1-6-5-41

IMPERIAL OIL LIMITED

GEOLOGICAL DEPARTMENT

Report on Territorial Oil and Gas Permits 2475, 2476, 2478, 2479, 2487 - 2497, 2830 - 2833. Norman Wells Area N.W.T.

For Period May 1, 1960 to December 15, 1962.

Enclosures Two Seismic Shot Hole Location and Elevation Maps

Ten Structure Maps.

By P. W. J. WOOD

Date January 8, 1963.

Map References:

96 E - Canol

106 H - Sans Sault

GEOLOGICAL & EVALUATION
RESOURCES DIVISION
JAN 22 19
OTTAWA, CANADA
Dept. of Northern Affairs & National Resources

IMPERIAL OIL LIMITED

PRODUCING DEPARTMENT - WESTERN REGION

REFLECTION SEISMIC OPERATIONS - NORMAN WELLS AREA

N.W.T. Permits 2475, 2476, 2478, 2479, 2487 - 2497

and 2830 - 2833.

January - April 1961

By

P. W. J. WOOD

January 8, 1963.

PEACE RIVER EXPLORATION DIVISION

DAWSON CREEK, BRITISH COLUMBIA

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S U M M A R Y

Report on reflection seismograph operations conducted by wholly-owned Imperial Oil Limited Party No. 23 on behalf of Imperial Oil Limited in the Norman Wells Area from January 6th to April 15th, 1961. Submitted in support of application for credit. See Affidavit of Work by H. W. Johnson dated January 4, 1963.

INTRODUCTION

Access to this area was made via the Mackenzie River and the use of a Company owned DC-3 and a PWA Beaver. Crews and equipment were assembled during the first week in January. Equipment, in addition to a standard reflection seismic operation, consisted of two D-8 and one D-4 cats with bulldozers.

REFLECTION SEISMIC OPERATIONS

Due to the inaccessibility of the area men and equipment were airlifted to the area during the first week in January. Skeleton crews experimented with drills and equipment. Certain of the cats commenced to cut line while drilling difficulties were encountered on old roads. Air drilling was slow and the use of water delayed production. Water supplies were eventually obtained by drilling through eight feet of ice in the Mackenzie River. A heavy snow fall and resultant drifting caused the cats to work overtime keeping lines open. Wind chill temperatures of 65 below were common during the week.

Production commenced on January 6th and record quality was good on single holes. Although three and five hole patterns were tried there did not seem to be any improvement over singles. Weather continued to be severe with the temperature averaging 45 below during the week. The D-8 cats were used to cut lines and clear drifts while the D-4 was kept busy hauling equipment over rough terrain. Drilling improved due to lines being off old roads and therefore encountering more permafrost. Due to the problem

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of cats being overworked, production was reduced to an average of four miles per day.

During the third week in January work proceeded more quickly due to moderated temperatures and good record quality. A good deal of muskeg was encountered and was very rough on equipment. High winds required burying geophones but exceptional record quality was obtained throughout. Much time was lost in moving vehicles over rough lines - most had to be towed by the cats. The crossing of the Carcajou River caused some delays as some flooding was encountered. Drilling remained very easy due to the existence of permafrosted clay. Both insert bits and two cone rock bits were effective.

Upon crossing the Carcajou River it was found that single holes were not sufficient and pattern holes were used unless singles seemed indicated. Moving camp required a good deal of time for the distance involved due to line conditions. Equipment breakdowns became common with the cats having the worst troubles. The weather remained mild and averaged around 10 below zero. Surface conditions were unchanged with rough muskeg being predominant. Drill production was lower this week due to their encountering gravel on the southwest side of the Carcajou River.

From February 5th to 11th, the work was located between the Katherine and Imperial Rivers. Record quality was fair on three and five hole patterns. It was decided for production purposes that three hole patterns would be the rule unless the situation warranted a change. Surface conditions were very difficult - for winching was not uncommon on level ground. The cats were having great difficulties meeting a production schedule and drilling equipment was hard to move to new locations. The terrain caused many

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equipment breakdowns with broken springs and flat tires being very common. It took four days to cross the Imperial River although it was planned to shoot the crossing. Record quality was good except for the line going into the Imperial River gorge. Availability of water hampered drilling production due to the presence of gravel and a night shift was used to keep ahead. Fuel shortages were partially solved by sledding 2,000 gallon tank loads of diesel from the Norman Wells refinery.

During February 12th to 18th, the shooting crossed the Imperial River using some ten miles of line. The first north-south line on the west side of the river was also shot. Record quality remained good using three hole patterns. During this period, the weather became quite severe, with temperatures below minus 50 degrees being common. All equipment was kept running all night after it was found that the propane in the block heaters would not vaporize at this low temperature. Transmissions became so stiff that they killed motors when the clutch was let out. The saving grace for this period was that road conditions became better on the west side of the Imperial River. Rough muskeg still predominated but the terrain became varied with hilly and level stretches. Due to extreme temperatures much difficulty was encountered with cables and the squirter became un-serviceable. This resulted in breast reels being used which slowed production. Equipment turnarounds were quite difficult due to drifting snow. Winching was common during the week.

During the period from February 19th to 25th, record quality was very good on three hole patterns. The weather moderated to a 35-25

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below range with moderate winds. Drifting plus rough lines still caused a great deal of difficulty. Due to the low mobility of the drills, crews were just behind them and the cats. Muskeg conditions were still predominant although the terrain flattened somewhat. Drilling for the period was hampered by slow moves but production remained high due to holes having only a few feet of frozen muskeg over clay and shale.

