

NORTHCOR ENERGY LTD.

TRAINOR LAKE EXPLORATION AGREEMENT

1983 SEISMIC PROGRAM  
REPORT TO COGLA

**9229 - N 10 - 24**

TRAINOR LAKE, N.W.T.

Lat: 60°00'00" to 60°30'00" N

Long: 120°00'00" to 120°45'00" W

Program Number: 9229-N10-2E  
Operator's Report Name: Northcor Trainor Lake Seismic Program 1983  
Type of Survey: Reflection Seismic  
Survey Locality: Northwest Territories  
Lat: 60°20'00" N, Long: 120°30'00" W  
Year of Field Work: 1983  
Operator: Northcor Energy Ltd., Calgary, Alberta  
Prime Contractor: Sefel Geophysical Ltd.  
Exploration Agreement: Trainor Lake Exploration Agreement  
Author of Report: Empress Exploration Consultants  
Date of Report: March 1984

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ENCLOSURES

Seismic Shot Point Map

Seismic Sections: one pre-fold paper copy

and one film copy for

Lines OSL - 1,2,3,4,5,6,7,8,9

Seismic Maps: one print of Shot Point Map

and one print of Isochronal

Devonian to Slave Point Map

...1..

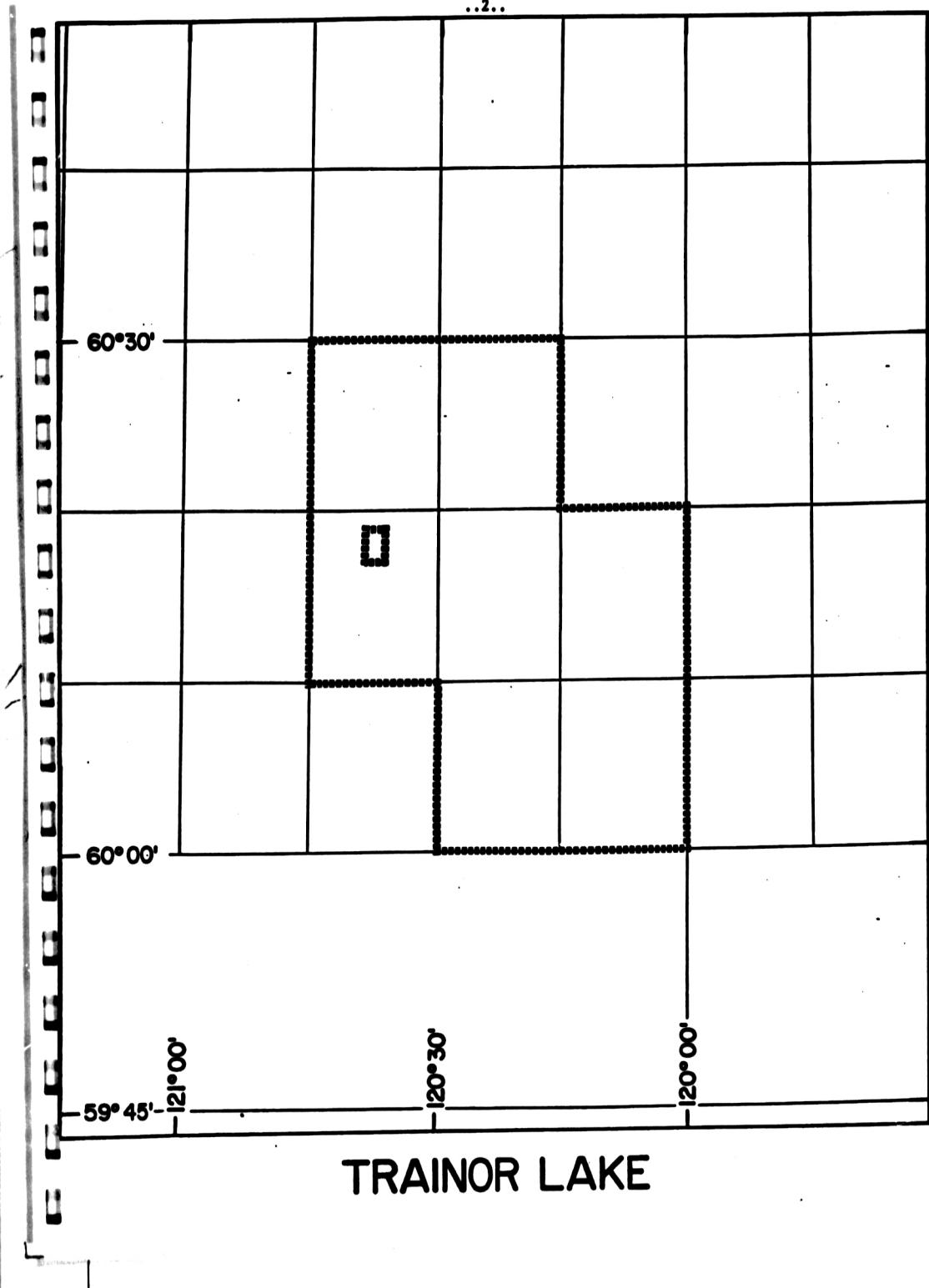
#### INTRODUCTION

Approximately 173 kilometers of conventional, continuous, 1200% CDP reflection seismic coverage were obtained by modern binary instrumentation employing a 1200m-25m x 25m-1200m split spread; the energy source was dynamite loaded into single in-line holes.

The data were obtained during March and April 1983 to delineate general geological conditions of the Area, especially the Slave Point with the specific purpose to plan intelligently a detailed program for 1984.

To this end, an isochronal Top Devonian to Slave Point Map was constructed; a time structural Slave Point Map was not made as previous studies (by other companies) were based upon sections flattened at the Top of Devonian.

..2..



...3..

e) Statistical Summary

Drills mobilized March 13, 1983

Recorders commenced March 16, 1983

Recorders terminated April 2, 1983

Approximately 30 Canadians were involved in the program.

