

Report to Government of Canada
Reflection Seismograph Survey

POPLAR RIVER "B" PROJECT
Ft. Simpson Area, N.W.T.
1970

By: United 594

For: H.B.O.G.



Geophysical Report
To
Government of Canada
On
Reflection Seismograph Survey

POPLAR RIVER "H" PROJECT

FT. SIMPSON AREA, N.W.T.

1970

Shot For
Hudson's Bay Oil and Gas Company Limited
By
United Geophysical Company of America
On
C.P.&N.G. Permit No. 4302

Exploration Licence No. 1690
Timber Permit No. 4402

C. L. LAKE
November 1970

INTRODUCTION

This report covers a reflection seismograph survey conducted about 40 miles south of Ft. Simpson, N.W.T. The work was done in March 1970 by United Geophysical Company of America under contract to Hudson's Bay Oil and Gas Company Limited. The project consisted of detail program across a localized anomaly on C.P.&N.G. Permit No. 4302. This permit is held 62% by H.B.O.G. and 38% by Great Plains Development Company of Canada, Ltd.

LOCALITY MAP

The location of C.P.&N.G. Permit No. 4302, and the local area within it which was surveyed, is shown on Plate I.

STATISTICAL DATA

Field Crew:	United Geophysical Party 594
Arrival of first equipment on Project site:	March 16, 1970
Recording commenced:	March 19, 1970
Recording completed:	March 23, 1970
Miles recorded:	14.5
Average miles recorded per day:	2.9
Profiles recorded:	174
Number of shots:	212
Recording hours worked:	56.5
Hours lost time:	0
Pounds of explosives used:	1108.75
Number of caps used:	212
Footage drilled:	9260

Number of holes drilled:	177
Hours drilling:	594

EQUIPMENT

Recording truck equipment consisted of a 24 trace set of SIE Model PT 100 amplifiers coupled with a PMR-20 tape transport. Mark Product 48 channel cables were used. Geophones were 14 cycle Geospace Model 11 D. Two cable trucks and one shooting truck were employed.

Six drills were used on the job. Four of them were Mayhew 1000's. The other two were subcontracted and the make and model is not known by the writer.

Three cats were used. Two of them were D-6's and one was a D-7.

Surveying was done using a T 16 Theodolite.

PERSONNEL LIST

- 1 Party Manager
- 1 Observer
- 1 Shooter
- 2 Cable Truck Drivers
- 7 Recorder Helpers
- 2 Surveyors
- 6 Drillers
- 6 Drillers' Helpers
- 1 Supplyman
- 1 Mechanic

1 Cook
1 Cook's Helper
1 Camp Attendant
3 Cat Operators

OPERATING CONDITIONS

Operating conditions were excellent. Temperatures varied from 15° to 45° with an averaging 25°. Winds were light to moderate.

FIELD PROCEDURES

Coverage:	600% CDP
Spreads:	2640' split - near offset 110'
Station Interval:	220'
Shot Point Interval:	440' (single holes)
Charge Size:	5 pounds
Shot Depth:	50'
Geophones:	9/trace
Geophone Spacing:	25'

DATA PROCESSING

Elevation and weathering corrections were computed by Western Geophysical Company. Computions were supplied to Continental Oil Company at Ponca City, Oklahoma, where data processing was done using an SDS Sigma 7 computer. Digital processing was applied sequentially as follows:

1. Deconvolution:

Window .1 to 1.5 sec., Operation Length .150 sec., 15-65 CPS.

2. Normal moveout and static corrections

3. Trace equalization

4. Statistical Automatic Static corrections

5. 600% stack

6. Adjusted trace corrections:

Window .4 to 1.2 sec., min. correlation coefficient .3,
max. shift .020 sec.

7. Light adjacent trace mixing

8. Trace equalization

Elevation Reference: + 1000 feet

Near Surface Velocity: 9000 feet/sec.

NMO Velocity Source: H.B.O.G. Gt. Plains Simpson D-25
(61° 21' N. 121° 45' W.)

RESULTS AND INTERPRETATION

Submitted with this report are the following maps:

Shot Point Location

Hume Structure

Pre-Cambrian Basement Structure

Hume to Pre-Cambrian Basement Isochron

Record quality was good.

This survey confirmed the presence of a pinnacle reef covering
about 500 acres.