From February 26th to March 4th, three hole patterns were continued. Record quality remained good although velocities in the permafrost appeared to vary. The permafrost in areas where there are a large number of sloughs varied in the degree to which it froze the ground. The material drilled through these areas was not frozen as solid as in the areas where there are fewer sloughs and creeks. Velocities in these areas appeared to be lower. Weather for the period was mild with temperatures averaging 10 below. Terrain was flat with many slough-muskeg areas. Trail conditions were improved by back blading and also by using a drag made of heavy steel. Because of less consolidated permafrost, air drilling was not as effective as in some areas. This problem did not appear to be serious and production remained high. Equipment being stuck and winching was still common.

During March 5th to March 11th, work continued westward with record quality varying from fair to good. A switch was made to five hole patterns which gave better records. Three miles of line were re-shot with five hole patterns. The weather varied from 45 below to about 10 below during the week. Conditions were treacherous as cats had to work in pairs to be assured of getting back to camp. Flood ice on the river caused

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difficulties in maintaining a fuel supply. Equipment became ready for major overhauls due to its heavy use.

From March 12th to 18th, record quality was generally good. The weather was mild all week and gave a lift to the crew personnel. Many hills were encountered near the Imperial Range and winching became necessary. Drilling conditions became more difficult due to the existence of gravel and sandstone. Terrain during this period was perhaps the roughest encountered during the assignment. Winching was common and all equipment worked in first gear. One D-8 caterpillar broke through in a muskeg slough and was almost completely submerged. This required one day of winching and the cat then underwent repairs. Broken springs and flat tires were common during the week.

During March 19th to the 25th, record quality varied from poor to good. The shooting crew reached the plain below the ridge on the last day of the period. Weather was cloudy and foggy. This hampered the air support from servicing the crew properly. Drilling encountered all types of rock - silty sandstones, limestones and pure sand was encountered at the base of the Imperial ridge. The cats were all having their troubles resulting in a general slowdown of operations. The squirter again became unserviceable and breast reels were used for two days. Due to the hilly nature of the terrain the camp move took three days as cats had to hold back on the equipment descending the Imperial Range.

During the week of March 26th to April 1st, the work was done between the Imperial Range and the Carcajou River. Record quality was poor

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to 'no good' for the most part with a few good records towards the end of the week. A suspected inverse velocity was found to exist after an up-hole survey was taken. The weather turned cold again and cloud conditions hampered servicing via aircraft. This made repair problems acute due to the extremely rough conditions causing equipment breakdowns. All equipment had to be towed by cats and very steep valleys cut by creeks were encountered. Due to mobility problems production was hampered by low production from the drills and cats.

From April 2nd to the 8th, the crew finished the shooting between the Imperial Ridge and the Carcajou River. Record quality was fair to the river but after crossing the river, it was not good. There seems to be a marked velocity inversion in this area. It was virtually impossible to obtain an up-hole survey in the area due to the sandy and sludge nature of the soil. Snow and cloudy weather continued to hamper service via aircraft. Surface conditions improved between the Carcajou and Mackenzie Rivers mainly due to the crew using lines cut in 1942. The cable crew had great difficulties during the week due to the terrain, snowy conditions causing stuck equipment and the reversion to portable cables.

The concluding week of the assignment, April 9th to 15th, was used in shooting the Rete Lake lines. Record quality was fair to good. The weather turned very mild and surface conditions were still good. Spring thaw started and with the camp back at the Mackenzie River, softening up of trails did not cause any concern. A general check-up of equipment indicated that all require repairs to a greater or lesser degree due to the rough conditions

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encountered during the assignment. A total of 103,527 feet of hole was drilled during the assignment which averaged approximately 46.2 feet per hour.

Party No. 23, having completed its assignment, vacated camp on the 15th and moved to Canol. During the above program, a total of 1,129 shots were taken at 1,016 locations to obtain some 1,997 profiles. A total of 300 miles of seismic were shot during the 95 days of actual shooting operations.

P. W. J. WOOD

January 8th, 1963.

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'
66°00' 50' 40' 30' 20' 10'

SAM McRAE LAKE
TUPPER LAKE
Moon Lake
Oscar Lake
Pass Lake
Lake Majel
Cascade Creek
PEACE RIVER
Three Guy Lake
Wapiti River
Cranberry Creek
2478
2479
2491
2492

INDEX TO MAP SHEETS

TRAVERS LAKE	CARBARTH RIVER	MURRY LAKE	LAC MAUNOIR
MARION LAKE	MANITOU	LAC BELOT	TWEED LAKE
RED RIVER	SANG SAULT	CANOL	MAHONY LAKE
ROND LAKE	MT EDUNI	CARCAJOU	TATE LAKE

106 96

107

IMPERIAL OIL LIMITED
MAP OF
P.& N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497
SCALE: 2 MILES TO 1 INCH
SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP HUME-L.CAMBRIAN ISOCHRON .025 SECS.
- ☐ C-COAL SHOWS ☐ G-GRAVEL SHOWS

PEACE RIVER DISTRICT

66°00' 30' 15' 127°00' 45' 30' 15' 66°00'

50'

40'

30'

20'

10'

65°00'

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'

SAM MCRAE LAKE

TRITON LAKE

MOOSE LAKE

OSCAR LAKE

KELLY LAKE

Lake Majel

Caribou Creek

Three Day Lake

Tetsa River

Tetsa Creek

2478 2479 2492 2493 2494 2495 2496

600 625 650 675 700 725 750 775

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps.

