

SUMMER 1996 FORT LIARD PROGRAM

FINAL PLAN REPORT

on the

**NON-PROPRIETARY HELIPORTABLE DYNAMITE SEISMIC SURVEY
in
FORT LIARD AREA
N.W.T.**

**PROGRAM #9229-B059-005P
LUP N95B399**

by

B.F.R. GEOPHYSICAL CONSULTANTS LTD.

Duration:	June through August 1996
Contractor:	Geco Prakla
Author:	Philip D. Gregory, Vice President

A handwritten signature in black ink, appearing to read 'Philip D. Gregory', is written over a horizontal line.

Date:	MAY 1, 1998
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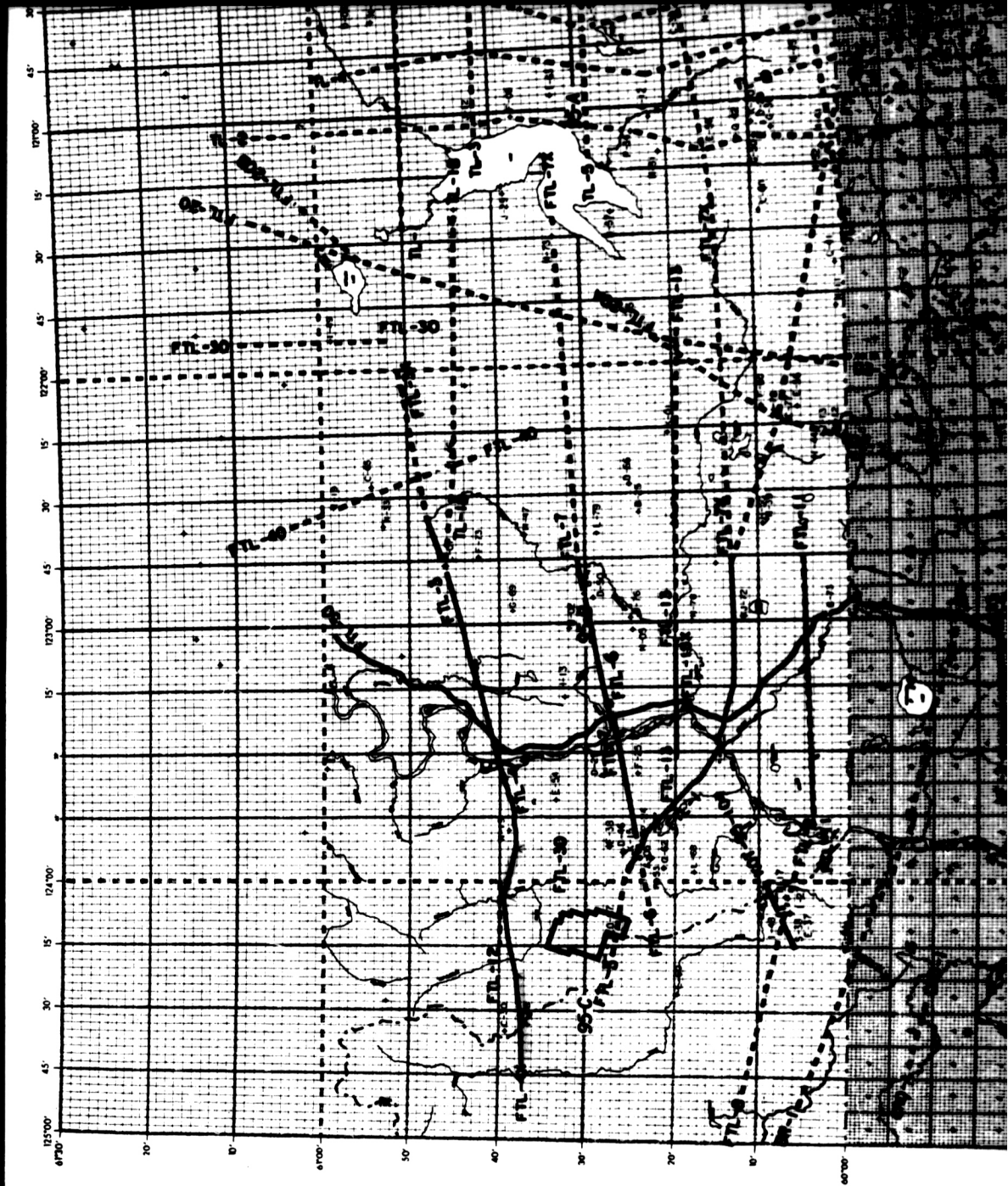
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INTRODUCTION

B.F.R. Geophysical Consultants Ltd. specializes in speculative seismic programs in foothills and frontier areas of Canada. With the lifting of the exploration moratorium in the Ft. Liard area we perceived an opportunity to establish the beginnings of a modern high quality regional grid of seismic .