C. L. Lake

C. L. LAKE

District Geophysicist

HUDSON'S BAY OIL AND GAS COMPANY LIMITED

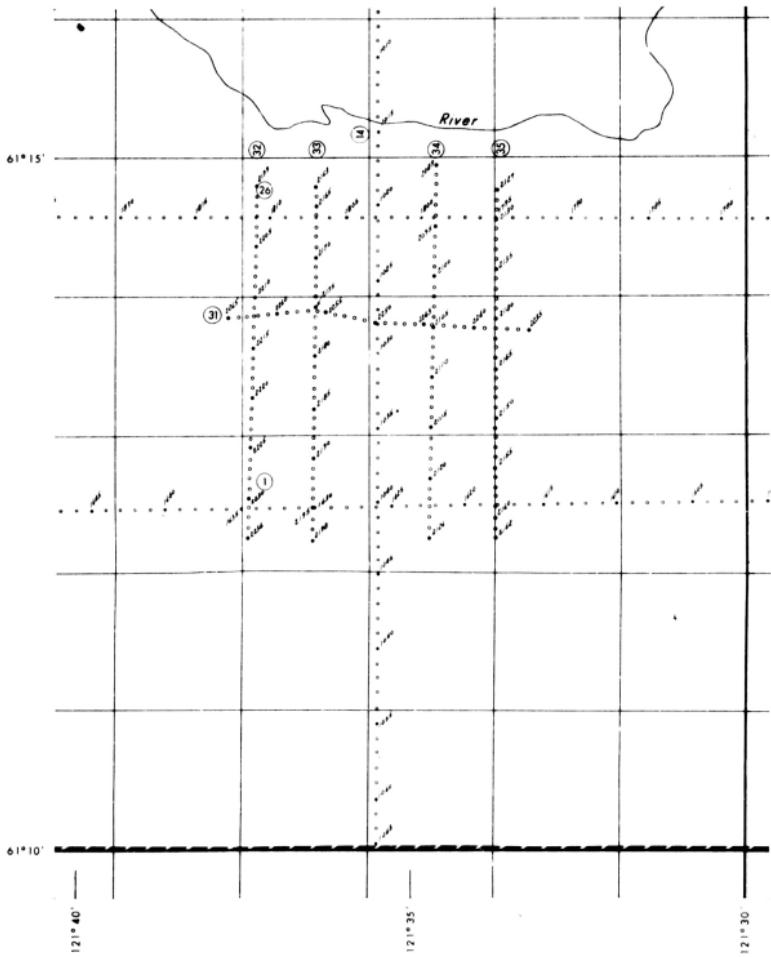
CPENG PERMIT
4302



122°00' 45° 30° 15°

To Fort Nelson

PLATE I



61° 15'

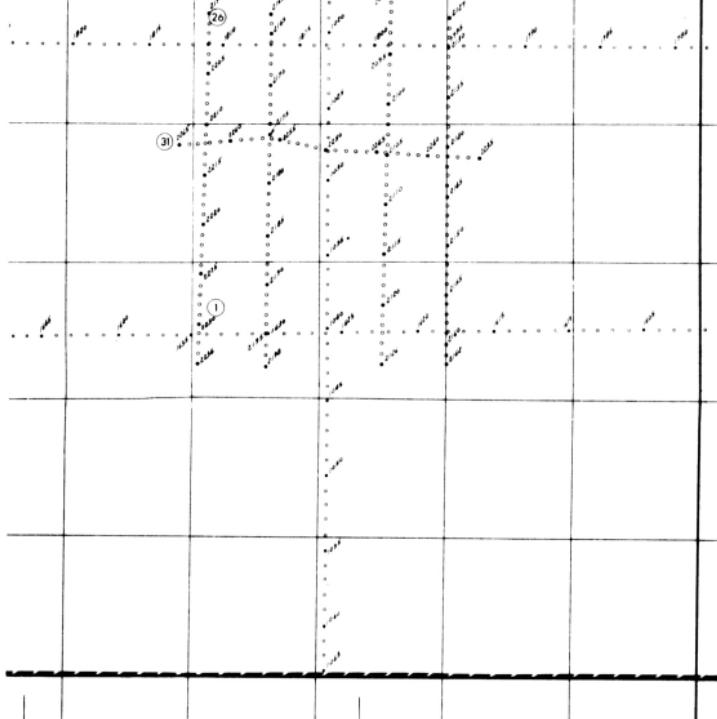
(1) (2) (3) (4) (5)