INDEX TO MAP SHEETS

TRAVELLERS LAKE	CARBARTH RIVER	MURRY LAKE	LAC MAJOR
MARION LAKE	MANITOU	LAC BELOT	TWEED LAKE
RED RIVER	SANG SAULT	CANOL	MARONY LAKE
BONE LAKE	MT EDUNI	CARCAJOU	TATE LAKE

106 96

IMPERIAL OIL LIMITED

MAP OF

P.& N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497

SCALE 2 MILES TO 1 INCH

SHOWING

☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS

■ TIME MAP HUME-LCAMBRIAN ISOCHRON .025 SECS.

☐ C-COAL SHOWS ☐ G-GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

242

96 E-CANOL

2 MILES TO 1 INCH

SHEET 1

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'

66°00'

50'

40'

30'

20'

10'

65°00'

SAM McRAE LAKE

THURTON LAKE

Moon Lake

Oscar Lake

KELLY LAKE

MACKENZIE RIVER

Lake Majel

Three Day Lake

2478 2479 2491 2492 2493 2494 2495 2496 2497

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

INDEX TO MAP SHEETS

TRAVERSAY LAKE	CARMACKS RIVER	AUBRY LAKE	LAC MAUNOIR
MARION LAKE	MANITOU	LAC BELOT	TWEED LAKE
HID RIVER	SAM JAULT	CANOL	MARIONY LAKE
BOND LAKE	MT LOUNT	CARCAJOU	TATE LAKE

106 96

IMPERIAL OIL LIMITED

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P.& N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497

SCALE: 2 MILES TO 1 INCH

SHOWING

■ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS

□ DEPTH MAP - DATUM - SEA LEVEL

□ C - COAL SHOWS ■ G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

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96-E-CANOL

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

130°00' 45' 30' 15' 129°00' 45' 30' 15' 128°00'
66°00' 50' 40' 30' 20' 10'

MACKENZIE RIVER
RIVER
MOUNTAIN
Hume
Bovie
Doris Lake
Florence Lake
L. Crick
Lake
2833
2487
2488
2475
2476
2489
2490
500
600
700
800

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TRAVELLANT LAKE	CARBARTH RIVER	ALBERT LAKE	LAC MAUNOIR
MARION LAKE	WANITOU	LAC BELOT	TWEED LAKE
RED RIVER	SANS SAULT	CANOL	WARIONT LAKE
BOND LAKE	MT EDUNI	CARCAJOU	TATE LAKE

106 96

107

IMPERIAL OIL LIMITED
MAP OF
P & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833
SCALE 2 MILES TO 1 INCH
SHOWING
- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP ISOCHRON HUME TO L.CAMBRIAN .025 SECS.
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

