

005/14

GREAT PLAINS DEVELOPMENT  
COMPANY OF CANADA, LTD.,

MACKENZIE PROJECT  
PROPOSED 1976 PROGRAM

M.D. McInnis

November, 1975.

## INTRODUCTION

The Yukon, Northwest Territories carbonate belt has now undergone three years of aggressive exploration by numerous companies in an attempt to locate Pb-Zn deposits in carbonate rocks. Most programs have been reconnaissance style programs based primarily on broad-scale geochemical stream sampling and prospecting designed to locate deposits that are exposed to some degree. Favorable carbonate strata from Nahanni National Park through to the northern Ogilvie Mountains have been sampled, in many cases more than once, by the companies exploring the area. It is our conclusion that it is time to evaluate the objectives and results of the reconnaissance format, for the discovery of carbonate Pb-Zn deposits in the Mackenzie carbonate belt.

In 1973, Barrier Reef's discovery on Goz Creek precipitated major staking activity in that area, however no other significant finds were recorded during that field season. Stepped-up exploration activity in 1974 resulted in the staking of several spectacular showings such as Rio Tinto's Gayna River prospect, the Serem showing south of Gayna River and Archer and Cathro's discovery at Flunk Creek. In 1975, a high exploration activity level persisted but no significant finds were made. In addition to the above-mentioned prospects, during the past two years many companies discovered and staked numerous showings of varied quality whose potential is not immediately apparent.

Although the reconnaissance concept was valid when the area remained untested, it is our feeling that "quicklook" geochemical sampling on a broad scale and over a large area has run its course of effectiveness for the discovery of carbonate Pb-Zn deposits. While it is recognized that some exposed deposits may remain undiscovered, it is our opinion that sufficient sampling and other forms of exploration by Great Plains and others has been carried out such that the statistical probability of locating a large exposed deposit is small.

It is felt that the next logical step would involve concentrated evaluation of known showings and the immediate vicinity. Characteristics common to Mississippi Valley-type deposits are well documented and can be applied to these areas to point to any hidden potential. If this premise

is valid, it is clear that any company which examines the majority of the showings and explores only those most worthy would have the most success in discovering an economic deposit.

#### PROPOSED 1976 PROGRAM

With the above facts in mind, it is recommended that the following proposals be undertaken in the 1976 field season.

1. It has been suggested above that a company may gain a competitive advantage in the area by comparing the attractiveness of owned land against land held by others. This effort would serve two main functions. It would allow an appraisal of our ground within the context of the potential of other showings such that the most worthy prospects could be identified. In addition, it would expose ourselves to the type of deposits located, the particular problems associated with exploration on these properties and any exploration approaches employed on a property which may be useful in evaluating other ground.

It is proposed therefore that those companies which have carried out extensive exploration in the area be approached with a view to evaluating their holdings for a possible option. In this manner many of the located prospects could be examined together with our own holdings and those of highest potential could be identified. In the event that an option of a property was warranted, and the terms of the option are reasonable, Great Plains would offer Kerr Addison the first right of refusal to gain 50% of the interest available under the option.

2. The Ken, Windy, Jeanette, Yuk and Yogi claim groups have been evaluated and it is recommended that no further work be undertaken. These groups are in good standing until 1977.
3. It is felt that no work should be undertaken in 1976 on the Bev, Jane, Laura and Buh claims. These claims retain some potential for discovery, however the risk and expense are high.

To stand on their own in this area, a deposit would probably have to contain 25 million tons of 13-15% combined lead-zinc. From the discoveries to date, it seems apparent that the deposits have high grade but low tonnage. If this is true it seems reasonable to expect that any development in that area will come from pooling numerous small tonnage deposits to feed a single mill.

Since the risk and expense of exploring our land holdings is very high, it makes sense to postpone any evaluatory work until 1977 to allow time for further exploration of the known showings held by others that have been shown to have tonnage potential. In this manner, we would be in a better position to judge whether further work is warranted on our ground. If it appears that tonnages are being defined we would be inclined to carry out further exploration of these groups. In the event that little tonnage can be proved we would be reluctant to proceed with any further work.

