

IN THE MATTER of the Dominion Lands Act,  
Revised Statutes of Canada, 1927,  
Chapter 113 and Amendments thereto;  
and Regulations Respecting the Adminis-  
tration and Leasing of Oil and Gas Rights  
in the Northwest Territories and the  
Yukon Territory P.C. 1953-525 of April  
2nd, 1953, and:

IN THE MATTER of Oil and Gas Permits  
#663, 664, 665, 666, 667, 668, 669, 670,  
671, 672, 673, 674, 675, 676, 677, 678,  
679, 680, 681, 682, 683, 684, 685, 686.

A F F I D A V I T

I, George Edward Schultis, of the Town of Peace  
River, in the Province of Alberta, do solemnly declare:

1. THAT I am the Peace River District Exploration Manager of Imperial Oil Limited and, as such, I have a personal knowledge of the facts herein deposed.
2. THAT Imperial Oil Limited is the operating company upon the lands contained in the following Northwest Territories and Yukon Territory Oil and Gas Permits, which were issued to the companies noted below and subsequently assigned to Imperial:

663	Taos Petroleum Limited	675	Spica Petroleum Limited
664	Taos Petroleum Limited	676	Spica Petroleum Limited
665	Taos Petroleum Limited	677	Spica Petroleum Limited
666	Taos Petroleum Limited	678	Spica Petroleum Limited
667	Taos Petroleum Limited	679	Stromo Petroleum Limited
668	Taos Petroleum Limited	680	Stromo Petroleum Limited
669	Taos Petroleum Limited	681	Stromo Petroleum Limited
670	Taos Petroleum Limited	682	Stromo Petroleum Limited
671	Spica Petroleum Limited	683	Stromo Petroleum Limited
672	Spica Petroleum Limited	684	Stromo Petroleum Limited
673	Spica Petroleum Limited	685	Stromo Petroleum Limited
674	Spica Petroleum Limited	686	Stromo Petroleum Limited.

3. THAT attached hereto and marked "Exhibit A" to my declaration is an Exploration Report in regard to the Oil and Gas Permits more specifically enumerated in Paragraph 2, the facts of which are true to the best of my knowledge and belief.

4. THAT pursuant to Section 25 of the Territorial Oil and Gas Regulations, a supplementary statement will be furnished before December 30th, 1954, showing evidence of expenditure during the period March 30th, 1953 to September 30th, 1954.

Sworn before me at the Town of )  
Peace River, in the Province of )  
Alberta, this 18 day of November  
A.D. 1954.

H. E. Schutte

E. G. McKenzie  
A Commissioner for Oaths in  
and for the Province of Alberta.

EXPLORATION REPORT.

NORTHWEST TERRITORIES AND YUKON TERRITORY.

Oil & Gas Permits #663 - #686 Inclusive.

- TABLE OF CONTENTS -

Introduction  
Geological Surveys  
Geophysical Surveys  
Planimetric Mapping

Enclosures:

Map #1 Northwest Territories Petroleum & Natural Gas Acreage showing:

- (a) Geological Surface Sections.
- (b) Aeromagnetic Coverage.
- (c) Permit Locations.
- (d) Area of Planimetric Mapping.

Map #2 Aeromagnetic Flight Lines.

## INTRODUCTION

Northwest Territories Petroleum and Natural Gas Permits #663 - #686 inclusive, comprise a total of 1,461,258 acres, more or less, and were issued effective March 31st, 1953, to subsidiary companies of Imperial Oil Limited, as follows:

P. & N.G. Permits #663-670 incl. to Taos Petroleum Ltd.

" " " #671-678 incl. to Spica Petroleum Ltd.

" " " #679-686 incl. to Stromo Petroleum Ltd.

Subsequently, these permits were assigned to Imperial Oil Limited and the operation of these permits was brought within the Territorial Oil and Gas Regulations No. PC-1953-525, dated April 2nd, 1953.

Since the date of issue, Imperial Oil Limited has conducted certain Geological and Geophysical surveys in the area, both on and off the subject permits.

## GEOLOGICAL SURVEYS.

Geological surface investigations were carried out in the area bounded by latitudes 60° to 63° N. and longitudes 112° to 125° W. The main purpose of the work was to determine the stratigraphic section within the area and to establish, if possible, its relationship to that of Alberta and northeastern British Columbia. An attempt to map structure was generally unsatisfactory, due to the paucity of outcrop.

