

GEOLOGICAL RECONNAISSANCE

OF

PORT PROVIDENCE AREA,

N.W.T.

By

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Imperial Oil Limited

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
STRATIGRAPHY	1
GENERAL	1
PRE-DEVONIAN	2
DEVONIAN	2

IN POCKET

SURFACE GEOLOGICAL MAP 8 Miles to 1 Inch

STRATIGRAPHIC CROSS-SECTION A-A'

INTRODUCTION

The area of investigation was restricted to the Plains area lying east of Fort Providence, between Latitude 61°00' and Latitude 62°30', and is known as the Fort Providence area.

The field season commenced on August 21, 1959 and terminated September 4, 1959.

The geological field party consisted of one geologist and a student assistant. Transportation in the field was supplied by a de Havilland Otter float-plane and a Bell Model G-2 helicopter. A canoe was also utilised to traverse the Horn River and the northwest shore of Great Slave Lake.

Outcrops were examined on the Horn River, immediately west of Fawn Lake, and on the northwest shore of Great Slave Lake. Diamond drill cores were also examined from holes drilled in the vicinity of Windy Point, Great Slave Lake. From the above gathered data a geological map was prepared and the stratigraphic sequence established.

Stratigraphy

General

Rocks exposed within the Fort Providence area range from pre-Cambrian to Upper Devonian. Only the Devonian sediments were examined in any detail.

Stratigraphy (Cont'd)

Pre-Devonian

The basal Palaeozoics are represented by marine sediments, which vary in thickness from near-zero to 1,000 feet. This great variation in thickness is probably due to Precambrian topography, and faulting during deposition.

Many outcrops of Pre-Devonian are present adjacent to the Precambrian Shield between Lac La Martre and Great Slave Lake. All of these outcrops have been tentatively dated as Ordovician and consist of fine dolomites, and red beds comprising evaporites and shales. This lithology compares with strata picked as pre-Devonian in wells in the general Fort Providence - Deep Bay area.

Devonian

Within the limits of the Fort Providence area, the Devonian can be subdivided as follows:

Upper Devonian Shale
(600 - 2000')

Shale, grey-green with thin carbonate developments.

Middle Devonian Shale
(500' ±)

Shale, grey, brown, occasionally bituminous, with associated reefs (Fawn Lake Bioherm, Presqu'ile of Windy Point), some shelf carbonates.

Middle Devonian Carbonate
(600' ±)

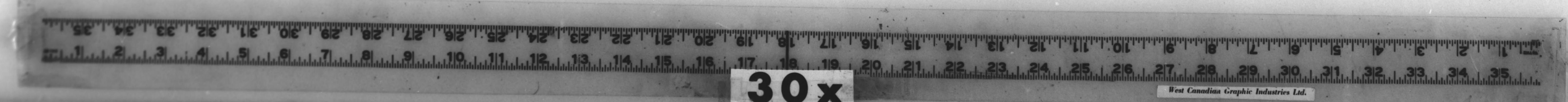
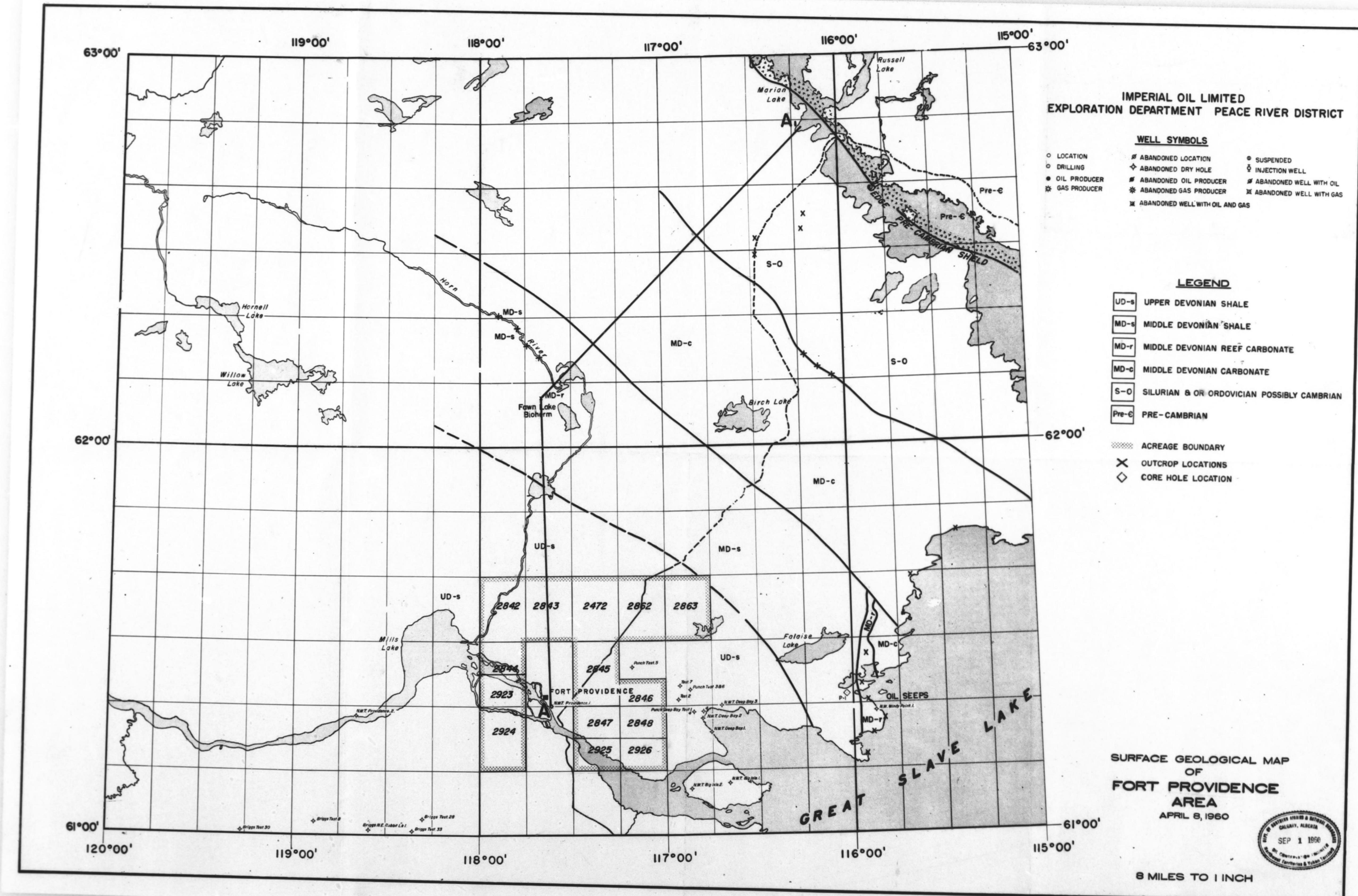
Interbedded limestone and lime muds, containing evaporites in basal part.