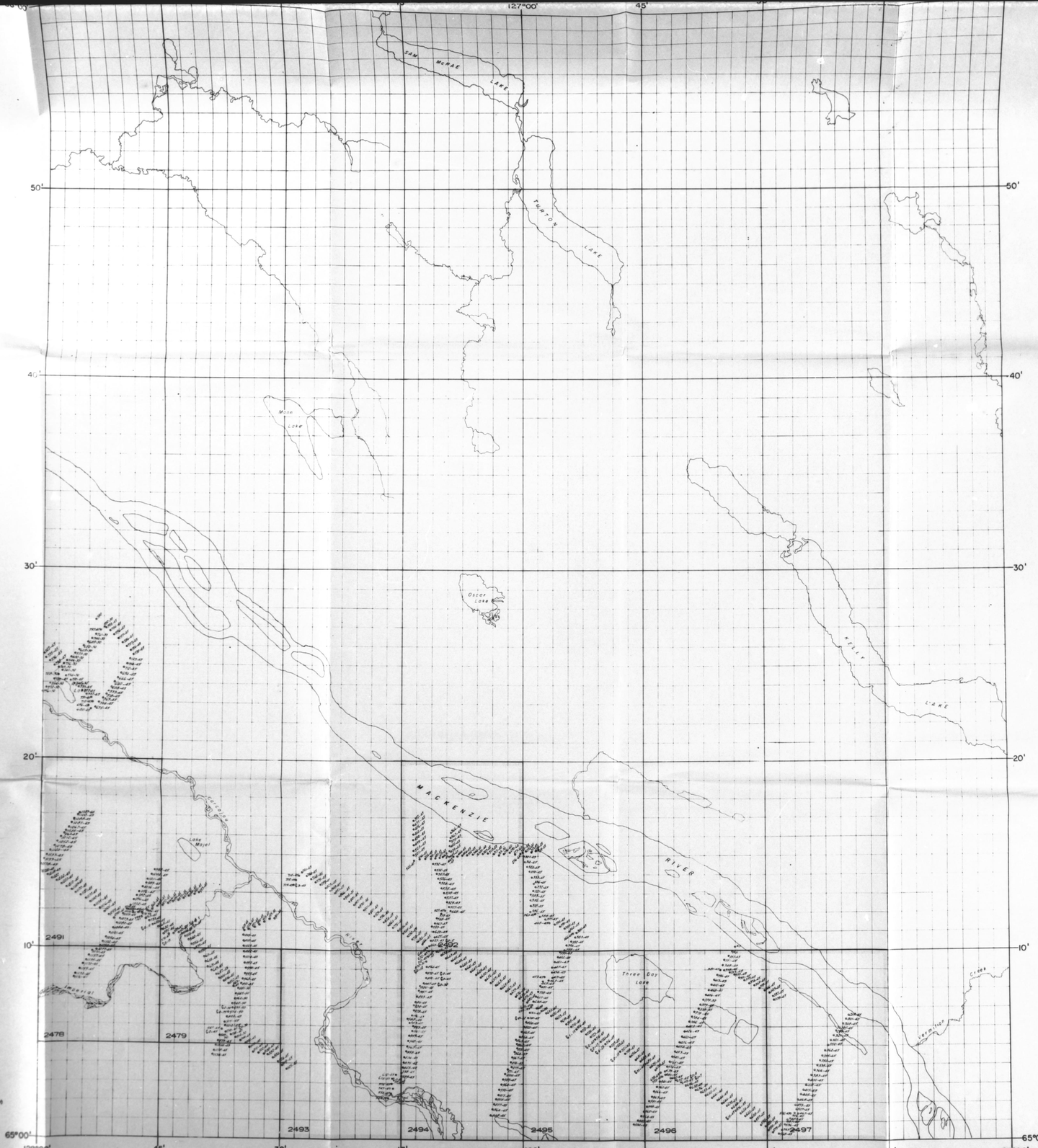
PEACE RIVER DISTRICT

DEC. 1962

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps.

50'
40'
30'
20'
10'
65°00'
130°00'
45'
30'
15'
129°00'
45'
30'
15'
128°00'
65°00'

MACKENZIE RIVER
HUME RIVER
HUME MOUNTAIN
GOSLING CREEK
RIVER
RIVER
RIVER
RIVER
RIVER
RIVER
MOUNTAIN
RIVER
RIVER
RIVER
RIVER
RIVER
RIVER



Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

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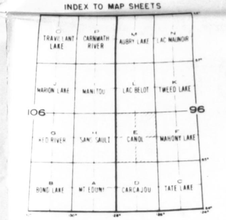

IMPERIAL OIL LIMITED

MAP OF

P. & N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497

SCALE: 2 MILES TO 1 INCH

SHOWING

- SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- NORTH MAP DATUM - SEA LEVEL
- C - COAL SHOWS ■ G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC 1962

272

96 E - CANOL

2 MILES TO 1 INCH

SHEET 1

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

130°00' 45' 30' 15' 129°00' 45' 30' 15' 128°00'
66°00' 50' 40' 30' 20' 10'

MACKENZIE RIVER
CRICK
LOKE
HUME
MOUNTAIN
RIVER
HUME OUTCROP
HARE INDIAN OUTCROP
RIVER
CLEAR
RIVER
Fisherock Lake
RIVER
MOUNTAIN

2833
2487
2488
2475
2476
2489
2490

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TRAVELLANT LAKE	CARBARTH RIVER		AC MAUNOIR
MARION LAKE	MANITOU	LAC BELOT	TWELD LAKE
RED RIVER	SANG SAULT	CANOL	MAHONY LAKE
BOND LAKE	MT EDUNI	CARCAJOU	TATE LAKE

106 96

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IMPERIAL OIL LIMITED
MAP OF
P & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833
SCALE: 2 MILES TO 1 INCH
SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP HUME STRUCTURE .050SECS. DATUM -+500 V_D 9000'SEC.
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

PEACE RIVER DISTRICT DEC. 1962

66°00'

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30'

20'

10'

65°00'

130°00'

45'

30'

15'

129°00'

45'

30'

15'

128°00'

MACKENZIE RIVER

CRICK

LOKE

HUME MOUNTAIN

2833

2487

HUME OUTCROP

HARE INDIAN OUTCROP

2488

2475

2476

2489

CANOL

FLAT RIVER

FLAT RIVER MOUNTAIN

IMPERIAL

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

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TRAVELLANT LAKE	CARMACKS RIVER	KUBBY LAKE	LAC MAUNOIR
MARION LAKE	WANITOU	LAC BELOT	TWEED LAKE
RED RIVER	SANS SAULT	CANOL	WAHONY LAKE
BOND LAKE	MT EDUNI	CARCAJOU	TATE LAKE

106 — 96

IMPERIAL OIL LIMITED

MAP OF

P & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833

SCALE: 2 MILES TO 1 INCH

SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP HUME STRUCTURE .050 SECS. DATUM +500 V_0 9000'SEC.
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

FLAT RIVER DISTRICT DEC. 1962

242

106 H - SANS SAULT

2 MILES TO 1 INCH

SHEET 2

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

130°00' 45' 30' 15' 129°00' 45' 30' 15' 128°00'

66°00'

50'

40'

30'

20'

10'

MACKENZIE RIVER

Chick Lake

Hume River

Keele River

Ochre River

Redstone River

Canyon Creek

Gayna River

Carcajou River

Root River

Mountain River

Imperial River

Goris Lake

Florence Lake

2833

2487

2488

2475

2476

2489

2490

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C TRAVILLANT LAKE	D CARMACKS RIVER	M AUBRY LAKE	N LAC MAJEUR
J MARION LAKE	K MANITOU	L LAC BELOT	K TWEED LAKE
G RED RIVER	H SANS SAULT	E CAROL	F MAHONY LAKE
B BOND LAKE	A MT EDUNI	D CARCAJOU	C TATE LAKE

106 96

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IMPERIAL OIL LIMITED
MAP OF
P.& N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833
SCALE: 2 MILES TO 1 INCH
SHOWING
■ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
□ DEPTH MAP - DATUM - SEA LEVEL
□ C - COAL SHOWS ■ G - GRAVEL SHOWS
PEACE RIVER DISTRICT
DEC. 1962