The area was covered partially by canoe traverses on the larger rivers and by helicopter landings on bush openings, swamps and lakes.

A plane table was used wherever possible on river and mountain, to determine dips and river gradients. Helicopter stations were located from photo mosaics and the elevations determined by altimeter. Oil seeps along the shores of Great Slave Lake were studied.

As the enclosed Map #1 indicates, some fifty outcrop localities were visited. Generally small exposures of strata ranging from Silurian-Ordovician to Recent in age occur in the area. Triassic, Jurassic and many Quaternary sediments are absent. Rocks grouped as Silurian-Ordovician are exposed at Gypsum Point, Red Point and Oil Fort Island on Great Slave Lake and were also encountered in the Nintsi point well and in recent Westrol wells in the vicinity of Fort Simpson.

Definite Silurian sediments occur at Fitz Point and rocks of this age are known to be present in the Mackenzie Mountains to the west.

Middle Devonian sediments are exposed along both north and south shores of Great Slave Lake. These strata contain the reefal facies (Presquile Formation) in which oil seeps occur on both the northwest and south shores of the lake. Occurrences of oil stained cores from this formation have been observed in bore holes around the western arc of the lake. The reefal facies of the Mid-Devonian may be correlated southward with an evaporite facies and northward with marine, often petrolierous rock. The reefal material contains excellent reservoir rock.

The Upper Devonian sequence is found overlying the Mid-Devonian in scattered, generally low exposures west of Slave Lake. A section well is exposed along the Hay River in the vicinity of Alexander Falls. The lower portion consists of light coloured, soft marine shales, overlain by widespread limestones with local bichermal growths developed on the Hay River, Trout River and in the Mackenzie Mountains. These reefal facies are generally non-porous.

A mainly clastic Mississippian sequence overlain by Permo-Penn sandstones, quartzites and conglomerates, is found in the mountains at the western edge of the area of investigation.

Lower Cretaceous rocks of undivided Fort St. John group were examined in three areas, Netla near Fort Liard on the Petitot and Muskeg Rivers and near Fort Simpson. The sections consist mainly of shales with thinner sandstone members. Two Upper Cretaceous formations were examined along the Petitot River, correlatives of the Dunvegan and lower Wapiabi of northern Alberta.

The eastern ranges of the Mackenzie Mountains form the western structural elements of the area and are bounded on the east by westerly dipping faults. No true foothill structure is present. Glacial drift covers the Plains to the east and masks surface structure except along a few of the rivers, where small structural features have been observed.

Regionally, a broad low is indicated in the Trout Lake area. The ill-defined axis of this low strikes approximately north-south. A uniform gentle dip to the southwest is maintained throughout the area east of Trout Lake to the outcrop sections of Great Slave Lake.

GEOPHYSICAL SURVEYS

Pursuant to Section 23 of the Regulations and in accordance with the Honorable Mr. Robert H. Winters' letter of March 18th, 1953, the expenditure incurred in connection with our Geophysical surveys was applied to the permits. In survey work of this nature, a broad regional coverage is required for an evaluation of smaller areas, such as our permits. The total area included within the survey and charged against a given permit is larger, therefore, than that of the permit itself.

An aeromagnetic survey was conducted within and beyond the area of the permits, to provide a Geophysical reconnaissance of the region, in order to gather information to aid in the direction of future detailed exploration of the area, such as seismograph or drilling.

