

MINERAL EVALUATION AND PROSPECTING PROGRAMS

1974 Projects

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During 1974 some of the projects commenced under the Mineral Evaluation Program (M.E.P.) and the Prospectors' Incentive Plan (P.I.P.) in 1973 were continued or expanded, some were completed, and others were initiated. Both the M.E.P. and P.I.P. are carried out under the Department of Northern Saskatchewan with the Department of Mineral Resources being responsible for the technical management. Certain aspects of both programs in certain phases are closely related. Under the P.I.P. if significant mineral discoveries are made, they are staked in the name of the Province of Saskatchewan by the prospectors making the discoveries, and investigations and exploration of the discoveries are conducted under the M.E.P.

Initial investigations of the ground staked under the P.I.P. may include one or more of geological, geophysical, and geochemical surveys, as well as trenching and assaying, followed by diamond drilling, if warranted by results of the preliminary work. The other major phase of the M.E.P. is to assess the mineral potential of selected areas or belts of rock favourable for mineralization and to stimulate exploration and mineral development by the discovery of new mineral occurrences. The aim of both programs is to involve northern residents in as many phases of mineral exploration as is possible.

Projects Conducted in 1974

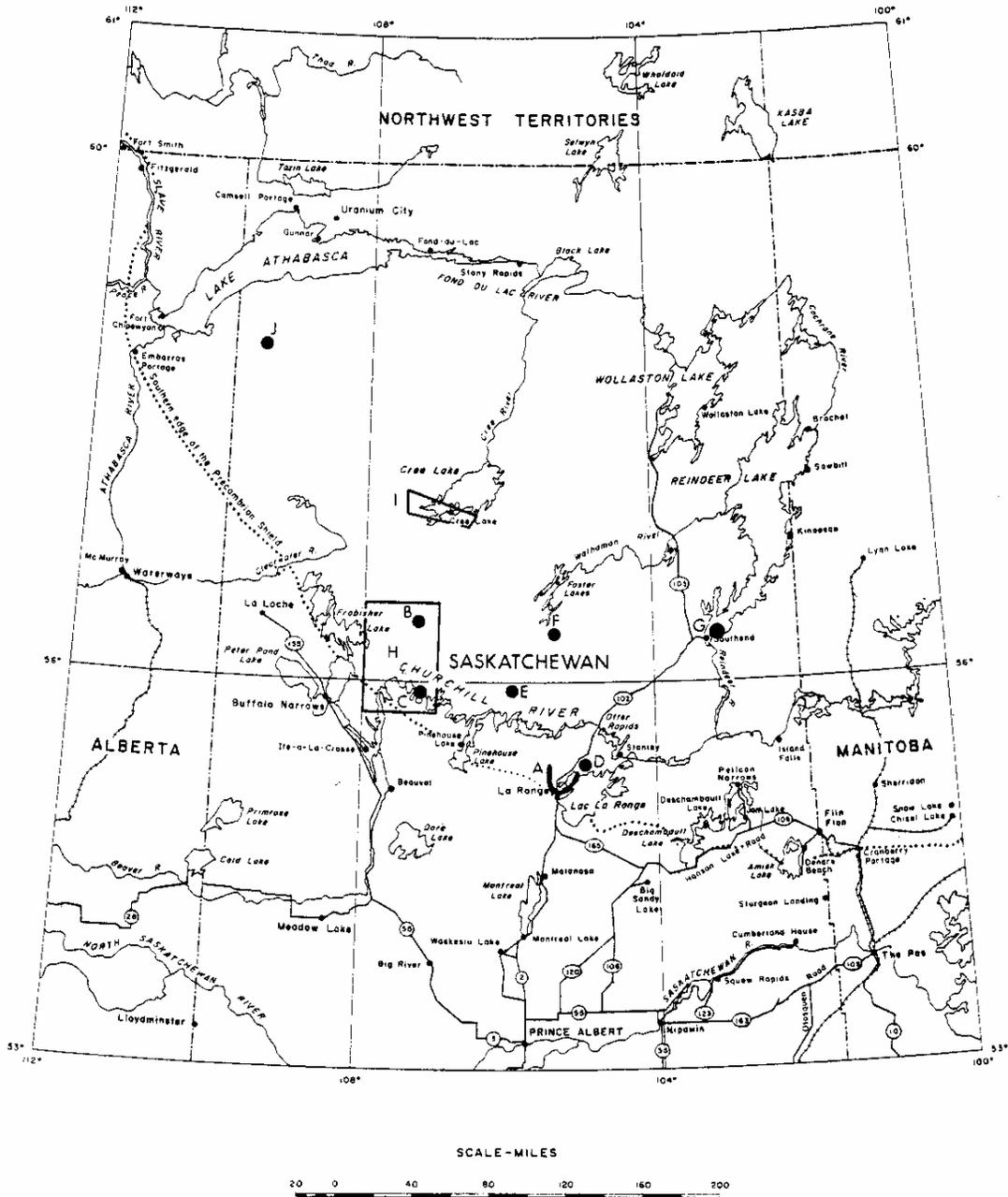
Two of the major M.E.P. projects commenced in 1973, the La Ronge "Horseshoe" Study and the Uranium Study, were continued. The evaluation of Crown Reservation 603 in the Segment Lake area, and the Primeau Lake Drilling Project were completed in 1974, and four new projects were commenced:

