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IMPERIAL OIL LIMITED
GEOLOGICAL DEPARTMENT

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Geo-Science Data Index

Report on SEISMOGRAPH OPERATIONS TROUT LAKE AREA
..... N.W.T. Permits 3028, 3029 and 3030 Date _____

Enclosures Seismic Shot Hole Locations & Depth Map.....
..... Structure Map - Devonian Tap.....

By G. B. DARLING.....
Date June 28, 1961.



IMPERIAL OIL LIMITED
PRODUCING DEPARTMENT - WESTERN REGION

SEISMIC OPERATIONS - TROUT LAKE AREA

N.W.T. Permits 3028, 3029 and 3030

January 1961

By

G. B. DARLING

June 28, 1961

PEACE RIVER EXPLORATION DISTRICT
DAWSON CREEK, BRITISH COLUMBIA

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S U M M A R Y

Report on seismic operations conducted by Nance
Exploration Co. Party 30, on behalf of Imperial Oil Limited in the
Trout Lake Area, N.W.T. during January, 1961. Submitted in support
of application for credit. See Affidavit of Work by H. W. Johnson
dated June 21, 1961.

INTRODUCTION

Access to the area adjacent to N.W.T. Permits 3028, 3029 and 3030 was made via the Ft. Simpson winter tractor trail. The surface is generally flat, with elevations from 1,600 feet in the southwest to 2,300 feet in the east central portion. Muskeg is predominant throughout. The area is drained by minor tributaries to the Muskeg River.

SEISMOGRAPH OPERATIONS

On January 9, 1961, a conventional truck-mounted seismic crew, operated by Nance Exploration Co. and under contract to Imperial, referred to as Party 30, using standard technique, commenced seismograph operations in Section 37, Grid Area 60°30' N. 121°45' W. The line ran southeast from this point, a distance of 11 1/4 miles. The last six locations could not be shot because of very rough sand holes. Drilling conditions were generally fair with brown and blue clay and boulders being encountered. Some sand and gravel was hit in the low lying areas and the southeast end of the line was extremely sandy. Mostly inserts and rock bits were used.

The terrain is flat, and all trails were extremely rough and narrow. Considerable trouble was had with cats and water trucks breaking through the muskeg. The weather during this period was unusually mild with temperatures of 0° to 30° recorded.

The record quality was fair to good with the odd poor record over muskeg areas. First break quality was generally fair and envoovers were shot as there was no velocity break-overs visible.

Charges were varied considerably with the hope of improving the record quality. On January 13 and 14 the line was extended north up the Simpson trail from the point of commencement 3 1/2 miles to within one mile of the south boundary of Permit 3029. Conditions over this portion of the line were generally the same as reported in the previous paragraphs.

During the period January 15 to January 25 three lines were shot on the west side of the permit area. The first commenced at a point in Section 62, Grid Area 60°40' N. 122°00' W. and ran south a distance of 15 miles. The second line ran east 3 miles and west 10 miles from the above location. The third line commenced at a point in Section 35, Grid Area 60°40' N. 122° W. and went west for 3 1/2 miles. The terrain in this area is mostly flat muskeg with the odd creek valley with steep banks. Considerable trouble was again encountered with cats, drills and water trucks breaking through the muskeg. There was very little frost under 3 feet of snow. The weather remained warm with all temperatures recorded being above zero.

The drilling in the area was very good with mostly clay, sand and gravel being encountered. Drilling was done with Walker-McDonald 4 1/2 and 4 1/2 retipped inserts. Retips held up very well.

The record quality varied considerably in this area ranging from fair to good in the south and east portion and from fair to poor in north and west. First break quality was generally good with some poor breaks in muskeg areas. Endovers were continued where velocity break-over was not apparent.

On January 26 the crew moved to a location north of Permit 3029 and shot one line a distance of 10 3/4 miles north along the Ft. Simpson trail. Surface conditions were very bad, mostly level terrain, but all muskeg was very soft. Cats and drills continued to

break through. The weather remained mild.

Drilling conditions were good, with mostly clay and boulders, some gravel was encountered. Mostly 4 1/4 and 4 1/2 inserts and 4 3/4 rock bits were used. Retips stood up real well.

The record quality was generally good, with somewhat poorer first arrivals over soft muskeg. Endovers were not shot to consistantly where the trail was crooked. Charges were varied considerably to keep record quality good.

Party 30 completed the program in this area on March 28, 1961. During this program a total of 57 miles of line was shot. 632 holes were shot at 174 locations to obtain 365 profiles.

June 28, 1961.

G. B. Darling