61° 10'

121° 40'

121° 35'

121° 30'



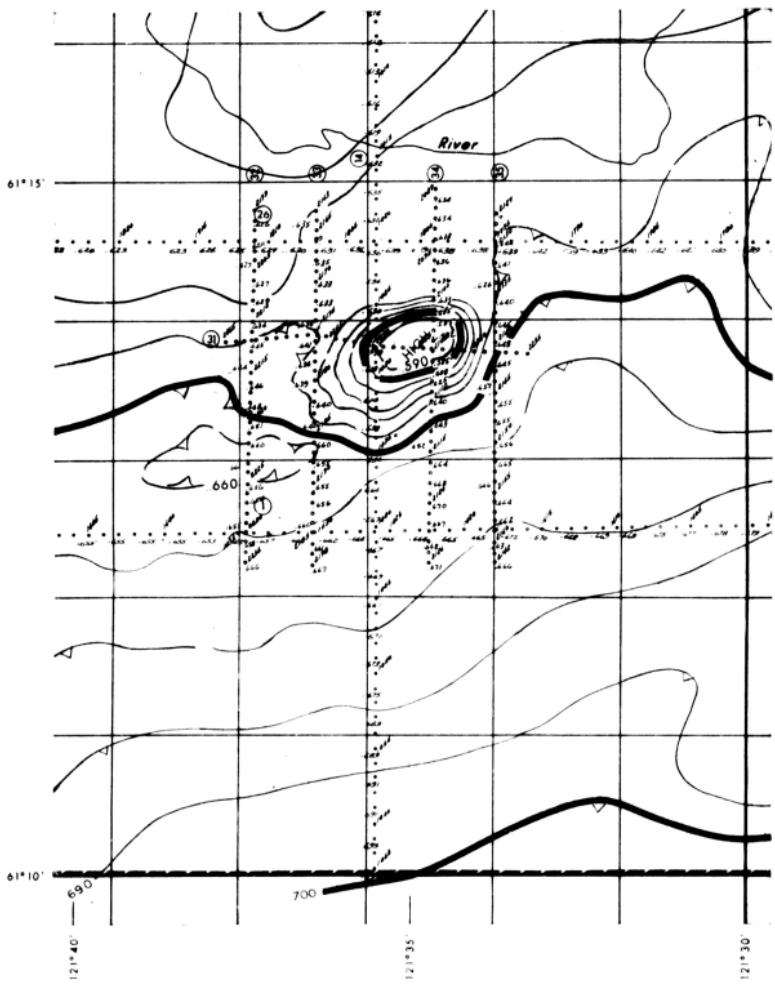
Hudson's Bay Oil and Gas Company Limited