- (a) Evaluation of the Ramsland Lakes Gold Prospect;
- (b) Evaluation of the Copper Discovery, Bancescu Lake Area;
- (c) Evaluation of the Copper and Molybdenum Discoveries, Fannon Lake Area; and
- (d) Exploration of the Deep Bay Graphite Deposit.

MINERAL EVALUATION PROGRAM PROJECTS

- A. La Ronge "Horseshoe" Study
- B. Evaluation of Crown Reservation 603, Segment Lake
- C. Primeau Lake Drilling Project
- D. Evaluation of Ramsland Lakes Gold Prospect
- E. Evaluation of Bancescu Lake Copper Occurrence
- F. Evaluation of Fannon Lake Copper and Molybdenum Occurrences
- G. Deep Bay Graphite Project
- H. Airborne Radiometric Survey-Crown Reservation 621
- I. Airborne Radiometric Survey-Crown Reservation 620
- J. Track-Etch Orientation Survey

LOCATION MAP



The locations of the areas in which the M.E.P. projects were, and are being conducted in 1974, are shown on the attached map.

La Ronge "Horseshoe" Study. Mapping by the Saskatchewan Geological Survey has indicated that a belt of gneisses folded in the shape of a horseshoe occurs in the La Ronge region, extending southeasterly through Williams Peninsula, around to the area west of Nemeiben Lake and thence northeasterly. For purposes of investigation and exploration in 1973, sections of the belt were designated as Williams Peninsula, English Bay area, and Nemeiben Lake West area. Two known mineral deposits occur in this belt, the former Anglo-Rouyn Mines copper deposit on Williams Peninsula and the copper deposit at Elizabeth Lake in the Nemeiben Lake West area.

Williams Peninsula. In 1973, geochemical and geophysical surveys, including I.P., E.M. and magnetometer surveys, were conducted on Williams Peninsula which includes the former Anglo-Rouyn Mines property. As a result of this work, a number of coincident geochemical anomalies and geophysical conductors were located. During the period May 23 to July 1, 1974, four holes with a total footage of 2,060 feet, were drilled to test some of the conductors on Crown lands. The drilling indicated that the conductors tested are due to mineralized zones carrying pyrite, pyrrhotite, minor chalcopyrite, and in places, graphite. Geological mapping was carried out on CBS 2025, located immediately south of the former Anglo-Rouyn Mines ground, and in the area of Pipestone Bay.

