SEISMOGRAPH REPORT ON FORT LIARD AREA NORTHWEST TERRITORIES, 1975 TO THE GOVERNMENT OF CANADA

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ADDENDUM TO INTERIM REPORT
PROJECT NO. 36-6-4-76-1

SHELL CANADA RESOURCES LIMITED
FRONTIER DIVISION EXPLORATION DEPT.
Calgary, Alberta

October,1976

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SECTION

ENCLOSURES

VI. PROCESSING AND INTERPRETATION

A. DATA PROCESSING

All lines (2-264 to 2-269) where corrected from surface to a datum of 366 meters (1200 feet) using a velocity of 3049 meters/sec (10,000 ft/sec). Previously, weathering corrections were made to shot hole depth (replacement from surface to this depth with a layer of 3049 meters/sec). For lines 2-264, 2-265, 2-266, and 2-269 the stacked sections had statics removed by an automatic, non-coherent picking program; then a gentle mix was applied to the stacked data. In an effort to improve the signal to noise for obtaining static corrections, a combination mixing-statics program was used for lines 2-268, 2-267, and part of 2-266. The stacking velocities used are included in appendix 1.

In regards to data quality, it ranges from good to fair for all lines except line 2-268 and the part of line 2-266 near the Liard River. In the later case the data was poor to unreliable.

B. INTERPRETATION

The seismic program was shot over the Liard Anticline. Approximately 2.5 kilometers (1.5 miles) to the north of the northeast part of line 2-267, Palaeozoic beds outcrop. There may be some time closure at the event identified as near the base of the Mississippian Carbonates (enclosure 4).

R. N. Michkofsky

R. N. Michkofsky, geophysicist

APPENDIX I

STACKING VELOCITIES

LINE #	STATION #	VELOCITY (FT./SEC.)	TIME (M.SEC.)	STATION #	VELOCITY (FT./SEC.)	TIME (M.SEC.)
2-264	420	10000	200	440	10000	200
		11000	400		11000	300
		11000	650		11200	550
		11900	900		11750	800
		13300	1300		12900	1200
		14600	1700		14150	1600
		16000	4000		16000	4000
	450	10000	200	510	11000	200
		11000	300		11000	400
		11200	550		11900	650
		11750	800		12500	1000
		12550	1200		13200	1300
		13200	1600		16000	4000
		16000	4000			
	540	11000	200	570	10000	200
		11000	400		11000	500
		12100	600		11700	940
		13300	1000		13400	1400
		14500	1300		13900	2040
		16000	4000		16000	4000
	586	10000	200	600	10000	200
		11000	500		11000	500
		11700	940		11700	940
		15000	1400		13400	1400
		16000	4000		13900	2040
					16000	4000
	610	10000	200			
		11000	500			
		11700	940			
		12000	1400			
		16000	4000			
2-265	410	10000	200	470	11000	200
		11000	400		11000	500
		11300	640		12200	900
		11500	800		14300	1200
		11700	960		14300	1400
		12000	1240		16000	4000
		13500	1680			
		16000	4000			

STACKING VELOCITIES (cont'd)

LINE #	STATION #	VELOCITY (FT./SEC.)	TIME (M.SEC.)	STATION #	VELOCITY (FT./SEC.)	TIME (M.SEC.)
2-265	530	11000	200	590	10000	200
		11000	500		11000	500
		11600	800		11300	840
		12600	960		11400	1060
		13000	1120		11800	1300
		13300	1260		12200	1600
		16000	4000		12200	1840
					16000	4000
2-266	430	10000	200	450	10000	200
		11000	500		11000	500
		11700	750		12300	800
		12800	1150		12700	950
		13700	1300		14500	1300
		14000	2000		14500	1950
		16000	4000		16000	4000
	510	10000	200	530	10000	200
		11000	500		11000	500
		12300	800		11400	750
		12700	950		12100	950
		14500	1300		12600	1300
		14500	1950		13300	1750
		16000	4000		16000	4000
	570	10000	200	590	10000	200
		11000	500		11000	500
		12300	800		11300	850
		12700	950		12700	1450
		14500	1300		13200	1800
		14500	1950		16000	4000
		16000	4000			
	690	10000	200	710	10000	200
		11000	500		11000	500
		11300	850		11300	700
		12700	1450		13000	1050
		13200	1800		13600	1700
		16000	4000		16000	4000

STACKING VELOCITIES (cont'd)

LINE #	STATION #	VELOCITY (FT./SEC.)	TIME (M.SEC.)	STATION #	VELOCITY (FT./SEC.)	TIME (M.SEC.)
2-267	410	10000	200	450	10000	200
		10600	550		10600	550
		12000	740		11800	740
		12500	1000		14000	1200
		12800	1300		14900	1600
		12900	1600		16000	4000
		16000	4000			
2-268	440	10000	200	480	11000	200
		11000	400		11250	600
		11250	700		11500	980
		12000	1050		13000	1350
		13000	1450		13600	1700
		13600	1950		16000	4000
		16000	4000			
	530	11000	200	570	9000	200
		11250	600		10000	800
		11500	980		10600	1000
		13000	1350		11700	1350
		13600	1700		12600	1800
		16000	4000		16000	4000
2-269	410	10000	200	480	11000	200
		11000	550		11250	600
		11250	850		11500	980
		12900	1200		13000	1350
		13700	1600		13600	1700
		16000	4000		16000	4000
	530	11000	200	550	9000	200
		11250	600		10000	800
		11500	980		10600	1000
		13000	1350		11700	1350
		13600	1700		12600	1800
		16000	4000		16000	4000