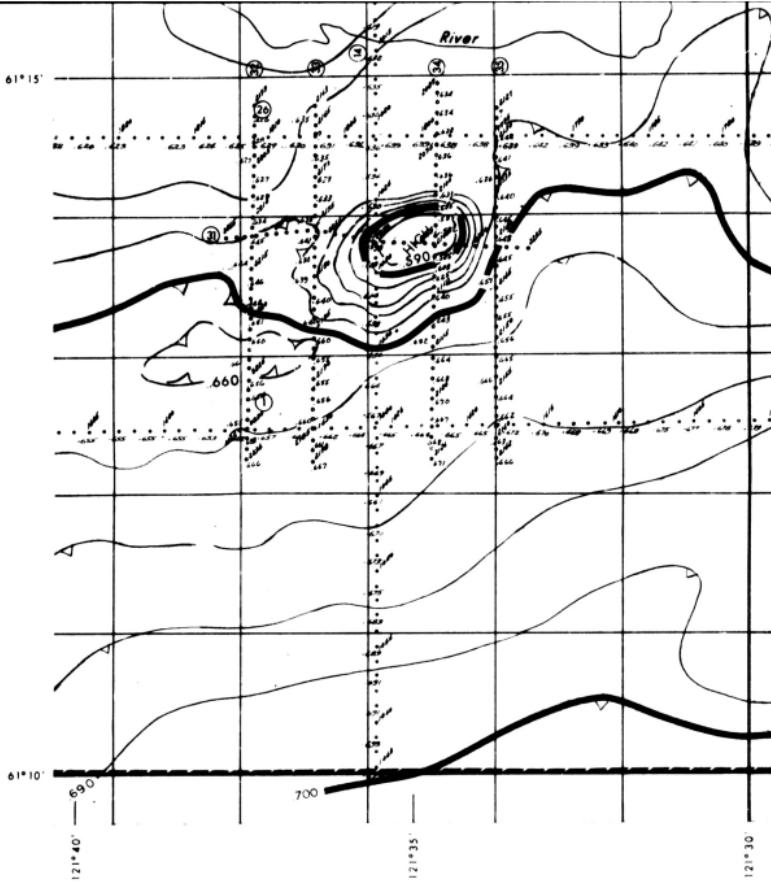
EXPLORATION DEPARTMENT
CALGARY ALBERTAPOPLAR RIVER "B"
GEOPHYSICAL MAP

SHOT POINT LOCATIONS

CONTOUR INTERVAL	sec.	TIME for	sec.
TIME or INTERVAL	sec.	THICKNESS or DEPTH	ft.
ELEVATION REFERENCE	ft.	VELOCITY	/sec.

SCALE	1" = 4000'	AUTHOR	C. LAKE	DATE	NOV 1970
FILE No. <i>202</i>					





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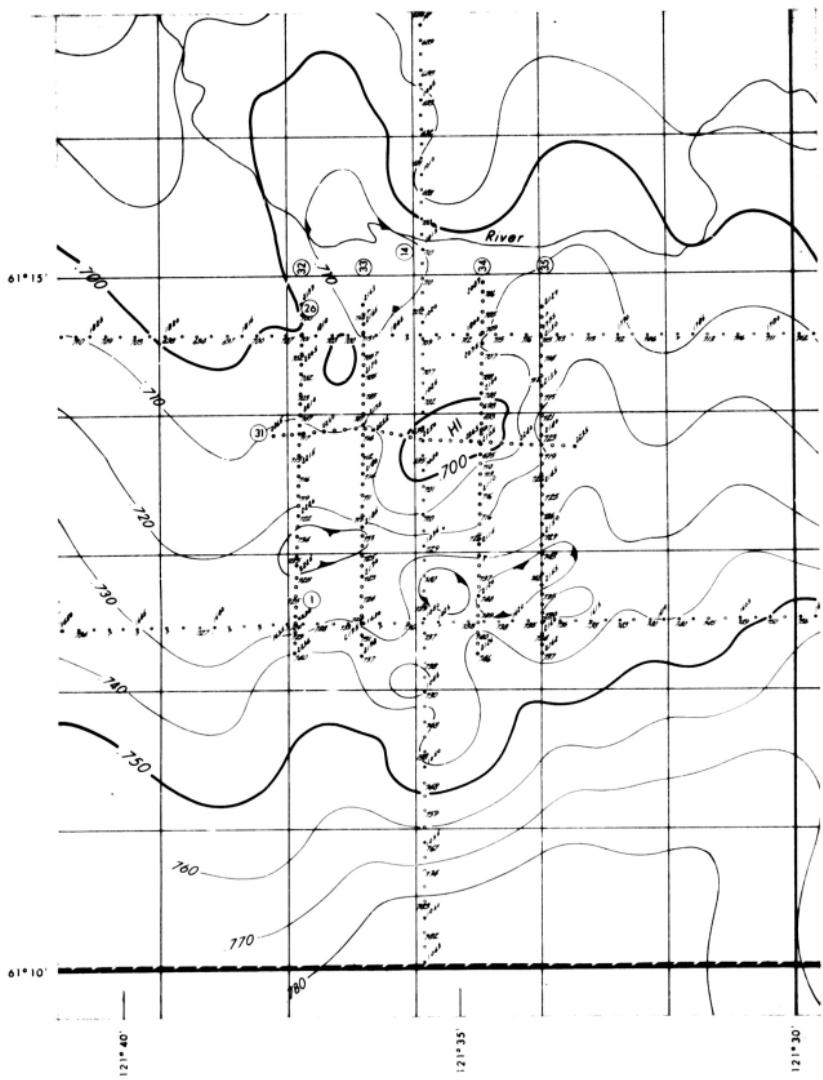
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EDMONTON, ALBERTA