English Bay Area. The geochemical survey conducted in 1973 on the English Bay section of the La Ronge Horseshoe, covered by CBS 2028, indicated parallel zones with anomalous values in copper and zinc. The I.P., E.M. and magnetic geophysical surveys commenced on this area in 1973 were completed during June, 1974. A number of conductors, some coincident with geochemical anomalies, were located and some of these were tested by five diamond drill holes with an aggregate footage of 2,505 feet. The drilling indicated that the conductive zones consist of massive sulphides, mainly pyrite and pyrrhotite, with traces of chalcopyrite and occasionally sphalerite, and in some sections massive graphite.

Nemeiben Lake West Area. In 1973, a geochemical survey was conducted

on CBS 2026 in the Nemeiben Lake West area, held by the Department of Northern Saskatchewan, and on adjacent private dispositions and Crown lands to the east and southeast. Some copper and zinc anomalies, as well as one nickel anomaly, were indicated by the survey. During 1974 the area was covered by I.P., E.M., and magnetic geophysical surveys. A number of conductors were located which will be tested by drilling in 1975.

In April 1974, four additional claim blocks were staked on behalf of the Province of Saskatchewan in the western part of the belt, three of these, CBS 3486 (2,500 acres), CBS 3487 (9,400) and CBS 3488 (8,370 acres) south of the areas covered by surveys in 1973-74, and one, CBS 3489 (10,450 acres) to the north. During the past field season, a geochemical survey was contracted to the Saskatchewan Research Council on Claim Blocks CBS 2027, CBS 3486, CBS 3487, and CBS 3488, covering some 30,000 acres. Results of this survey will not be available until some time in the early part of 1975.

Generally the results of the geochemical surveys on the La Ronge Horseshoe belt have indicated that there is a close relationship between bedrock mineralization and the geochemical values in the overlying soil or sediments.

Uranium Study. A long term program was initiated in 1973 to systematically assess the uranium potential of Saskatchewan. The initial phase of the program consisted of an airborne radiometric survey contracted to the Geological Survey of Canada, who flew the survey along E-W lines across the northern part of the province at approximately $\frac{1}{2}^{\circ}$ intervals, using the G.S.C. "Skyvan" radiometric equipment. The results of this survey were made available to the public on November 8, 1973.

The survey indicated several radioactive trends in the Precambrian area and one in the area of the Pasquia Hills, south of the Shield. As a result of the survey, shortly after release of the data, a number of mineral dispositions were acquired by several companies and individuals in the Carrot River-Pasquia Hills area, and one large permit was taken out in the Fond du Lac region at the Northwest Territories - Saskatchewan boundary. Later in August and September, 1974, 40 miles of the Sandfly Lake belt had

been taken out under mineral disposition by a number of parties.

Six months after the results of the survey had been placed on open file, the government withdrew eight areas from staking, Crown Reservations 614 to 621, pending detailed investigation connected with the province's uranium exploration program. Selection of the areas was made on the basis of favourable geological environment, evidence from previous radiometric surveys, and the presence of radioactive anomalies disclosed by the 1973 Federal-Provincial airborne survey.

During the 1974 field season, more detailed airborne radiometric surveys were conducted on Crown Reservations 621 and 620 located in the Mudjatik River and Cree Lake areas respectively. In July, Northway Survey Corporation flew a radiometric survey over C.R. 621, using a Beech Queenair equipped with an Exploranium DGRS 1002, 4-channel, analogue-type, gamma ray spectrometer and a 1030 cu. in. crystal. The survey was carried out along E-W lines, spaced $\frac{1}{2}$ mile apart, at a terrain clearance of 200 to 300 feet, and at a speed of 130 m.p.h. On the basis of preliminary results of this survey, limited prospecting and ground checking of a few of the airborne anomalies with scintillometers was carried out by two P.I.P. prospecting teams during late July and August.

