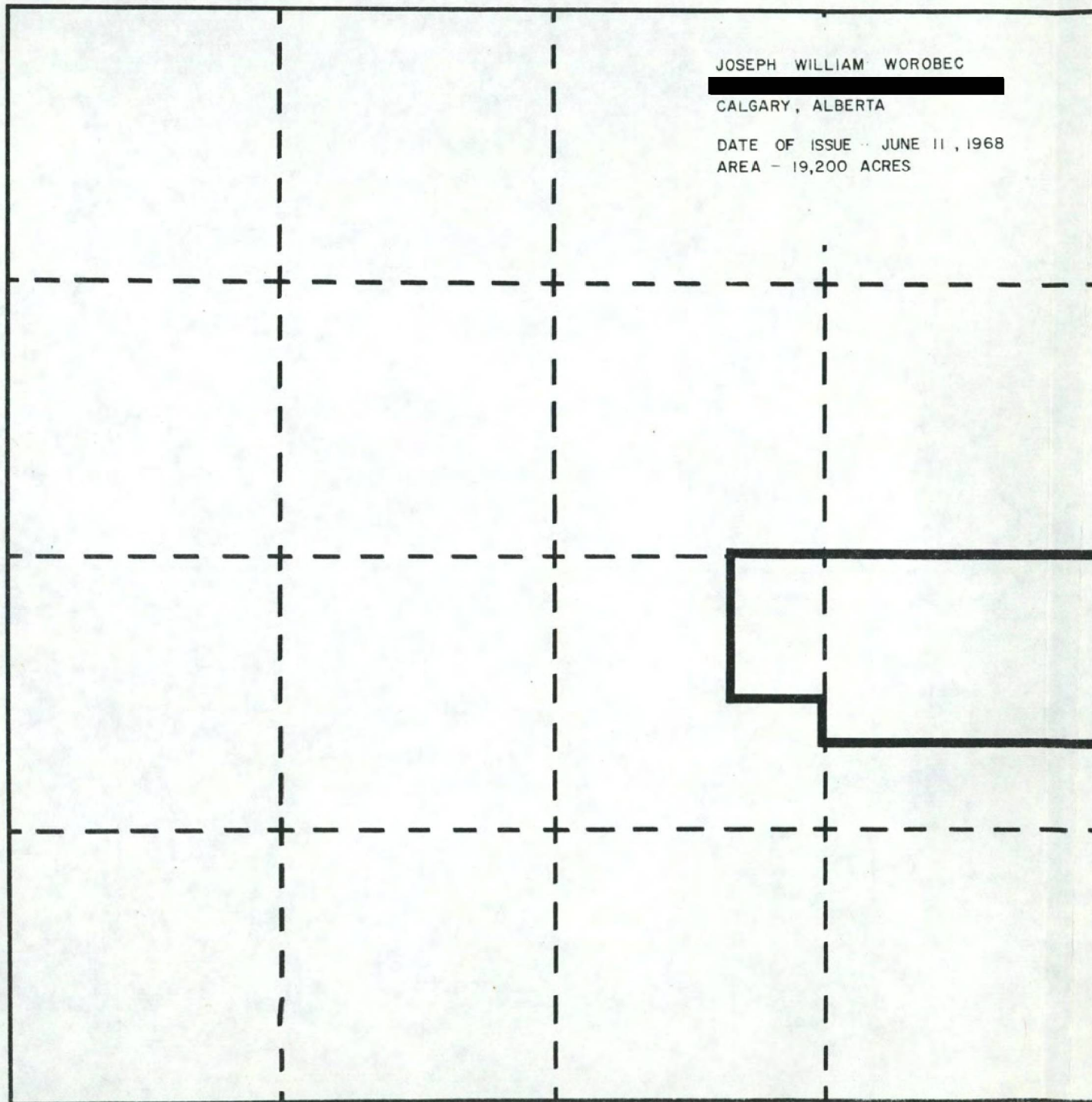
QUARTZ MINERAL EXPLORATION PERMIT No. 56

JOSEPH WILLIAM WOROBEK

████████████████████
CALGARY, ALBERTA

DATE OF ISSUE - JUNE 11, 1968

AREA - 19,200 ACRES



TP.120

TP.119

R 2

R. 1 W. 4 M.

19690012

QUARTZ MINERAL EXPLORATION PERMIT No. 55

JOSEPH WILLIAM WOROBEC

████████████████████
CALGARY, ALBERTA

DATE OF ISSUE - JUNE 11, 1968

AREA - 19,840 ACRES

TP.119

TP.118

R. 2

R 1 W. 4 M.