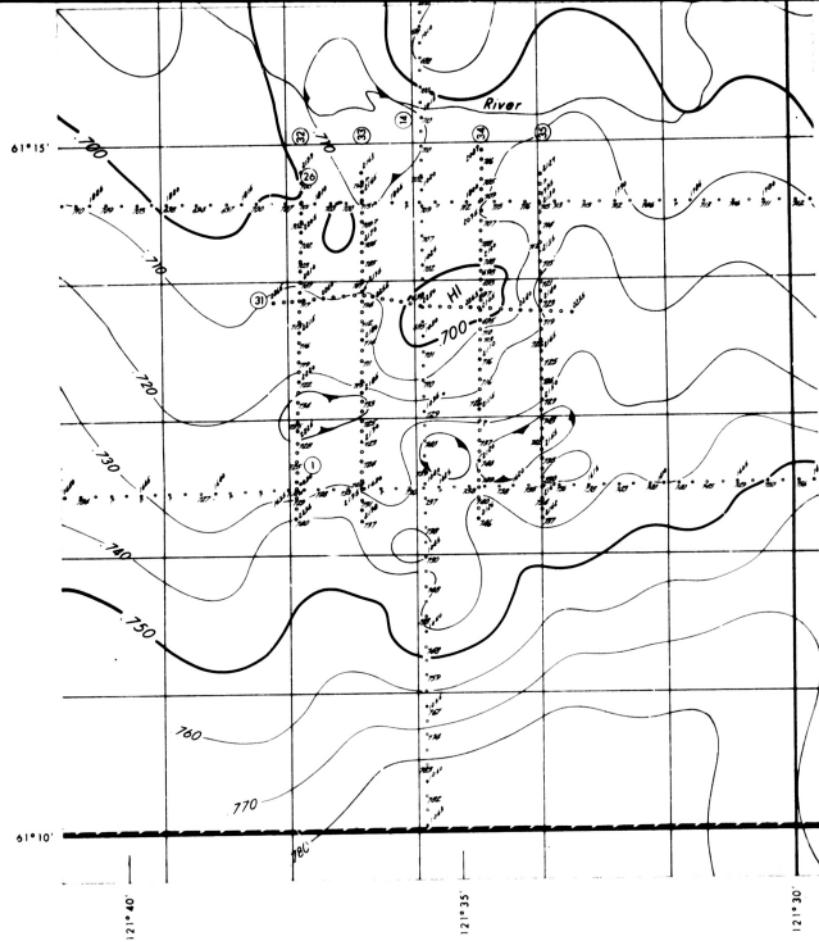
POPLAR RIVER "B"
GEOPHYSICAL STRUCTURE MAP
HUME

CONTOUR INTERVAL 0.010 sec. (for = /sec.)
TIME or INTERVAL 0.550 sec. THICKNESS or DEPTH ft.
ELEVATION REFERENCE 1000 ft. VELOCITY 9000'/sec.

SCALE 1" = 4000' AUTHOR C. LAKE DATE NOV. 1970
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CALGARY

