

WEST CAMERON HILLS AREA, N.W.T.

LAT.  $60^{\circ}00'N$  -  $60^{\circ}10'N$   
LONG.  $119^{\circ}00'W$  -  $119^{\circ}15'W$

REPORT ON SEISMIC SURVEY  
CONDUCTED DURING PERIOD  
February 7 - February 10, 1980

Report Prepared By W. W. Blair, July 1980

780-06-04-014

D.I.A.N.D.  
OTTAWA  
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Latitude 60°00'N - 60°10'N

Longitude 119°00'W - 119°15'W

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REPORT ON SEISMIC SURVEY

Conducted by Northern Geophysical (1975) Ltd.  
for Westcoast Petroleum Ltd. during the period  
February 7 to February 10, 1980

THIS SEISMIC SURVEY WAS CONDUCTED  
ON OIL AND GAS LEASES 2242 TO 2263 INCLUSIVE AND  
3989-D, 3990-D AND 3991-D

PROJECT NO. 780-06-04-79-01

Report Prepared By

Wm. Blair (Professional Geophysicist, Alberta)  
WESTCOAST PETROLEUM LTD.

July 1980

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### MAPS AND SECTIONS (In Pocket)

Map No. 1 - Shot Point Location Map

Record Sections for Lines 80-A, 80-B, 80-C, 80-D and 80-E

REPORT ON SEISMIC SURVEY  
WEST CAMERON HILLS AREA, N.W.T.

INTRODUCTION

This seismic survey was conducted in February 1980 to detail anomalous features that had been indicated by seismic work done by Hudson's Bay Oil and Gas Company on the lands in 1968 and 1969.

STATISTICAL DATA

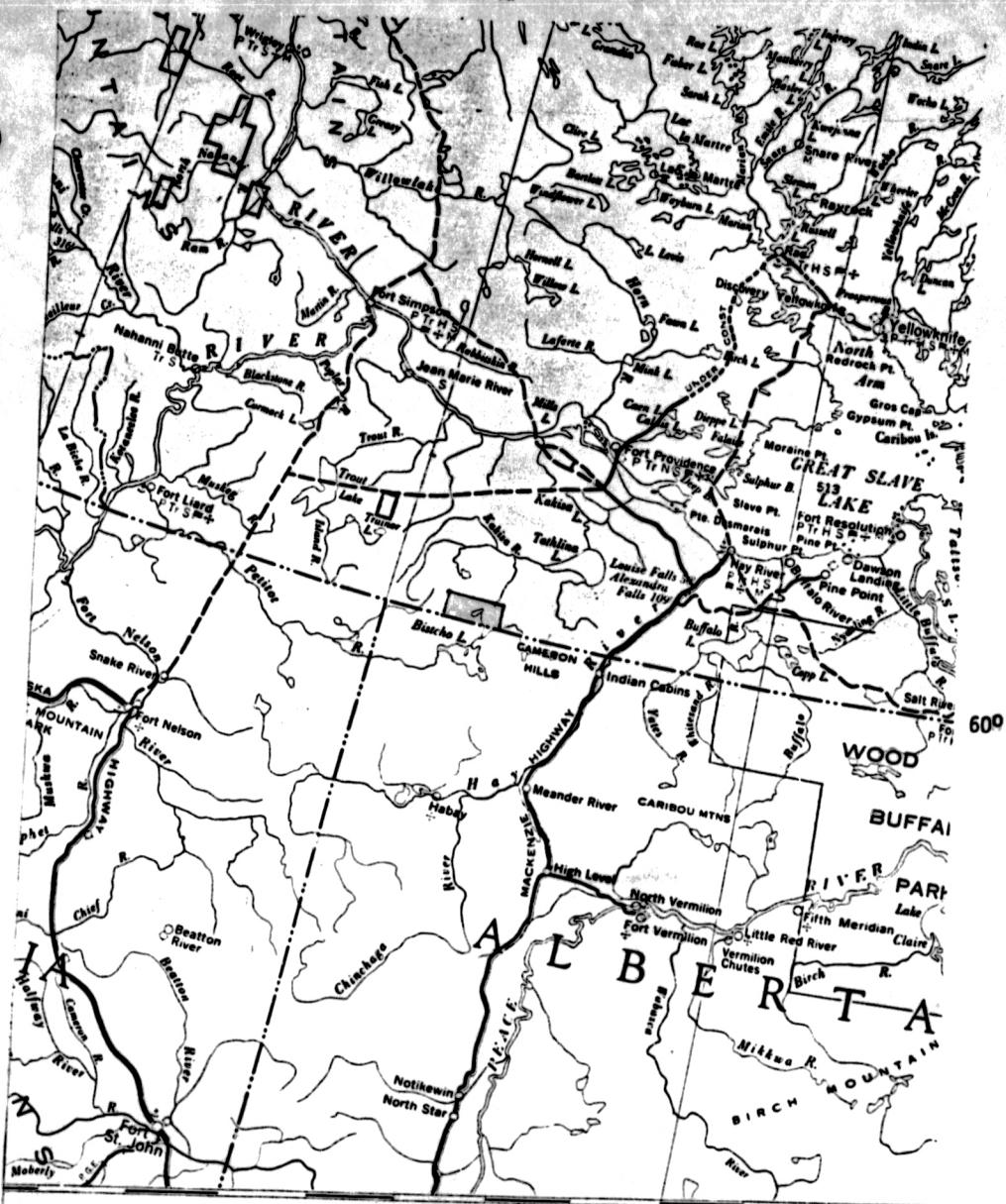
Dates: The recording for this survey was done during the period February 7 to February 10, 1980. Line cutting commenced on January 25th and shot hole drilling commenced on or about February 1st. After the recording was completed a line clean-up crew continued to work in the area until February 27th.