4. The SLATS claim group was staked within a group held by Archer and Cathro who are exploring for Chevron Standard. Our information indicates that Archer and Cathro staked this ground to cover Proterozoic strata which is felt to have uranium potential. Archer and Cathro geared at least part, if not all, of their field program in 1975 to the discovery of uranium in sediments and have obviously done some office research regarding the uranium potential of the basin. In this light, it is recommended that Archer and Cathro be approached in an effort to arrange a pooling of our mutual holdings.
5. The CU claims in the Redstone area require preliminary mapping and sampling. It is recommended that a short program be carried out on the property to establish the potential for a bedded copper deposit. The program would consist of preliminary mapping, rock sampling and geochemical silt sampling and would cost an estimated \$5,200.00. The cost would be shared as to 50% each for Great Plains and Kerr Addison.
6. It is recommended that a study group be formed to research the occurrences of lead-zinc in shales and to construct a program directed towards the location of such a deposit within the Selwyn Basin. It is becoming apparent that the Summit Lake prospect is a major discovery with good grade and, as such, demands exploration for other similar deposits.

Several problems are obvious when considering formulation of an exploration program for the Summit-type deposit. On a world-wide scale the deposits are few in number and consequently the characteristics are not well documented. In addition, the shale host rocks makes selection of favorable strata difficult. The shale portion of a basin is usually very thick, commonly spanning a large amount of geologic time. The sections are usually monotonous and little attempt has been made by workers to break the shale package into time-stratigraphic units. A third problem arises with the recognition that some shales have a background in lead and zinc which would put limits on the use of geochemical exploration.

For these reasons, it is clear that any exploration approach must be based on concepts that would minimize the problems and optimize the chances of success. It is hoped that, by carrying out a thorough study of the deposits, sound discriminating tools will be identified. At this point in time, it seems reasonable to expect that the program will not be based solely on geochemical sampling but will involve a mix of exploration techniques.

Several areas of study have been determined and are listed below. It is expected that as study progresses other areas will open up that will require examination as well.

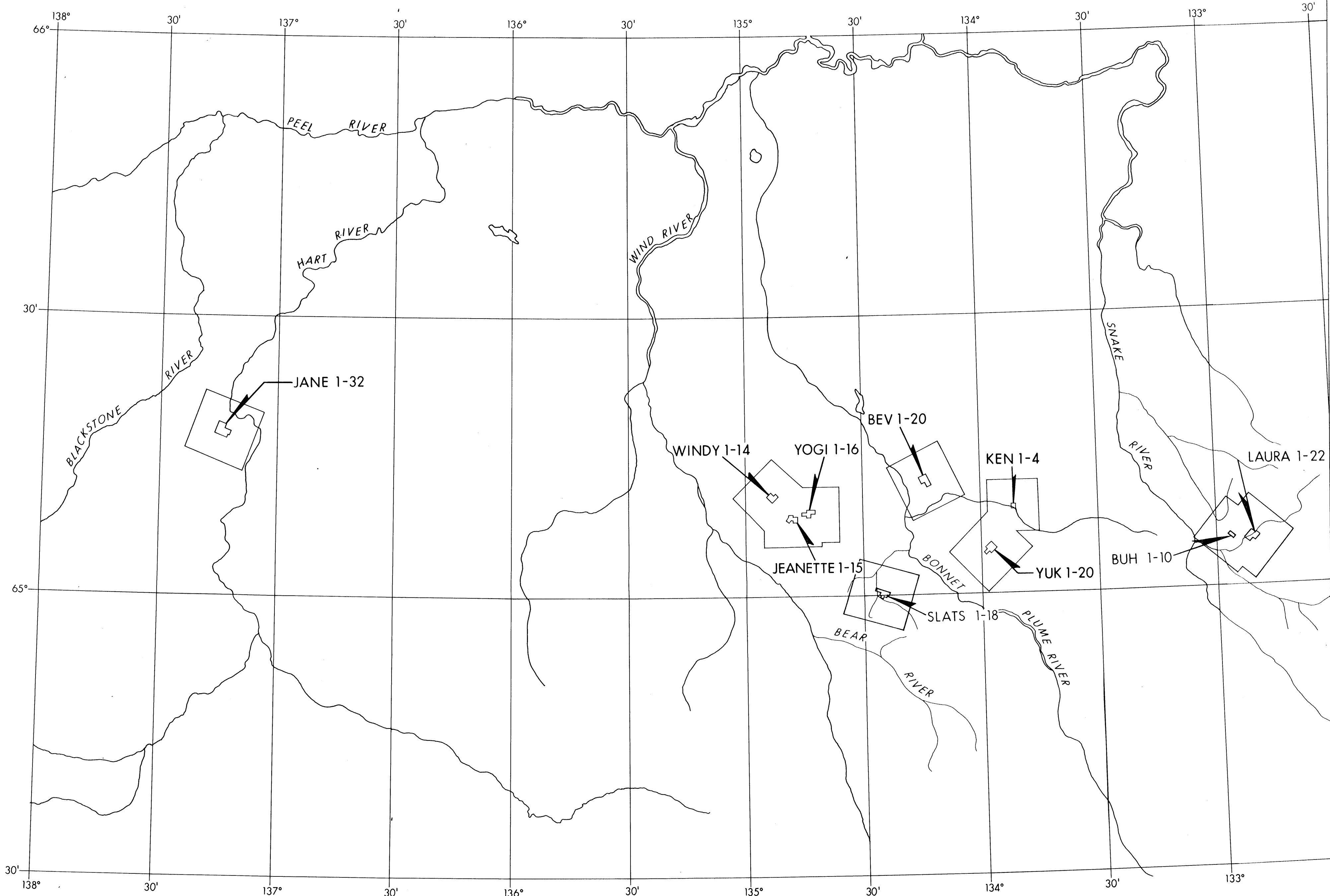
- a) The basic operating hypothesis will be that the lead-zinc in shale deposits are of volcanic derivation. Several areas of study will involve examination of this premise.
- b) Efforts will be made to determine as many characteristics of the deposits as possible. Consultation with government geologists, principally D. Sangster, who have had wide exposure to lead-zinc deposits in sediments will be carried out. Data on similar deposits will be collected from all sources and common characteristics will be tabulated.
- c) H. Gabrielse of the G.S.C. has done some work on volcanic activity in the Yukon. He will be consulted to aid in identifying ancient volcanic centers.
- d) Aeromagnetic maps will be examined as a possible tool for locating volcanic centers.
- e) Examine the use of ERTS imagery as a possible method to delineate areas of similar reflectivity to Summit Lake or as a possible method of detecting subtle changes within the Road River Formation itself.
- f) Examine the position of the known deposits in the world with respect to their position in the respective basins.
- g) Examine the times of emplacement of mineralization as it relates to periods of volcanism.
- h) Consult with P. Bradshaw regarding a possible geochemical mix that might discriminate between high background shales and mineralized shales.
- i) Examine possible geophysical methods which could respond to the deposits.