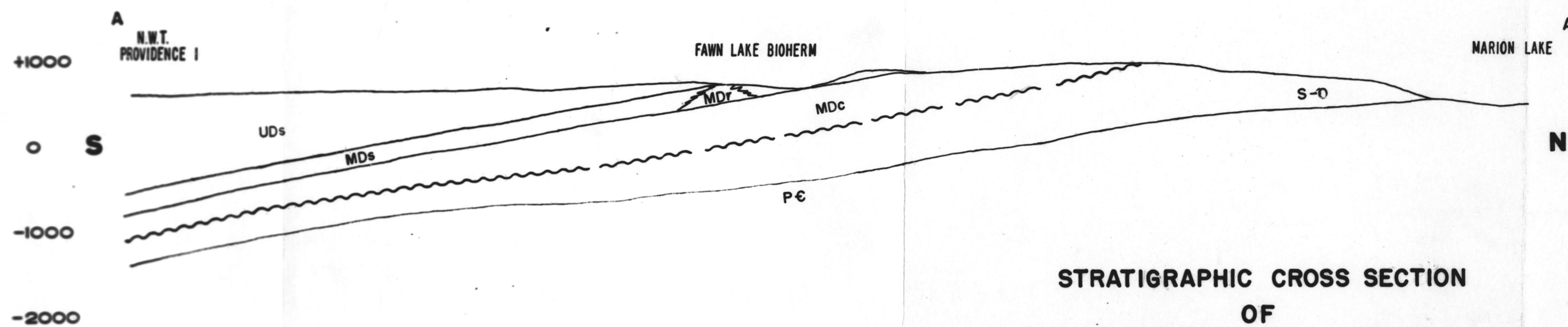
Middle Devonian carbonates were examined in the Windy Point area both in outcrop and from core holes drilled in the same vicinity.

Devonian (Cont'd)

Middle Devonian shales were observed outcropping on the Horn River about 8 miles above Fawn Lake, and in Diamond Drill Hole R-1, drilled near Windy Point, Great Slave Lake. An outcrop of limestone reef, two miles west of Fawn Lake, is believed to be contained within the shales outcropping immediately to the north on the Horn River. This reef is considered to be of Middle Devonian age.

Upper Devonian shales are not known to outcrop within the map area, and their presence is inferred from an examination of samples from wells in the Deep Bay area.





STRATIGRAPHIC CROSS SECTION
OF
FORT PROVIDENCE AREA

HORIZONTAL SCALE: 8 MILES TO 1 INCH
VERTICAL SCALE: 1000 FT. TO 1 INCH

TO ACCOMPANY REPORT: Geological Reconnaissance
Of Fort Providence Area, N.W.T.
B. GALLANT.

April 8, 1960



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