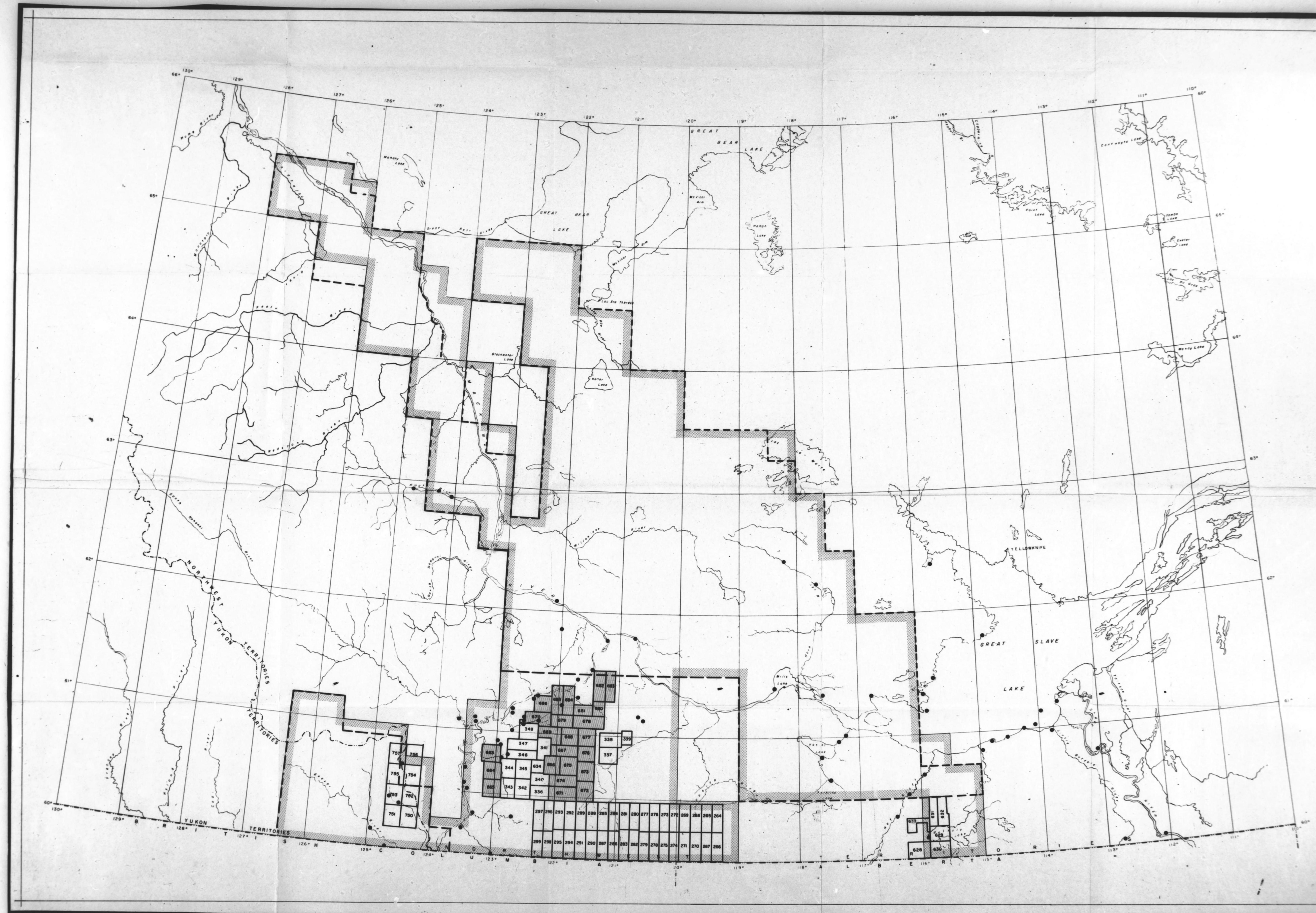
A submitted map shows the location of the aeromagnetic work during the course of which 49,535 miles of line were surveyed over the subject permits and their surrounding areas. A total of twenty to twenty-five men were employed on this project between May 20th and August 13th, 1953.