Topography from reductions of Imperial Oil 1 mile to 1 inch

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

130°00' 45' 30' 15' 129°00' 45' 30' 15' 128°00'

66°00'

50'

40'

30'

20'

10'

MACKENZIE RIVER

CRICK

LOKE

MOUNTAIN

RIVER

RIVER

MOUNTAIN

RIVER

MOUNTAIN

Florence Creek

Imperial River

2475 2476 2487 2488 2489 2490

140 150 120 110 100 090 080 070 070 070

170 160 150 140

150 140 150 160

070 080 090 100

080 090 080

050 060 070 080

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"FAULLAN" LAKE	"CARBUNTH RIVER	"MURPHY LAKE	"AC MAUNOIR
MARION LAKE	MANITOU	AC BELOT	"TWEED LAKE
106			96
"ATO RIVER	"SANS SAULT	K CANOL	"MARIONT LAKE
"KING LAKE	"MC EOUNE	"CARCAJOU	"TATE LAKE

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IMPERIAL OIL LIMITED

P & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833

SCALE 2 MILES TO 1 INCH

SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP OF KEE SCARP – HUME ISOCHRON .010 SECS.
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

50'
40'
30'
20'
10'
65°00'
130°00'
45'
30'
15'
129°00'
45'
30'
15'
128°00'

MACKENZIE RIVER
MOUNTAIN
RIVER
RIVER
RIVER

130°00' 45' 30' 15' 129°00' 45' 30' 15' 128°00'

66°00' 50' 40' 30' 20' 10' 65°00'

MACKENZIE RIVER

CRICK

LOON LAKE

RIVER

HUME RIVER

GOSE RIVER

MOUNTAIN RIVER

FLORENCE LAKE

2833

2487

2488

2475

2476

2489

2490

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

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MARION LAKE	MANITOU	LAC BELOT	TWEED LAKE
RED RIVER	SANS SAULT	CAROL	MAHONY LAKE
BOND LAKE	MT EDUNI	CARCAJOU	TATE LAKE

106 96

IMPERIAL OIL LIMITED

MAP OF

P. & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833

SCALE 2 MILES TO 1 INCH

SHOWING

- SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- DEPTH MAP - DATUM - SEA LEVEL
- C - COAL SHOWS G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