A helicopter-borne radiometric survey was carried out over C.R. 620 by Sander Geophysics during the latter part of the 1974 field season. The survey was flown along NW-SE lines at 1/6 mile intervals and terrain clearance of approximately 150 feet, using a Bell 47G-3-B2 helicopter equipped with a Sander SPM-12 gamma ray spectrometer and three 9"x4" crystals. During July, lake water and lake sediment geochemical sampling was carried out on lakes located within C.R. 620.

Another phase of the uranium program in 1974 included the testing of a new uranium exploration method called the "Track Etch" technique, which was pioneered by Terradex Corporation of California for the detection of buried uranium deposits. Plastic cups containing a strip of alpha-sensitive film are placed in 2 $\frac{1}{2}$ ' holes and left for a period of 3-4 weeks. The cups are then retrieved and returned to Terradex for processing and analysis. The density of alpha tracks on the film is proportional to the radon concentration at the sampling point. From the readings, a radon contour map

can be prepared of the surveyed area.

A "Track Etch" survey was initiated with the co-operation of Amok Ltd., and an orientation grid survey was carried out over one of the mineralized zones discovered by Amok Ltd., near Cluff Lake. Cups were placed in holes approximately 200 feet apart along picket lines approximately 200 feet apart. The resultant radon contour map showed excellent correlation with the known extent of the mineralized zone. A second, smaller orientation survey was carried out over one of the deposits in the Eldorado Nuclear property at Beaverlodge, but results are not yet available.

In connection with the uranium program, two claim blocks CBS 5389 (3,610 acres) and CBS 5391 (1,042 acres) were staked for the Province of Saskatchewan along the Alces Lake - Oldman River trend in the Athabasca region, while in the La Ronge Mining District two claim blocks, CBS 3548 (3,140 acres) and CBS 3550 (8,710 acres) were staked along the Sandfly Lake belt in the Meyers Lake and Besnard-Duddridge Lakes areas respectively, and one, CBS 3571 (2,230 acres) was staked to cover some radioactive occurrences in the Suttle Lake area, east of Daly Lake.

Evaluation of Crown Reservation 603, Segment Lake Area. In 1972, a galena occurrence in impure quartzite was discovered between Segment and Shearpin Lakes by a Saskatchewan Geological Survey party, and as a result Crown Reservation 603 was taken out to cover the discovery and a section of the metasedimentary belt in which it occurs. In late May and June 1973, a geochemical survey was conducted under the M.E.P. on the belt, but the results of this survey were discouraging. During the period February 13 to March 1, 1974, E.M. and magnetometer surveys were carried out in the immediate area of the mineralized zone, and a drilling program, consisting of four holes with an aggregate footage of 934 feet, was conducted to test the mineralization. Assay results were extremely disappointing, with Pb values ranging from 0.08% to 0.62%; Zn - 0.01% to 0.12%; Cu - 0.01 to 0.02%, Au - trace to 0.01 oz/ton and Ag - 0 to 0.18 oz/ton.

Primeau Lake Drilling Project

The Primeau Lake molybdenum occurrence was discovered by P.I.P.

prospectors in 1972 and was covered by claim block CBS 1993, staked on behalf of the Government of Saskatchewan. In 1972-1973 a considerable amount of trenching was carried out, approximately 138 cubic yards of rock being removed. Assay results on material from the trenches were encouraging, and as a result electromagnetic and magnetic surveys were conducted in early February, 1974, in the immediate vicinity of the showing which occurs on an island in May Bay and a 404 ft. hole was drilled to test the occurrence. Drilling results were inconclusive and further exploration, including more geophysics and drilling, will be carried out at some later date.

Evaluation of Ramsland Lakes Gold Prospect. The Department of Northern Saskatchewan, through an agreement drawn up for free lance prospectors, trappers, and fishermen, acquired CBS 2031, which had been staked in May 1973, to cover a number of gold occurrences located in the Ramsland Lakes - Contact Lake area. In April 1974, the government staked two adjacent claim blocks, CBS 3484 to the south, and CBS 3485 to the southeast, in areas where gold showings are known to occur. From March to September 1974, work performed on CBS 2031 in the area between the Ramsland Lakes and extending southward included the following: detailed E.M. and magnetometer surveys, detailed geological mapping, trenching, assaying, and the drilling of two holes, with a total footage of 1,283 feet, to test horizons and contacts believed favourable for gold mineralization. Detailed prospecting also was carried out on CBS 2031.