Production:

Kilometers Shot 31.51

Days Worked 4

NOTE: Our original plan was to shoot 51.5 km (32 miles), however the Northern Geophysical seismic party had a very tight winter schedule and as a consequence of this we cancelled a part of the program.



120°

115°

Figure No. 1  
Location Map  
WEST CAMERON HILLS AREA, N.W.T.  
Scale 1:4,000,000 (Approx. 1"=63 mi.)

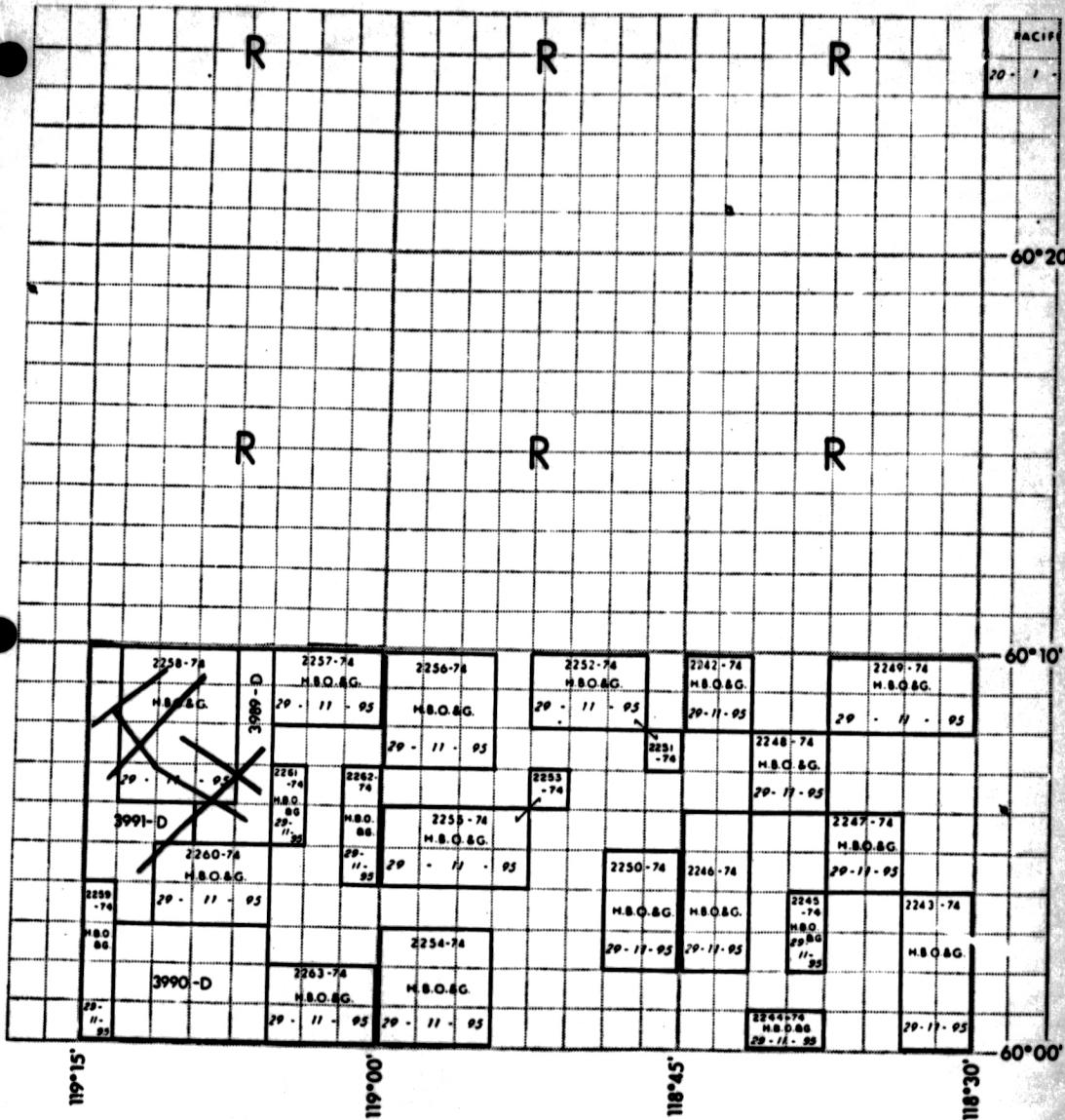


Figure No. 2

WEST CAMERON HILLS AREA, N.W.T.