173km of seismic coverage were obtained; no time was lost, and daily production averaged 12km.

Weather conditions were typical for the time of year; the terrain varied from rolling hills to muskeg, with the ground initially well frozen allowing reasonable maneuverability.

f) Description of Data Acquisition, Equipment & Field Procedures

(See attached section label)

energy source/array: 2kg dynamite charge loaded into a single 12m hole, holes spaced at 100m intervals in line of spread.

detector type/array: 10HZ Geospace geophones using an in-line pattern grouping 9 geophones at 3m intervals constituting a symmetrical split spread 1200m-25m x 25m-1200m with group interval of 25m.

recording system: 96 channel MDS-10 instrumentation employing the SEG-B format recording 3 seconds of data at 2ms sample interval. The recording filter was 9/18-125/72HZ.

g) Description of Data Processing

(See attached section label)

1) Seismic Reflection:

- demultiplex with gain recovery, 2ms sample rate
- phase compensation
- spiking deconvolution, 60 ms operator, 1% pre-whitening, window of 300-1300 ms.

## PROCESSING SEQUENCE

- 1 DEMULTIPLEX WITH GAIN REMOVAL  
PROCESSING SAMPLE RATE 2 MS
- 2 CDP TRACE GATHERS 1200 PERCENT
- 3 AUTOMATIC GAIN CURVE APPLICATION
- 4 INSTRUMENT PHASE COMPENSATION
- 5 GEOPHONE PHASE COMPENSATION
- 6 SPIKING DECONVOLUTION  
WINDOW (MINIMUM OFFSET) 300-1300 MS  
(TAPERING WITH OFFSET)  
OPERATOR LENGTH 60 MS  
PREWHITENING 1 PERCENT
- 7 WEATHERING STATICs  
DATUM ELEVATION 700 M ASL  
DATUM VELOCITY 2750 M/SEC  
WEATHERING VELOCITY 610 M/SEC
- 8 VELOCITY ANALYSIS
- 9 NMO AND EDITS
- 10 AUTOMATIC RESIDUAL STATICs  
MAX CORRELATION LAG +-30 MS  
WINDOW 350-1300 MS
- 11 COMMON OFFSET STACK
- 12 RESIDUAL NMO
- 13 AUTOMATIC RESIDUAL STATICs  
MAX CORRELATION LAG +-15 MS  
WINDOW 350-950 MS
- 14 MUTE
- 15 STACK 1200 PERCENT
- 16 WAVE EQUATION MIGRATION
- 17 BANDPASS FILTER
- 18 EQUALIZATION  
WINDOW 300-1700 MS
- 19 FILM DISPLAY  
POLARITY NORMAL  
16 TRACE/IN.  
7.5 INCHES/SEC