Using a combination of existing data, access well and geology, we proposed a program that we felt would provide a grid of seismic that would help establish a new geological framework for the area.



STATISTICAL SUMMARY

Significant Dates:

Commencement: June 13, 1996

Start Production: June 29, 1996

Termination: August 6, 1996

Number of Technical Personnel: 70

Number of Non-Technical Personnel: 24

Type and Number of Equipment Used:

- 1 Air conditioned Recording Cabin mounted on an F700 4x4. Separate diesel driven 17 kVA generator supplying power for air conditioning and instrumentation.
- 1 Party Manager Unit - F250 4 x 4
- 1 Line Unit - F350 4 x 4
- 2 Transport units - F700 4 x 4 (or equivalent)
- 1 Support Unit - F250 4 x 4
- 1 Mechanical Unit - F250 4 x 4
- 2 Personnel Carrier
- 1 Battery Charging Unit
- 2 Honda A.T.V. Quads

Statistical Summary con't.

Production Data:

Total Distance Surveyed:

**19.14km West portion under B.F.R. license
SP 2243-3519**

**14.01km East portion under B.F.R. license
SP 109-1043**

**18.0 remaining middle portion was shot under
Husky's license
SP 109-1043**

Time Lost:

Some time was lost due to weather conditions

Daily Production:

FTL-4X

July, 24	7.74
July, 25	3.24
July, 29	1.44
July, 30	3.54
July, 31	3.05
Aug, 01	5.48
Aug, 02	5.64

Total Kms: 51.150

Summary of Conditions Pertaining to Weather and Terrain:

Steep terrain with wet mossy muskeg in low valleys make for some difficulties. Fairly agreeable weather conditions with some high winds, rain and fog.

Summary of Factors Which Caused Down Time:

Advanced crew was shut down for 3.5 days due to high wind, rain and fog.

DATA ACQUISITION EQUIPMENT and FIELD PROCEDURES

Positioning & Survey Systems:

Conventional survey methods were used on all lines. The process involved traversing along the line and surveying in the shot points and receiver stations. Heights were surveyed using trigometric leveling. Error tolerances were within 10m horizontally and 1m vertically. Survey computations were reduced using the Nad 27 datum. UTM values are for Zone 10 using a CM of -123° W longitude.

Control was established using GPS to densify existing Federal government markers.

Repeatability is + or - 10m horizontally and + or - 1m vertically using permit tags to re-establish.

Parameters of Energy Source:	Dynamite 14kg @ 18m
Source Array:	Single Hole
Detector Equipment:	Cable - 400 Channels - Split Spread 6 Geophones per Group 2.5m Geophone Spacing Type OYO 10 Hz
Detector Array:	6 Geophones over 15m
Recording System:	I/O System II SEG-D
Recording Parameters:	
Shot Interval:	90 m
Station Interval:	15 m
Channels:	400

Data Acquisition con't

Far Offsets: 3007.5 m

Near Offsets: 22.5 m

GEOPHYSICAL DATA PROCESSING

FOR SEISMIC REFLECTION DATA:

Gain Recovery:	Spherical Divergence Correction
Bandpass Filter:	10-14-60-70Hz
Mute Pattern:	all offsets
Type of Deconvolution:	Surface Consistent Spiking <ul style="list-style-type: none">- Operator Length : 120 ms- Prewhitening : 0.1 PCT- Design Window:<ul style="list-style-type: none">* 0250-3000 ms @ 15 m* 1300 - 3000 ms @ 3000 m
Type of Velocity Analysis:	Interactive Velocity Analysis
Distance Between Analysis:	N/A - analysis on whole line velocity panels
Picking Method:	Stack panels

STATIC CORRECTION METHOD PARAMETERS:

Statics	Refraction
DRM refraction statics	
Datum elevation	1250 m
Replacement Velocity:	4000 m/s
Iterations	6

Geophysical Data Processing cont'd.

MIGRATION METHOD PARAMETERS:

Finite Difference Migration

Using 90% of V6 NMO velocity

TIME AMPLITUDE DISPLAY METHOD:

Time Variant Scaling:

7 Gates

DISPLAY PARAMETERS:

Horizontal: 50 TPI

Vertical: 7.5 IPS

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LIST OF LINES AND KILOMETERS SHOT PER LINE

FTL - 4X WEST	19.140 km
FTL - 4X EAST	14.010 km
TOTAL	33.150 km

ENCLOSURES

LINE FTL-4X

MYLARS

- 1 Shot Point Map
- 1 DMO Migration Stack Section
- 1 Pre-Stack Time Migration Section

PAPER

- 2 Shot Point Maps
- 2 DMO Migration Stack Sections
- 2 Pre-Stack Time Migration Sections

DISK

- 1 Survey Floppy