LAND MAP  
— Seismic Lines Shot  
Scale 1:250,000

Contractors: The prime contractor for this survey was:

Northern Geophysical (1975) Ltd.  
5911 - 5th Street S.E.  
Calgary, Alberta

Subcontractors were as listed below:

Surveying: Eggen Seismic Surveys  
Bay 10, 5919 - 40th Street S.E.  
Calgary, Alberta

Shot Hole Drilling: Sangudo Seismic Drilling  
Box 5  
Sangudo, Alberta

Double RR Drilling  
R.R. #1  
Spruce Grove, Alberta

Jensen Drilling  
Box 692  
Grande Prairie, Alberta

Dozing and Line Cleanup: Double "G" Construction Ltd.  
Box 144  
High Level, Alberta

Data Processing: Geophysical Service Incorporated  
640 - 12th Avenue S.W.  
Calgary, Alberta

Equipment: Surveying: 1 - T16 Wild Theodolite

1 - Stadia Rod

1 - Steel chain

1 - GMC 4x4 - 3/4 Ton truck

Drilling: 4 - Top Driver Drills mounted  
on tandem trucks

1 - 2200 gallon water tank mounted  
on GMC truck

**Recording:** 1 - Set of DFS V Recording Instruments  
on 4x4 GMC truck

1 - 4x4 Ford Shooting truck

3 - Cable units mounted on 4x4  
Ford trucks

1 - 4x4 Ford powder truck

1 - 4x4 Ford party manager unit

1 - Gazelle 4 passenger helicopter

**Line Cutting:** 2 - D6 Dozers

1 - Combined diner-sleeper camp unit

**Personnel:** J. W. Corbett - Northern Geophysical Supervisor

1 - Party Manager

1 - Observer

1 - Junior observer

3 - Line Unit drivers

7 - Recorder helpers

1 - Shooter

1 - Shooter's helper

1 - Surveyor

1 - Rodman

4 - Drillers

4 - Driller's helpers

1 - Water truck driver

2 - Dozer operators

1 - Cook

2 - Line slashers

Navigation: Vertical survey control was done with a T16 Wild Theodolite and horizontal distances were chained. The survey was tied to the Westcoast et al Silt Lake G-62 well as well as some of the shot points from the previous seismic survey.

Conditions: Temperatures ranged between -15°C and 0°C during the period of this seismic survey. The topography varies between +590 meters and +660 meters along the lines surveyed and is intermittently covered with light to moderate bush. No particular difficulties were encountered in conducting this survey except that movement of the vehicles was hampered in some local areas because of sharp hills and valleys.

#### FIELD PROCEDURES

The field operational procedure for this program was the conventional roll along method to provide 1200% common depth point stacking. It had originally been our intention to move a seismic camp into the area to billet the crew personnel. However inasmuch as it was a small program we elected to transport most of the personnel on a daily basis by helicopter from a base camp that Northern Geophysical had established some 60 miles southwest in Alberta. The survey crew were billeted at the cat camp during the period while they were operating. The equipment was driven into the project area from Northern's base camp along existing trails and the well

road that had been constructed to the Westcoast Silt Lake well (which was drilling at that time).

The field recording parameters are listed on the label on the seismic sections that are included in the back pocket of this report.

#### DATA PROCESSING

The data processing was done by Geophysical Service Inc. in their Calgary data centre. The processing sequence is listed on the label on the sections in the back pocket of this report.

#### RESULTS AND INTERPRETATION

The principle objective of this program was to check out anomalous features that had been indicated by seismic data shot for Hudson's Bay Oil and Gas Company in this area in 1968 and 1969. The anomalies had been interpreted as being caused by Keg River pinnacle reefs similar to those present in the Zama area of Alberta. The original recording had been with a shorter spread length (one half mile splits) and 600% stacking and appeared to have some multiple inference. It was hoped that use of a longer spread and 1200% stack would give better multiple cancellation and provide cleaner more reliable sections. Unfortunately the revised parameters served only to emphasize the severe multiple problem. Analysis of the individual records indicates that there is a strong band of multiple energy generated from the Wabamun zone that imposes on the primary reflections from the Slave Point and basement.

Considerable efforts were made in the data centre to achieve cancellation of the multiple energy and enhance the primary reflections from the Slave Point and basement levels. However as can be seen on the sections the continuity of these events is very poor. As a consequence of this we have not constructed any interpretation maps incorporating these data.



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