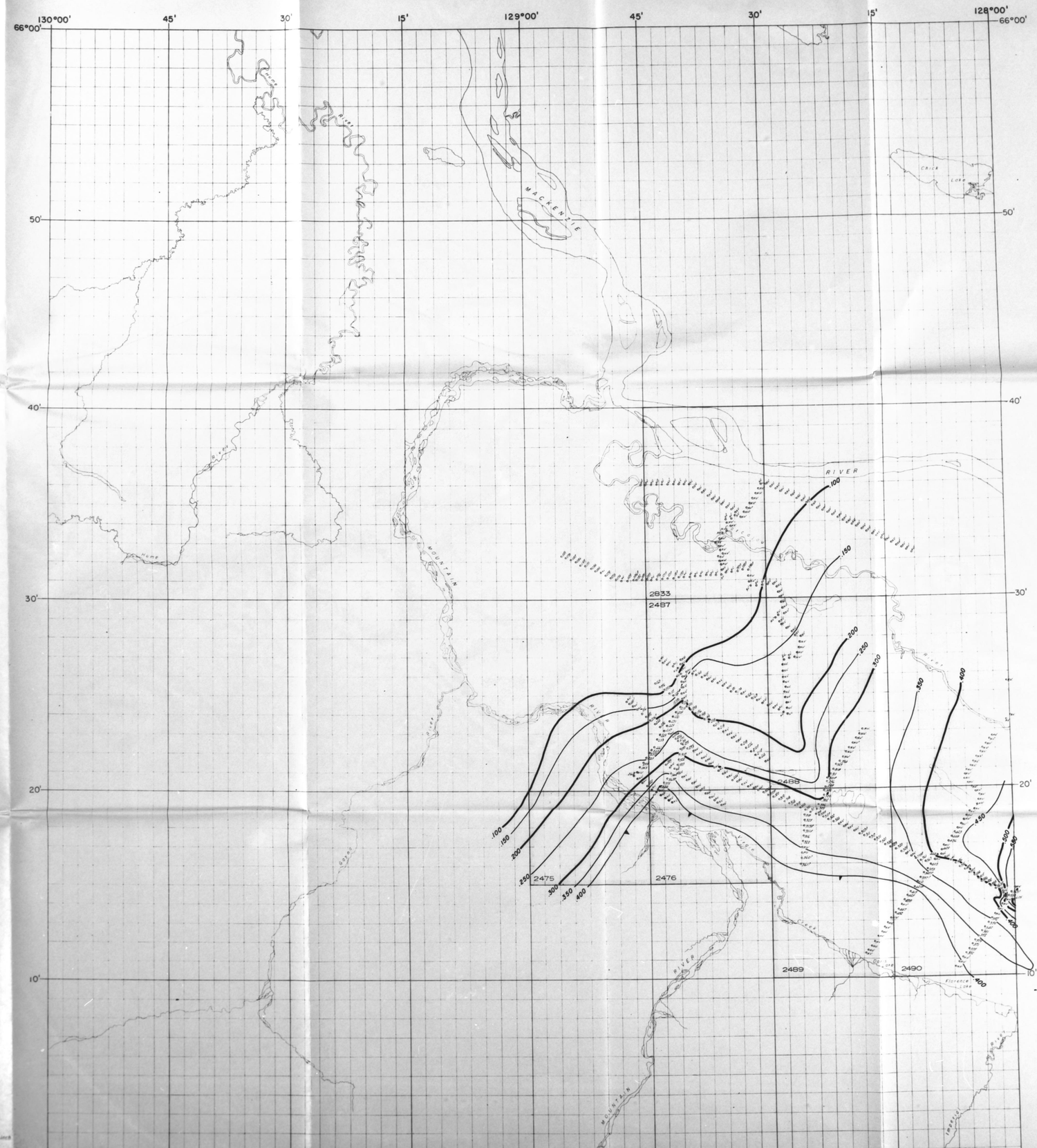
272

106 H - SANS SAULT

2 MILES TO 1 INCH

SHEET 2

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT



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IMPERIAL OIL LIMITED

P & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833

SCALE 2 MILES TO 1 INCH

SHOWING

- SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- TIME MAP SALT TO LOWER CAMBRIAN ISOCHRON — C.I. 025
- C - COAL SHOWS G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

66°00'

50'

40'

30'

20'

10'

65°00'

130°00' 45' 30' 15' 129°00' 45' 30' 15' 128°00'

MACKENZIE

RIVER

MOUNTAIN

2833

2487

2488

2475

2476

2489

2490

100 150 200 250 300 350 400 450 500 550 600

INDEX TO MAP SHEETS

TRAVAILANT LAKE	CARNWATH RIVER	KLOTZ LAKE	LAC MALAKOI
MARION LAKE	MANITOU	LAC BELOT	TWIN LAKE
106			96
HIGH HILLS	SANS SAULT	CAROL	MARION LAKE
HIND LAKE	MC ESUNI	CARCAJOU	TATE LAKE

IMPERIAL OIL LIMITED

P & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833

SCALE 2 MILES TO 1 INCH

SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS

TIME MAP SALT TO LOWER CAMBRIAN ISOCHRON C.I. -025-

C - COAL SHOWS G - GRAVEL SHOWS

MACKENZIE RIVER DISTRICT

DEC. 1962

242

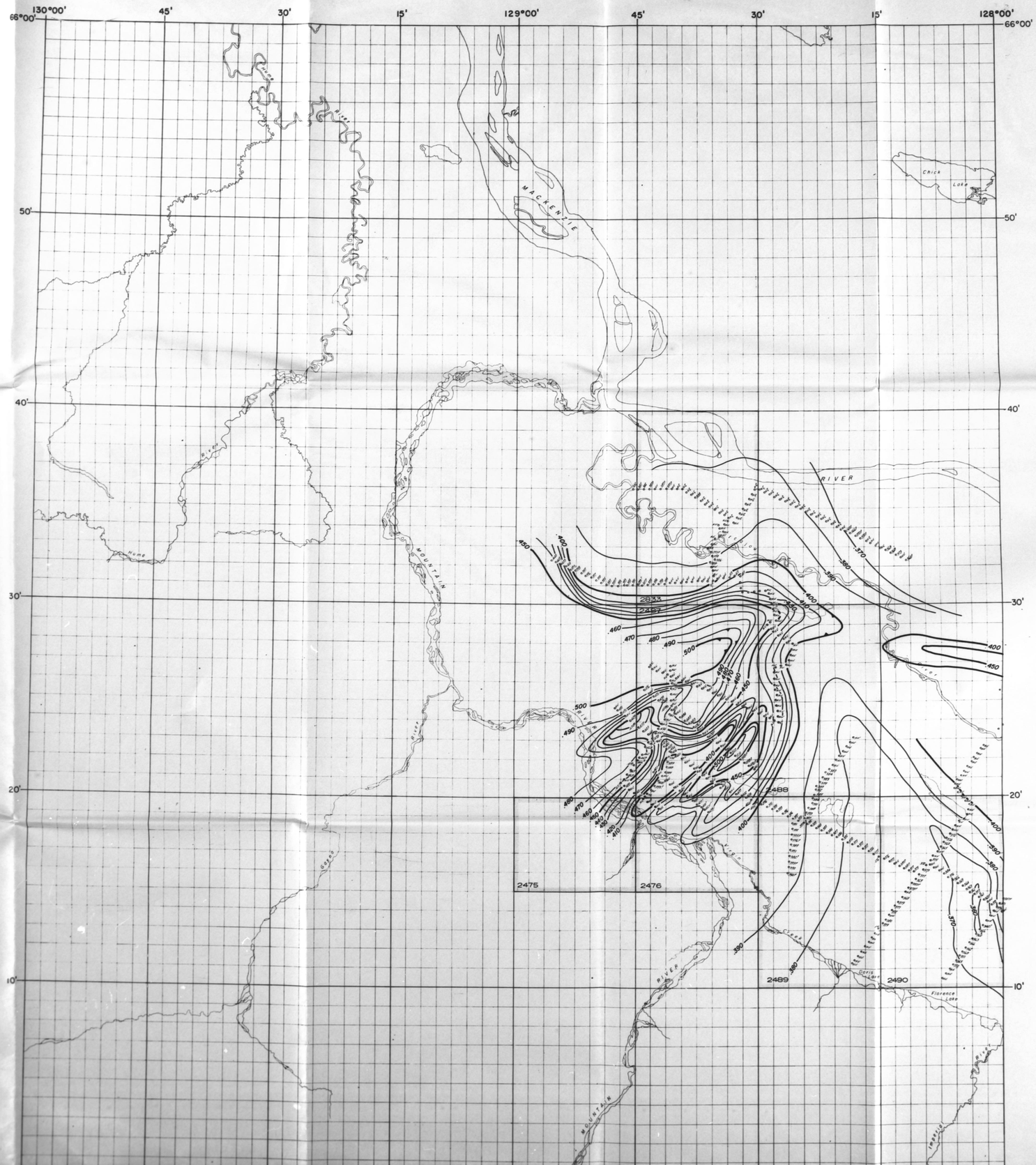
106 H-SANS SAULT

2 MILES TO 1 INCH

SHEET #

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT



Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

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IMPERIAL OIL LIMITED
MAP OF
P.E.N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833
SCALE: 2 MILES TO 1 INCH
SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP HUME TO SALT ISOCHRON .010 SECS.
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