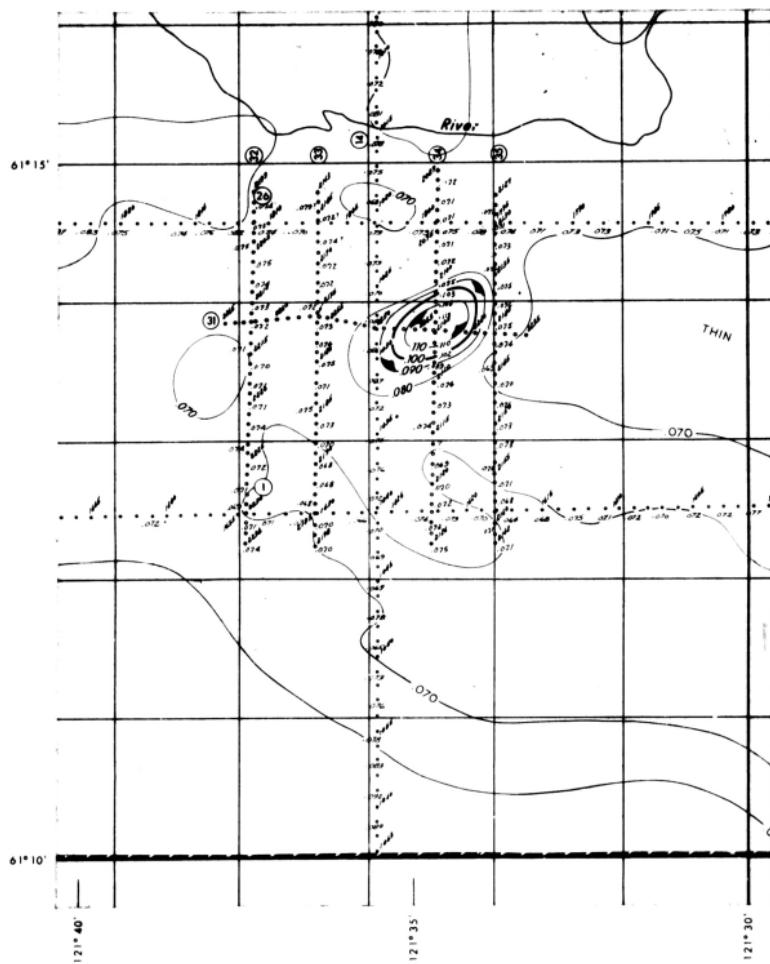
ALBERTA

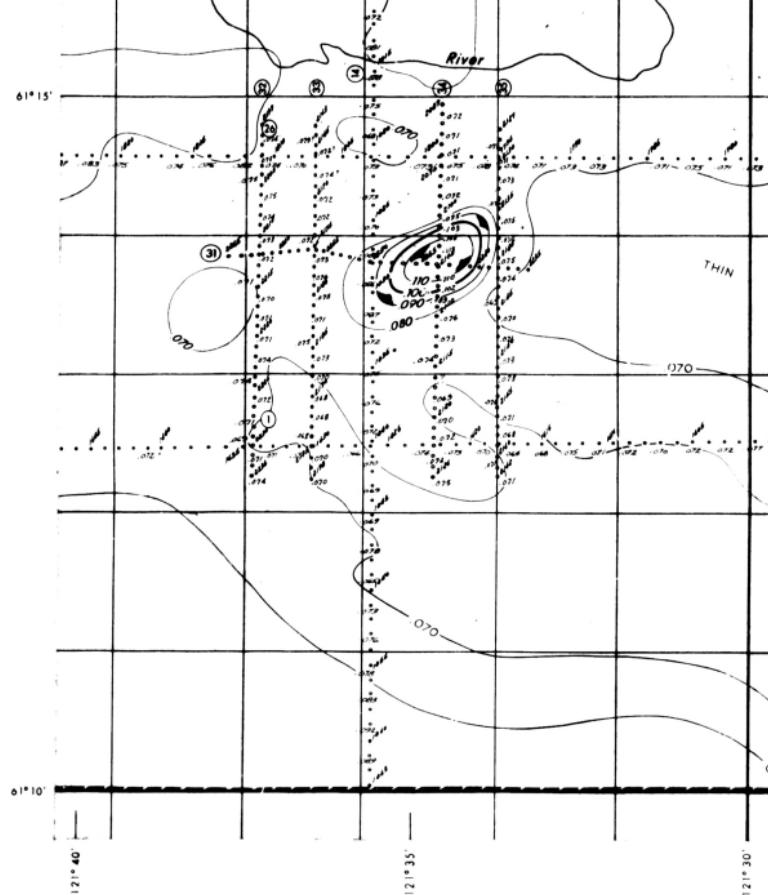
POPLAR RIVER "B"
GEOPHYSICAL STRUCTURE MAP
PRE - CAMBRIAN

CONTOUR INTERVAL 0.010 sec (53' for $V_A = 10,600' / \text{sec.}$)
TIME or INTERVAL 0.700 sec THICKNESS or DEPTH 3710 ft.
ELEVATION REFERENCE +1000 ft. VELOCITY 9000' / sec.

SCALE	1" = 4000'	AUTHOR	C. LAKE	DATE	NOV. 1970
FILE No.					

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EXPLORATION DEPARTMENT
CALGARY ALBERTA

POPLAR RIVER "B"
GEOPHYSICAL ISOCHEMOMAP
HUME TO PRECAMBRIAN

CONTOUR INTERVAL 0.010 sec. (100' for $V_1 = 20,000$ ft/sec.)
TIME or INTERVAL 0.070 sec. THICKNESS or DEPTH 350 ft.
ELEVATION REFERENCE ft. VELOCITY ft/sec.

SCALE: 1" = 4000'	AUTHOR: C. LAKE	DATE: NOV 1970
FILE No.		

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