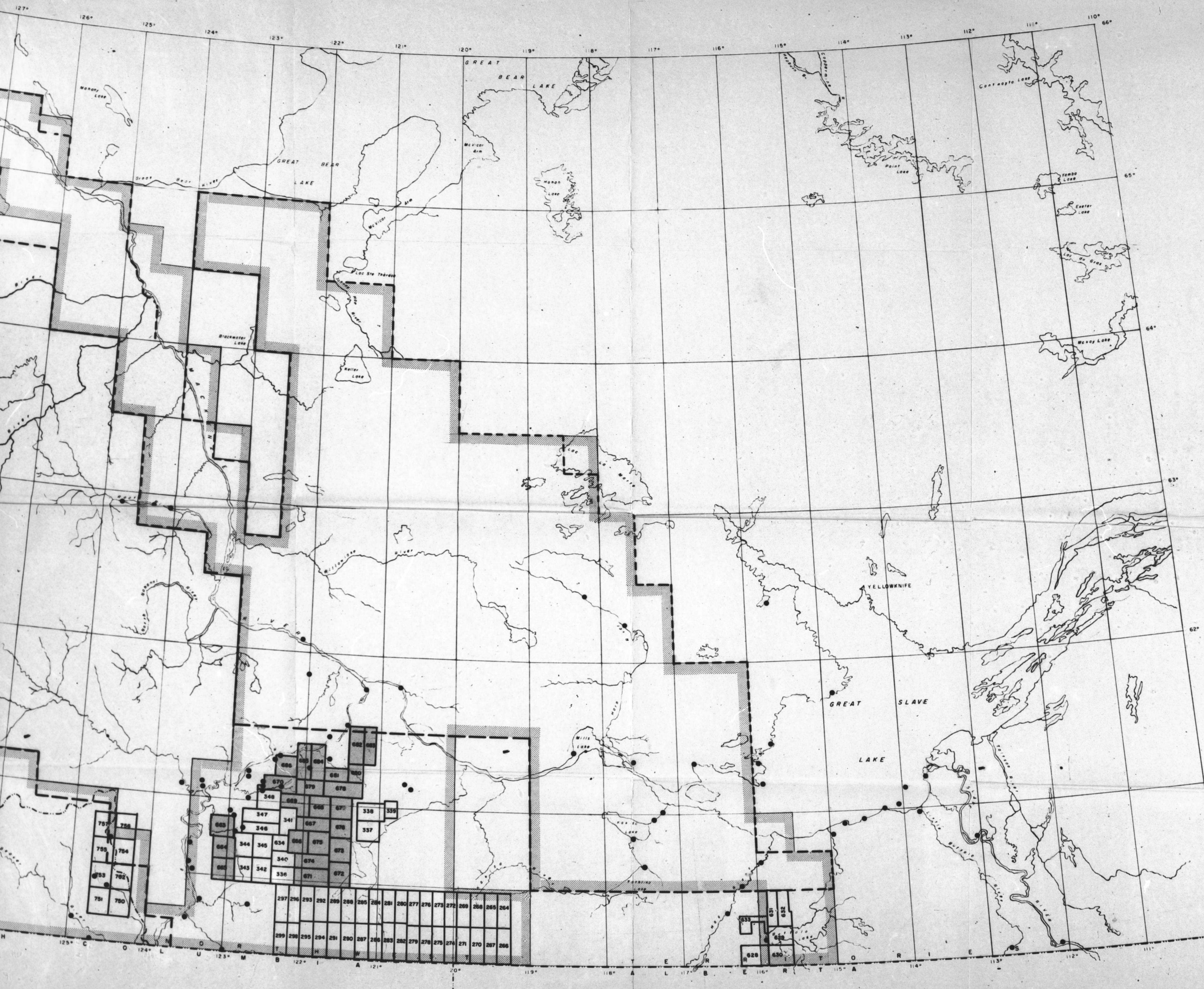
This aeromagnetic survey was carried out by Canadian Aero Services Limited, using Gulf magnetometers installed in Anson and Canso aircraft. The base of operations was Fort Nelson B.C. The survey was hampered greatly by bad weather and periods of magnetic unrest, but produced the close grid pattern shown on Map #2.

PLANIMETRIC MAPPING.

Planimetric mapping has been completed over an area in excess of 65,000 sq. miles, as outlined on Map #1. This mapping consists of a series of map sheets, each of scale 1" to the mile, covering fifteen minutes of latitude and thirty minutes of longitude.

The main mapping project was controlled by Government Shoran locations and shows the principal details of the areas, as interpreted from aerial photography.





# **NORTHWEST TERRITORIES P. & N.G. ACREAGE**

SCALE  
MILES 0 10 20 30 40 50 60 MILES  
IMPERIAL OIL LIMITED  
EXPLORATION DEPT. PEACE RIVER DISTRICT

CAP. I

**-LEGEND-**

• GEOLOGICAL SURFACE SECTION  
[ ] 1 MILE TO 1 INCH PLANIMETRIC  
-----  
MAPPING  
[ ] AREA OF AEROMAGNETIC COVERAGE  
[ ] 680 APPPLICABLE PERMITS

41-T-85