GC GEOPHYSICIST T.C.S. DATE JUNE, 1983  
INITIALS

FIELD PARAMETERS	
SHOT BY	SEFEL GEOPHYSICAL
DATE SHOT	PARTY 506
SOURCE	MARCH 1983
SOURCE PATTERN	DYNAMITE
CHARGE SIZE	SINGLE HOLE
GEOPHONE TYPE	2 KG AT 12 M
GEOPHONE FREQ	GEOSPACE
GEOPHONE PATTERN	10 HZ
INSTRUMENTS	9 AT 3 M INTERVALS
FORMAT	MDS-10 96 TRACES
RECORDING FILTER	SEG B
RECORD LENGTH	9/18 - 125/72 HZ
SAMPLE INTERVAL	3 SEC
SPREAD GEOMETRY	2 MS
GROUP INTERVAL	1200-25-X-25-1200
SHOT POINT INTERVAL	25 M
	SHOT POINT INTERVAL 100 M

..4..

1) **Seismic Reflection:** (continued)

- weathering statics; datum 700m, ASL, weathering velocity  
610m/s

- velocity analysis: constant velocity stack every 2½/km.

- normal moveout and edits

- automatic residual statics with surface consistent

- mute pattern:	<u>offset</u>	<u>blank time</u>
	175 m.	0 ms.
	250 m.	250 ms.
	450 m.	450 ms.
	625 m.	550 ms.
	1200 m.	750 ms.

- stack: 1200%

- wave equation migration

- bandpass filter: 12 - 100HZ

- trace equalization: 300 - 1700 ms. window

2) **Gravity**

not applicable

3) **Magnetic**

not applicable

h) **Seismic Shot Point Map**

enclosed

i) one copy pre-fold print and one film copy of processed Sections  
for Lines OSL-1,2,3,4,5,6,7,8,9

j) **Bathymetry:**

not applicable

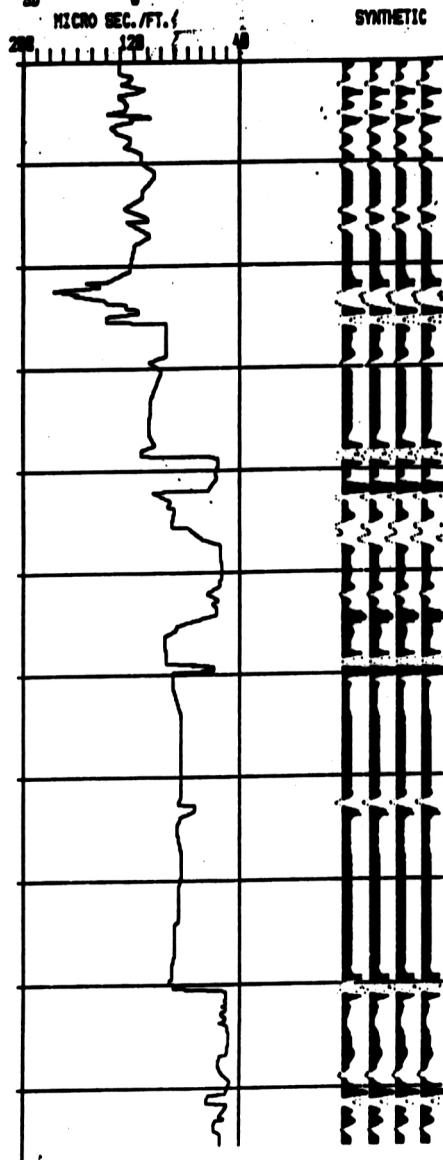
k) **Interpretive Maps**

- isochron of Near Top Devonian to Top of Slave Point

l) **Related Interpretive Information**

- synthetic seismogram for test 0 - 72

SONIC LOG AND SYNTHETIC  
WELL NAME UNION PAN AM TRAINOR B-72  
LOCATION 48 11 48 N 128 13 58 W  
PROV/ST NWT  
1st DEPTH 886  
LAST DEPTH 7100  
ID 2357  
SD 8



80HZ ON  
TF 12000

..6..

Discussion of Sections and Maps

The sections manufactured were of good quality, the full geological column being well represented by both amplitude and definitity. Correlation to the 0 - 72 synthetic seismogram is good.

The Devonian to Slave Point Isochronal Map defines the Slave Point edge satisfactorily. Future work may allow the desired analysis of porosity along this edge, and a Slave Point Structural Map may provide further information.

No conversion to Isopach was deemed necessary.



EMPRESS EXPLORATION CONSULTANTS

per N.E. KLINCK, P. Eng.