Projects Initiated in 1974 on P.I.P. Discoveries. Projects were initiated to evaluate three mineral dispositions staked in 1974 to cover mineral discoveries made by P.I.P. prospectors. These include: CBS 3497 (3,080 acres) in the Bancescu Lake area, northwest of La Ronge, and CBS 3498 (2,740 acres) and CBS 3499 (4,040 acres) and ten claims in the Fannon Lake area, located in the Wollaston Fold Belt.

Evaluation of Bancescu Lake Copper Occurrence. In June 1973, a P.I.P. team discovered an interesting chalcopyrite occurrence in the Bancescu Lake area, approximately 62 miles northwest of La Ronge. In June 1974, claim block CBS 3497 was staked to cover the showing and the possible mineralized trend. Detailed geological mapping was done on the disposition

and trenching of the mineralized zone carried out in late June and July. Before a final assessment of the property is made it is proposed to carry out a geophysical survey on the ice of Bancescu Lake after freeze-up to check the continuity of the mineralized trend.

Evaluation of Fannon Lake Copper and Molybdenum Occurrences

During June and July, two significant mineral occurrences, one copper and the other molybdenum, were discovered by a P.I.P. prospecting team in the Fannon Lake area of the Wollaston Fold Belt. As a result, two claim blocks, CBS 3498 and CBS 3499, and 10 claims were staked on behalf of the Province of Saskatchewan to cover the showings and possible extensions. By the end of September, 1974, trenching and assaying, detailed geological mapping in the immediate vicinity of the showings, geochemical sampling and analysis had been carried out. Approximately 14 miles of line cutting has been done in the area of the discoveries and geophysical surveys are being conducted to trace the mineralized zones. Diamond drilling is proposed to test the occurrences after completion of the geophysical work.

Other mineral dispositions which have been staked on basis of mineral discoveries and which will be investigated under the M.E.P. include:

- (a) CBS 3573 (4,840 acres) covering a copper discovery by a P.I.P. team in the Astleford Lake area in the Wollaston Fold Belt; and
- (b) CBS 3496 (1,640 acres) located north of Wood Lake, covering a possible gold occurrence adjacent to the Tabbernor Fault and indicated by geological mapping in 1973.
- (c) CBS 5416 and CBS 5417, adjacent claim blocks, located in the Maimann Lake - Dickson Lake area west of Uranium City, covering a number of copper showings prospected under the P.I.P.

Deep Bay Graphite Project

Early in 1974, Superior Graphite Co., Chicago, made a joint venture proposal to the Department of Northern Saskatchewan for the Provincial Government to participate in the exploration and development of a graphite deposit covered by the company's mineral disposition CBS 2016, located

west of Deep Bay, Reindeer Lake. An agreement was finally reached in early September whereby the Provincial Government could earn a specified interest in the operation by carrying out the preliminary phase of the project which includes: detailed geological mapping and geophysical surveys (E.M and magnetometer), drilling and assaying of mineralized sections of core, bulk sampling and delivery of the bulk sample to rail head at Prince Albert before spring break-up. At the end of September the winter camp had been established, a road cleared to Numabin Bay, and the geological mapping and geophysical surveys completed.