SEISMOGRAPH REPORT ON FORT LIARD AREA

NORTHWEST TERRITORIES, 1976

TO THE

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INTERIM REPORT

PROJECT NO. ~~36-6-4-76~~ 37 037 06 04 147

To accompany statement of Expenditures for work conducted in the period from February 23, 1976 to March 27, 1976.

SHELL CANADA LIMITED

PRODUCING DIVISION EXPLORATION

MAY, 1976

CONTENTS

ENCLOSURES

I. INTRODUCTION

This report is submitted in compliance with the Canada Oil and Gas Land Regulations and relates to the permits listed below and located in the Liard River Area of the Northwest Territories between 60° 00' and 60° 17' north latitude and 123° 00' and 123° 45' west longitude.

II. HISTORY OF LEASES

Shell Canada Limited acquired Leases 19A, 19B, 19C, 19D and 19E, in the Fort Liard Area of the Northwest Territories, by a farm-in agreement from Prairie Oil Royalties Co. Ltd.

Lease numbers 19A, 19B, 19C, 19D and 19E totalling 18,021 acres are grouped under one group L-2. These leases expire in 1982.

III. SEISMIC WORK PERFORMED

A seismic survey was carried out by United Geophysical Co. of America, Party 2. This crew recorded a total of 103 km of C.D.P. (1200%) data. The quality of recorded data ranged from very poor to good.

IV. STATISTICAL DATA

1. Dates: Start up commenced February 23, 1976 with bulldozing equipment. Drilling commenced on March 9, 1976. Recording commenced on March 12. Recording terminated on March 27, 1976.

2. Production:

	Party 493
Meters Surveyed	102660

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Number of Profiles (48 ch.)	892
Average Daily Prod. in Profiles	56
Breakdown of Days:	
Recorder Failure	1
Camp Move	2 days in and 2 days out
Weather	0
Waiting on Drills	0
Production Recording	15

3. Equipment

Geophysical: All wheeled vehicles.

	Party 493
Recording	1 - 4 X 4, F600
Line	2 - 4 X 4, F250
Shooting	1 - 4 X 4, F250
Surveying	2 - 4 X 4, F250
Drilling Trucks	5 - 2 wheel drive
Drilling Rigs	1 Conventional Failing 4 Sewell Augers 2 Water Trucks
Bulldozers	2 Caterpillar D-7 1 Caterpillar D-6
Camps	1 - Trailer Camp - 8 Trailers
Recording Instruments	1 - 48 Channel Sercel 338, 9 Track
Seismometers	Mark Products L25B 10 H_z

4. Personnel:

	Party 493
Geophysical Party	1 Party Manager 1 Clerk/Computer 1 Senior Observer 1 Junior Observer

	Party 2
Geophysical Party	1 Shooter
	1 Shooter's Helper
	2 Surveyors
	2 Rodmen
	3 Cable Unit Drivers
	6 Helpers (Various Categories)
	1 Mechanic
Drill Personnel	5 Drillers
	6 Driller's Helpers
Bulldozing Personnel	1 Foreman
	5 Operators
Camp Staff	1 Cook
	1 Cook's Helper
	1 Camp Attendant

5. Surveying:

Five fourth order triangulation stations were used as the basis for the entire survey. Three stations were located along the N.W.T. - B.C. boundary, another at Fort Liard, and the fifth north of the Liard River. The survey was a transit/chain survey conducted to an accuracy to meet seismic requirements.

6. Conditions:

The entire program was shot in temperatures near the freezing mark. Snowfall was not a problem and the ground stayed firm enough for vehicle use.

7. Communication and Transportation:

Work required 1 trip in and 1 trip out. Helicopter was provided for scouting and to help with line cleanup.

Communication links were set up as follows:

1. V.H.F. communication between camp and Ft. Nelson.
2. In the field: Radio communication between field office recorder units, shooter and geophone trucks.

V. FIELD PROCEDURES

All production seismic data was shot with a split spread geometry into 24 receivers on either side of the shot. The 60 metre receiver spacing coupled with 120 metre shot spacing resulted in 1200% coverage. Sixteen geophones spaced inline 7.5 metres apart were planted for each receiver location. The seismic source for all lines except 2-267 was 10 lbs. of dynamite in single 14 metre holes. Line 2-267 had 30 lbs. in single 14 metre holes.

The recording instrument was a Sercel 338B.

VI. DATA PROCESSING AND INTERPRETATION

At this date the data processing is incomplete. A later report will be submitted detailing the data processing and interpretation in this area.

J H Loftshouse

J H LOFTHOUSE
GEOPHYSICAL PROJECT LEADER