Without the results of the study, it is premature to estimate the cost of such a program. The methodology to be used and the area of interest are not yet defined which makes cost estimating difficult. Based on past experience, however, we would anticipate that the cost would not be in excess of \$175,000.00 which would be shared equally by Great Plains and Kerr Addison. The costs incurred during research would probably total about \$8,000.00 and it is proposed that this cost also be shared equally by the two companies.

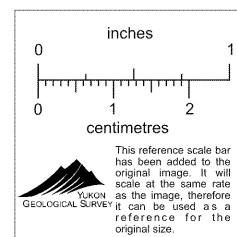
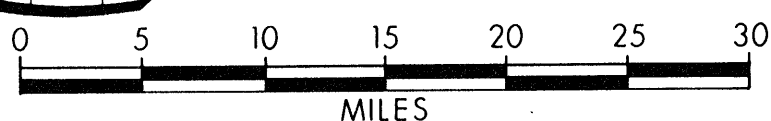
\*\*\*\*\*

SUMMARY OF LAND HOLDINGS  
MACKENZIE JOINT VENTURE

<u>Claim Name</u>	<u>No. of Claims</u>	<u>Date Due</u>
BEV	20	Aug. 27/77
YOGI	16	Aug. 27/77
WINDY	14	Aug. 27/77
JEANETTE	15	Aug. 27/77
YUK	20	Aug. 27/76
KEN	4	Aug. 27/80
JANE	32	Nov. 7/77
SLATS	18	June 16/76
LAURA	22	July 16/76
BUH	10	July 16/76
CU	50	September 2/76
	<u>221</u>	
	=====	



DEVELOPMENT COMPANY  
OF CANADA, LTD.



**YUKON TERRITORY  
MACKENZIE JOINT VENTURE  
AREAS OF MUTUAL INTEREST**