Prospecting Program and Associated Work and Projects

During 1974 from January to October, 87 individuals, excluding personnel who worked on the geochemical survey conducted by the Saskatchewan Research Council in the Nemeiben Lake West area, were involved with the Prospecting, Mineral Evaluation and associated projects. The different phases of the programs included:

- (a) prospecting;
- (b) staking of mineral dispositions;
- (c) line cutting;
- (d) blasting and trenching;
- (e) geochemical sampling, geological mapping, and geophysical surveys on dispositions staked to cover favourable rock belts and prospectors' discoveries; and
- (f) diamond drilling

Prospecting. Seventeen prospecting teams, involving 48 individuals, were placed in the field to prospect under the P.I.P., under the supervision of three field supervisors, one operating in the Athabasca region and the other two south of the 58th parallel of latitude. Forty-five areas were prospected, one of these areas extending 65 miles along the Wollaston Fold belt. As a result of prospectors' discoveries, four claim blocks and one group of claims were staked on behalf of the Province of Saskatchewan.

Staking. The following mineral dispositions were staked during the period

April 1 to September 30, 1974:

<u>Disposition</u>	<u>Area</u>	<u>Acreage</u>	<u>Remarks</u>
CBS 3486	Nemeiben Lake West (La Ronge-Horseshoe)	2,500	Staked to cover favourable meta-sedimentary gneisses in the belt.
CBS 3487	"	9,400	
CBS 3488	"	8,370	
CBS 3489	"	<u>10,450</u>	
TOTAL - La Ronge-Horseshoe		<u>30,720 acres</u>	
CBS 3484	Contact Lake	960	Staked to cover Au occurrences
CBS 3485	Hebden Lake-Contact Lake	1,420	
CBS 3497	Bancescu Lake	3,080	P.I.P. Cu discovery
CBS 3498	Fannon Lake (Wollaston Fold Belt)	2,740	
10 Claims			P.I.P. Cu discovery
S-72796-98	"		
S-72800-01,03	"	400	
S-75526	"		
S-75548-50	"		
CBS 3499	"	4,040	P.I.P. Cu, Mo discoveries
CBS 5373	Astleford Lake (Wollaston Fold Belt)	4,840	P.I.P. Cu discovery
CBS 3496	Wood Lake (North)	1,640	Possible Au occurrence discovered during mapping 1973
CBS 3574	Deep Bay, Reindeer Lake	2,530	To cover extension of graphite zones on CBS 2016
CBS 5416	Maimann Lake (Athabasca District)	2,680	P.I.P. Cu discoveries
CBS 5417	Dickson Lake (Athabasca District)	2,920	

In Connection with Uranium Program

<u>Disposition</u>	<u>Area</u>	<u>Acreage</u>	<u>Remarks</u>
CBS 3548	Meyers Lake (Sandfly Lake belt)	3,140	Radioactive occurrences in metasedimentary sequence
CBS 3550	Duddridge-Besnard Lakes (Sandfly Lake belt)	8,710	To cover possible southerly extension of radioactive belt
CBS 3571	Suttle Lake	2,230	Radioactive occurrences
CBS 5389	Alces Lake-Oldman River (Athabasca region)	3,610	Favourable trend for Uranium prospecting
CBS 5391	"	<u>1,042</u>	
Acreage staked on Uranium Program		<u>18,732 Acres</u>	
Total acreage staked on all projects and programs		<u><u>76,702 acres</u></u>	

Line Cutting. The line cutting carried out in connection with the Mineral Evaluation Program involved northern residents such as prospectors, trappers, and labourers who are available and willing to do this type of work when it is required. However, due to a number of problems, among them the lack of personnel wishing to do line cutting, part of the line cutting was contracted, with the stipulation that the contractor employ only northern residents at a rate of pay not below a specified minimum.

A total of 303.34 miles of line were cut on Department of Northern Saskatchewan mineral dispositions in preparation for geochemical and geo-physical surveys and in some cases detailed geological mapping, to be conducted under the M.E.P.