QUARTZ MINERAL EXPLORATION PERMIT No. 57

19690012

CANCELLED

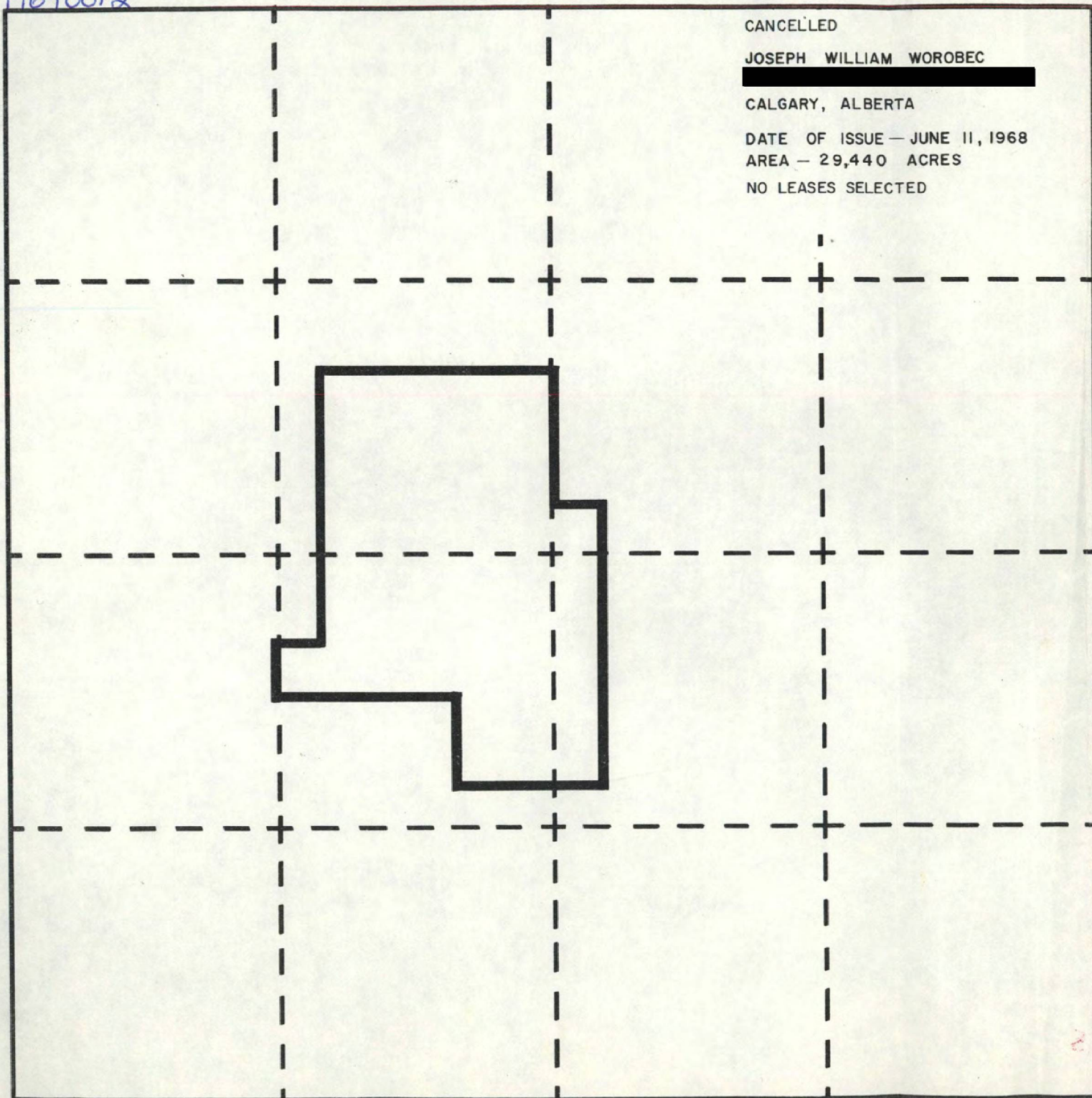
JOSEPH WILLIAM WOROBEK

CALGARY, ALBERTA

DATE OF ISSUE — JUNE 11, 1968

AREA — 29,440 ACRES

NO LEASES SELECTED



TP.125

TP.124

TP.123

R. 7

R. 6

R. 5 W. 4 M.