66°00'
50'
40'
30'
20'
10'
65°00'
130°00'
45'
30'
15'
129°00'
45'
30'
15'
128°00'

MACKENZIE RIVER
Chick Lake
RIVER
MOUNTAIN
HUME
Gaza
River
Clark
Creek
Gaza
Creek
Gaza
River
MOUNTAIN
Gaza
River
Gaza
Lake
Florence Lake
IMPERIAL
Gaza
River

2833
2465
2475
2476
2488
2489
2490

Topography from reductions of Imperial 1/2 mile to 1 inch base maps

INDEX TO MAP SHEETS

TRAVELLANT LAKE	CARBARTH RIVER	ABBEY LAKE	LAC MAUNOIR
MARION LAKE	MANITOU	LAC BELOT	TWEED LAKE
106			96
HEDRIVER	SANS SAULT	CANOL	WARDNT LAKE
HOND LAKE	MT EDWIN	CARCAJOU	TATE LAKE

IMPERIAL OIL LIMITED

MAP OF

P. & N.G. PERMITS 2475, 2476, 2487, 2488, 2489, 2490, 2833

SCALE 2 MILES TO 1 INCH

SHOWING

☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS

■ TIME MAP HUME TO SALT ISOCHRON .010 SECS.

☐ C-COAL SHOWS ☐ G-GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

242

106 H-SANS SAULT

2 MILES TO 1 INCH

SHEET 2

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'
66°00' 66°00'
50' 50'
40' 40'
30' 30'
20' 20'
10' 10'

SAM McRAE LAKE
THARTON LAKE
Moon Lake
Oscar Lake
KELLY LAKE
MACKENZIE RIVER
Big Doy Lake
Jeanne Lake
Cirque
IMPERIAL
2478
2479
2491
2492
2493
2494
2495
2496
2497

INDEX TO MAP SHEETS

TRAVILLANT LAKE	CARNWATH RIVER	AUBRY LAKE	LAC NAUNCIR
MARION LAKE	MANITOU	LAC SELUT	TWEED LAKE
RED RIVER	SANG SAULT	CANOL	MANONY LAKE
BOND LAKE	MT EDUNI	CARCAJOU	TATE LAKE

106 96

107

IMPERIAL OIL LIMITED
MAP OF
P.& N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497
SCALE 4 MILES TO 1 INCH
SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP : SALT TO LOWER CAMBRIAN ISOCHRON — C.I. 025
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

66°00'
127°00'
45'
30'
15'
66°00'
50'
40'
30'
20'
10'
65°00'
128°00'
45'
30'
15'
127°00'
45'
30'
15'
126°00'

SAM McRAE LAKE
THRTON LAKE
Moon Lake
Oscar Lake
Imperial
Turtle Dog Lake
MACKENZIE RIVER
KELLY LAKE
Cranberry
2478
2479
2491
2492
2493
2494
2495
2496
2497
Topography from reductions of Imperial Oil 1 mile to 1 inch base maps.

INDEX TO MAP SHEETS

C TRAILLANT LAKE	D CARNWATH RIVER	M AUBRY LAKE	N LAC MAUNOIR	
J MARION LAKE	K MANITOU	L LAC BELOT	O TWEED LAKE	106
G RED RIVER	H SANS SAULT	E CANOL	F MARIONY LAKE	96
B BOND LAKE	A MT EDUNI	D CARCAJOU	C TATE LAKE	

IMPERIAL OIL LIMITED

MAP OF

P.&N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497

SCALE: 2 MILES TO 1 INCH

SHOWING

- SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- TIME MAP SALT TO LOWER CAMBRIAN ISOCHRON — C.I. 025
- C - COAL SHOWS G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

2 of 2

96 E - CANOL

2 MILES TO 1 INCH

SHEET 1

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'
66°00' 50' 40' 30' 20' 10'

SAM McRAE LAKE
FULTON LAKE
Moon Lake
Oscar Lake
KELLY LAKE
MACKENZIE RIVER
Three Day Creek
Imperial
Loon
Lake Majel
2478
2479
2492

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps.