Line cutting was carried out in the following areas:

<u>Area</u>	<u>Miles</u>
Nemeiben Lake West	235.50
Primeau Lake	1.23
Ramsland Lakes	41.30
Segment Lake	1.76
Fannon Lake	14.00
Pollon Lake (Deep Bay)	<u>9.55</u>
Total	<u>303.34 line miles</u>

Blasting and Trenching. During the greater part of the field season, one three-man team was assigned to carry out blasting and trenching on a number of projects and dispositions, where required in the assessment of mineral occurrences or prospects. The prospects and/or projects on which blasting and trenching was conducted include the following:

<u>Area, Prospect and/or Project</u>	<u>Approximate Volume of Rock Removed Cu. Ft.</u>
Ramsland Lakes, Au prospect	6,250
Bancescu Lake, Cu prospect	200
Fannon Lake, Cu-Mo prospects	1,350
DMR-DREE Iron Study, Nistoassini-Waddy Lakes	1,200
Sandfly Lake belt, Uranium Study	<u>380</u>
Total	<u>9,380 cu. ft. or</u> <u>347 cu. yds.</u>

Geochemical, Geological and Geophysical Work conducted under the Mineral Evaluation and Prospecting Programs. Excluding the major geochemical program conducted on the La Ronge "Horseshoe" belt, which involved personnel employed by the Saskatchewan Research Council, who contracted to carry out the geochemical survey for the government, geochemical sampling was conducted by M.E.P. and P.I.P. personnel on the Ramsland Lakes gold prospect and in the area of the copper and molybdenum occurrences on CBS 3498 and CBS 3499 in the Fannon Lake area. Also, lake sediment sampling, using a helicopter, was carried out on the following lakes located along the Wollaston Fold Belt: Astleford Lake (CBS 3573), Fannon Lake (CBS 3498 and CBS 3499), Meyers Lake (CBS 3548), and Besnard and Duddridge Lakes (CBS 3550).

Detailed geological mapping by M.E.P. personnel was carried out on the following mineral prospects, dispositions and/or areas:

- (a) the Ramsland Lakes gold prospect (CBS 2031);
- (b) CBS 2025, located immediately south of the former Anglo-Rouyn Mine property, and the Pipestone Bay area;
- (c) Bancescu copper occurrence (CBS 3497); and
- (d) the Fannon Lake copper and molybdenum occurrences (CBS 3498 and CBS 3499).

Geophysical surveys, I.P., E.M and magnetometer, were conducted

on ground staked by the Department of Northern Saskatchewan along the La Ronge Horseshoe and on dispositions staked as a result of prospectors' discoveries. The dispositions and areas covered include the following:

<u>Disposition and/or Area</u>	<u>Type of Survey</u>	<u>Line Miles (Approx.)</u>
English Bay, La Ronge Horseshoe, CBS 2028	I.P., E.M., Mag.	13.00
Nemeiben Lake West La Ronge Horseshoe CBS 2026 and adjacent private ground	I.P., E.M., Mag.	100.00
Primeau Lake, CBS 1993	E.M., Mag...	1.00
Segment Lake, C.R. 603	E.M., Mag.	1.75
Fannon Lake: CBS 3498 CBS 3499	E.M., Mag.	14.00
Ramsland Lakes, CBS 2031	E.M., Mag.	41.25
Deep Bay, CBS 2016	E.M., Mag.	<u>9.50</u>
	Total	<u>180.50 miles</u>

Diamond Drilling. Fourteen individuals were involved on the diamond drilling program from January to October, 1974. During that period, 16 holes with an aggregate footage of 7,186 feet, were drilled to test conductors which had been located through investigations conducted under the M.E.P. Crown lands and mineral dispositions on which drilling was carried out include the following:

<u>Area and/or Disposition</u>	<u>No. of Holes</u>	<u>Feet</u>
La Ronge Horseshoe		
Williams Peninsula, Crown land	4	2,060
English Bay area, CBS 2028	5	2,505
Segment Lake, C.R. 603	4	934
Primeau Lake, CBS 1993	1	404
Ramsland Lakes, CBS 2031	<u>2</u>	<u>1,283</u>
Total	<u>16 holes</u>	<u>7,186 feet</u>

Acknowledgment

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