INDEX TO MAP SHEETS

A TRAVELLANT LAKE	B CARNWATH RIVER	C AUBRY LAKE	D LAC MAUNOIR
E MARION LAKE	F WANITOU	G LAC BELOT	H TWEED LAKE
I RED RIVER	J SANS SAULT	K CANOL	L MARONY LAKE
M HOND LAKE	N MT EDUNI	O CARCAJOU	P TATE LAKE

106 96

107

IMPERIAL OIL LIMITED
MAP OF
P. & N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497
SCALE: 2 MILES TO 1 INCH
SHOWING
- SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- TIME MAP HUME TO SALT ISOCHRON .010 SECS.
- C - COAL SHOWS
- G - GRAVEL SHOWS

PEACE RIVER DISTRICT
DEC. 1962

65°00'
128°00'
45'
30'
15'
127°00'
45'
30'
15'
126°00'
50'
40'
30'
20'
10'

SAM. MCRAE LAKE
THURSTON LAKE
MOOSE LAKE
Oscar Lake
KELLY LAKE
MACKENZIE RIVER
Carcajou
Lake Majel
Imperial
Three Day Lake
Carcajou Creek

2478
2479
2491
2492
2493
2494
2495
2496
2497

INDEX TO MAP SHEETS

C TRAVAILANT LAKE	D CARNWATH RIVER	M AUBRY LAKE	PM MALMONT
N MARION LAKE	L MANITOU	L LAC BELOT	K TWEED LAKE
O HEC RIVER	H SANS SAULT	E CANOL	F MASONY LAKE
B HUME LAKE	M MT EDUNI	D CARCAJOU	G TATE LAKE

106 — 96

IMPERIAL OIL LIMITED

P. & N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497

SCALE: 2 MILES TO 1 INCH

LEGEND

- SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- TIME MAP HUME TO SALT ISOCHRON .010 SECS.
- C - COAL SHOWS
- G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps.

242

96 E — CANOL

2 MILES TO 1 INCH

SHEET 1

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'

66°00' 50' 40' 30' 20' 10'

SAM McRAE LAKE

TARTON LAKE

Moose Lake

Oscar Lake

KELLY LAKE

MACKENZIE RIVER

HUME OUTCROP

2478 2479 2491 2492

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps.

INDEX TO MAP SHEETS

TRAVELLANT LAKE	CARNWATH RIVER	AUBRY LAKE	LAC MAUNOIR
MARION LAKE	MANITOU	LAC BELOT	TWEED LAKE
RED RIVER	SANG SAULT	CANOL	MAHONY LAKE
BOND LAKE	MT. LOUNT	CARCAJOU	TATE LAKE

106 96

107

IMPERIAL OIL LIMITED
MAP OF
P. & N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497
SCALE: 2 MILES TO 1 INCH
SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP HUME STRUCTURE .050 SECS. DATUM - +500 V_D 9000'/SEC.
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

PEACE RIVER DISTRICT DEC. 1962

SAM MCRAE LAKE

TILTON LAKE

MOOP LAKE

OSCAR LAKE

EAGLE LAKE

MACKENZIE RIVER

HUME OUTCROP

50'

40'

30'

20'

10'

65°00'

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'

2478 2479 2491 2492 2493 2494 2495 2496 2497

.100 .200 .300 .400 .500 .600 .700 .800 .900 1000 1100 1180

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps.

INDEX TO MAP SHEETS

TRAVAILANT LAKE	CARBARTH RIVER	AUBRY LAKE	LAC MAUNOIR
MARION LAKE	MANITOU	LAC BELOT	TWEED LAKE
HEZ RIVER	SANS SAULT	CANOL	MARONY LAKE
HOME LAKE	MT. EDUNI	CARCAJOU	TATE LAKE

106 96

IMPERIAL OIL LIMITED

MAP OF

P. & N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497

SCALE: 2 MILES TO 1 INCH

SHOWING

- ☐ SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP HUME STRUCTURE .050 SECS. DATUM - +500 V_D 9000'/SEC.
- ☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

PEACE RIVER DISTRICT DEC. 1962

242

96 E - CANOL

2 MILES TO 1 INCH

SHEET 1

IMPERIAL OIL LIMITED
EXPLORATION DEPARTMENT PEACE RIVER DISTRICT

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'
66°00'
50'
40'
30'
20'
10'

SAM MERAE LAKE
TURTON LAKE
Moon Lake
Oscar Lake
KELLY LAKE
MACKENZIE RIVER
Three Day Lake
Creek
Imperial
Low Point
Lake
Island
Lake
Lake
Lake

128°00' 45' 30' 15' 127°00' 45' 30' 15' 126°00'

66°00'

50'

40'

30'

20'

10'

65°00'

SAM MCRAE LAKE

TURTOS LAKE

Moon Lake

Oscar Lake

MACKENZIE RIVER

Lake Majel

Imperial

Three Day Lake

KELLY LAKE

Cross Lake

2478 2479 2491 2492 2493 2494 2495 2496 2497

Topography from reductions of Imperial Oil 1 mile to 1 inch base maps

INDEX TO MAP SHEETS

C TRAILCUT LAKE	B CARBARRY RIVER	A AUBRY LAKE	D LAC MAUNOIR
MARION LAKE	MANITOU	LAC BLUT	TWEED LAKE
106			96
D RED RIVER	A SANC SAULT	C CANOL	B MARIONY LAKE
B BOND LAKE	A MT EDUNI	D CARCAJOU	C TATE LAKE

IMPERIAL OIL LIMITED

MAP OF

P.&N.G. PERMITS 2478, 2479, 2491, 2492, 2493, 2494, 2495, 2496, 2497

SCALE: 2 MILES TO 1 INCH

SHOWING

- [ ] SEISMIC SHOT HOLE LOCATIONS, ELEVATIONS & TOTAL DEPTHS
- ■ TIME MAP OF - KEE SCARP-HUME ISOCHRON .010 SECS.
- [ ] C - COAL SHOWS ☐ G - GRAVEL SHOWS

PEACE RIVER DISTRICT

DEC. 1962

272

96 E - CANOL

2 MILES TO 1 INCH.

SHEET 1